GISBORNE DISTRICT COUNCIL – COMMUNITY LIFELINES
APPLICATION FOR OVERFLOW DISCHARGES FROM THE WASTEWATER NETWORK

HEARING REPORT PURSUANT TO SECTION 42A
OF THE
RESOURCE MANAGEMENT ACT 1991

TO:	**HEARING COMMISSIONERS**	**BRENT COWIE: CHAIRPERSON**
		RAURU KIRIKIRI
		PETER CALLANDER
FROM:	**CONSULTANT PLANNER**	**TODD WHITTAKER**
ACTIVITY LOCATION:	**MULTIPLE DISCHARGE LOCATIONS**	
	GISBORNE URBAN AREA	
DATE:	**16 JUNE 2021**	
COUNCIL REF:	**RM190270**	

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1 EXECUTIVE SUMMARY

1.1 Gisborne District Council – Community Lifelines (the Applicant) is responsible for the three waters assets and reticulation networks which serve the Gisborne community. There are existing issues with the discharge of untreated human wastewater from the wastewater network in both wet weather and dry weather events. The Applicant is seeking a 20-year discharge consent for these overflow discharges.

1.2 The wet weather discharges occur as a result of inflow and infiltration of stormwater into the wastewater network. The surcharge within the network is proposed to be managed through discharging the wastewater into local rivers and streams through dedicated overflow discharge points. This is necessary to prevent the wastewater from discharging directly into and over private property.

1.3 Dry weather discharges occur from unforeseen breakages or blockages in the wastewater network.

1.4 The Applicant has provided an extensive amount of technical information on the wastewater network and modelling of overflow discharges, particularly for wet weather events. The application material and AEE identifies key environmental and cultural issues arising from the overflow discharges and the measures available to progressively reduce the frequency, volume and effects of the discharge. The DrainWise Programme is a major project and significant mitigation method adopted and proposed by the Applicant to reduce direct inflow from pipes, gully traps and connections within private properties.

1.5 As part of the application process and also through the DrainWise programme, the Applicant has engaged with tangata whenua and the community in a comprehensive and meaningful manner. This has been a constructive process and supports the broader understanding of the challenges facing the Applicant and the community in resolving the discharge issues.

1.6 The application was publicly notified with 21 submissions received. The majority of submissions oppose the application although there is also recognition that some form of consent is required to address the existing discharge issues. Key concerns raised in submissions are the term of consent, cultural values, human health impacts, ecological effects and issues arising from the specific discharge locations and effects on waterways.

1.7 There are a number of planning instruments and statutory provisions which provide a context and framework for the assessment of the discharge applications. The Tairāwhiti Plan includes specific policy direction in relation to the consent term and both the national and regional policy directives require improvement in the condition and quality of our waterways. There is also a heavy obligation to recognise and provide for the protection of tangata whenua values and to support the role of local iwi and hapu as kaitiaki.

1.8 It is notable that there is provision within the Tairāwhiti Plan for wet weather overflows to be assessed as a Restricted Discretionary Activity. Dry weather overflows are a non-complying activity and any direct discharge to the CMA is also a non-complying activity.

1.9 To help inform this S.42A planning report, expert assessment and technical reviews have been provided with respect to the wastewater network performance and modelling and also in the area of human health and ecological effects.

1.10 The issue of untreated wastewater discharges is a contentious one, and it is very unlikely that any community would freely endorse the continued discharge of untreated wastewater onto land or into local water ways. The overflow discharge is repugnant to tikanga Māori and this is clearly articulated through the KIWA Engagement Report and in opposing submissions.

1.11 As unpalatable as the current situation is, overflow discharges do occur and the issues and challenges arising from these discharges must be addressed. The wastewater network is essential and regionally significant infrastructure and the overflow discharges are, at least in part, a function of the age, condition and location of the network. Any resolution will require ongoing community engagement and transparent monitoring and reporting. In addition, there are financial implications which need to be considered given that the costs of the maintenance and remedial works will involve both public (rates) funding and direct costs to individual property owners.

1.12 The application material focuses on the performance of the wastewater network in heavy rain events which consequently lead to wet weather overflows. There are inherent issues for the modelling of the wastewater network and the representative nature of the model on which the assessment of effects is reliant. Various modelling assumptions are required including the duration and intensity of rainfall, rainfall variation across catchments and how the performance of the system is affected across the whole network. This data is then used to forecast a reduction of inflow and infiltration into the network based on identified maintenance and upgrade regimes while taking into account tidal conditions and other climatic and ground saturation conditions which are all interdependent.

1.13 Ultimately, all models are an abstraction of reality. For wet weather overflows, the wastewater network model is sufficiently detailed and is considered representative of the performance and function of the network.

1.14 There are actual and potential effects from both wet weather and dry weather overflows in terms of water quality, tangata whenua values, human health and ecology. The Applicant has presented an assessment of effects which concludes that these effects are remedied or mitigated taking into account;

- The relatively infrequent nature of the discharge,
- Conditions to progressively reduce the frequency and scale of overflow events,
- Engagement and partnership with tanga whenua,
- Temporal nature of discharge and flushing of contaminants in wet weather events,
- Background water quality of affected water ways,
- Protocols for health warnings actioned when overflow events occur, and
- Response actions to carry out remedial works and clean up for each overflow event.

1.15 The technical peer review identifies some reservations on whether the target of 85% reduction in direct inflow from private property will achieve the performance standard of no wet weather overflows for a 50% AEP at year 10 of the consent. If the 85% reduction target is not achieved, then the Applicant has identified alternative measure to achieve the year 10 standard. The DrainWise Programme is considered to be an appropriate and effective method to engage with the community and to progressively reduce the issues of inflow from private properties.

1.16 Taking into account the application material and the technical peer review, it is considered that the environmental effects of wet weather overflows can be mitigated and managed through stringent conditions. The Applicant has also detailed a set of methods and performance standards to support the transparent monitoring and reporting on the consent. These measures do not satisfy the cultural concerns raised by tangata whenua and there are also outstanding issues surrounding the term of consent and whether the identified performance standards provide an adequate level of improvement and/or mitigation.

1.17 Dry weather overflows can be considered discretely as they are not a function of heavy rainfall events. There are measures and protocols which the Applicant can adopt to reduce the likelihood of dry weather overflows including proactive management and cleaning to reduce risk of blockages, community education and dedicated protocols to ensure that the network is maintained and upgraded to reduce the risk of dry weather events. The Applicant is already carrying out much of this work and has response protocols in place.

1.18 It is considered that dry weather overflows should not be consented as an ongoing, necessary or acceptable discharge. A term of 10 years is considered appropriate for dry weather overflows with an eradication strategy to be adopted into the consent conditions. This position is supported by the non-complying activity status of dry weather overflow discharges and the ability of the Applicant to manage the risk of overflows.

1.19 I do not support a consent term to 5 years as requested by tangata whenua and other submitters. In my opinion this will be counterproductive and is unlikely to facilitate positive outcomes over the medium to longer term.

1.20 While the Applicant has proposed a set of conditions to support a 20-year consent for wet weather overflows, I consider that more detailed and stringent conditions are required. These should include more explicit standards to measure the performance of the network and the reduction of overflows with additional performance standards for progressive improvement over years 10 to 20. The Applicant has proposed monitoring, reporting and review conditions and a tangata whenua reference group. These conditions are supported in principle however further refinement of these conditions is also recommended. The final conditions will also need to take into account the performance and condition of the wastewater network and also the funding which is required from the community to resolve the wastewater discharge issues.

1.21 In my opinion, the Commissioners are obliged to grant consent given that the overflow discharges are an existing issue which requires affirmative action and resolution. I support the granting of consent with a 20-year term for wet weather discharges and a 10-year term for dry weather discharges. The consent term will need to be considered and determined alongside conditions that can ensure and achieve positive environmental, cultural and community outcomes over the medium to long term.

2 INTRODUCTION

Ko Taranaki tōku māunga.
Ko Bell Block Beach te moana.
Ko ngati pakeha te iwi.
Nō Tauranga ahau.
Ko George rāua ko Loma ōku mātua.
Ko Todd Whittaker tōku ingoa.

2.1 This report has been prepared by Todd Whittaker. I am an independent planning consultant and Director of Planning Works Limited. I have a Bachelor of Resource and Environmental Planning from Massey University, 1994 and I am a full member of New Zealand Planning Institute (NZPI). I have 27 years of professional experience in the resource management field and have previously served on the Board of the NZPI.

2.2 I have read and complied with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 in preparing this report. I agree to comply with it in presenting this report and any evidence at the hearing. The opinions and assessment within this report are within my area of expertise, except where I have stated my reliance on other identified evidence. I have considered all material facts that are known to me which might alter or detract from the opinions I express in this evidence.

2.3 In preparing this report, I have taken into account the independent technical reports and advice received from;

- Simon Aiken – Three Waters Engineering
- Juliet Milne – Environmental Scientist

3 REPORT STATUS

3.1 This report is a S.42A planning report prepared under the Resource Management Act 1991 (RMA) and provides an independent assessment and recommendation on the discharge application.

3.2 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 all other technical evidence and submissions which have been received to the application. It does not have greater weight than any other material or submissions which may be presented and considered by the Commissioners.

4 PROPOSAL

Introduction

4.1 Gisborne District Council – Community Lifelines (the Applicant) has lodged an application for overflow discharges from the existing urban wastewater network which serves the Gisborne community.

4.2 There is a substantive amount of material presented in the application which sets out the background and context to the application. This includes the nature of the existing wastewater network, the issues facing the network in terms of inflow and infiltration, the nature, extent and effects of discharges from wet and dry weather events and the measures which the Applicant is adopting to progressively reduce the frequency and scale of overflow events.

4.3 The application material and additional information responses include comprehensive technical analysis and material in terms of the wastewater network modelling, rainfall intensity data and predictions, modelling of theoretical discharge events and effects on water ways and on human health.

4.4 To gain a full understanding of the proposal, it will be necessary for the Commissioners to review the application material and additional information. Therefore, the following summary is only presented in order to provide a broad level understanding of the application which then leads into the resource management issues to be addressed as part of the hearings process.

Wet Weather and Dry Weather Overflows

4.5 The Applicant operates the urban wastewater system and has lodged a resource consent application for the discharge of untreated wastewater from this network. These discharges occur by way of wet weather overflows (when the wastewater network is overloaded by rainwater in heavy rain) and dry weather overflows (which occur when there is a malfunction or blockage in the network). Overflow discharges already occur from time to time and consent is sought on the basis of the DrainWise Programme and other measures to progressively reduce the frequency and volume of overflows and to manage the actual and potential adverse effects. The Drainwise Programme is a significant works programme with the Applicant working with private landowners to identify and resolve inflow and infiltration issues within the private pipes and connections which join into the public wastewater network.

4.6 In heavy and/or prolonged rain, the wastewater network may overflow as a result of too much stormwater entering the system. The technical work completed by the Applicant identifies the main sources of stormwater as floodwaters flowing over or getting into gully traps, roof water being piped straight into private gully traps or leaky private wastewater pipes from private property. Overflow valves are manually operated and opened when necessary which directs these wet weather overflows (a mixture of stormwater and wastewater) to local rivers and streams. This is necessary so that wastewater does not back up and overflow onto private property.

4.7 Dry weather overflows are the second type of overflow. In theory, these can occur anywhere on the network, depending on where a blockage or problem occurs. Blockages often result from people putting foreign objects, hand wipes or material such as fat into the wastewater network. Dry weather overflows are generally smaller and occur for a short period of time.

4.8 The Applicant discusses and summarises recent overflow events to illustrate the scale and intensity of wet weather and dry weather discharges as follows;

Wet Weather Events[1]

It is important to note that overflow frequency and performance is not directly comparable from year to year as it is rainfall event related – overflows will occur more often in years with a larger number of heavy rainfall events and less often in years with fewer heavy rainfall events. However, some overall conclusions can be drawn on the basis of this information over the past 14 years:

- *There has been a maximum of four overflow events in any one year, and several years where only one wet weather overflows occurred;*
- *The average number of overflows per year is approximately 2.5;*
- *The average volume of overflow (from 2011 to 2019 where information is available) is 28,000 m3; Total annual wastewater volumes have reduced over time (Figure 7); and*
- *Assuming a ratio of 4 parts stormwater to 1 part wastewater [12], approximately 7,000m3 of wastewater is discharged in an average overflow event.*

[12] *This is based on a pipe size of five times ADWF; this is precautionary as modelling has shown the pipe sizes to have a capacity of 6 times ADWF or more.*

Dry Weather Events[2]

Table 6: Dry Weather Events

Financial Year	Dry Weather Events	Number of Events That Reached Water
2015/16	12	3
2016/17	9	2
2017/18	9	1
2018/19	4	1
2019/20	2	2
Total	**36**	**9**

4.9 The Applicant proposes a regime of progressive improvement in terms of reducing inflow and infiltration into the network and other capital upgrades to reduce the frequency and scale of discharge over the proposed term of consent. The key performance standard is to achieve no overflow up to and including a 50% AEP rainfall event within 10 years for wet weather overflows. Dry Weather overflows are subject to conditions to manage the network and limiting overflows to unforeseeable events.

[1] 4sight Gisborne Wastewater Network AEE dated 17 June 2020, pg.19
[2] Ibid, pg.27

Discharge Locations

4.10 The wastewater network includes a number of dedicated discharge points which have been purpose designed to relieve surcharge within the network in wet weather overflow events and to prevent the overflow of untreated wastewater onto private property. The location of the overflow points are shown on the map in **Appendix 1** and these are only operated as necessary and in sequence – primary (P1 on the map) are opened first, then secondary (P2). Tertiary overflow points (P3) are anticipated to be rarely used. The Applicant has recently advised that there will be works to some existing discharge locations (Seymour/Turenne Street) to address some concerns raised in submissions and this will affect the final overflow point locations. The Applicant will present this updated information as part of their evidence.

4.11 The application material also provides the following details of the overflow discharge points[3] and a detailed description of the river and stream network is set out in the Ecological Effects Report included as Appendix H to the application.

Table 2: Primary, Secondary and Tertiary Overflow Points

Category	Street Name	Asset Code	Easting[5]	Northing
Primary Overflow Point	Wainui Road	WNUIDO005	2037659.42	5707953.16
	Seymour/Turenne	SEYMDO015	2039016.11	5708096.55
Secondary Overflow Points	Palmerston Road/Peel Street	PALMSO003	2037498.91	5708376.11
	Oak Street	OAK_SO074	2036347.09	5710062.17
Tertiary Overflow Points	Oak Street	OAK_SO080	2036346.60	5710057.28
	Lytton Road	LYTTSO045	2035240.87	5710498.71
	Childers Road	CHILSO264	2035080.77	5709303.76
	Stafford Street	RUSSSO001	2038219.38	5708824.47
	Derby Street	DERBSO001	2037424.05	5708825.96
	Fitzherbert Street	FITZDO115	2037565.64	5708371.24

4.12 The network also includes *scour valves* which provide access for maintenance purposes to the network and these are also shown on the plan in Appendix 1. The Applicant has clarified that the scour valves are not discharge locations as part of the additional information response[4];

> *The scour valves shown in Figure 4 of the application/assessment of environmental effects (AEE) are access points to the network for maintenance and repair - they are not formal overflow points. While the sampling protocol (Appendix G), hydrodynamic modelling (Appendix J) and water discharge volume (Appendix K) reports appended to the AEE refer to overflows from the scour valves – these are not those scour valves indicated in Figure 4. These reports should more correctly refer to wet weather overflow discharges, with Appendices K and J modelling overflow discharges via the primary and secondary overflow points during specified (50% and 10 % AEP) rainfall events.*

[3] Ibid, pg.10
[4] 4sight letter dated 29 January 2021, pg.2

Consent Term and Mitigation Measures

4.13 The Applicant is seeking a 20-year consent term, subject to conditions of consent that;

- Integrate the DrainWise Programme alongside other works and management actions to progressively reduce overflows to a practicable minimum;
- Ensure the system is designed and operated to best practice;
- Continue to respond appropriately to overflows when they occur; and
- Monitor and report performance.

4.14 The primary method to mitigate or avoid effects is to progressively reduce the frequency and volume of overflows to a practicable minimum through the DrainWise Programme. This pogramme is already underway and involves the inspection of existing wastewater and stormwater connections on private properties and working with the landowners to fix and resolve direct inflows and infiltration into the public network. This process involves close engagement with individual landowners and there can be issues with the willingness and ability of some landowners to pay for the costs of any remedial works.

4.15 The Applicant has set out draft conditions which they consider will support the granting of consent[5]. These include conditions for monitoring of the consent, establishment of a tangata whenua group to recognise the importance of the wai and the exercise of kaitiakitanga by Māori, and provision for annual and 5 year reporting. The Applicant has also proposed a number of measures to manage the effects of overflows as they occur, for example response protocols advising people not to swim or take shellfish when water is affected by overflows and works teams for any land based discharge. These are further discussed in Section 9 of this report.

Technical Reports and Information

4.16 The Applicant has provided technical assessments of the actual and potential effects of the wastewater overflows on the community and the environment. The broad nature of adverse effects from overflows identified by the Applicant include:

- Water quality: primary water quality concerns are faecal contamination and, to a lesser extent, nitrogen and phosphorus imputs;
- Human health: health risks mainly arise through contact recreation (eg swimming) and shellfish harvesting/ consumption in affected waters; and
- Cultural and social values: wastewater overflows are unacceptable to Tangata Whenua - overflows encroach upon fundamental principles of customary social and spiritual rights and practices and affect the mauri of waters.

[5] 4sight Gisborne Wastewater Network AEE dated 17 June 2020, Section 9

4.17 Along with the original AEE and set of technical appendices which formed the original application material, two bundles of additional information have been presented in response to further information requests. The bundles and additional information supplied are;

- 4sight letter dated 29 January 2021 and series of attachments which address/provide:
  - Clarification of dry and wet weather events and terminology of point discharges;
  - Response to queries on modelling of wastewater network and discharge events;
  - Response to queries on some technical reports and provision of more information on dry weather overflows;
  - Discussion on 20-year term;
  - Response to matters relating to site specific discharge areas; and
  - Assessment of NPS Freshwater Management 2020.

- GDC Response dated 21 April 2021 and series of attachments which address/provide:
  - Further clarification of technical queries in relation to wastewater network;
  - Further discussion of storm events and flooding areas; and
  - Clarification of population projections.

85% Reduction Target for Inflow and Infiltration

4.18 An important and underlying premise in terms of the Applicant's assessment of effects is that there will be continued upgrading of the wastewater network to achieve an 85% reduction of the inflow volume from private property. This is a key assumption in terms of achieving the assessed reduction in frequency and volume of wet weather overflow events and underpins much of the technical assessments in terms of ecological and potential public health effects.

4.19 The Applicant has confirmed and clarified through the information responses that this 85% reduction target is anticipated to be achieved primarily through the DrainWise Programme. However, if the inflow works on private property do not achieve the 85% reduction, then the Applicant will adopt other measures such as additional storage to achieve the performance targets over the term of the consent. The Applicant has advised and clarified this as follows[6]:

> *The wastewater modelling indicates that removal of 85% of the direct inflow is required to achieve a 2-year ARI wet weather containment standard (no overflow in rainfall events up to the 50% AEP) with minimal network upgrading. However, the application is not predicated on this level of direct inflow reduction being achieved. As discussed in Section 2.3.3 of the AEE, the wastewater network modelling (Appendix C of the AEE) has also considered lesser levels of inflow reduction (65 and 75% of direct inflow) and the corresponding network upgrades that are required to achieve the target wet weather containment standard. Accordingly, these upgrades are an option to achieve the target of no wet weather overflows in a 50% AEP rain event – if 85% stormwater inflow cannot be removed.*

[6] 4sight letter dated 29 January 2021, pg.2

In summary, Council is seeking to progressively reduce stormwater inflow and infiltration into the network and undertake other measures to achieve no wet weather overflows in a 50% AEP rain event within 10 years. This is a key target of the consent. While Council is confident that this can be achieved, primarily through stormwater inflow (and infiltration) reduction, it has the option of carrying out additional wastewater network upgrades should this be necessary.

Consultation and Engagement

4.20 The Applicant has undertaken consultation with the local community, tangata whenua and stakeholders. The Application material outlines the engagement process[7] and includes a *Report of Tangata Whenua Engagement*[8] (KIWA Engagement Report) prepared by local hapu and iwi. It is noted that much of the consultation process was undertaken in terms of the resource management application process. The Applicant is also liaising with affected property owners through the DrainWise Programme and also on the funding of the programme through the Long Term Plan process.

[7] 4sight Gisborne Wastewater Network AEE dated 17 June 2020, Section 7.
[8] Ibid, Appendix L

5 REASON FOR APPLICATION

5.1 The application is for the point source discharge of untreated wastewater from the existing public reticulation network, during wet weather and dry weather overflow events. The Applicant has advised that for the avoidance of doubt, the application relates solely to overflows from the wastewater system which services the Gisborne Reticulated Services Area including any new wastewater network which is constructed within this area. It does not relate to wastewater from other areas, for example Te Karaka (which has its own wastewater system), or the discharge of wastewater from the Gisborne Wastewater Treatment Plant.

5.2 The following rules of the Tairāwhiti Plan and activity status provisions apply to the proposal;

Rule 6.2.3(10) of Part C6 Freshwater Section	*Point Source Discharges of Untreated Sewage Resulting from Overflows from wastewater reticulation and pumping stations not meeting the Permitted Activity standards provided that the applicant has prepared an Assessment of Environmental Effects (AEE) that addresses each component required in F1.4.2 of this Plan.*	Restricted Discretionary Activity
Rule 6.2.3(15) of Part C6 Freshwater Section	*The discharge of wastewater via a pumping station or network overflow in dry weather conditions.*	Non Complying Activity
Rule 2.6.2(6) of Part D General Coastal Management Area	*Except as provided for in the Resource Management (Marine Pollution) Regulations 1999 and Rule DC2.6.2(5) or DC2.6.2(7), any discharge of human sewage into the Coastal Marine Area:* *a) Is a **non-complying activity** where the discharge occurs in an estuary or inlet, or within 1000m from the shoreline (MHWS).*	Non Complying Activity

5.3 It is important to note that Rule 6.2.3(1) made provision for the discharge of untreated wastewater from the network as a permitted activity with this rule being subject to a finite time period as follows;

> *Point Source Discharges of Untreated Sewage Resulting from Overflows from wastewater reticulation and pumping stations during wet weather events until **1 July 2020.***

5.4 Rule 6.2.3(1) only relates to wet weather overflow events and it is understood that dry weather overflows have occurred without consent with emergency and response protocols in place to respond to these situations as they have occurred.

5.5 In terms of the Restricted Discretionary Rule 6.2.3(10), criteria are provided which limit the scope and nature of matters which can be assessed in determining the application and any conditions.

5.6 The assessment criteria are;

Restricted discretionary	Council shall restrict discretion to the matters a) to g) specified below: a) The location of any future discharges where the overall quantity and effects of those discharges have been assessed, but their precise location had not been specified in the application for consent; b) The effects of the discharge of contaminants from the wastewater network, after reasonable mixing in the relevant receiving environment; c) The programme of works, services and other methods adopted to prevent or minimise the actual or potential adverse effects on the environment from diversions and discharges; d) The matters listed in Policy C6.2.1(8); e) Monitoring, reporting and review requirements; f) Consent duration; g) Administrative fees and charges.

5.7 Rule 6.2.3(10) is reasonably broad and the linkage to Policy C6.2.1(8)[9] further extends the assessment of effects such that there is little practical limitation on the assessment of effects, even if the constraints of a Restricted Discretionary application are applied. The policy criteria are listed as follows:

> ***C6.2.2.8*** *When considering applications to discharge contaminants directly to land or water, assessment criteria are:*
>
> *a) The total contaminant load of the discharge [composition/flow rate] and how the water quality will be maintained within the limits for the waterbody, in a manner consistent with achieving the objectives;*
>
> *b) The proposed treatment methods and the likelihood of this being the Best Practicable Option for the contaminants;*
>
> *c) The need to provide for a high standard of pre-discharge treatment for Scheduled waterbodies and where water quality limits for a waterbody have been exceeded or are likely to be exceeded, or water quality objectives are not met;*
>
> *d) The actual or potential impact on any values of scheduled waterbodies;*
>
> *e) The assimilative capacity and an allowance for reasonable mixing in the waterbody;*
>
> *f) The need to safeguard the life-supporting capacity of the waterbody;*
>
> *g) The potential for bio-accumulative or synergistic effects;*
>
> *h) The actual or potential risk to human and animal health from the discharge;*
>
> *i) The measures to reduce the quantity of contaminants to be discharged;*
>
> *j) The mauri of the receiving waterbody and any other values placed on the site by tangata whenua;*
>
> *k) The need to avoid exacerbation of flooding risk;*
>
> *l) The need to avoid erosion of the banks or bed or land instability at or downstream of the discharge point.*

5.8 The Applicant has also emphasised that an application under Rule 2.6.2(6) has only been made out of an *abundance of caution*[10]. The Applicant states that there are no known discharges to the CMA and none are proposed and that this component of the application has only been included to cover any unlikely event which could result in a discharge to the CMA.

[9] It appears that the correct linkage reference is C6.2.2(8) *Policies for point source discharges*, as there is no C6.2.1(8).
[10] 4sight Gisborne Wastewater Network AEE dated 17 June 2020, pg4.

5.9 While there is no direct discharge to the CMA, it is noted that a primary wet weather overflow discharge point (Wainui Road) is located just upstream of the road bridge. The boundary of the CMA has been defined in the Tairāwhiti Plan as the oceanside edge of the road bridge and is shown in **Figure 1**. Therefore the overflow point is very near the boundary of the CMA[11].

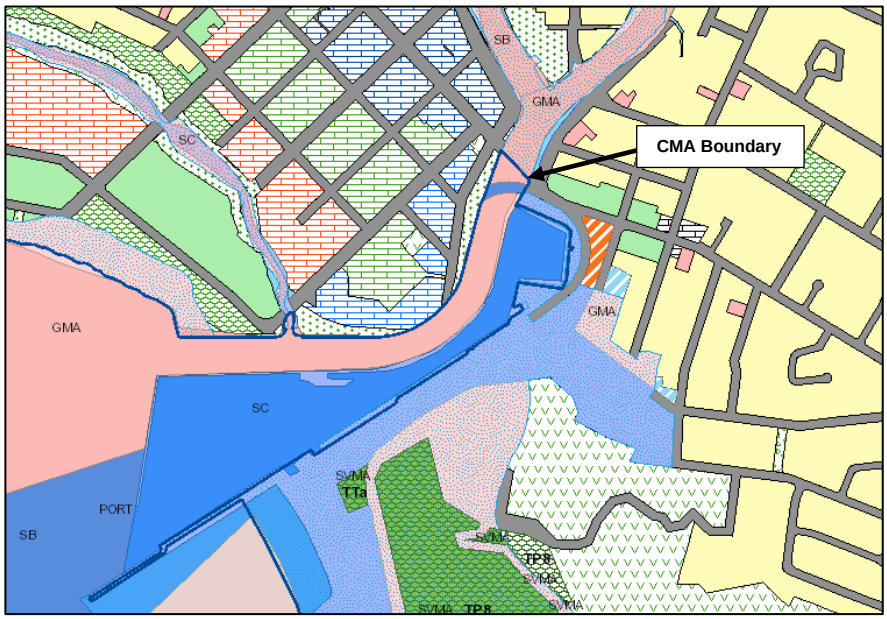

Figure 1: Planning Map and Location of the CMA Boundary

5.10 Overall, the application has a **non-complying** activity status being the highest order activity status applying to the activity. In this case, there are no restrictions in terms of the matters which may be considered in the assessment and determination of the application.

[11] I note that the CMA is defined in Section 2 of the RMA as 1km upstream from a river mouth or 5 times the width of the river mouth, whatever is the shortest upstream distance. The river wall within the Tūranganui River to protect the port and marina basin complicates the application of the RMA definition for the CMA and it appears that the road bridge has been adopted as a practicable boundary position.

6 NOTIFICATION AND SUBMISSIONS

6.1 The Applicant requested that the application be publicly notified to ensure there was a full opportunity for the community to review the nature of the proposal and to be involved with the hearing process. In addition, an extended submission was provided to ensure that there was sufficient time for the community and stakeholders to make submissions.

6.2 Following the submission period which ended in September 2020, 21 submissions were received to the public notification process.

6.3 Three of the submissions (Gibson, Ministry of Education and Tairāwhiti District Health) partially support the application, or accept that a consent is necessary, subject to conditions. The main issues raised in the *supporting* submissions include;

- Concerns and criticism on DrainWise Programme and reliance on reduction of inflow and infiltration (however a consent will allow scrutiny and monitoring of assumptions),
- Scepticism over public engagement programme and that the Applicant is seeking consent to authorise the discharges,
- Effects of discharge on and around school sites needs to be carefully considered and effects mitigated,
- Consideration should be given to reducing the consent term, and
- Long term goal should be to have no discharges, and conditions need to ensure a high level of reporting and transparency to inform the community of progress.

6.4 The remaining submissions oppose the application however there is also an acknowledgement in some submissions that a discharge consent is necessary, and the concerns relate more to the proposed 20-year term of consent and the conditions to mitigate the effects of the discharges. These main concerns raised in discussion include;

- Applicant's funding priority and commitment to reduce discharges,
- Proposed 20-year duration of Consent,
- Inconsistency with the Tairāwhiti Plan, particularly around the term of consent,
- The Applicant should have been more proactive in managing and reducing overflows and iwi have been raising issues since the 1990s,
- A five year consent term (or less) may be justified as an alternative to the proposed 20-year term,
- The Applicant must work towards an elimination goal for any discharges, a longer-term consent will not achieve this outcome,
- Failure to recognise and provide for the relationship of tangata whenua with their tupuna awa,
- Support for the KIWA Group as part of any consent if the discharge is approved,
- Concerns over the recommendations made by the KIWA Group and whether these have had a meaningful impact or influence over the application and mitigation measures,
- The goal must be elimination of the discharges,

- Scope and lack of clarity around effects of dry weather discharges – these discharges should not be included in any consent,
- Effects of dry weather overflows can be significant, as the discharges stay around for longer and effects are more concentrated,
- Concerns over limited nature of solutions assessed and put forward to resolve or avoid overflow discharges,
- Concerns and questions around the use of ANZECC guidelines and alignment of the application with the National Policy Statement o Freshwater Management (NPS-FM),
- Specific recommendations on conditions including maximum volume of discharge, term, funding, monitoring and the status and role of the tangata whenua reference group,
- Specific concerns on the discharge location, including Seymore Road, Turenne St, and Graham Road,
- Specific concerns around Ilminster School and stream boundary
- Overflows need to be managed to avoid impacts on private property, overflow events can lead to self-evacuation and significant disruption to residents,
- Overflow discharges impacts on the waterways and reduce public use and enjoyment of the rivers and streams,
- Increasing rainfall will lead to more overflow events,
- Need to ensure a review of the DrainWise Programme is undertaken and that the community is involved with the monitoring and review of any consent conditions and outcomes,
- Lack of appropriate assessments on public health and recreational use of waterways,
- Concerns over the localised impacts and need for discharges and provision for local reference groups to raise and address localised issues of discharge locations,
- Concerns over health, smell and visual effects of overflow events
- Inconsistency with The Tairāwhiti 2050 Spatial Plan,
- Concerns over ecological effects, water and land,
- Lack of appropriate consultation and engagement with the community,
- Concerns over clarity of plans

6.5 It is noted that Ngati Oneone was not able to finalise their submission before the formal submission closing date. The Applicant advised that they had no objection to the acceptance of the submission and this submission has therefore been accepted.

7 PRE-HEARING MEETING

7.1 A pre-hearing meeting was held on 23 March 2021. This provided an opportunity for the Applicant to discuss the application and also the additional technical information which had been presented.

7.2 The meeting was a constructive process and a number of submitters attended and were able to discuss specific aspects of the proposal which were of concern to them. The Applicant accepted an invitation to meet with some submitters in terms of location specific discharge points and also advised that they would be working with stakeholders and submitters further in the lead up to the hearing.

7.3 Minutes from the pre-hearing are provided as **Appendix 2**.

8 STATUTORY PROVISIONS

8.1 Section 104 of the RMA requires that the Commissioners have regard to the following matters;

- Any actual and potential effects on the environment of allowing the activity,
- National, regional and district planning instruments, and
- Any other matters the consent authority considers relevant and reasonably necessary to determine the application.

8.2 As a non-complying activity, the threshold tests of S.104D apply to the application and this test must be satisfied before a full assessment and determination under S.104 is undertaken.

8.3 Section 105 of the RMA specifies specific matters which must be assessed as part of a discharge permit or coastal permit. These are

- the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and
- the applicant's reasons for the proposed choice; and
- any possible alternative methods of discharge, including discharge into any other receiving environment

8.4 Section 107 of the RMA imposes restrictions on the issue of discharge consents and the nature of conditions which can be imposed.

8.5 The statutory requirements are discussed and assessed in more detail in the following sections.

9 ACTUAL AND POTENTIAL EFFECTS

9.1 I have identified the following topics which I consider are appropriate in terms of assessing the actual and potential effects of the proposal. Prior to discussing the effects of the discharges, I present some context to the assessment of effects and the modelling of the wastewater network and the technical material reviewed.

Assessment of Wastewater Network and Modelling of Effects

9.2 The application material includes a significant amount of technical reporting on the existing wastewater network, modelling of the network under various environmental conditions in wet weather events, assumptions and modelling on the nature and effects of discharges and includes projections for population projections and rainfall changes.

9.3 To help inform this S.42A report and to provide independent analysis of the application material, Mr Simon Aiken has been engaged to review the application material and technical modelling and has prepared a technical memo which has helped to inform my assessment and recommendation on the application (*Wastewater Network Technical Review*) – refer **Appendix 2.**

9.4 As acknowledged within the application material and as discussed in the *Wastewater Network Technical Review*, there are inherent issues with quantifying the nature of any discharge event and providing an assessment of effects based on future modelling scenarios[12]. This is not to suggest that there are flaws or omissions within the application material. However, it is appropriate to recognise the inherent challenges that exist in understanding the performance of the wastewater network across the entire urban area and how this responds to different rainfall events over varying durations and intensities.

9.5 The Applicant has identified that wet weather overflows are primarily a function of the inflow from private pipes and connections. Therefore, the DrainWise Programme is promoted as the primary method to reduce the amount of inflow. An 85% reduction of direct inflow is required to achieve the performance target of no wet weather overflows in a 50% AEP storm event with other alternative methods adopted in case an 85% reduction is not realised.

9.6 There are important assumptions and variables across the modelling work which will ultimately affect the success of the methods set out to measure the reduction target. The *Wastewater Network Technical Review* discusses these in some detail and some of the key points made in this review are;

- While there are some data and modelling issues for the network, as is typical in any wastewater model, there is sufficient asset data and a robust approach to modelling to reliably represent the wet weather performance of the wastewater network,
- The flow monitoring shows that the network is subject to significant direct inflow (fast response),
- The DrainWise Programme is an effective and appropriate method to work with the community to address issues of inflow from the private property,

[12] 4sight Gisborne Wastewater Network AEE dated 17 June 2020, pg24 and 25.

- A prioritised set of network improvements and more rigorous conditions should be imposed to support a 20-year term and consent for wet weather overflows, and
- An eradication strategy should be adopted for dry weather overflows.

9.7 Overall, the *Technical Wastewater Network Review* supports consent being granted to the wastewater overflows however some reservations on the modelling of the network are identified. The review remains more circumspect on whether the DrainWise Programme will achieve the full 85% reduction in direct inflow required to meet the 50% AEP target. If this reduction is not achieved, then the Applicant will be required to adopt other measures such as upgrading of the network with additional storage to achieve the performance standard.

9.8 It is also important to note that the vast majority of the technical work presented in terms of the performance of the wastewater network concerns wet weather overflows and how the network responds to various heavy rain events. The dry weather overflows may in theory occur in any part of the network as a result of a serious malfunction, blockage or damage to the network. However, the Applicant can reduce the risk of dry weather overflows through robust monitoring of the network and responsive measures to maintain and upgrade the network.

Positive Effects

9.9 The resource management process provides for the assessment of any positive environmental effects. In this case, the discharge of untreated wastewater does not have any positive effects in itself. However, the current application and hearings process will enable the opportunity to address and remedy existing issues and environmental effects with the overflow discharges. In this regard I note;

(i) The Applicant is committing to a process of progressive improvement to address the issues with overflow discharges with high levels of community input and scrutiny;

(ii) Conditions can be imposed to ensure transparency in the monitoring and progress of achieving performance standards with the ability to review standards over the term of consent;

(iii) The consent provides a statutory framework to manage the issues of wastewater overflows which commits the Applicant to achieve the identified outcomes which will support and help secure priority and funding through the Council's annual and long-term planning processes; and

(iv) The consent enables and supports the role of tangata whenua to work with the Applicant in partnership and to share the responsibility and challenges in achieving positive outcomes for the awa and for the local community.

9.10 While recognising these potential effects and outcomes, I also fully acknowledge that all parties to the application, including the Applicant, tangata whenua, members of the community and stakeholders would prefer a *no discharge* scenario, thereby avoiding any adverse effects through the elimination of wet and dry weather overflows. This may ultimately be a long-term goal however until this can be a reality, a robust and comprehensive discharge consent with clear performance standards and monitoring is both a necessary and appropriate response.

Term of Consent

9.11 In my opinion, it is difficult to look past the issue of the consent term as one of the key issues in contention for this application. I therefore consider that it is appropriate to address this upfront and to discuss how the context of the consent term influences the conditions and vice versa

9.12 The applicant has sought a 20-year term and has discussed this in the original AEE (Section 8.15) as well as in response to matters raised in the submission. The Applicant's position on the term is as follows[13];

> *The rationale for, and appropriateness of, a 20-year term is outlined in section 8.15 of the AEE. In short, the Gisborne wastewater network is fundamental public infrastructure and a lifeline utility, with a replacement value of $161m, that provides for the essential conveyance of wastewater from the Gisborne urban area for treatment and safe disposal. In our view, essential public infrastructure should be subject to long term consents to reflect their essential and enduring function, particularly where effects can be appropriately managed through consent conditions (as is the case here).*
>
> *It is acknowledged that wet and dry weather overflow discharges from the network are not desirable. However, they are an inevitable consequence of having a wastewater network that has been developed, extended and refined over a period of more than 100 years. We note that, as demonstrated in Section 2.6 of the AEE, the dry and wet weather overflow performance of the Gisborne wastewater network is already currently on-par with the better performing councils nationally and the DrainWise programme will substantially reduce stormwater ingress and improve wet weather overflow performance.*
>
> *As is detailed in Section 8.15, requiring a short-term consent is a 'blunt instrument' by which to manage adverse effects, and will not necessarily lead to better outcomes for the community. Having to frequently reconsent the discharge, even when the overflow reduction programme is on target, will direct expenditure and resource away from resolving problems 'on the ground' to further investigations, assessment and substantial consenting costs.*
>
> *In our view, a term of 20-years is consistent with the essential function and scale of the network, the confidence that is held on the causes of and solutions to overflows and the time necessary for the programme to be implemented in a way that is affordable to the community. Effects can be managed through suitable consent conditions.*
>
> *Importantly, the cost of remedy of the primary causes of the overflow will rest with homeowners, as the primary cause of the overflows is the responsibility of homeowners (it is on private property). Council has taken a compassionate approach to its community, and set its compliance and enforcement process to be delivered over a ten year timeframe so that the financial burden is affordable for homeowners.*

[13] 4sight letter dated 29 January 2021, pg.9

In respect of the priority afforded to the project in Council's Long Term Plan (LTP), the wastewater network, including the DrainWise programme and capital investment in the network, have been subject to the same prioritisation processes as other areas of Council expenditure. Council has carefully considered its functions and expenditure across a range of critical areas, the impact of potential rate rises on its community and its ability to debt-fund long term infrastructure – noting that the predominant source of stormwater ingress is on private property.

Council has also carefully considered the implications of public expenditure on private property drainage assets through its Infrastructure Improvement on Private Property Strategy (IIOPPS) to ensure that it has achieved an appropriate balance between public and private investment in resolving on-property drainage issues.

Overall, Council considers that it has given appropriate priority to reducing wastewater overflows and the expenditure and the balance between public/private responsibility was agreed with the community through the LTP.

9.13 The 20-year term is opposed by multiple submitters, including tangata whenua. It is apparent that there is a level of scepticism and concern from some submitters that granting a 20-year consent will effectively license the Applicant to an inappropriate and offensive discharge. These parties consider that an extended term will not provide the necessary or sustained impetus to fully resolve the discharge issues. Concerns are expressed that a longer term will only provide a business-as-usual approach.

9.14 With respect to tangata whenua, the opposition to the 20-year term is also founded on the concerns and adverse effects identified in the KIWA Engagement Report. The Ngati Oneone submission outlines some of the key issues specific to tangata whenua and the 20-year term as follows:

Ngati Oneone oppose the consent application. The reasons for this opposition are detailed as follows:

Length of consent

a) A 20-year consent is sought. This is contrary to Policy C6.2.2.9 in the Tairāwhiti Resource Management Plan ("The Plan"). This policy was put in The Plan as a result of the decisions made by the Commissioners at the Proposed Freshwater Plan Hearings. This was due to submissions made by iwi about how unacceptable the discharges were culturally and the long history of lack of action on the wastewater discharges from the Council.

b) A 20-year consent is a concern given the long history of inaction on an issue which was identified as a specific concern by iwi in the 1990s when the Regional Policy Statement was notified. If the Council has another 20-year consent (effectively a continuation of their previous Permitted Activity) there is a high risk that a change in priorities from the Council will mean that insufficient action is taken to eliminate the discharges. At this point in time we have no confidence that with a 20-year consent the Council will proactively work at speed to eliminate the overflows.

c) Policy C6.2.2.9 identifies that overflows need to reduce before a longer consent could be considered. We are concerned that neither the application nor AEE indicate the timeframe that Policy C6.2.2.9 requirements will be met.

d) A 5-year consent as opposed to a 20-year consent, will encourage the Council to ensure that maximum effort is taken to reduce overflows, as is intended by the Policy.

9.15 The term of consent is a difficult issue and the respective positions put forward by the Applicant and opposing submitters each have merit which will need to be carefully considered and examined by the Commissioners. I very much anticipate that the term will be a matter for further evidence and submission to the Commissioners as part of the hearings process.

9.16 In my opinion, the way forward is to critically evaluate the term and conditions of any consent collectively. If the conditions establish a robust framework to ensure a progressive and improving environmental, cultural and public health outcome, with a high degree of transparency and monitoring/reporting, then a longer term is appropriate. This can set a clear path and direction to lock in positive outcomes, and can then also act as a driver to ensure that funding is allocated and prioritised to achieve the conditions and environmental outcomes promoted within the consent.

9.17 The distinction between wet and dry weather discharges needs thorough consideration. In my opinion, it will be appropriate to consider different terms based on the final set of conditions applicable to the respective discharges. A 20-year term for the wet weather discharge will require additional conditions on the performance of the network and proposed works to reduce inflows and infiltration. Fundamentally, I also consider that the performance standard of 50% AEP at year 10 needs to be tested to ascertain whether this is an appropriate target or whether more stringent targets are feasible. In addition, I consider there should be a clear set of progress targets for year 10 to 20 in order that the principle of progressive improvement is sustained and achieved over the full term of consent.

9.18 In terms of dry weather events, it is my opinion that the Applicant needs to demonstrate that they have adopted all practical and best practice methods to manage the potential risks of dry weather events. This includes regular maintenance and inspection of the wastewater network and ensuring that contingency measures are in place for any foreseeable breakdowns or equipment failure. The Applicant already has various monitoring and upgrade protocols in place and the wastewater network also has four times capacity in the local network and six times dry weather flow capacity in the trunk mains which represents a best practice standard to hold a surcharge when a malfunction or blockage occurs.

9.19 In my opinion, any consent for the dry weather overflows should be granted within a context of an eradication strategy. There does not appear to be a valid position to consent dry weather overflows as an ongoing or necessary by-product of the wastewater network when much of the risk of dry weather overflows can be managed by the Applicant. In my opinion, a 10-year consent would allow the Applicant sufficient time to work towards this objective. After that time, if a discrete set of residual dry weather overflows are identified as still necessary, then these may be subject to a further consenting process.

Human Health

9.20 Clearly there are actual and potential public health effects which can arise from the overflow of untreated wastewater. These effects can occur both through an overflow onto or over land and also into waterways where human contact can occur through recreation and food gathering activities.

9.21 The Applicant has presented a large body of technical assessment and modelling work for wet weather overflows. As discussed, less assessment has been completed in terms of dry weather events. This is reflective of the nature of dry weather events which can potentially occur in any part of the wastewater network.

9.22 I acknowledge the work completed by the KIWA Engagement Group and the presentation of methods such as the mauri compass to enable an assessment of health effects through a Maori context or lens.

9.23 Ms Juliet Milne has been engaged to provide a review of the public health and ecological effects of the proposal and her assessment is presented in the *Ecological and Human Health Technical Review* in **Appendix 4**.

9.24 From my review of the technical evidence and reporting presented in the application material, matters raised in submissions and from the technical review, I consider that the following matters are relevant and provide a planning context to the assessment of public health effects;

- The frequency of overflow discharges is low based on recent data and the Applicant is committing to a process of progressive improvement to reduce the frequency and volume of overflow discharges,
- It is clear that the Applicant and the community would much prefer a situation where overflow events were avoided in their totality. However, this is not a reality in the short to medium term unless there is an unlimited funding source to effectively upgrade and eliminate the overflow discharges,
- If overflow events are not managed through dedicated discharge points, then private properties will be affected by untreated wastewater discharging through low points in the network including gully traps and manholes,
- The managed discharge approach provides for monitoring of effects and protocols to actively manage overflow discharges with modelling of the likely catchment and area which may give rise to public health effects,
- The Applicant has completed a Quantitative Microbiological Risk Assessment (QMRA) adopting conservative assumptions to model the effects of pathogens from the overflow discharges (2 and 10 year ARI). This concludes that there is a low risk or below NOAEL (No Observable Adverse Effects Level) for contact recreation and a low to high risk for consumption of raw shellfish,
- The *Ecological and Human Health Technical Review* overall supports the findings and assessment in relation to public health effects and supports the continued protocols to be actioned around public heath warnings and management of the exposure sites when wet weather discharges occur,

- There is limited amount of assessment of dry weather effects and the Applicant's assessment is based established actions to respond to discharge events as they occur. In addition, on-going maintenance and monitoring of the network is required as a preventative measure to reduce the risk of dry weather discharges.
- The *Ecological and Human Health Technical Review*identifies outstanding issues with the information on dry weather overflows and has reservations regarding a consent term for longer than 10 years.

9.25 In my view, the discharge of untreated wastewater into waterways or onto land is not a situation which is acceptable to any community. The expectations that all overflow discharges should be eliminated is fully understandable although this may ultimately come down to a funding issue and how the community decides to prioritise this outcome over other community projects and works.

9.26 I am satisfied that public health effects can be mitigated and managed to an appropriate degree and that the Applicant has already developed methods to manage the effects from wet weather discharges which are both appropriate and effective. However, there is a need to provide more robust conditions across any wet weather discharge consent including measurable performance standards and monitoring outcomes.

9.27 In terms of dry weather discharges, it is difficult to quantify the nature and scale of any environmental effects as these will be determined by the location and nature of the specific event. I consider that the Applicant will need to demonstrate that it has adopted all practical and effective measures to reduce the risk of a dry weather overflows and that an eradication strategy should be tied to the consent. In practice this would require the Applicant to proactively identify foreseeable risks in terms of maintenance and mechanical breakdowns and to have contingencies in place to avoid dry weather overflows as far as practicable.

9.28 I note that the Applicant already has maintenance and monitoring programmes in place and therefore much of the work and response protocols are already in place. The issue which needs to be addressed is that the current wording and approach within the conditions would allow dry weather overflows to be sanctioned with limited scrutiny of what constitutes a foreseeable mechanical breakdown or maintenance issue. In my opinion, this may enable a *business as usual* approach to dry weather overflow discharges which is not an appropriate outcome for the community.

9.29 In addition, if there are ongoing or multiple overflow discharges from one component or section within the network, then this should necessarily have increasing priority to be permanently addressed and resolved.

9.30 I note that the Applicant cannot be held to account for matters which are outside its control such as damage to the network by a third-party action or significant environmental event. These events can need to be addressed through emergency works procedures and responses.

Cultural Values

9.31 The cultural concerns of tangata whenua must have their own voice in this application and hearings process and I do not wish to interpret cultural concerns through a pakeha lens. As a professional planner I am required to address cultural issues as part of the issues to be assessed through this application process.

9.32 Fortunately, the concerns and position of tangata whenua have clearly been articulated and presented both through the KIWA Engagement Group Report and through submissions. In my opinion the Applicant and local iwi and hapu should be commended for the constructive engagement and partnership which has allowed for an open dialogue and understanding of the challenges arising from the overflow discharges. From the breadth and detail contained within the KIWA Engagement Report, it is clear that the Applicant and iwi and hapu have invested significant time and resources into this project.

9.33 The KIWA Engagement Group Report summarises the cultural concerns and issues as follows[14];

- *The practice of allowing wastewater overflows is unacceptable to Tangata Whenua - it encroaches upon core fundamental principles of customary social and spiritual rights and practises, and it affects them deeply spiritually, socially, and culturally.*
- *Wastewater overflows produce significant negative effects for Tangata Whenua, directly impacting on key regulatory cultural practises, rendering it near impossible to apply fundamental processes that would return the waterbody to a safe balanced state.*
- *While the presence of human wastewater within a natural water environment is repugnant to Tangata Whenua ethics and values, the addition of mortuary wastewater is absolutely abhorrent both physically and spiritually.*
- *Tangata Whenua consider themselves unable to effectively fulfil their role as kaitiaki in terms of wastewater overflows into the city's rivers.*
- *While GDC's proposed reduction in wastewater overflows is considered as a step in the right direction, Tangata Whenua will continue to object to wastewater overflows, the desire being to work with Council to achieve total elimination of wastewater overflows.*
- *There are many non-wastewater issues that affect Tangata Whenua with negative cultural impacts, including broader catchment issues, land transformation and developments, the effects of colonisation, a lack of governance structure and process that fully realise true partnership, participation, and protection. None of these issues reduce any of the wastewater concerns identified through this process.*

Te-Whanau-a-Kai reviewed the above bullet point and provided the below:

- *There are many non-wastewater issues that affect Tangata Whenua with negative cultural impacts, including broader catchment issues, land transformation and developments, the ongoing effects of colonisation, a lack of governance structure and process that that fail to recognise the Treaty of Waitangi. These issues have little effect on the wastewater concerns identified through this process.*

9.34 The above concerns are unequivocal and are further supported by the submissions received from Ngati Oneone, Rongowhakaata Iwi Trust, Te Aitanga a Mahaki Trust, and Nga Ariki Kaiputahi Iwi.

[14] Gisborne Wastewater Network AEE, Appendix L, pg ii.

9.35 The KIWA Engagement Group Report follows on with recommendations for the project;

- *The KIWA Group provided the following key recommendations:*
  - *Tangata Whenua need to be engaged on an ongoing basis moving forward, in a meaningful, authentic, and practical manner; this engagement reports reflects the Tangata Whenua the position at a point in time, and systems need to be put in place to ensure changes over time are addressed.*
  - *All possible avenues must be explored to bring forward the DrainWise Implementation Programme, including seeking alternate sources of funding and approaching the Trust Tairāwhiti (formerly the Eastland Community Trust), and involving Tangata Whenua in those discussions*
  - *Tangata Whenua should be provided with opportunities to work alongside Council to resolve these issues.*
  - *Monitoring related to wastewater overflows should be reviewed to include cultural elements, and make the monitoring relevant to kaihoe waka, shellfish gathering, and other Māori resource-use practices*
  - *Current public health monitoring procedures and locations should be reviewed to make sure they adequately capture health risks.*
  - *Management protocols related to dry and wet weather overflows should be reviewed by the KIWA Group, integrating tikanga aspects such as the placement of rahui and other processes. o Tangata Whenua need to be kept informed on the DrainWise Implementation Programme, and be given opportunities to input.*
  - *Projects to improve te mauri should be identified, rectified (implemented) and then ongoing protection provided.*

9.36 It should also be recognised in terms of the cultural values and opposition to the wastewater discharges that the waterways are subject to statutory acknowledgments and iwi management plans. The statutory acknowledgements provide additional recognition to the cultural values of sites of significance and have been recorded in the Application AEE as follows:

Ngāti Porou statutory areas are:

- *Tūranganui River and its tributaries (to the extent that this area is within the area of interest), upstream of the coastal marine area.*
- *Waimata River (as a tributary of the Tūranganui River) to the extent that this area is within the area of interest), upstream of the coastal marine area.*

Rongowhakaata statutory areas are:

- *Tūranganui River within Rongowhakaata area of interest.*
- *Taruheru River within Rongowhakaata area of interest.*
- *Waimata River within Rongowhakaata area of interest.*
- *Waikanae Stream within Rongowhakaata area of interest.*

Rongowhakaata coastal marine area within Rongowhakaata area of interest.

- *Ngai Tāmanuhiri statutory areas are:*
- *Ngai Tāmanuhiri coastal marine area; and Part Waipaoa River (including Karaua Stream)*

9.37 The recommendations put forward in the KIWA Engagement Report are discussed in the Applicant's AEE and the conditions put forward to support the granting of consents. Given the opposing submissions from local iwi and hapu, it is apparent that the proposed conditions do not go far enough to satisfy the iwi and hapu submitters and there is very much an outstanding issue in relation to the term of consent.

9.38 Although I have not been raised with tikanga Maori, I have been involved with a number of resource management cases which have impressed on me the essential connection of tangata whenua with their awa and the deeply held responsibility for care and protection of natural resources (kaitiakitanga). I am also mindful of the melding of ancestral connections with natural landforms and awa.

9.39 All these matters and principles are embedded in the statutory provisions applying to the application, including the provisions of the Tairāwhiti Plan and the National Policy Statement for Freshwater Management 2020. Therefore, a high threshold exists for any discharge into a waterway and in the case of untreated human waste, the sensitivity and depth of cultural values is a significant challenge.

9.40 In my view, the most appropriate environmental outcome will come from all parties working together on a set of robust and stringent conditions which progressively reduce the frequency and volume of any overflow discharges. This will support a longer term of consent which provides certainty to all parties on the outcomes which must be achieved and in what timeframe these must be delivered.

9.41 In my view, the submissions requesting a 5-year term may well lead to counterproductive outcomes in that the Applicant will not be able to commit to long term performance targets. A recurring cycle of consenting will require significant time and resourcing and ultimately may place uncertainty around the outcomes which are acceptable to the community and for which the Applicant is held to account.

Water Quality and Ecological Effects

9.42 As discussed above, the Applicant has presented a substantial amount of technical information on water quality and ecological effects based on the modelling and performance of the network and then modelling of discharges from the identified discharge points. Less assessment and discussion are presented in terms of the effects of dry weather overflows.

9.43 The Gisborne urban area is located around the confluence of two main rivers, being the Waimata River and the Taruheru River which combine to form the Tūranganui River. The Waikanae Stream forms the third significant tributary and flows into the mouth of the Tūranganui River. The water ways are located within the Gisborne Urban Freshwater Management Unit GU-FMU which forms part of the provisions of the Tairāwhiti Plan. The Tairāwhiti Plan includes the following management values for the GU-FMU in Figure DF1.21;

Freshwater Values being Managed For	
Prominent values identified	Other values identified
Human health (swimming)	Mahinga kai
Fishing	Natural form and character
Transport and tauranga waka	Wai tapu
Ecosystem health	Mauri

Figure DF1.21 – Freshwater values being managed for

9.44 The Tairāwhiti Plan then sets out narrative and numeric objectives for the GU-FMU in Figure DF1.22 (see over page). There are also water quality limits and targets in relation to temperature and suspended sediments.

Attribute	Narrative Objective	Numeric Objective
Dissolved oxygen - **INTERIM OBJECTIVE**	Occasional minor stress on sensitive organisms caused by short periods (a few hours each day) of lower dissolved oxygen. Risk of reduced abundance of sensitive fish and macroinvertebrate species.	Summer (1 Nov -30 April) DO 1 day minimum ≥ 5mg/L, (B Band) based on sampling at least monthly during daylight hours) Summer (1 Nov -30 April) DO 7-day mean minimum ≥ 5.0mg/L, (C Band) the mean value of 7 consecutive daily minimum values based on continuous sensor monitoring for at least one week.
	In the Waikanae Stream and Awapuni Moana, moderate stress on a number of aquatic organisms caused by low dissolved oxygen levels for several	Summer (1 Nov -30 April) DO 1 day minimum ≥ 4mg/L (C Band) based on sampling at least monthly during daylight hours
	hours each day. Risk of sensitive fish and macroinvertebrate species being lost.	Summer (1 Nov -30 April) DO 7-day mean minimum ≥ 5.0mg/L, (C Band) the mean value of 7 consecutive daily minimum values based on continuous sensor monitoring for at least one week.
Nitrate toxicity – **INTERIM OBJECTIVE**	High conservation value system. Unlikely to be toxicity effects on even the most sensitive organisms	Nitrate Annual median ≤1.0mg/L (A Band) Nitrate Annual 95th Percentile ≤1.5mg/L (A Band) Both calculated from monthly samples over a 5 year rolling period
	In the Awapuni Moana some growth effect on up to 5% of species	Annual median ≤2.4mg/L (B Band) Annual 95th Percentile ≤3.5mg/L (B Band) Both calculated from monthly samples over a 5 year rolling period
Ammonia toxicity – **INTERIM OBJECTIVE**	80% species protection level: Starts impacting regularly on the 20% most sensitive species (reduced survival of most sensitive species).	Ammonia Annual median ≤1.3mg/L NH4 –N/L (C band) Ammonia Annual Maximum ≤2.20 mg/L NH4 –N/L Both calculated from monthly samples over a 5 year rolling period
Enterococci	People are exposed to a low risk of infection (less than 1% risk) from contact with water during activities with occasional immersion and some ingestion of water (such as wading and boating).	Annual median ≤ 280 cfu/100mL Annual 95th percentile ≤ 500 cfu/100mL Median and 95th percentile values both calculated from monthly samples over a 5 year rolling period
Physical habitat	Physical habitat, riparian margins and flow are modified but provide areas for some invertebrates and birds, and for some native fish species to spawn and live. Habitat primarily provides for less sensitive species such as shortfin and longfin eel (tuna) and inanga, including inanga spawning habitat in the side streams of the Taruheru River and Waikanae Stream.	
Clarity	Moderate levels of visual clarity during normal flows.	Visual Clarity in freshwater streams ≥ 0.5m at times when river flow is less than the median flow.
Fish	A range of generally less sensitive native fish species live in the waterways , as well as estuarine species and marine species which move into the rivers at high tide. The rivers remain a national stronghold for long finned eel (tuna).	
Birds	The estuarine environment supports a range of native wading species, including migratory birds.	

Figure DF1.22 – Gisborne Urban Water Quality Objectives

9.45 The key matters arising from the Applicant's assessment of water quality effects, the matters raised in submissions and the *Ecological and Human Health Technical Review* are as follows;

- The water quality of the existing water ways is heavily influenced by land use in the upstream catchments and also from urban discharges,
- The Applicant has invested significant resources into the characterisation of background water quality and the effects of wet weather overflow,
- There are significant challenges in modelling wet weather overflow events across various discharge locations and taking into account multiple environmental conditions and factors including rainfall, river flow, tidal and wind conditions,
- Background water quality will remain impacted by upstream land use activities and discharges from the urban area, and
- Dry weather discharges can be managed through response protocols and actions however discharges that enter smaller tributaries will have more significant effects, particularly if they occur during summer low flows,
- The effects on the coastal waters of Poverty Bay will largely be mitigated by the temporal nature of any discharge and the significant dilution and dispersal which will occur.

9.46 In my opinion, it is safe to conclude that the adverse effects on water quality in wet weather overflows can be remedied and/or mitigated through the conditions of consent and that the overall condition of the waterways is more a function of upstream land use and other discharges from the urban area. This is not to suggest there are no adverse effects and it is essential that any consent for the wet and dry weather overflow discharges actively and progressively reduces the frequency and volume of discharges. In addition, with the national direction on water quality and management, greater effort is required to promote the health and wellbeing of water bodies. It is my opinion that there will be increasing pressure on all three water asset owners to progressively mitigate and remedy the wastewater discharges from existing networks.

9.47 In terms of dry weather overflows, even a small volume discharge in dry weather to a river would likely make the water unsafe for recreation and a worst-case large volume discharge in summer could be lethal for aquatic life. The Applicant has appropriate response protocols that can be employed to manage the effects of dry weather overflows and it is important to acknowledge that the dry weather overflows are infrequent and temporary in nature. In my opinion, the Applicant should be required to adopt an eradication strategy for dry weather overflows in terms of matters which are under its control.

Discharge Locations

9.48 There are issues and concerns raised in submissions regarding specific discharge locations and also in relation to areas which are used and accessed by school children. There are actual and potential effects such as smell, waste deposits, response activity and potential restriction of access to areas following an overflow discharge.

9.49 It is understood that the Applicant has been proactively working with property owners and the Ministry of Education on site specific concerns and this may result in additional works to upgrade some of the existing discharge locations. In my opinion, the Applicant has been very responsive to any concerns which have been raised and has demonstrated a genuine commitment to address the issues raised where these can be addressed through practical upgrades works. The Applicant has also advised that they will provide an update on any works proposal as part of their evidence to the hearing.

9.50 In my opinion, the Applicant has proposed effective conditions in terms of the protocols and actions which will be undertaken in the event of an overflow discharge. The specific response and remedial works will be dependent on the location and scale of any overflow discharge.

9.51 In terms of dry weather overflows, it appears that the nature and type of effects is very difficult to quantify. If for example, a sustained dry weather overflow occurs on land or into a tributary with low flow, as has occurred previously, then the extent of environmental effects will be more significant and more difficult to remediate. The adverse effects on surrounding property owners may also be more significant in terms of odour. These are all the more reasons to ensure that the Applicant adopts all practical and best practice measures to identify, manage and communicate any risks of dry weather events.

Natural Values and Character

9.52 In my opinion, the wet weather overflows will have a minor effect in terms of the natural values and character of the waterways. The discharges are short term events, and the waterways have low to moderate character values given their urban location and the impacts of man-made activities including modification to the riparian margins, structures and other discharges.

9.53 The wet weather overflows will discharge into Poverty Bay and a significant amount of modelling data has been presented in terms of the likely dispersion and dilution of the wastewater discharge. The *Ecological and Human Health Technical Review* supports the assessment and conclusions regarding the ecological effects of the wet weather overflows as minor based on their temporary nature and the significant dilution and dispersion which will occur.

Mitigation Measures and Conditions

9.54 I have discussed throughout this report that the scope and effectiveness of any consent conditions is critical to achieving positive environmental and cultural outcomes and will be a key determination of the term of consent.

9.55 While I would not normally consider how an Applicant will fund any mitigation methods or works to give effect to a consent, in this case the mitigation and resolution of the overflow discharges will come at a direct cost to the community, both in terms of rate funding and also through direct costs to private landowners for remedial works on their own properties. In my opinion, this is a relevant factor to be taken into account in setting the conditions and it is appropriate to recognise that there is not an unlimited funding source to resolve the overflow discharge issues.

9.56 In my opinion, the Applicant has provided a credible framework for conditions to support the granting of consent for both the wet weather and dry weather discharges. However, there are clearly outstanding issues raised by tangata whenua and other submitters in relation to the term of consent and whether the conditions will deliver an acceptable level of environmental and cultural outcomes. I encourage the parties to this hearing to work constructively on the conditions and to endeavour to work towards agreed performance standards which can achieve positive outcomes over the medium to long term.

9.57 It may be necessary for the Commissioners to provide some direction on the term in order that a final set of conditions can be formulated and aligned to the term of consent. The Applicant is seeking a 20-year term for both wet weather and dry weather overflows and their prospered conditions are framed to support this term with annual and 5-year monitoring and key performance standards specified at year 5 and year 10.

9.58 If the Commissioners are mindful to only grant a term to 5 years, as requested in submissions from tangata whenua and others, then this will necessarily affect the framing of performance standards and monitoring conditions.

9.59 To help with the consideration of conditions, I have prepared a schedule of matters which the technical review team and myself support and a framework for the conditions that we consider are both necessary and appropriate to support a longer consent term. The schedule is provided as **Attachment 5.**

9.60 The underlying principles and matters which should be addressed as are follows with further details provided in the attached schedule:

<u>Wet Weather Overflows</u>

- The key performance standard for wet weather overflows is no overflows in a 50% AEP rainfall event to be achieved by year 10. The question arises whether it would be possible to achieve the target of no discharges in a larger rainfall event, or whether it would be possible to increase priority to the DrainWise programme to bring forward the target year,
- There is an absence of progressive improvement targets after year 10,
- In terms of the five-year reporting, it would be advantageous for this to include a public presentation and engagement,
- Further details and prioritised lists of specific improvements are necessary,
- Further detail is required around the operational and response plans, and
- Increase specificity around the reporting and monitoring of overflow events and response actions.

<u>Dry Weather Overflows</u>

- Adopt an elimination strategy for dry weather overflows with the exception of events arising from unforeseen events which are outside the control of the Applicant, and
- More specificity around the monitoring of the network and measures to reduce the risk of dry weather overflows.

10 NATIONAL POLICY STATEMENT AND STANDARDS FOR FRESHWATER MANAGEMENT 2020

National Policy Statement for Freshwater Management 2020

10.1 The National Policy Statement for Freshwater Management 2020 (NPS-FM) is to be considered in accordance with S104(1)(b) of the RMA and replaces the earlier NPS which was first introduced in 2014 and amended in 2017.

10.2 The NPS-FM seeks to establish a national framework for the management of freshwater which gives effect to Te mana o te Wai with direct input and decision making by tangata whenua and prioritising the health and well-being of water bodies.

10.3 With the relatively recent introduction of the NPS-FM 2020, most regional council and statutory bodies are still in a phase of considering how the NPS-FM will be implemented and how tangata whenua and local communities can fulfil their anticipated roles and responsibilities under this new policy directive.

10.4 Gisborne District Council is yet to carry out a review of the Tairāwhiti Plan in terms of the latest NPS-FM however the existing plan has been reviewed in terms of the earlier 2014 version of the NPS. Therefore, the current NPS-FM must be considered directly and not through the implementation of the national policy direction into the regional and district plan instruments.

10.5 The Applicant has presented an assessment of the NPS-FM as part of the further information received on 29 January 2021. This sets out an assessment of the discharge proposal against the provisions of the NPS-FM and also notes that further legal submissions will be made on the relationship of the NPS-FM with the application. Part of the concluding comment from the Applicant is as follows:

> *As has been described above, the wastewater network is essential regional infrastructure and a lifeline utility that is fundamental to the social, economic and cultural well-being of the Gisborne community. The Application provides for the ongoing operation of this network, subject to a range of management and maintenance requirements and a programme of progressive improvement which collectively ensure overflows and associated adverse effects are managed to a practicable minimum, in accordance with the requirements of the Act, the NPS-FM 2020 and the TRMP[15].*

10.6 The NPS-FM has also been raised in some submissions with questions raised regarding the impacts on cultural values of the proposed discharge and whether the proposal is consistent with the NPS-FM.

[15] Additional Information response, 4sight letter dated 29 January 2021, Appendix H, pg 9.

10.7 There are many contemporary issues facing the management of water resources in New Zealand, including the capacity and role of local councils to manage three water assets and the current reliance on rating/tax systems to provide funding for asset management, upgrading and renewal. The current reform of resource management legislation and local government functions may also have significant ramifications for the future management of water resources, and clearly, the NPS-FM establishes a new national direction for the protection of water resources with adoption of tikanga Maori values.

10.8 I have reviewed the NPS-FM and provide my assessment against the objective and each policy before providing my conclusions below.

NPS-FM	Assessment
2.1 Objective *(1) The objective of this National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises:* *(a) first, the health and well-being of water bodies and freshwater ecosystems* *(b) second, the health needs of people (such as drinking water)* *(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.*	On face value, the application for the discharge of untreated wastewater from the wastewater network does not sit comfortably with ensuring the health and well-being of water bodies. However, the discharges are an existing challenge for the Applicant and the community. The Applicant has identified and committed itself to a process of progressive improvement which takes into account the funding implications for the community and the ability of landowners to pay for remedial works on private property. While I acknowledge and understand the call for more priority and funding to negate the issue of overflow discharges, the Applicant will need to balance this priority with many other community priorities, many of which also affect the lives and health and safety of the community. In my opinion, granting consent subject to very clear performance standards and monitoring conditions, which includes high levels of transparency and community input, is an appropriate way forward and one which is aligned to the NPS-FM.
Policy 1: *Fresh water is managed in a way that gives effect to Te Mana o te Wai.*	Given the Gisborne District Council is yet to review the Tairāwhiti Plan to give effect to the NPS-2020, it is difficult to be definitive in terms of how the discharge application aligns with Te Mana of te Wai (captured in the objective above) and the new national policy direction. Certainly, it is clear from the KIWA Engagement Report and from submissions, the mixing of untreated wastewater is unacceptable to tangata whenua. There are calls for any consent term to be significantly less than that requested by the Applicant and that the objective must be to eliminate wastewater overflows into the rivers and streams, and the CMA.

	The Applicant has proposed consent conditions for performance standards to achieve continuous improvement by reducing the frequency and volume of overflow events. It is considered that this is aligned with the principle of prioritising the health and wellbeing of water although there are outstanding issues in terms of the priority and degree of environmental improvement which is proposed by the Applicant.
Policy 2: *Tangata whenua are actively involved in freshwater management (including decision-making processes), and Māori freshwater values are identified and provided for.*	In my opinion, the Applicant has undertaken a comprehensive consultation and engagement process with tangata whenua. This has included the preparation of the KIWA Engagement Report. The Applicant also sought public notification with an extended submission period to facilitate wide public input into the process which followed on with the holding of a pre-hearing meeting. The Applicant has also proposed conditions to form a Tangata Whenua Reference Group as part of the consent conditions. I note that the submissions from tangata whenua and the KIWA Engagement Report call for more participation and partnership in the management of natural resources, and issues are raised with the lack of decision-making roles[16].
Policy 3: *Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.*	In my opinion Policy 3 has limited relevance to this particular application and is more directed at plan and policy making processes. The discharges are a function of the condition and location of the existing wastewater network. Specific methods and measures are proposed to address and reduce the effects of the discharge which are discrete from other initiatives and policies for catchment wide land use and water quality policy. It is relevant in terms of human health risk that the technical information presented by the Applicant and in the technical review regard the existing background water quality in wet weather as already compromised, strengthening the case for integrated catchment management, including considering stormwater alongside wastewater.
Policy 4*:* *Freshwater is managed as part of New Zealand's integrated response to climate change.*	This policy is also more associated with the plan and policy making process. The Applicant has modelled the performance and function of the wastewater network based on increased rainfall and storm events.

[16] AEE Appendix L - KIWA Engagement Report, pg i and pg 37.

Policy 5: *Freshwater is managed through a National Objectives Framework to ensure that the health and well-being of degraded water bodies and freshwater ecosystems is improved, and the health and well-being of all other water bodies and freshwater ecosystems is maintained and (if communities choose) improved.*	The Tairāwhiti Plan will need to be reviewed to give effect to the NPS-FM 2020 however the existing provision set out both narrative and numeric objectives based on the earlier version of the NPS-FM. These standards have been assessed and reviewed as part of the AEE and also in the technical review. I also acknowledge that the Applicant is proposing review processes to adopt any new standards into the consent should these be incorporated into the Tairāwhiti Plan.
Policy 6: *There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.*	The proposed discharge will not affect the extent of natural freshwater wetlands.
Policy 7: *The loss of river extent and values is avoided to the extent practicable.*	The Applicant has set out a comprehensive discussion on Policy 7 and Clause 3.24(1)[17]. This includes the potential interpretation issues for Policy 7 and the Applicant advises that they will be addressing this further in legal submissions to the Commissioners. The proposed discharge will not materially affect the river extent although discharges from existing outfalls and drains may have a physical and aesthetic impact on the character of the riparian margins and these may need to be maintained and/or upgraded over time. I note that when discharges occur temporary restrictions on access to water ways and food sources will be imposed. This represents a loss of access to the river margin as opposed to the loss of a physical extent of the river. If Policy 7 is to be implemented on the basis that the loss of *river values* shall be avoided, then this does require additional assessment in accordance with Clause 3.24(1) taking into account the functional need for the activity and the effects management hierarchy. The existing wastewater network is located spatially and functionally across the urban area of Gisborne to provide the community with an essential service. The wet weather overflow discharge points have been established to manage the effects of surcharge within the system and to prevent uncontrolled discharges across the network including into and over private property. In my opinion, there is a functional need for the activity given the nature of the network and the

[17] Additional Information response, 4sight letter dated 29 January 2021, Appendix H, pg 6-8.

	current issues facing the community with wet weather overflow discharges. The effects of wet weather overflows will be progressively mitigated through a reduction in frequency and scale however there are questions around the 50% AEP standard, whether this is an appropriate or sufficient level of mitigation, and what additional improvements can be achieved if a 20-year term is granted. Dry weather overflows can in theory occur anywhere across the network and can be managed through council programmes to proactively identify and mitigate risks of dry weather overflows. In my opinion, the Applicant should be obliged under Clause 3.24(1)(b) to reduce the risk and adverse effects of dry weather overflows as far as practicable. This lends support to the principle of an eradication strategy being adopted into any consent. There may be events outside the control of the Applicant, such as damage by third parties or major environmental events which will require a different response.
Policy 8: *The significant values of outstanding water bodies are protected.*	The water bodies have limited values in terms of natural character and ecology given the existing background level of water quality and the location of the water bodies within an urbanised environment. The water bodies are all highly modified in terms of natural character and ecology given their location within a highly urbanised environment. Although some threatened native fish (e.g., long-finned eel) frequent the waterways, it is considered that the ecological and environmental qualities of the waters will be maintained, and the proposed consent conditions offer the opportunity to progressively reduce the frequency and volume of overflow discharges The awa have significant cultural values to tangata whenua which have been discussed above.
Policy 9: *The habitats of indigenous freshwater species are protected.*	
Policy 10: *The habitat of trout and salmon is protected, insofar as this is consistent with Policy 9.*	
Policy 11: *Freshwater is allocated and used efficiently, all existing over-allocation is phased out, and future over-allocation is avoided.*	The proposed overflow discharges will not affect water allocation.
Policy 12: *The national target (as set out in Appendix 3) for water quality improvement is achieved.*	The national target is to increase the proportion of rivers which are suitable for primary contact (swimming, recreation). The water quality of the waterways affected by the overflow discharges is degraded by other discharges

	from upstream land use and also from the urban area adjoining the network. I accept that the discharge consents provide a mechanism to progressively reduce the frequency and volume of overflow discharges and that this will contribute to water quality improvement.
Policy 13: *The condition of water bodies and freshwater ecosystems is systematically monitored over time, and action is taken where freshwater is degraded, and to reverse deteriorating trends.*	The proposed conditions require monitoring and reporting on the overflow discharges, and this will assist with state of the environment monitoring on the river system and catchment.
Policy 14: *Information (including monitoring data) about the state of water bodies and freshwater ecosystems, and the challenges to their health and well-being, is regularly reported on and published.*	
Policy 15: *Communities are enabled to provide for their social, economic, and cultural well- being in a way that is consistent with this National Policy Statement.*	The wastewater network is essential, and regionally significant infrastructure, that supports the well-being of the community. The wastewater overflows are a function of the existing condition and location of the wastewater network including the issues of direct inflow from private properties. It will be necessary to support the social, economic and cultural well-being of the community by maintaining and upgrading the existing wastewater network and ensuring that the adverse effects of any overflow discharges are progressively managed and mitigated.

National Environmental Standards for Freshwater Management 2020 (NES-FW)

10.9 The Applicant has assessed the application against the provisions of the NES-FW[18] which was gazetted at the same time of the NPS-FM.

10.10 The Applicant has concluded that the NES-FW does not contain any new rule provisions or standards which apply to the overflow discharge. Most councils are grappling with the implementation of the NES-FM and how this overlays other plan mechanisms and the assessment and determination of consent applications.

10.11 I have reviewed the NES-FM and concur with the Applicant that there are no provisions which directly affect the assessment or determination of the application.

[18] Ibid, pg 9.

11 TAIRĀWHITI PLAN

11.1 The Tairāwhiti Plan is the primary resource management instrument for the Gisborne region and sets out the planning objectives, policies and rule mechanisms to help guide the management and use of resources within the region.

11.2 The Tairāwhiti Plan has amalgamated the previous set of planning documents into one single plan and therefore it includes all the provisions of the regional policy statement, the regional plans and the district plan.

11.3 I have identified the key objectives and policies which I consider are directly relevant to the assessment of the application and provided an assessment of these accordingly. The discussion is presented in the order that the Tairāwhiti Plan is structured.

Regional Policy Statement – Tangata Whenua
B1.2.1 Objective *1. To take into account the principles of the Treaty of Waitangi in the exercise of functions and powers under the Act.*
B1.2.2 Policies *1. **The Kawanatanga Principle** To recognise that the Gisborne District Council's (delegated) right to manage natural and physical resources (kawanatanga) is exercised subject to the protection of rangatiratanga.* *2. **The Rangatiratanga Principle** To endeavour to uphold, within the limits of the RMA, the rangatiratanga rights of iwi o Tairāwhiti. Policies and plans shall, as far as possible, be consistent with Māori values and preferences for management of their resources.* *3. **The Partnership Principle** To actively promote and develop greater partnership between Council and iwi o Tairāwhiti in the management of the district's natural and physical resources by exercising the utmost good faith, co-operation, reasonable compromise, flexibility and responsiveness.* *4. **The Active Protection Principle** To actively protect the manataiao and taonga of iwi o Tairāwhiti by identifying and protecting, in a manner appropriate to the values of iwi, those natural and physical resources of significance to iwi.* *5. To take account of the guarantee of rangitiratanga and its relationship with kawanatanga in resource management planning.*
B1.3.1 Objective *1. To have particular regard to the concept of kaitiakitanga when managing the use, development and protection of natural and physical resources, in a way which accommodates the views of individual iwi and hapu.*
B1.3.2 Policies *1. To consult with iwi and hapu on an individual basis to determine how kaitiakitanga can be recognised and integrated in the management of the use, development and protection of natural and physical resources in the Gisborne district.* *2. To recognise and provide for the role and mana of kaitiaki as resource managers or guardians of local resources.* *3. To encourage applicants for resource consents to consult with tangata whenua.* *4. To take account any relevant planning document/s recognised by the appropriate iwi, hapu or marae*
B1.4.2 Objectives *1. To promote, where practicable, the preservation and protection of sites of value to Māori.* *2. To recognise and provide for the relationship of Māori with their culture, traditions, ancestral lands, and other resources.*

B1.4.3 Policies *1. To recognise that each iwi, hapu and marae has its own priorities and preference for the management of resources and to respect those priorities and preferences within the limits of the Act.* *2. To give consideration to appointing to a hearing committee or a panel of independent commissioners considering a resource management issue involving values important to Māori, a commissioner or commissioners with expertise in Māoritanga, including kawa (protocol) and kaitiakitanga. Any commissioner so appointed should have sufficient expertise to address issues of sensitivity to tangata whenua.* *3. To ensure that the Māori language and Māori place names are recognised in the exercise of any of Council's functions, powers and duties under the Act.* *4. To establish with tangata whenua a consultation network with the constituent iwi, hapu and marae of the Gisborne district who have mana whenua in the district. This is for the purpose of establishing processes and protocols to enable full and effective participation in resource management processes.*	
B1.5 Tangata Whenua and Freshwater – He Taonga Tuki Iho	***[Recognition of Statutory Acknowledgements]***

11.4 The above objectives and policies entrench the principles of the Treaty of Waitangi across the resource management functions of the Gisborne District Council. Key tikanga Māori principles are applied including rangatiratanga, kaitiakitanga and partnership in decision making. The policy framework also gives specific recognition to statutory acknowledgements.

11.5 In my opinion, the Applicant and tangata whenua have engaged in a constructive process to share an understanding of the challenges presented by the overflow discharges and what this means in terms of Māori culture and traditions. The KIWA Engagement Report is testimony to the significant amount of resource and time which have been committed by the Applicant and tangata whenua and is to be commended.

11.6 Any discharge of human waste to the awa is abhorrent to tikanga Māori. This discharge affects the mauri of the awa and can directly impact food sources and the use of and access to the awa. The loss of water quality and ongoing discharges also diminishes, and is, contrary to the role of tangata whenua as kaitiaki.

11.7 The Applicant has committed to a progressive improvement regime to reduce the frequency and scale of overflow discharges and is proposing conditions to support a discharge consent for a term of 20-years. The nature and term of the discharge consent is opposed by iwi and hapu although there is some recognition that some form of discharge consent is necessary. Tangata whenua request that the term of consent is reduced to five years and they seek an elimination strategy to the overflow of discharges as the ultimate goal.

11.8 In my opinion, a 5-year term is unlikely to provide the most effective method to lock in objectives and outcomes to manage and mitigate the effects of the overflow discharges. A 5-year term will lead to ongoing and recurring consent processes which will require considerable resourcing and will diminish the ability of the Applicant to commit to longer term outcomes. In my opinion, an elimination strategy will be difficult to secure for wet weather overflows unless there is a significant change to the funding models for wastewater infrastructure. There are reforms underway at the central government level into the management and funding of three waters infrastructure. This may well affect how three waters assets are managed and funded over the long term.

11.9 In terms of the decision-making process, Commissioners have been appointed with a range of professional and personal skills, expertise and understanding including tikanga Māori. In my opinion, this will provide a solid foundation for the final assessment and determination of the discharge applications. In addition, it is proposed to include conditions for a *Tangata Whenua Reference Group* as part of the ongoing management and reporting on the discharge outcomes.

11.10 In my view, the outstanding concerns and issues raised by tangata whenua will not be fully reconciled unless there are no wastewater discharges from any part of the network. Until such time as this is an achievable outcome, I consider that a discharge consent for wet weather and dry weather overflows is both a necessary and appropriate mechanism to address tangata whenua issues. I consider that it will be necessary to set robust and comprehensive conditions within any consent to ensure that clear and effective performance standards are locked in and there is the highest level of transparency and reporting tied into the consent.

11.11 A 20-year term for the wet weather discharges is possible and appropriate if a suitable framework of conditions can be developed for the consent including ongoing reduction of the frequency and scale of wet weather overflows over years 10 – 20.

11.12 In my opinion, any dry weather discharge consent should adopt an eradication strategy to effectively require the Applicant to manage and reduce the risk of dry weather overflows. Any such strategy will need to recognise that not all risks can be negated. However, it should be incumbent on the Applicant to adopt all practical methods and protocols to manage and avoid foreseeable issues of blockages or mechanical failure within the network.

Regional Policy Statement – Coastal Environment
B4.2.1 Objectives *1. Management of the coastal environment that is integrated across the boundaries of the coastal marine and inland areas and between agencies, organisations and the tangata whenua.*
B4.2.2 Policies *1. Part C3 of the Tairāwhiti Plan shall contain objectives and policies for the whole of the Coastal Environment and ensure their implementation through other regional and district provisions where appropriate.* *2. To consult closely with Māori when developing and implementing plans affecting the coast, and when considering resource consents which raise issues of concern to Māori who are recognised as kaitiaki of the area.* *3. To ensure close liaison and a good working relationship between Council and other authorities concerned with the management of the coastal environment.* *4. To recognise and maintain, in as natural a condition as possible, the dynamic, complex and inter- dependent nature of natural and physical resources in the coastal environment.*
B4.7.1 Objectives *1. Improvement of the water quality in the rivers and streams draining Gisborne city and the near shore waters of Poverty Bay, where appropriate.* *2. Recognition of the mauri of coastal waters and restoration of mauri of degraded coastal waters.*
B4.7.2 Policies *1. To develop and implement a range of land management measures that improve the coastal water quality by reducing sediment entering coastal environments.* *2. To promote the beneficial outcomes of more sensitive management of coastal riparian margins and, where appropriate, to protect or enhance coastal riparian vegetation.* *3. To reduce contaminant levels in urban stormwater discharges.* *4. To establish, maintain and, where appropriate, enhance water quality standards for the coastal environment of Poverty Bay.*

5. *To improve the standard of treatment of Gisborne city sewage.* 6. *To take into account cultural and spiritual values, and the mauri of water, when defining minimum water quality standards, considering waste treatment options, and processing applications for water and discharge permits.* 7. *To implement a risk-based management regime for the region's coastal waters which recognises that receiving waters have varying degrees of sensitivity* 8. *To provide for the maintenance and future development of essential public services such as network utility operations, where these activities meet section 5(2)(a)(b)&(c) of the RMA.*

11.13 The Applicant has only sought consent for discharges to the CMA out of an *abundance of caution* and no direct discharges have been previously recorded or are proposed as part of the discharge applications.

11.14 There are potential effects from the wet weather overflows which ultimately discharge into Poverty Bay and also from the unlikely event of a land based dry weather discharge which reaches the CMA. As discussed above, the Wainui Road primary discharge point is just above the CMA boundary as defined in the Tairāwhiti Plan.

11.15 The lower reaches of the Taruheru River and Waimata River, and the Tūranganui River are identified as a waahi tapu area (WY8 in the Tairāwhiti Plan), as is the Waimata River (WY9) with statutory acknowledgments over the freshwater bodies and coastal waters of Poverty Bay.

11.16 Based on the technical work completed by the Applicant and the technical review assessment, I am satisfied that the effects of the discharges on the coastal environment can be appropriately managed subject to continued efforts to progressively reduce the frequency and volume of overflow discharges. The wet weather overflows will provide dispersion and dilution of the wastewater discharge and any adverse effects will be short term in nature and subject to response actions and protocols to protect human health.

11.17 The cultural issues and opposition to the discharge have been assessed above and in Section 9 of above.

Regional Policy Statement – Point Source Discharges
B4.8.1 Objective 1. *To avoid, mitigate or remedy the adverse effects of point-source discharges on receiving waters.*
B4.8.2 Policies ***Protection of Existing or Potential Future Uses*** 1. *To endeavour to ensure that the effects of any contaminants contained in point-source discharges are such that they:* a) *do not unduly impact on the receiving environment; and* b) *do not reduce, after reasonable mixing, the quality of the receiving water below any standards established in any plan for that water.* ***Matters to be taken into account when Assessing Discharge Proposals*** 2) *When considering proposals or applications to discharge contaminants directly to water, matters to be taken into account include:* a) *the total contaminant load of the effluent [composition/flow rate];* b) *the assimilative capacity [including available dilution and dispersal] of the water body and existing water quality;* c) *the need to safeguard the life-support capacity of the water body;* d) *actual or potential uses of the water body and the degree to which the needs of other water users are or may be compromised;*

e) scenic, aesthetic, amenity and recreational values including fisheries values and the habitat of trout and indigenous fish;

f) allowance for a reasonable mixing zone;

g) the potential for bio-accumulative or synergistic effects;

h) the actual or potential risk to human and animal health from the discharge;

i) measures to reduce the quantity of contaminants to be discharged;

j) the cultural and spiritual values of tangata whenua, and

k) the use of the best practicable option for the treatment and disposal of contaminants, which in the case of human sewage wastewater, may include the use of land disposal or wetland treatment.

Minimising the risk of contaminating coastal water bodies as a result of spills of toxic or hazardous substances

1. *To ensure that contingency plans and other measures to reduce the risk and possible effects of any spill event are adopted at all sites where potential contaminants are gathered for storage or disposal.*
2. *To identify areas where urban stormwater is having unacceptable effects on natural water, and to develop the management systems necessary to overcome these problems.*

11.18 The above policy provisions address the effects of discharges on the receiving water and the range of effects and standards which need to be considered in the assessment of any application. These matters have been addressed in Section 9 and also in the discussion on objectives and policies above.

11.19 I note that Policy B.4.8.2(1)a) refers to adverse effects that *do not unduly* impact on the receiving water body. This appears to set a low threshold in terms of the nature and type of effects that may be acceptable and in my opinion is not well aligned to the higher order policy directives of the NPS-FM. Similarly, Policy B.4.8.2(1)b) only seeks to maintain water quality and does not give effect to the new policy directives of the NPS-FM. I therefore consider that little weight should be given to these specific policy provisions.

Regional Policy Statement and Regional Plan – Freshwater

B6.2.1 Objectives

1. *Land and freshwater is sustainably managed in a way that safeguards the life-supporting capacity of freshwater, including ecosystem processes and indigenous species, and the health of people and communities.*
2. *The quality of freshwater is maintained and is improved where it is degraded or does not meet the relevant objectives for the freshwater unit.*
3. *Lakes, rivers, wetlands and their margins are managed in a way that:*
   a) Preserves their natural character and protects them from inappropriate subdivision, use and development; and
   b) Maintains or enhances their amenity values.
4. *Scheduled waterbodies and their margins, and the significant values of both outstanding waterbodies and wetlands, are protected or enhanced to provide for their values.*
5. *Freshwater is available, within limits, to meet the present and future needs of communities to support the social, cultural and economic wellbeing of the region.*
6. *To manage the allocation and use of freshwater so as to:*
   a) Avoid over-allocation and phase out any existing over-allocation; and
   b) Improve and maximise the efficient allocation and use of freshwater, and ensure it is reasonable for its intended use.
7. *The interactions between land, land use and development, freshwater, and the coastal environment and associated ecosystems are recognised and provided for through the integrated management of freshwater and coastal water resources to maintain or improve their values.*
8. *Freshwater accounting systems are established, and research and monitoring is undertaken that improves the understanding and sustainable management of freshwater resources, including the potential impact of climate change.*

9. *The planning and management of the region's freshwater resources is undertaken in a way that recognises the kaitiaki role of iwi and hapū and ensures that their values and interests are reflected in the decision-making process.* 10. *The mauri of waterbodies is recognised and provided for and action is taken to restore the mauri of degraded waters.* 11. *Mana whenua values, matauranga and tikanga are reflected in resource management processes and decision making.* 12. *The stewardship role of landowners, water users communities and mana whenua is recognised and provided for through a collaborative approach to freshwater planning, management and monitoring.*
B6.2.2 Policies 1. *Council will work actively to engage and collaborate with all relevant stakeholders in the planning, management and monitoring of freshwater resources.* 2. *Collaborate with iwi and hapū to recognise their kaitiaki role and identify their freshwater values and priorities, including the development of cultural assessment frameworks for mauri and other freshwater values.* 3. *Have regard to the freshwater issues and outcomes identified in iwi and hapu planning documents, statutory acknowledgements and governance and partnership agreements.* 4. *Through catchment planning processes, work collaboratively with local communities including iwi and hapu, landowners, resource users and other stakeholder interests to:* a) *Identify freshwater values;* b) *Identify outstanding and regionally significant waterbodies and their significant values for the inclusion in the relevant schedules;* c) *Develop catchment objectives and methods, including limits and rules, that provide for the values;* d) *Improve the quality of degraded freshwater bodies; and* e) *Develop and implement non-regulatory projects and methods that help achieve catchment objectives.*
B6.2.6 Integrated Management Policies 2. *Manage the use of land and freshwater so that coastal water quality and ecosystems are maintained or improved where degraded.* 9. *In addition to measures to avoid, remedy or mitigate adverse environmental effects, consider the use of:* a) *Biodiversity Offsets in circumstances where there are ecologically significant residual adverse effects; and/or* b) *Any proposed environmental compensation or other measures that will result in positive environmental effects.*

11.20 The above policy directives provide a comprehensive framework for the management of freshwater including policy directives to improve degraded water bodies (Policy B.6.2.1.2). There is a heavy emphasis on protecting the natural character of water bodies and taking into account tangata whenua values and the role of iwi and hapu as kaitiaki.

11.21 These matters have been addressed in Section 9 and above.

Region Wide Provisions C2 Built Environment, Infrastructure and Energy
C2.1.3 Objectives 1. *Infrastructure that enables people and communities to provide for and enhance their environmental, social, cultural and economic well-being.* 2. *Infrastructure that is designed, located, constructed, operated and maintained to ensure:* • *A safe and healthy environment.* • *The efficient use of energy and resources.* • *Adverse effects are avoided, remedied or mitigated.*

C2.1.4.1 Policies
1. Provide for the ongoing operation, maintenance, replacement and upgrading of network utilities and for the future development and operational requirements of new network utilities.
2. Recognise the benefits of efficient network utility infrastructure and, that in order to achieve sustainable management given the technical and physical constraints which may be experienced by network utility operations, including those associated with their scale, location, design and operation, a compromise of the natural and physical environment may occur.
3. To enable the development, maintenance and use of network utility infrastructure (including individually owned and operated systems) in a manner that avoids, as far as practicable, remedies or mitigates any adverse effects on the environment.
C2.1.4.5 Policies (Works and Services)
11. To ensure that the treatment and disposal of wastewater is undertaken in a manner that avoids, remedies or mitigates adverse effects on the environment and is consistent with maintaining public health and safety.

11.22 Objective C.2.1.3 recognises that infrastructure is necessary to support the wellbeing of communities. The framing of the objectives and policies then goes on to require that the adverse effects of infrastructure are avoided, remedied or avoided. Policy C2.1.4.1 recognises the benefits of infrastructure and that the operation and location of infrastructure may lead to a *compromise* of the natural and physical environment.

11.23 The wastewater network is essential infrastructure, and the Gisborne community and economy is reliant on this public asset and service. It is necessary and appropriate to acknowledge the essential nature of the wastewater network and there are circumstances where adverse effects may necessarily form part of the function and operation of infrastructure. The policy directives also provide for adverse effects to be mitigated, remedied or avoided. This is an important principle in that the Applicant is largely promoting a mitigation and remedy approach to the overflow discharges which is accommodated within the plan provisions. There are views from some submitters and also from tangata whenua that the adverse effects should be avoided and an elimination strategy adopted for all discharges.

11.24 The framing of the above objectives and policies will need to be reviewed against the national policy direction of the NPS-FM.

11.25 In my opinion, the discharge consents can be granted with appropriate performance standards to reduce the frequency and volume of overflow events which supports the well-being of the community while recognising the essential infrastructure status of the wastewater network.

Region Wide Provisions C3 Coastal Management
C3.2.2 Objectives – Natural Character
1. The natural character of the Gisborne regions Coastal Environment and wetlands, rivers, lakes, and their margins within the Coastal Environment is preserved unless such preservation is inconsistent with the purpose of the RMA
C3.6.2 Objectives – Tangata Whenua
1. To protect the special value sites of tangata whenua.
2. To rehabilitate, where practicable, sites of value to Māori degraded by human activities.
3. To maintain the integrity of the relationship of Māori with their culture, traditions, ancestral lands, and other resources.
4. To achieve occupancy and use of ancestral lands owned by Māori that is in accordance with hapu aspirations provided such use is consistent with the purpose and principles of the RMA.

C3.6.3 Policies

1. The Council and consent authorities will take into account the guarantees of rangitiratanga and its relationship with kawanatanga in resource management planning and decision-making.

C3.10.2 Objectives – Discharges

1. To maintain or, where practicable enhance the physical and cultural quality of water (including that found in aquifers) and land in the Coastal Environment.

2. The progressive upgrade of the quality of existing point and non-point discharges to water of the Coastal Environment.

3. Avoidance, where practicable of the adverse effects of discharges to land or water on the natural character and amenity of the Coastal Environment. Where avoidance is not practicable, adverse effects on amenity and natural character will be remedied or mitigated.

C3.10.3 Policies

6 The consent authority shall not permit the discharge of human sewage direct to the CMA of a Protection Management Area unless it can be demonstrated that the adverse effects of the discharge will be minor. In particular the consent authority will have regard of the effects of the discharge on:

a) The mauri of the receiving environment.

b) The actual or perceived amenity values of the receiving environment.

c) Any values protected or sought to be protected by the Protection Management Area, including any adverse effect on the natural character of the Protection Management Area.

11.26 The *Coastal Management* objectives and policies again emphasise the protection of natural character and tangata whenua values. Objective C.3.10.2.2 refers to the *progressive upgrade* of the quality of discharges. A discharge consent with appropriate conditions that set performance targets to reduce the frequency and volume of overflow discharges is supported by this objective.

11.27 Policy C3.10.3 does not permit wastewater discharge directly to the CMA unless any adverse effects are minor with specific regard to be given to mauri, amenity and natural character values.

11.28 The Applicant is not proposing any direct discharge to the CMA. The issue of dry weather overflows and the framework for how these overflows are managed and reduced will need to be examined. In my opinion, the Applicant should work towards an eradication strategy.

Regional Plan Provisions C6 Freshwater

C6.2.1 – General Water Quality Policies

1. When considering any application for a discharge the consent authority must have regard to the following matters:

a) The extent to which the discharge would avoid contamination that will have an adverse effect on the life-supporting capacity of fresh water including on any ecosystem associated with fresh water and

b) The extent to which it is feasible and dependable that any more than minor adverse effect on fresh water, and on any ecosystem associated with fresh water, resulting from the discharge would be avoided.

2. When considering any application for a discharge the consent authority must have regard to the following matters:

a) The extent to which the discharge would avoid contamination that will have an adverse effect on the health of people and communities as affected by their secondary contact with fresh water; and

b) The extent to which it is feasible and dependable that any more than minor adverse effect on the health of people and communities as affected by their secondary contact with fresh water resulting from the discharge would be avoided.

3. This policy applies to the following discharges (including a diffuse discharge by any person or animal):

a) A new discharge or

b) A change or increase in any discharge – of any contaminant into fresh water, or onto or into land in circumstances that may result in that contaminant (or, as a result of any natural process from the discharge of that contaminant, any other contaminant) entering fresh water.

C6.2.2 – Policies for Point Source Discharges

1. *That there are no direct discharges to surface waterbodies, or to land where it can flow directly into a waterbody or to groundwater of:*
   a) *Untreated sewage, wastewater (except as a result of extreme weather related overflows where these are being reduced over time); or*
2. *Manage point source discharges to land and water so that the existing ecosystem functions within the Region's waterbodies are maintained and that:*
   a) *Point source discharges to:*
      (i) *Regionally Significant Wetlands identified in Schedule G17;*
      (ii) *Outstanding Waterbodies identified in Schedule G18;*
      (iii) *Areas above community drinking water supply intakes;*
      (iv) *Degraded waterbodies where the discharge is of contaminants which cause the waterbody to be degraded;*
   b) *Point source discharges are avoided to sensitive waterbodies or to land where it can directly enter water within Aquatic Ecosystem Waterbodies identified in Schedule G15, Significant Recreation Areas identified in Schedule G19 or freshwater bodies discharging within 100m of Marine Areas of Coastal Significance identified in Schedule G22, only occur if this will not impact on the values for which those waterbodies are scheduled;*
   c) *The mauri of waterbodies is retained, and where degraded are improved.*

6 *Where a water quality objective is not being met or a limit/target has been exceeded or the waterbody, including coastal waters, is identified as degraded:*
   a) *Targets, methods and timeframes for improvements in water quality will be identified through the catchment planning process;*
   b) *Ongoing monitoring will be undertaken to track the progress in water quality improvement;*
   c) *New discharges and renewals of existing discharge consents will be managed to:*
      i. *Assist the improvement of water quality in the receiving waterbody and met the relevant water quality targets; and/or*
      ii. *Better achieve the relevant water quality objective(s) for the receiving waterbody;*
   d) *No discharge consents for new point source discharges of contaminants of concern will be issued unless the contaminants of concern are reduced to a concentration that maintains or improves water quality after reasonable mixing;*
   e) *As existing discharge consents are renewed additional requirements for avoidance of contamination, recovery of contaminants, treatment, or alternative disposal methods will be required unless treatment reduces the contaminants of concern to a concentration that maintains or improves water quality after reasonable mixing; and*
   f) *Where a section 128 review of conditions of an existing discharge consent is undertaken additional conditions aimed at bringing the waterbody back within the limit, or to better achieve the freshwater quality objectives, may be placed on the consent.*

7. *When waterbodies are identified in a catchment as degraded due to:*
   a) *Bacterial contaminants, wastewater discharges will be required to improve the quality of the discharge and/or reduce the volume of the discharge in order to meet the relevant freshwater objective as quickly as practicable; and*
   b) *Stormwater contaminants, stormwater discharges will be required to improve the quality of the discharge and/or reduce the volume of the discharge in order to meet the relevant freshwater objective as quickly as practicable.*
8. *When considering applications to discharge contaminants directly to land or water, assessment criteria are:*
   a) *The total contaminant load of the discharge [composition/flow rate] and how the water quality will be maintained within the limits for the waterbody, in a manner consistent with achieving the objectives;*
   b) *The proposed treatment methods and the likelihood of this being the Best Practicable Option for the contaminants;*
   c) *The need to provide for a high standard of pre-discharge treatment for Scheduled waterbodies and where water quality limits for a waterbody have been exceeded or are likely to be exceeded, or water quality objectives are not met;*
   d) *The actual or potential impact on any values of scheduled waterbodies;*
   e) *The assimilative capacity and an allowance for reasonable mixing in the waterbody;*
   f) *The need to safeguard the life-supporting capacity of the waterbody;*
   g) *The potential for bio-accumulative or synergistic effects;*
   h) *The actual or potential risk to human and animal health from the discharge;*

> *i) The measures to reduce the quantity of contaminants to be discharged;*
> *j) The mauri of the receiving waterbody and any other values placed on the site by tangata whenua;*
> *k) The need to avoid exacerbation of flooding risk;*
> *l) The need to avoid erosion of the banks or bed or land instability at or downstream of the discharge point.*
>
> *9. Discharges of untreated sewage from the reticulated infrastructure network shall be managed to:*
> *a) Minimise the frequency of these discharges; and*
> *b) Achieve performance of an overflow occurrence of no more than 50% probability in any given year;*
> *c) Issue discharge permits for no longer than 5 years except where there is evidence from past performance to demonstrate that wastewater overflow events can reliably achieve the performance standard in clause b. above.*

11.29 The objectives and policies of the *C6 Freshwater* section overlap with many of the provisions discussed above. There are two policies specific to wastewater discharges and these require due consideration.

11.30 Policy C6.2.2.1 requires that there shall be no direct discharge of untreated wastewater to waterbodies except as a result of *extreme* weather-related overflows and where these are reduced over time. In my opinion there are important aspects of this policy which apply to the discharge application.

11.31 The first is that the policy refers to *extreme* weather-related overflows. The Applicant is proposing a regime to progressively reduce the frequency and volume of wet weather overflows with a key performance standard of no overflows in a 50% AEP event proposed. While the Applicant's work to reduce wet weather overflows is commendable, a 50% AEP event does not represent an *extreme* weather event threshold[19]. The policy also does not provide any provision for dry weather events.

11.32 In my opinion the Applicant's proposal for no wet weather overflows in a 50% AEP event and for dry weather overflows is not consistent with Policy C6.2.2.1.

11.33 Policy C6.2.2.9 also has direct relevance to the application. There is some ambiguity in the wording of sub-clause b) and whether the metric of *50% probability* is intended to relate to an AEP event or whether this suggests that there should be no more than a 50% chance of an overflow occurrence in any given year, regardless of any storm size. I also note from the data provided by the Applicant, there are many cases of heavy rain events which result in multiple overflow points activated which could represent more than one *occurrence* over any single heavy rain event.

11.34 Sub-clause c) of the policy seeks to limit the term of any discharge consent to 5 years unless there is evidence of past performance to achieve the 50% probability threshold in sub-clause b).

11.35 This policy has been cited in some opposing submissions as further justification that any consent should be limited to a term of 5 years.

[19] 4sight Gisborne Wastewater Network AEE dated 17 June 2020, refers to an extreme heavy and infrequent event as larger than 5% AEP/20-year ARI, pg 10

11.36 The Applicant has interpreted the policy as setting a threshold of no overflows up to a 50% AEP threshold and considers that the technical material presented in the application lends support for a longer term of consent[20].

11.37 In my opinion, it would make sense to interpret the policy as referring to a 50% AEP given that this is a widely used and understood term relating to wet weather events. However, this would not then align with Policy C6.2.2.1 which refers to *extreme* weather events. The two policies address different aspects of overflow discharges however I would have anticipated that there would be some linkage and common direction between the two policies.

11.38 Notwithstanding any ambiguity with subclause b), Policy C6.2.2.9 does address the issue of term with a directive that any term longer than 5 years should be supported by evidence of past performance. In my opinion, the Applicant has invested significant resources into understanding the performance of the wastewater network and how it is impacted by inflow and infiltration. This can be accepted as a credible body of technical material which supports a programme to reduce the frequency and volume of overflow events. However, this is not the same as having actual proven results to demonstrate that the modelled improvements have been achieved. In my opinion, the Applicant's commitment to addressing the existing overflow issues through the current consent process is appropriate and should be supported, however this falls short of Policy C6.2.2.9 with regards to the proposed consent term of 20 years.

Area Based Provisions DF1 Waipaoa Catchment Plan
DF1.5.2.1 Water Quality Objectives ***See provisions in Section 9 of this report.***

11.39 The water quality objectives have been addressed in the Applicant's AEE and in the *Public Health and Ecology Technical Review*. In broad terms, there is agreement between the technical experts that the effects of wet weather overflow discharges will be minor based on existing background water quality conditions in wet weather, the temporary nature of overflow discharges and the dilution and dispersion available in heavy rain events.

11.40 The *Ecological and Human Health Technical Review* has reservations in regard to the effects of dry weather overflows and the difficulty in quantifying the nature and scale of adverse effects. Although it is difficult to quantify the nature and scale of adverse effects, the potential exists for these to be significant if wastewater enters a smaller stream in summer. However, in my opinion, with strict conditions to proactively manage the risk of dry weather overflows and adopt an eradication strategy this supports a consent term of 10 years.

[20] Ibid, Appendix S, pg. 22

12 OTHER NATIONAL POLICY STATEMENTS AND STANDARDS

12.1 The primary national policy direction relevant to the discharge applications is the NPS-FM which has been discussed above. It is also appropriate to discuss the New Zealand Coastal Policy Statement (NZCPS). In my opinion, there are no other national policy or standards which are material to the assessment and determination of the discharge application.

New Zealand Coastal Policy Statement (NZCPS)

12.2 The Applicant has applied for a discharge to the CMA out of an *abundance of caution* and as discussed in the AEE, there have been no previous known discharges, and none are actually proposed in the current application.

12.3 The Tairāwhiti Plan provisions have not been reviewed in light of the 2010 version of the NZCPS and therefore it is appropriate to consider the NZCPS directly in terms of the potential issues arising from any coastal discharge, even if this is a very unlikely event.

12.4 The NZCPS sets out national policy directives to give effect to the sustainable management purpose of the RMA. There are broad ranging objectives and policies relating to biological and physical processes, coastal water quality, natural character, recreational use and the Treaty of Waitangi which all have some relevance to the discharge application. In my opinion, these have been addressed through the assessment of the Tairāwhiti Plan provisions set out in Section 10 above. Essentially the NZCPS sets our policy directives to maintain the quality of our coastal areas and protect these areas from inappropriate development.

12.5 As identified in the Applicant's AEE, there are specific policies associated with discharges and it is appropriate to discuss these policies directly.

Policy 21 **Enhancement of water quality**

Where the quality of water in the coastal environment has deteriorated so that it is having a significant adverse effect on ecosystems, natural habitats, or water based recreational activities, or is restricting existing uses, such as aquaculture, shellfish gathering, and cultural activities, give priority to improving that quality by:

(a) identifying such areas of coastal water and water bodies and including them in plans;

(b) including provisions in plans to address improving water quality in the areas identified above;

(c) where practicable, restoring water quality to at least a state that can support such activities and ecosystems and natural habitats;

(d) requiring that stock are excluded from the coastal marine area, adjoining intertidal areas and other water bodies and riparian margins in the coastal environment, within a prescribed time frame; and

(e) engaging with tangata whenua to identify areas of coastal waters where they have particular interest, for example in cultural sites, wāhi tapu, other taonga, and values such as mauri, and remedying, or, where remediation is not practicable, mitigating adverse effects on these areas and values.

12.6 Policy 21 sets a national direction to improve water quality where the coastal environment is impacted by existing activities. The Applicant is proposing to progressively reduce the frequency and volume of wastewater overflows, and this will contribute to improving water quality within the coastal environment. As an overflow discharge is only of a temporary nature, then any adverse effects and consequential net improvement of water quality are limited by the proportionate effects of the discharge on the overall water quality.

12.7 The Tairāwhiti Plan does identify areas for coastal management and the Applicant and tangata whenua have engaged with each other to understand the challenges and issues arising from the overflow discharges.

Policy 23 Discharge of contaminants

(1) In managing discharges to water in the coastal environment, have particular regard to:
- (a) the sensitivity of the receiving environment;
- (b) the nature of the contaminants to be discharged, the particular concentration of contaminants needed to achieve the required water quality in the receiving environment, and the risks if that concentration of contaminants is exceeded; and
- (c) the capacity of the receiving environment to assimilate the contaminants;

and:
- (d) avoid significant adverse effects on ecosystems and habitats after reasonable mixing;
- (e) use the smallest mixing zone necessary to achieve the required water quality in the receiving environment; and
- (f) minimise adverse effects on the life-supporting capacity of water within a mixing zone.

(2) 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.

(3) Objectives, policies and rules in plans which provide for the discharge of treated human sewage into waters of the coastal environment must have been subject to early and meaningful consultation with tangata whenua.

(4) In managing discharges of stormwater take steps to avoid adverse effects of stormwater discharge to water in the coastal environment, on a catchment by catchment basis, by:
- (a) avoiding where practicable and otherwise remedying cross contamination of sewage and stormwater systems;
- (b) reducing contaminant and sediment loadings in stormwater at source, through contaminant treatment and by controls on land use activities;
- (c) promoting integrated management of catchments and stormwater networks; and
- (d) promoting design options that reduce flows to stormwater reticulation systems at source.

12.8 Policy 23 sets outs particular matters to have regard to when assessing discharges to the coastal environment. Policy 23(2), (3) and (4) specifically address wastewater discharges.

12.9 Policy 23(2) directs that human sewage should not be allowed to discharge directly to the coastal environment without treatment. The Primary Overflow discharge point at the Wainui Road bridge is located near the boundary of the CMA. Technically the discharge is not directly to the CMA however this is a function of how the CMA is defined. Any direct discharge from a dry weather overflow that reaches the CMA will be contrary to this policy direction. As discussed in the AEE, this is a very unlikely event.

12.10 The effects of any temporary discharge have been assessed including reference to background water quality standards and dilution and dispersal of the wastewater as part of any larger rain event. In addition, the Applicant has engaged with tangata whenua and I consider there has been meaningful consultation and clarity around the outstanding matters which have been raised in opposition to the overflow discharges.

12.11 The DrainWise Programme seeks to reduce direct stormwater inflow into the wastewater network and is therefore consistent with Policy 23(4)(a).

12.12 In my opinion, the overflow discharges and proposal to progressively reduce the frequency and volume of any overflows is aligned with the overall direction of the NZCPS. However, the discharge of untreated wastewater to any part of the coastal environment is not *allowed* and is therefore contrary to the specific policy direction set out in Policy 23(2). This direction needs to be taken into account when setting conditions and the term of any consent.

13 IWI ENVIRONMENTAL MANAGEMENT PLANS

13.1 Iwi and Hapū Management Plans are policy statements that describe resource management issues important to tangata whenua. The Applicant's AEE records that that Gisborne District Council has received two Iwi Management Plans;

- Hapu/Iwi Management Plan of Nga Ariki Kaiputahi
- Te Aitanga-Mahaki Iwi Environmental Inventory

13.2 The objectives the Nga Ariki Kaiputahi Plan are set out in Section 3.2 of the Plan as follows;

- *Apply Best Practice in Sustainable Resource Management.*
- *Include Nga Ariki Kaiputahi in decision making processes with governmental bodies and other stakeholders concerning all developments and environmental issues that fall within and around Mangatu lands.*
- *Document the relationship between whenua, maunga, awa, catchment areas and resources of Nga Ariki Kaiputahi.*
- *Establish a vision for future management of the whenua, maunga, awa, catchment areas and resources under a Tiriti o Waitangi partnership.*
- *Establish an action plan for Nga Ariki Kaiputahi for achieving that vision.*
- *Provide a base frame work for advancing Nga Ariki Kaiputahi participation in the management of environmental and physical resources.*
- *Assist Nga Ariki Kaiputahi in acquiring the administrative capacity and scientific/technical expertise to facilitate their participation in resource management.*
- *Encourage the establishment of collaborative management structures that contribute to integrated ecosystems/management and planning processes.*
- *Enhance existing collaborative management structures, where appropriate.*
- *Facilitate sound decision making in advisory and other processes related to a number of areas of Kaitiakitanga and of cultural significance to Nga Ariki Kaiputahi.*
- *Strengthen relationships through improved information sharing among Nga Ariki Kaiputahi, the wider community, other Iwi such as Te Aitanga-a-Mahaki, Gisborne District Council (GDC) and other stakeholders.*
- *Contribute to local government policies held with a broader objective of improving the quality of life for Nga Ariki Kaiputahi.*

13.3 Many of the objectives promote better recognition and integration of cultural values into decision making processes. In my opinion, the consultation, engagement and submissions process has facilitated a clear understanding of cultural values and issues which are impacted by the overflow discharges. The Commissioners will have the opportunity to hear from iwi and hapu as part of the hearing process and also to take into account the recommendations from the KIWA Engagement Report and submissions.

13.4 Although I was not able to access the Te Aitanga-Mahaki Iwi Environmental Inventory (the Inventory) from the Gisborne District Council website, I have been provided a copy from Mr Ian Ruru. The Inventory has been prepared by Te Aitanga-Mahaki as an iwi authority and as a mandated iwi organisation under the Maori Fisheries Act 2004. It seeks to implement strategies for environmental restoration and to support the role of Te Aitanga-Mahaki as kaitiaki.

13.5 The Inventory has a focus on the Waipaoa River and the land use issues affecting the river catchment. It also provides a series of maps showing pa sites and other physical and natural features of significant to Te Aitanga-Mahaki. There is also discussion on how the Inventory can integrate with council processes and planning documents.

13.6 The Te Aitanga-Māhaki Trust has made a submission in opposition to the discharge applications and in support of the analysis and recommendations provided in the KIWA Engagement Report. I therefore anticipate that the Inventory has been taken into account as part of that report and in the submission.

14 STATUTORY SECTIONS OF THE RMA

14.1 The following sections of the RMA have been identified as relevant to the discharge application.

Section 105 and Section 107

14.2 Section 105 of the RMA specifies specific matters which must be assessed as part of a discharge permit or coastal permit. These are

- the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and
- the applicant's reasons for the proposed choice; and
- any possible alternative methods of discharge, including discharge into any other receiving environment

14.3 In my opinion, the Applicant's AEE has set out a comprehensive assessment of the overflow discharges including the nature of the receiving waters and how these will be impacted by the overflow discharges. The AEE has primarily focussed on wet weather overflows and the performance of the wastewater network in heavy rain events. The Applicant has also detailed the measures which are available to address the effects of the discharge with the DrainWise Programme promoted as the most effective method to achieve an 85% reduction in direct overflows into the wastewater network. Other alternatives are also discussed in case the DrainWise does not achieve the modelled reduction.

14.4 Section 107 of the RMA imposes restrictions on the issue of discharge consents and the nature of conditions which can be imposed. In my opinion these matters have been addressed through the Applicant's AEE and in this report including the technical reviews. In terms of Section 107(2), specific recognition is given to discharges which are of a temporary nature which is directly relevant to the current application

Section 104D

14.5 To be able to grant consent to a non-complying activity, a consenting authority must be satisfied that either the adverse effects of the activity on the environment will be minor (s104D(1)(a)), or the proposed activity will not be contrary to the objectives and policies of a proposed plan and/or plan (s104D(1)(b)).

14.6 In my opinion there is a significant amount of technical information available to assess the effects of the wet and dry weather overflows, how the wastewater network performs under heavy rain events and the methods which are available to reduce the frequency and volume of overflows. There are outstanding issues in terms of the cultural effects of the overflow discharges and this has been set out in opposing submissions and requests to only grant a consent term of 5 years.

14.7 As discussed, I consider that a 5-year term will be counter-productive. At the same time I consider that more stringent conditions are required to support a 20-year term for the wet weather overflows, and I support the provision of a tangata whenua reference group and very transparent monitoring and reporting conditions. In terms of dry weather overflows, I consider that a term of 10 years is appropriate, and that further priority is required to set an eradication strategy into the management of these overflows.

14.8 Subject to appropriate conditions for both the wet weather and dry weather overflows, I consider that the adverse effects will be minor. The Applicant is proposing to reduce the frequency and volume of overflow discharges and in my opinion, this is an important context in terms of making this assessment.

14.9 I have discussed the provisions of the Tairāwhiti Plan above. The reduction in the frequency and volume of wastewater overflows is aligned to many of the objectives and policies associated with freshwater management and also the coastal environment. There are specific policies relating to the management of wet weather overflows and the Tairāwhiti Plan does not support dry weather overflows. In addition, Policy C6.2.2.9 seeks to limit a consent term to 5 years unless there is evidence of past performance.

14.10 In my opinion, the scope of the application, and in particular, the proposed 20-year term requested by the Applicant establishes clear tensions with specific objectives and policies within the Tairāwhiti Plan. However, the overall direction and objective of the application to progressively reduce the frequency and volume of overflow discharges is positive. As such, I do not consider that the discharges are contrary to the objectives and policies of the Tairāwhiti Plan when considered as a whole and taking into account the progressive improvement regime promoted within the Application.

14.11 I therefore consider that the application for the overflow discharges can pass the threshold test of S.104D.

15 PART 2 MATTERS

15.1 In Part II of the Resource Management Act 1991, Section 5 sets out the purpose and principles of the Act for the sustainable management of natural and physical resources.

15.2 The Court of Appeal Decision (the Davidson decision[21]) has confirmed the appropriate framework in which to assess resource consent applications. This was necessary given that S.104 makes the assessment of applications *subject to Part 2* however other High Court decisions had brought into question the relevance of Part 2 when national, regional and district policies and plans are all required to give effect to Part 2. The Davidson decision now establishes that Part 2 can be considered however this is only appropriate when the planning instruments are found to be invalid, incomplete or uncertain in terms of their alignment to Part 2.

15.3 In this case, the Tairāwhiti Plan has not been reviewed to give effect to the 2010 NZCPS. The Tairāwhiti Plan will also need to be reviewed to give effect to the recent revisions of the NPS-FM and NES-FM. As such, there is justification to consider that provisions of the Tairāwhiti Plan are incomplete and that direct recognition and referral to the higher order planning instruments is required. This does not necessarily mean that reference up to Part 2 is required given that the national policy statements and standards have been enacted to give effects to the RMA. For completeness, I have opted to make some comments on Part 2.

S.6(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development

15.4 The concept of natural character can include multiple elements including the relationship between the community and tangata whenua with their natural resources. The natural character of the rivers and streams which are proposed to will receive the untreated overflow discharge are impacted by their urban context and existing modification to the riparian margins. However, these rivers and streams do have natural character and support native fish and birds which collectively contribute to the identity and qualities of the Gisborne urban area. Tūranganui-a-Kiwa/Poverty Bay and the coastal environment have high natural character values.

15.5 On first principles, the discharge of untreated wastewater into local rivers and streams would be an *inappropriate use.* The existing wet and dry weather overflows are a significant challenge for the Applicant and the community which requires an affirmative response and resolution. Unfortunately, there are funding and practical issues that cannot be ignored. In my opinion, it will be necessary to issue a discharge consent with the critical issues being the term of consent and the appropriate conditions to ensure that positive outcomes will be achieved. In regard to dry weather overflows, an eradication strategy can be adopted and I consider that a shorter term of 10 years is appropriate.

S.6(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers

[21] *R J Davidson Family Trust v Marlborough District Council* [2018] NZCA 316

15.6 When wet weather and dry weather overflows occur, there will need to be temporary restrictions on access to the CMA and to local rivers and streams. This is necessary to protect the health and well-being of the community, particularly is regards to any food gathering activities. While this is not an ideal situation, the health and wellbeing of the community must be protected. Any restrictions will be of a temporary nature and the frequency and volume of discharges will be progressively reduced over the term of consent.

S.6(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga

S.7(a) Kaitiakitanga

15.7 The application is subject to opposing submission from iwi and hapu with the outstanding issues for tangata whenua set out in the KIWA Engagement Report and in submissions. These matters will need to be considered carefully as part of the hearing process alongside the measures which the Applicant has proposed to reduce the effects of the overflow discharges and to include tangata whenua as a partner to oversee and monitor the effectiveness of any consent.

15.8 In my opinion, the only outcome that will be acceptable to tangata whenua will be the complete elimination of any wastewater discharge. This may be considered as a long-term objective and in my opinion, there is an opportunity to establish an eradication strategy into any consent for dry weather overflows.

S.7(c) The maintenance and enhancement of amenity values.

S.7(f) Maintenance and enhancement of the quality of the environment.

15.9 Any wastewater discharge will result in adverse effects in terms of amenity values and the quality of the environment, particular for those property owners and members of the community who are adjacent to or access the riparian areas of the wastewater discharge points. These effects will be temporary in nature and can be subject to effective response actions to remedy the effects of the overflow discharges. In addition, if a discharge consent is not granted, then uncontrolled discharges may occur over or into provide property which would be a higher order of adverse effect.

15.10 Section 8 requires Council to take into account the Principle of the Treaty of Waitangi. There are a number of outstanding matters in relation to the understanding and assessment of cultural values and sites. The hearings process will enable all parties to participate in a statutory process and present submissions and evidence to the Commissioners.

16 CONCLUSIONS

16.1 The discharge of untreated wastewater is a contentious issue and there are many inherent challenges with any such proposal. At the heart of this issue is the need to find a resolution which is acceptable to the community and tangata whenua while having full regard to the condition and location of the wastewater network as essential and regionally significant infrastructure, and taking into account the financial costs both in terms of public funding allocation and direct costs to individual landowners.

16.2 There are many positive aspects to the application process which will assist the Commissioners in working through the outstanding issues and ultimately in making a decision on the consent applications. These include;

(i) The Applicant has presented comprehensive information on the existing wastewater network and the issues of stormwater surcharge, particularly in relation to direct inflow from the private property,

(ii) A genuine commitment to engagement and consultation has been demonstrated which has helped foster a broad understanding of the challenges and outstanding issues for the wastewater discharges,

(iii) The Applicant has presented conditions and methods to address the outstanding issues and has committed to a regime of progressive improvement to reduce the frequency and volume of overflow discharges, and

(iv) The submissions and pre-hearing meeting have provided informed comments and the opportunity for the community and tangata whenua to present their concerns on the overflow discharges.

16.3 In my opinion, the outstanding issues and challenges for the overflow discharges are as follows;

(i) The discharge of untreated waste is abhorrent to tangata whenua and this has led to opposing submissions from Ngati Oneone, Rongowhakaata Iwi Trust, Te Aitanga a Mahaki Trust, and Nga Ariki Kaiputahi Iwi,

(ii) There are requests from tangata whenua and other submitters to limit the consent term to 5 years,

(iii) The performance targets will require critical assessment and review to ensure that they achieve the highest form of environmental improvement commensurate within any consent term

(iv) Unlimited funding to resolve the discharge issues is not available and there will be costs for the upgrade and maintenance works which will need to be borne by the Applicant and also by individual landowners. This does constrain and influence the progress and timescale of works to achieve the necessary improvements and upgrades to the wastewater network,

(v) The national policy direction requires greater focus on the health and wellbeing of water bodies including protecting the mauri of water, and

(vi) The Tairāwhiti Plan sets a policy direction that does not support dry weather overflows or a consent term for longer than 5 years without evidence of network improvements.

16.4 In my opinion, the granting of consent for both wet weather and dry weather overflows is both a necessary and appropriate response to the existing overflow discharges. While I acknowledge the calls for a shorter-term consent, it is my opinion that a 20-year term for wet weather discharges is appropriate subject to more detailed and stringent conditions. The Applicant already has effective methods to manage dry weather overflows. In my opinion, these should be enhanced and developed such that an eradication strategy is adopted for dry weather overflows within a 10-year consent term.

16.5 I very much anticipate that there will be further evidence and submissions on the term and any conditions of consent from the Applicant and submitters. I have prepared a schedule of comments and recommendations (**Appendix 5**) in relation to the conditions proposed by the Applicant. These can be further addressed through the hearing process.

Report prepared by: **Todd Whittaker , Consultant Planner**

15 June 2021

Report reviewed by: **Sarah Hunter, Resource Consents Manager**

15 June 2021

Approved for issue by: **Helen Montgomery,**
Director, Environmental Services and Protection

15 June 2021

GISBORNE DISTRICT COUNCIL – COMMUNITY LIFELINES
APPLICATION FOR OVERFLOW DISCHARGES FROM THE WASTEWATER NETWORK

HEARING REPORT PURSUANT TO SECTION 42A
OF THE
RESOURCE MANAGEMENT ACT 1991

APPENDICES

APPENDIX 1	DISCHARGE LOCATION MAP
APPENDIX 2	MINUTES FROM PRE-HEARING MEETING
APPENDIX 3	WASTEWATER NETWORK -TECHNICAL REVIEW
APPENDIX 4	HUMAN HEALTH/ECOLOGICAL TECHNICAL REVIEW
APPENDIX 5	SCHEDULE OF COMMENTS AND RECOMMENDATIONS ON CONDITIONS.

APPENDIX 1 DISCHARGE LOCATION MAP

LEGEND

- Overflow P1
- Overflow P2
- Overflow P3
- Scour
- Sewer Line - Industrial
- Sewer Line - Domestic
- Taruheru River
- Tūranganui River
- Waikanae Stream
- Waimata River

N

Tūranganui-a-Kiwa / Poverty Bay

GISBORNE DISTRICT COUNCIL

GISBORNE SEWER NETWORK

Date: 4/06/2020

Scale @ A3 1:30,000

APPENDIX 2 MINUTES FROM PRE-HEARING MEETING

Minutes from Pre-Hearing meeting

Application References: **DW-2020-109732-00/WD-2020-109733-00**

Applicant: **GDC- Community Lifelines**

Held: **Gisborne District Council Chambers**

Tuesday 23 March 2021, 3.15pm-5.30pm

Attendees:

- Patrick Willock (independent facilitator)
- Neville West (GDC as Applicant)
- Wolfgang Kanz (GDC as Applicant - via Zoom)
- Ian Mayhew (4Sight Consulting for GDC as Applicant)
- Megan Humphreys (4Sight Consulting for GDC as Applicant)
- Sarah Hunter (GDC regulatory)
- Todd Whittaker (GDC regulatory)
- Samuel Lewis (Rongowhakaata)
- Cathy Walker (Hauora Tairawhiti, arrived late)
- Tom Kay (Forest & Bird, via Video Link)
- Beverly Dwyer (Seymour Rd resident)
- Collen Dwyer (Seymour Rd resident)
- Suzanne Orchard (Marion Drive resident)
- Janet Crawford (Dominey Street)
- Gillian Ward (lived beside Taruheru for 20 years)
- Murray Palmer (Rongowhakaata)
- Josie McClutchie (Turenne Street resident; also collaborated with GDC on DrainWise education programme)
- Ruby Smith (Seymour Rd resident)
- Gordon Webb (Seymour Rd resident, arrived late)
- Charlotte (GDC – listening in out of interest)
- Hannah Kohn (GDC – submitter but listening in out of interest)
- Melita Raravula (GDC - submitter but listening in out of interest)
- Ally Campbell (GDC - listening in out of interest)
- Rachel Ainsworth and Margot Ainsworth (public submission - Rachael also works for GDC)
- Bramantino Armiento (GDC Consents – listening in out of interest)

Minutes:

Patrick Willock called the meeting together at 3.30 after attendees had refreshments and Samuel Lewis was asked to open it with a Karakia.

Patrick Willock outlined the proposed format for the meeting, including the "Without Prejudice" and "Chatham House Rules" nature. He emphasised the informality of the meeting compared to the actual Hearing, and urged interested parties to participate, particularly if they had specific concerns.

- Ian Mayhew, Neville West, & Wolfgang Kanz (by Zoom) outlined the particular aspects of the application pertinent to this meeting, including any new updates/information they had. They listed the work that had already been done. They emphasised that a large part of the GDC waste/storm water drainage is on private property which makes total management of the network difficult.
- The Ministry of Education tendered an apology but indicated they were happy with the interaction with GDC to date, but very much wanted to be part of ongoing proceedings.
- Interested parties raised a number of concerns:
    1. Length of the consent applied for – many thought it was too long, GDC response was that a longer one was more efficient. This appeared to only partially allay concerns. The final length will be determined by the hearings panel.
    2. The effect on the waste water overflow of private property drains. There was concern expressed that this had been around for many years with little tangible progress being made. It was felt that the Drainwise program needed addressing. GDC explained their "Infrastructure Improvement on Private Property" strategy which would include a council lead process where GDC would manage the inspection and economies of scale advantages to remediation. CCTV inspections would be done on private property. To date a collaborative approach has proved preferable to a hard-nosed enforcement approach.
    3. There were areas where the overflow ran from a manhole along a swale adjacent to a footpath to the actual creek – inappropriate in a populated area and should be piped.
    4. The banks of the creek itself had been allowed to become overgrown, some adjoining residents had attempted to keep it clear, and had planted native trees.
    5. More technical questions on the overflow performance and the rate of trending towards 50% probability of discharge, possible work to be done on health risks in water ways.
    6. Will there be a risk with a 20 yr consent GDC will be largely compliant and so miss out on any central government assistance available to poorer performing councils.
    7. Parties asked that the condition regarding private property underground stormwater pipe problems be strengthened. GDC responded that they knew where the worst problems were and they were concentrating on that.

The applicants responded to a lot of the concerns. They acknowledged the concerns and clarified what they had achieved thus far, and what progress they expected going forward.

Actions:

- Information to Jan Crawford regarding planting and clearing of the creek, and possible effect on fish life.
- There has been an evaluation of the stream from an environmental aspect. There is a report that covers that in the application. Jan & other submitters would be directed to that report.
- A section 92 report on the Turenne St/ Seymour Rd drain to be put on the website.
- Neville West to meet Gordon Webb on site to look at the open swale situation and option of piping short length.

- Application information and links on website to be confirmed – specific request for identification of options to identify and assist private land owners with private connections and inflow/infiltration issues
- Additional information that has come to hand to be provided to all parties well before the hearing.

Conclusion:

Todd Whittaker explained his role in reviewing, assessing and reporting on the application as opposed to the planners for the applicant and how the two roles were kept separate in a Unitary Authority such as GDC.

He outlined his independent review team. Any technical work done by the review team will not be for the applicants, and will be available to parties and the hearings panel.

He explained the process going forward and how the application would be determined before Independent Commissioners most likely chaired by Alan Watson and include 2 others and possibly be in June/July.

Any real technical evidence presented by submitters should ideally be pre-circulated.

He will be preparing a report on the application, including his assessment, his comments on the submissions, and recommendations. This will be circulated prior to the Hearing and be a part of the hearing.

He believes that any consent would have to have conditions demonstrating progress towards targets and have review clauses.

Patrick Willock thanked all the participants for the positive spirit all parties displayed. He urged the submitters to continue their involvement and participate in the Hearing, that although some might find the formality of the process somewhat daunting, the commissioners would do their best to make them feel comfortable, and that the commissioners could only take into account matters raised before them on the day. Simply attending the pre-hearing was not enough.

The meeting closed at 5.35pm with a karakia from Katerina Maka.

Signed as a correct and true record

FACILITATOR SIGNATURE P.Willock Patrick Willock

DATE 4/05/2021

APPENDIX 3 WASTEWATER NETWORK -TECHNICAL REVIEW

Tonkin+Taylor

Memo

To:	**Todd Whittaker; Sarah Hunter; Juliet Milne**	**Job No:**	**1015531**
From:	**Simon Aiken**	**Date:**	**14 June 2021**
Subject:	**Gisborne District Council Wastewater Discharge Consent**		

Executive summary

1. Gisborne District Council (GDC) is seeking a resource consent that authorises the discharge of wastewater via overflow from the Gisborne City Wastewater System (GWS) within the Gisborne Reticulated Services Area. This includes:
    a. Discharges from formal and informal overflow points within the system during defined wet weather events; and
    b. Discharges from formal and informal overflow points within the system as a result of dry weather overflows.
2. Within my scope of review the Applicant has submitted extensive technical documentation to support the application which collectively demonstrates a good understanding of wastewater hydraulic modelling, risk factors specific to the Gisborne wastewater network and a multifaceted approach to Inflow and Infiltration (I&I) reduction.
3. As part of my assessment, I have reviewed the configuration of the GDC wastewater network alongside the current operation and maintenance activities, based on my experience GDC's approach to network management can be considered comparable to other wastewater utility operators across New Zealand. In general, this is supported by the Water NZ overflow performance benchmarking put forward by the Applicant.
4. The DrainWise programme is the umbrella name for GDC's initiatives related to improving wastewater overflow performance. Based on my review of materials and technical reports submitted as part of this application I believe that the proposed reduction targets are likely to achieved. Although, without historical I&I flow monitoring undertaken and reported in accordance adherence to Water NZ I&I best practise methodology it is difficult to determine if the proposed reduction in the private network will be fully realised. Acknowledging this risk, the Applicant has provided alternative approaches to achieving the proposed targets.
5. Based on the complex nature of I&I investigations and the level of investment required to meet the proposed containment targets I support a consent term of up to 20 years for wet weather overflows. My support is dependent upon a more rigorous set of conditions current proposed by the Applicant.
6. In my opinion the application was notably limited in an assessment or proposed mitigation associated with dry weather overflows.
7. I support a consent duration of no longer than 10 years for dry weather overflows, my support is dependent upon the Applicant developing a more robust set of conditions to support the eradication of dry weather overflows.

Introduction

Professional Background

8. My full name is Simon James Aiken
9. I hold a Bachelor of Science and a Master of Science (1st Class) from the University of Auckland conferred in 2007 and 2009, respectively.
10. I am employed at Tonkin & Taylor NZ Ltd (T+T) where I am a Senior Water Resources Scientist. I have worked for T+T for 5 years. My previous experience was with Auckland University Consulting Services (Uniservices), Watershed Engineering Ltd and Auckland Council. Overall, I have 10 years of experience in water resources research and as a consulting Water Resources Consultant.
    a. I have experience in stormwater and wastewater management. In particular the interaction between landcover, stormwater runoff, asset condition and illicit inflow(s) into the wastewater network (and vice versa). I work extensively for local government on stormwater and wastewater asset planning, including the development of hydraulic models and Inflow and Infiltration (I&I) studies and investigations. Recent projects that demonstrate my experience include:
    b. Auckland Council Safe Networks (2017 – 2019). I was the lead consultant and project manager for T+T's involvement in the Auckland Council Safe Network programme. The objective of this programme was to systematically identify and reduce infiltration of wastewater into the stormwater network alongside dry and wet weather overflows. The purpose of which was to improve bathing beach and contact recreation standards in the receiving environment. My role included the development, planning and technical review of I&I studies, supervising and undertaking field investigations.
    c. These investigations included review of network asset information and pump station telemetry as well as private property assessments, using a combination of CCTV, smoke and dye testing and radio frequency tags, to detect illicit cross-connections between stormwater and wastewater networks.
11. Whanganui Prison Stormwater discharge consent (2018-2021). I was the principal consultant and programme manager for T+T's involvement for the Whanganui Prison stormwater discharge consent. This is a complex, non-complying and publicly notified resource consent application. The work programme has included the following studies and investigations:
    a. Stormwater network investigations (CCTV & asset surveys);
    b. Cured in place pipe lining and construction observation to address infiltration into the stormwater network;
    c. Stormwater water quality investigations and assessment ;
    d. Groundwater quantity and quality investigations;
    e. Best Practical Option Assessment for treatment of stormwater prior to its discharge;
    f. Input into expert evidence for matters related to stormwater engineering and surface water quality; and
    g. Stormwater hydraulic network modelling.
12. Auckland Council Radio Frequency Tag Study (2018 – 2019). This innovative study involved the novel application of Radio Frequency Tags (RFID) to assess the performance of RFID tags in 'real world' wastewater and stormwater networks. Conceptually, RFID tags are deployed into the wastewater system (typically from a wastewater gully trap or household toilet). The RFID tags are then transported through the network and a specialised antennae detected the RFID tags as they pass through a stormwater or wastewater manhole chamber. The presence of a tag in a stormwater manhole identifies a cross-connection.

Code of Conduct for Expert Witnesses

13. I have read the Code of Conduct for expert witnesses contained in the Environment Court's Practice Note 2014 and I have complied with the Code in preparing this evidence. The evidence I am about to give is within my area of expertise and represents my best knowledge about this matter. Where relevant I have sought input from my colleagues at T+T. I am relying on Ms Juliet Milne for matters relating to ecology and human health risk and Mr Todd Whittaker for matters relating to planning and policy.

14. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Scope of Evidence

15. In my evidence (on behalf the Consent Authority) I will cover the below:
    a. Gisborne District Council wastewater infrastructure, performance and maintenance;
    b. Causes of wet and dry weather overflows;
    c. The approach of the wastewater network modelling to predict overflow performance;
    d. The suitability of the DrainWise programme to meet the proposed performance targets;
    e. Other considerations; and
    f. Proposed Consent conditions.

Review process

16. In preparing this statement of evidence I have considered the following documents:
    a. Gisborne Wastewater Network – Overflow Discharges: Resource Consent Application and Assessment of Effects on the Environment. Prepared by 4Sight Consulting;
    b. Gisborne Wastewater Network – Overflow Discharges S92 dated 29 January 2021;
    c. Gisborne Wastewater Network – Overflow Discharges S92 attachment A (summary response) dated 29 January 2021;
    d. Gisborne Wastewater Network – Overflow Discharges S92 attachment B (Wastewater Modelling) dated 29 January 2021;
    e. Gisborne Wastewater Network – Overflow Discharges S92 attachment B1 (Flow Monitoring Report) dated 29 January 2021;
    f. Gisborne Wastewater Network – Overflow Discharges S92 attachment E (GDC Dry Weather Overflow Protocols) dated 29 January 2021;
    g. Gisborne Wastewater Network – Overflow Discharges Further S92 Response dated 21 April 2021;
    h. Water NZ Infiltration and Inflow Control Manual Volume 1, 2nd edition, March 2015;
    i. CIWEM Urban Drainage Group: Code of Practice for the Hydraulic Modelling of Urban Drainage Systems Version 01; and
    j. Watercare Services Limited Wastewater Modelling Specification Version 04.

Gisborne District council wastewater infrastructure, performance and maintenance activities

17. The Applicant has provided detailed evidence in respect to the wider wastewater infrastructure servicing Gisborne. I summarise key points below.
18. Gisborne's urban area is serviced by separate stormwater and wastewater networks. The wastewater reticulation was constructed incrementally since the 1900s. Initially the network drained Whataupoko, Cook Hospital, inner Kaiti, the city, Victoria Township (Salisbury Rd, Beacon St, Awapuni Rd) and southeast Te Hapara into two septic tanks. From 1958 to 1965 the system was enlarged with the addition of pump stations to serve its present area, draining via interceptors to the newly constructed ocean outfall, in Tūranganui-ā-kiwa/Poverty Bay (the Bay), which was commissioned in 1965.

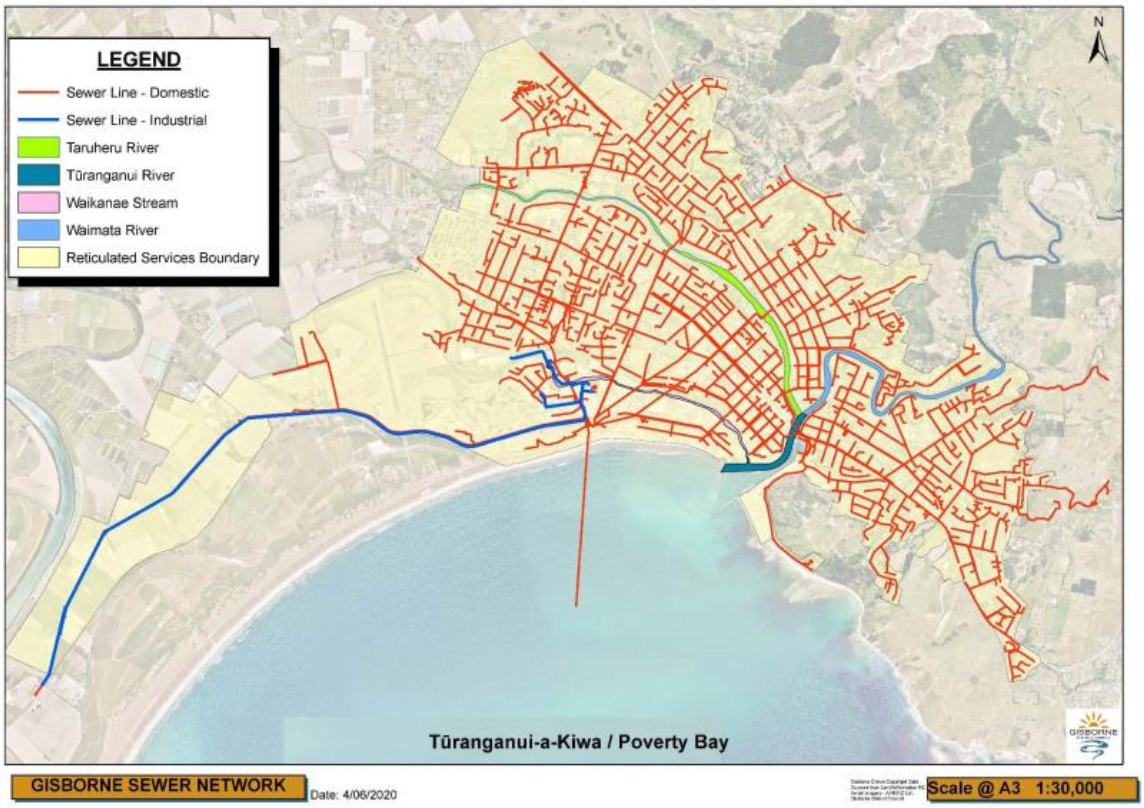

Figure 1: Map of the Gisborne Wastewater Network (source: Applicant)

19. Approximately one third of the wastewater network has its sewage pumped and the remainder relies on gravity to get to the WWTP.
20. The design and construction of this network predates the implementation of modern engineering design standards which consider different rainfall patterns and the impacts of climate change. Although undesirable the design and construction of overflow relief points in wastewater networks is standard engineering practice.
21. Historically uncontrolled wastewater discharges occurred during periods of wet weather. Over time incremental upgrades to the wastewater network have been undertaken to improve the capacity of the system and reduce the frequency and volume of overflows. Despite this wet weather overflows still occur via the following:
    a. Two primary overflow points (utilised only where necessary);
    b. Two secondary points, utilised only in large events (between the 5% and 10% AEP events) as circumstances require and
    c. Up to six tertiary overflow points, which may be required to be opened in very large rainfall events (larger than the 10% AEP).
    d. All require manual opening of the control mechanism for a wet weather overflow to occur.
22. The opening of these valves allows for WWOs to occur only when absolutely necessary to avoid uncontrolled overflows. The operation of the system has been developed and refined by GDC over time so that overflows are now managed to occur in a hierarchy that is intended to minimise human health risks and ecological impacts. This has been captured in the Operation and Maintenance plan supplied by GDC as part of the resource consent application.
23. The Applicant acknowledges that in extremely heavy and infrequent rainfall events (larger than the 5% AEP), where surface water flooding is extensive and deep, numerous gully traps could be overtopped by flood waters and overflows could occur from both the controlled (primary, secondary and tertiary) and uncontrolled (manholes/private property) overflow points. The low-lying topography makes managing this type of inflow particularly difficult.
24. For the purposes of this application, it is important to distinguish the difference between wet and dry weather overflows (note that I will deal with Inflow & Infiltration (I&I) sources separately)

a. Wet weather overflows: during wet weather, too much stormwater gets into the separate sanitary sewer system, which is the set of pipes designed to carry only wastewater. The pipes are not able to handle the extra volume of stormwater during rainy weather, so dilute untreated sewage overflows into waterways or onto private property.
b. Dry weather overflows: As the name suggests, this type of overflow does not involve increased volumes of stormwater getting into the network but is caused instead by blockages caused by the build-up of fats, tree roots or other materials in the network.

25. Modelling undertaken by Beca Limited[1] that confirms that Gisborne's wastewater network has been designed and constructed adequately to convey six times Average Dry Weather Flow (ADWF) in the upper catchment and four times ADWF in the main interceptors without overflowing.
    a. Despite the application seeking consent for both wet and dry weather discharges from the wastewater network the application provided limited commentary on dry weather discharges, outside of the Operation and Maintenance Plan.
26. In terms of the limited information the Applicant has provided concerning dry weather overflows they have demonstrated a good understanding of the risk factors specific to their network and have prepared an Operation and Maintenance Plan to proactively manage these risks, including:
    a. Build-up up fats and grease
    b. Sanitary and wet wipes and foreign objects (toys, clothing etc) and
    c. Sections of the wastewater network that do meet minimum desirable grades (Figure 2
    d. Response plans and appropriate follow-up actions (e.g., notifying public health officials)

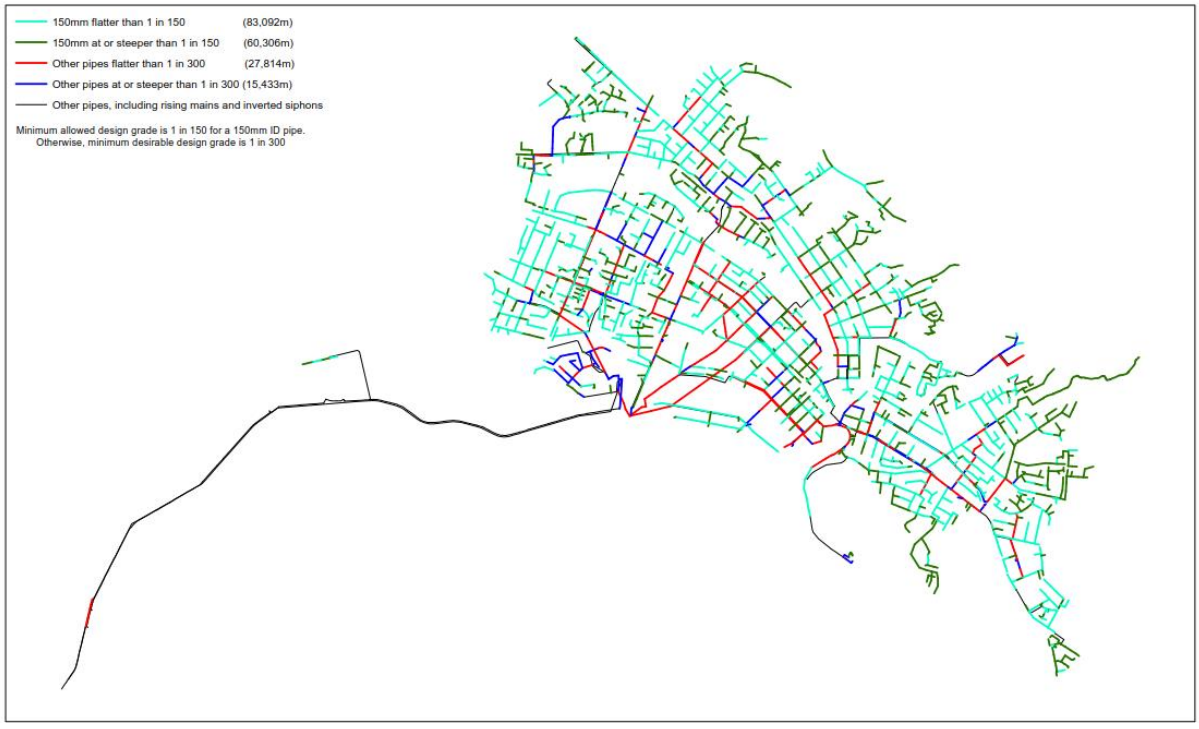

Figure 2: Gisborne Wastewater Network Pipe Gradients (source Figure A1 Beca, 2017)

27. GDC have positioned the DrainWise programme as the umbrella programme for managing the wet weather performance of the wastewater network.
28. In summary the network configuration and management of the GWS follows standard industry practice and is undertaken by a Tier 1 contractor (Fulton Hogan) with a contract duration sufficient to encourage investment and develop specific local knowledge concerning wastewater network performance. Based on national benchmarking prepared by Water New Zealand GDC have been able

[1] Gisborne Wastewater Network Model Updates and Upgrades. Prepared for Gisborne District Council (Client). Prepared by CH2M Beca Ltd (Beca) 16 November 2017

to demonstrate that for both wet and dry weather overflows GDC's wastewater network performance is comparable to national practice.

The approach of the wastewater network modelling to predict overflow performance

29. In the early 2000s a wastewater hydraulic model was built by CH2M Beca for the purposes of understanding the impact of I&I on network performance and assessment of engineering options to improve the performance of the wastewater network. Over time the model has undergone incremental improvements, including an external review in 2017. These improvements are summarised below:
    a. Calibration against flow survey data (2007);
    b. Addition of gully traps to enable modelling of some known on-property flooding issues;
    c. Explicit modelling of pump station operation;
    d. Addition of rising mains with correct asset information;
    e. Sub catchment (re)delineation and connectivity calibration;
    f. Model recalibration following updates census information (2012) and
    g. Updated asset data, including asset survey data, additional areas serviced by the network and modelling the wastewater treatment plant (WWTP) inlet design (2017).
30. I note that much of supporting information normally associated with a wastewater hydraulic model was not made available to me during my review and I am relying on the material provided in the resource consent application and S92 material. I summarise the most relevant information below.
31. In regard to the modelling software used for the hydraulic calculations, InfoWorks is a suitable model for assessing the performance of the wastewater network and engineering improvement options.
32. Despite the approach to model hydrology (that is runoff from impervious areas into the wastewater network) using superseded HIRDS v3 the Applicant has been able to demonstrate the difference is negligible in comparison to HIRDS v4. Based on this I am satisfied that the approach to model hydrology and runoff modelling is sufficiently conservative for the following reasons:
    a. The rainfall depth falls the same across the entire catchment (in reality this is unlikely to occur);
    b. Application of a 'peaky' TP108 (modified with rainfall depths specific for the Gisborne district) design storm profile;
    c. Allowances for climate change to adjust rainfall depths; and
    d. Fully saturated catchment (maximizing runoff into the wastewater network).
33. While I agree with the Applicant's approach to model hydrology. I note that Applicant has had occurrences where the overflow valves have not been opened for events that exceed the 50% AEP and in other instances where overflow valves were opened for events less than the 50% AEP suggesting that modelling using a long time-series could be another useful approach to assess the performance of the wastewater network.
34. I have reviewed modelling reports and Tairāwhiti Maps[2] for completeness of asset information. As part of any hydraulic modelling exercise, it is unavoidable that asset data will be missing. However, based upon the continuous improvement approach adopted to the model (e.g., asset surveys and inclusion of new assets) and assumptions detailed in the modelling report (e.g. missing manhole inverts are extrapolated from known levels upstream and downstream) I am satisfied with the modelling undertaken to support the DrainWise programme.
35. In general, I agree with the conclusions of Beca Ltd that the flow monitoring undertaken for model calibration show that the network is dealing with significant direct stormwater inflow (fast response), then rain derived infiltration followed by groundwater infiltration.
36. There is a degree of uncertainty in many aspects relating to environmental modelling. The list of areas of uncertainty is large, given the number of data inputs and the complex numerical calculations that transfer physical processes into a mathematical form. However, based on the materials provided I am satisfied that the model is sufficiently detailed and robust to represent the GWS and overflow performance.

[2] https://maps.gdc.govt.nz/

The suitability of the drainwise programme to meet the proposed performance targets

37. The DrainWise[3]initiative is the umbrella programme that seeks to work with private property owners to help fix problems with wastewater and stormwater drains. The programme is multi-faceted, and includes the following:
    a. Stormwater and wastewater network (capital) upgrades, renewals and extensions;
    b. Property inspections to identify problems and associated repairs;
    c. Enforcement of public-funded works on properties;
    d. Focus projects; and
    e. Education and awareness.
38. The purpose of the DrainWise programme is to progressively reduce stormwater inflow into the wastewater network and reduce the frequency and volume of overflows.
    a. Table 14 of the application provided specific details on overflow performance (see Figure 3). I agree that based on the findings of wastewater hydraulic modelling and scope of the DrainWise programme that these targets are achievable. Noting that I raise concerns relating to the quantum of reduction in stormwater inflow that is practically achievable.
    b. Considering the 'indicative' target timeframes for *wet weather overflow frequency level of service andwet weather overflow (figure 3) volume* I would expect reporting on a three to five yearly basis to demonstrate any trends or stepchanges in network performance. In light of [33][I would expect more rigorous reporting that takes into account other factors that may be contributing to overflow performance.

Issue	Objective	Measure/Target	Target Timeframe	Reporting (annual based on financial year)
Wet Weather Overflow Frequency Level of Service	Progressively reduce frequency of overflow events	Progressive reduction in frequency (indicative)	On-going – indicative until target below [17]	Number of overflow events Duration of each overflow event Return period rainfall assessment for each overflow event
		No overflows in events up to and including 50% AEP rainfall event	**10 years** after commencement of consent	
Wet Weather Overflow Volume	Progressively reduce volume of overflow events for a similar size rainfall event.	Progressive reduction in volume for same AEP rainfall event (indicative)	On-going – indicative [18]	Volume of each overflow event Return period rainfall assessment for each overflow event Total volume of overflow per year
Overflows opened in a wet weather event	Limit overflows to primary and secondary overflow points in all but very large rainfall events	Primary only – up to 50% AEP event Secondary – only opened in events larger than 50% AEP Tertiary – only in events > 10% AEP	**5 years** after commencement of consent	Overflow locations opened Return period rainfall assessment for each overflow event
		Primary and secondary – only in events larger than 50% AEP Tertiary – only in events > 10% AEP	**10 years** after commencement of consent	

[17] Indicative because change will take some time to become fully evident

[18] Indicative because relationships between AEP and volumes are complex and require further assessment

Figure 3: Summary of Wastewater Overflow Consent Objectives and Targets (source:Applicant)

39. It should be noted that in most urban catchments I&I originates from stormwater, but I&I could also originate from groundwater or seawater. For completeness other sources of inflow and infiltration are also outlined in the following sections
    a. Inflow enters the wastewater system directly, e.g., via illegally or misconnected stormwater drains. With a fast response and very short time of concentration to rainfall, typical inflow sources may consist of: direct roof downpipe connections; low or damaged gully traps that act as drainage points, catchpit drainage cross-connections, shallow defects in private sewers permitting direct stormwater entry; and inspection openings with loose or missing caps.

[3] https://www.gdc.govt.nz/council/major-projects/drainwise

Inflow sources are generally easier and less costly to detect and repair than those of infiltration.

b. Infiltration typically has a longer response time than that of inflow and also has a longer effect on the network. Infiltration sources can be due to either groundwater or rainfall and typically consist of the following: cracked public sewer or private sewer pipes; open and moved joints in either public or private sewer pipes; and cracks in or construction joint leaks in manholes, lampholes, and other wastewater structures. Infiltration is generally more difficult to detect and locate than inflow. Also, the total volume from infiltration resulting from a particular storm event is typically more than the volume of inflow. The typical sources of inflow and infiltration are shown on Figure 6

40. The Applicant has provided evidence in the form of data collected from private properties that the 'private' wastewater network (i.e., lateral connections from private properties to public network) are the primary cause of high and medium influxes of stormwater into the wastewater network. The Applicant has supported this conclusion through investigations (i.e., CCTV and smoke testing), private property inspections.
41. The Applicant has determined that the public network is a 'low impact' source of I&I due to the following:
    a. Proactive and reactive maintenance and renewals of wastewater assets;
    b. Fewer direct ingress points (i.e., manhole lids are sealed and generally found on the crown of the road); and
    c. The private network is located deeper and is less prone to stormwater cross-connections.

Figure 4: I&I network impacts (sourced: application)

42. I generally agree with the Applicant's approach and conclusions, noting that I have concerns I raise below:
    a. The Applicant has recorded instances where the overflow valves have not been opened for events that exceed the 50% AEP and in other instances where overflow valves were opened for events less than the 50% AEP, suggesting that there are other competing influences controlling the frequency and volume of wet weather overflows.
    b. Rainfall derived I&I (RDII) is a complex, it is often as a result of localised sections of the network that disproportionally contribute (i.e., several illegal connected gully traps) to I&I problems. The volume of I&I is not static and can be impacted by a range of factors such as ground water levels that fluctuate seasonally, rainfall intensity, tidal levels, pipe condition

that deteriorate over time, (new) illegal connections to the network and overland flow paths of stormwater causing ponding and entering the wastewater network through gullies.

c. Reducing inflow and infiltration volumes can prove challenging, once identification of I&I sources are identified and remediated there is a risk that a reduction in flows will not be observed as expected. This is due to the fact that once wastewater pipes are running full no additional water can enter the network, removing known I&I sources reduces the volume of water and therefore there is a risk that water can now enter the pipe from a different I&I source.

43. As noted by Ms Milne I agree that the cause of chronic faecal contamination in Kopuawhakapata Stream should be investigated and remediated as a matter of urgency under the DrainWise programme.
44. In my opinion the underlying risk to the success of the Drainwise Programme is that as sources of inflow (which no doubt exist) are eliminated from the private network new sources of inflow and infiltration will appear. Without strict monitoring and quantification of different sources of I&I following the approach set out in the Water NZ Infiltration and Inflow Control Manual Volume 1 and 2, 2nd edition, March 2015 there is a risk GDC may experience diminishing returns on investment over time. Further, it should be noted that success may not be uniform across the city. Noting this point the Applicant has modelled (75% and 65% reductions in stormwater inflow) and costed wastewater network upgrades to address scenarios where the 85% reduction in stormwater inflow cannot be achieved.
45. Water NZ Infiltration and Inflow Control Manual Volume 1 and 2, 2nd edition, March 2015 represents best practice for I&I reduction programs. It includes a 5 stage I&I reduction methodology that aims to quantify and understand the rainfall derived inflow and infiltration based on extensive data collection exercise, before solutions are developed and effectiveness measures, see Figure 5.

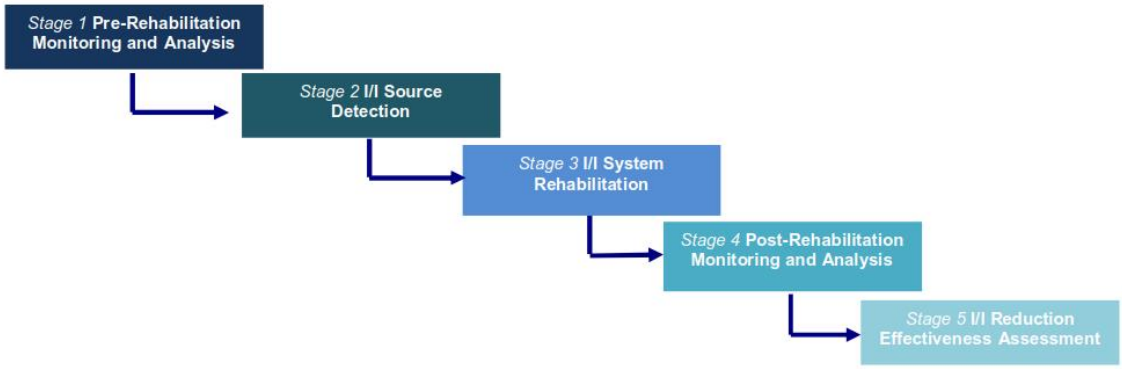

Figure 5: Good practice I&I reduction methodology[4]

46. Typically, a catchment is broken down to large catchments to prioritise areas that are then broken down to smaller sub catchments. These catchments are typically assessed against key performance indicators as noted in Water NZ Infiltration and Inflow Control Manual. These include:
    a. Groundwater infiltration (GWI) or base flow;
    b. Rainfall Dependent Inflow and Infiltration (RDII); and
    c. Wet Weather Peak Flow factor, defined by stormwater inflow (SWI).
47. This document also notes typical ranges where little, or no infiltration is present and suggests threshold trigger values to help determine whether pursuing a I&I reduction program is likely to be successful. The application submitted by GDC does not specifically mention the Water NZ Infiltration and Inflow Control Manual Volume 1 and 2 or utilise their KPIs. It is therefore not possible to conclusively assess whether their desired reduction volumes are likely to be achieved in reality.
    a. For example, their programme is predominantly focused on reducing inflow, if their SWI KPI is already within a typical range it would be extremely difficult to measure any reduction in inflow volumes.

[4] Water NZ Infiltration and Inflow Control Manual Volume 1, 2nd edition, March 2015, Figure 11-1

48. In summary after reviewing the DrainWise programme in respect to Table 14 of the report that provides a summary of the wastewater overflow consent objectives a high-level review indicates that:
    a. Targets related to the public wastewater network and management and upgrading, public stormwater drainage improvements are likely to be achievable within a well manged program of work.
49. Noting the concerns raised in points a [42] (a, b & c) a progressive reduction in frequency and volume of overflow events are also likely to be achieved provided GDC can obtain the required buy in from private property owners to address identified inflow issues. In their report GDC state approximately 50% of the network is owned by Council with the remainder being privately owned, the majority of reduction is targeted at this privately owned network. The required work on private property will pose challenges to successfully reducing I&I flows. To address this risk GDC appear to have well thought out procedures and support in place to facilitate this process.
    a. Referring back to 37(b) and the options modelling completed by CH2M Beca I note that an 85% reduction in gross stormwater inflow would represents a ~99.6% reduction in annual overflow volume[5].
50. My interpretation is that the DrainWise initiative is a comprehensive and proactive I&I reduction programme which has been underpinned by sound engineering judgement and asset management principles. The scope and aims of DrainWise can be considered good practise. Based on the information available to me I believe DrainWise is likely to be successful in the consent timeframes proposed by the Applicant. This is based on the following:

[5] See Table 3: overflow response to reduction in stormwater inflow

a. Sources of stormwater inflow are typically easier to locate and remove, which is the immediate focus of DrainWise.
b. The Applicant has demonstrated that there is considerable scope to achieve reductions in stormwater inflow into the wastewater network and
c. DrainWise integrates public education, network improvements and systematic approaches to stormwater/wastewater management which will be required to achieve long term success.

51. My principal concerns are:
    a. The reduction in inflows from the private wastewater network required to achieve compliance with the proposed containment standards is high.
    b. As 'private' sources of stormwater are removed additional sources of inflow may appear, providing capacity for other sources of I&I.
52. Despite the concerns above the Applicant has committed to overflow volume and frequency reductions, which, if required, can be achieved by upgrades to the network. I would encourage the Applicant to consider ongoing flow monitoring to track the success of the DrainWise Programme.

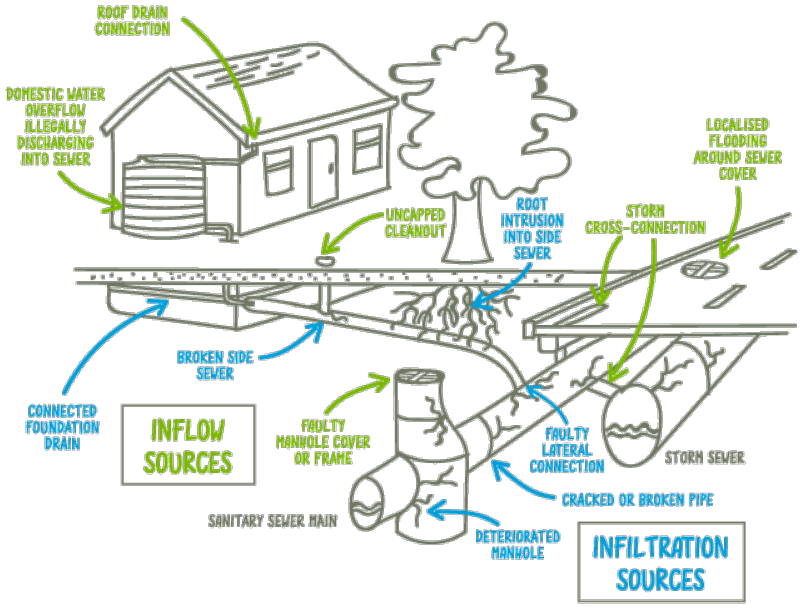

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Figure 6: Sources of Inflow & Infiltration (source AECOM Australia)

Conclusions

53. The application is comprehensive in terms of size and extent of technical assessment. Based on the technical reports and information made available to me the configuration and maintenance of the GWS is consistent with good practise elsewhere in New Zealand.
54. The technical reports I have reviewed have focused on the suitability of the wastewater modelling to replicate wet weather overflow performance and the appropriateness of the DrainWise programme to achieve a reduction in wet weather overflow volume and frequency to meet the containment standards put forward by the Applicant.
    a. Based on my finds I am satisfied that the wastewater model can adequately represent the performance of the GWS and that the outputs from this model can be relied upon for the assessment of risks to ecological and human health.
    b. While I note several concerns that underpin the DrainWise programme, in particular the level of reduction required from the private network I am comfortable that the Applicant has sufficient mitigation in place to manage this risk.
55. The application, although comprehensive in the assessment of wet weather overflows is noticeably limited on dry weather discharges. I would expect to see more stringent operation and maintenance procedures translated into the proposed conditions of consent.

Proposed consent conditions

56. I have reviewed the proposed conditions from the Applicant[6]. My comments below are made on the assumption that those conditions represent a minimum baseline.
57. I support the intent of proposed condition 4 (in Section 9.2 of the application) to have in place and adhere to an Operations and Maintenance Plan (including a Maintenance Programme), a Wastewater Overflow Location and Operation Manual (including overflow valve opening procedures and notification processes) and an Overflow Response and Contingency Plan. However, more detail is recommended on the minimum requirements of these plans, including keeping them up to date (e.g., through annual review or response to network upgrades).
58. The applicant should develop schedules and key performance indicators for wastewater network inspection and maintenance (e.g., periodic jet-blasting of areas of known to block up, CCTV inspections, cleaning out of adjacent pipes prior to forecast storms and post-storm maintenance)
59. If the Applicant has not considered the following, I would encourage them to do so:
    a. Quantify the available storage at each pumping station[7] including any network storage available to know the required response time to respond to issues at a particular pumping station;
    b. Installation of cost depth sensors to be installed that can be remotely monitored. These would be located within manholes where the gravity network that fails to meet self-cleansing velocities or known 'hotspots' (i.e., manholes with a history of repeat overflows) to allow prior warning of blockages occurring before an overflow occurs; and
    c. GDC to develop and implement I&I monitoring plans in accordance with Water NZ I&I manual. These would be focused specific sub catchments relevant to the DrainWise programme and would be used to track the efficacy of I&I reduction efforts.
60. The effectiveness of works to reduce overflows discharges located behind properties on Seymour Road (Seymour – Turene Overflow Point) and entering the Waimata River via Owen Drain should be monitored and reported as a condition of consent.
61. I agree with Ms Milne that the Applicant makes a commitment, within two years of the commencement of any consent, to identify the causes of chronic faecal contamination in Kopuawhakapata Stream and develop and implement remedial options to prevent or minimise further inputs associated with the wastewater network. The relative urgency of this investigation reflects the high risk to human health posed by current the level of faecal contamination. Possible investigations could include smoke and dye testing, flow monitoring, CCTV or fibre-optic distributed temperature sensing.
62. Even with adherence to a prioritised list of system improvements to achieve targeted reductions in overflow frequencies and volumes, and a review of these priorities annually, it would be prudent to also include a condition that requires contingency planning in the first few years of the consent should remedial works not produce the expected reduction in dry and wet weather overflow events and durations.
63. I consider it appropriate for the applicant to specifically consider a condition of consent that requires periodic update of the wastewater hydraulic model to account for significant changes in the network, a demonstrated reduction in I&I, changes in population predictions etc.

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[6] Received as part of the original application
[7] https://www.gisborneherald.co.nz/local-news/20160730/no-silver-bullet-to-improving-water-quality/

APPENDIX 4 HUMAN HEALTH/ECOLOGICAL TECHNICAL REVIEW

Memo

Prepared by	Juliet Milne, Resource Management Scientist, NIWA
To	Todd Whittaker, Director, Planning Works
cc	Sarah Hunter, Manager Consents, Gisborne District Council Simon Aiken, Senior Water Resources Specialist, Tonkin + Taylor
Date	15 June 2021
Subject	Technical memorandum to support the s42A Officer Report: Ecological and human health effects relating to Gisborne District Council's wastewater network overflows

A. EXECUTIVE SUMMARY

1. Gisborne District Council (the Applicant) has applied for resource consents for a term of 20 years to authorise the discharge of untreated wastewater overflows from Gisborne's reticulated wastewater network to land, freshwater and the coastal marine area during both dry weather and wet weather.

2. This technical memorandum considers the ecological and human health effects associated with the wastewater overflow discharges, based on a review of material provided by the Applicant.

Wet weather overflows

3. I concur with the authors of the ecological and water quality effects reports that it is very difficult to disentangle the effects of intermittent wastewater overflows on the receiving environment from the effects of other (interrelated) urban discharges, including stormwater and, in terms of Tūranganui-a-Kiwa/Poverty Bay, the effects of the Gisborne Wastewater Treatment Plant discharge. The tidal nature of the receiving environment, the influence of wind, and variation in the number, location and timing of discharges with rainfall present further challenges.

4. Overall, the urbanised river reaches are already highly modified and I am satisfied that there is a lack of evidence of any significant patterns in benthic ecology, water quality or sediment quality that can be definitively linked to existing overflows. Nonetheless, the overflows represent an *additional* source of contamination that increases contaminant concentrations – in particular faecal indicator bacteria – over and above levels that would otherwise occur. This is particularly evident in the Taruheru River.

5. The Quantitative Risk Microbial Assessment demonstrates that (incremental) risks to human health attributable to the wastewater overflows from swimming and shellfish collection will significantly decrease under the proposed future overflow scenarios. However, moderate risks remain at a few locations if shellfish are consumed raw.

6. Overall, while the wastewater overflows contribute to in-river contamination during wet weather, the effects are relatively short-term and the Applicant has demonstrated that receiving water quality is already significantly impacted in wet weather in the absence of wastewater overflows, likely largely reflecting a combination of upstream rural and adjacent urban stormwater inputs. This indicates that unless mitigation measures are put in place upstream in the catchment, background water quality will remain impacted in wet weather regardless of any reduction in wastewater network overflows.

7. I support a consent term of up to 20 years subject to conditions, including performance targets to reduce overflow frequency and duration. The conditions need to be well-designed so as to be effective for managing and monitoring the effects of the overflows on ecosystem and human health over the duration of the consent.

Dry weather overflows

8. The application provided limited commentary on the ecological and human health effects associated with dry weather overflow discharges.

9. Dilution-based calculations provided in the Applicant's s92 further information response indicates wastewater overflows entering surface water (which has occurred approximately 25% of the time in the last five years) are unlikely to adversely impact ecosystem health. A key exception is if a significant volume of wastewater entered one of the smaller streams (e.g., Kopuawhakapata, Wainui), as has occurred previously. This would reduce dissolved oxygen and raise ammonia water column concentrations to likely lethal levels for fish and other aquatic life, particularly if the discharge occurred during summer low flows in a stream with limited or no tidal flushing.

10. The Applicant's dilution-based calculations indicate that a 1,000 L volume wastewater overflow entering a stream or river (at least up to the size of the Taruheru River) in median flow conditions in summer would exceed national guidelines for contact recreation activities such as swimming. Furthermore, depending on tidal and wind conditions, there is potential for stratification of the water column such that the wastewater remains on the surface of the receiving waters for some distance upstream or downstream, increasing the risk of recreational users coming into contact with it.

11. Although the likelihood of a significant volume of untreated wastewater entering Gisborne's waterways in dry weather are low, the risk exists and the consequences for ecological and, particularly human health, are potentially very high. I therefore support a consent term in the order of 5 to 10 years subject to conditions, including performance targets to reduce overflow frequency. As noted at paragraph 7 above, the conditions need to be well-designed so as to be effective for managing and monitoring the effects of the overflows on ecosystem and human health over the duration of the consent.

B. INTRODUCTION

12. Gisborne District Council (the Applicant) has applied for resource consents to authorise the discharge of untreated wastewater overflows from Gisborne's reticulated wastewater network to land, freshwater and the coastal marine area (CMA) during both dry and wet weather. The application was lodged in June 2020.

13. Dry weather overflows occur when blockages or other faults within the wastewater network cause wastewater to overflow from manholes, gully traps and in extreme cases, pump stations. Dry weather overflows typically occur to land in the first instance.

14. Wet weather overflows occur when rainwater/ stormwater entering the wastewater network through inflow and infiltration exceeds the capacity of the network. The Applicant manually operates a series of sluice (or scour) valves to discharge overflows to rivers and streams within the

Gisborne CBD to avoid wastewater backing up in the network and flooding private property. There are currently no overflows directly to the CMA.

15. Resource consent is sought subject to the improvements and management regime described in the resource consent application, which – primarily through the Applicant's Drainwise programme – seeks to progressively reduce overflow frequencies to an average of 2.5 per year (maximum 4 per year) with an associated reduction in the volume of wastewater discharged. Currently an average of 7,000 m^3 of untreated wastewater is discharged in an overflow event. The duration sought for all resource consents is 20 years.

16. This memo is one of two technical memos that serves to support Gisborne District Council's s42a Officer Report. The focus of this report is ecological and human health risks associated with the discharges. Please refer to the s42a Officer Report for a full description of the proposed activities, receiving environment and the planning aspects relevant to the application. I am relying on Mr Simon Aiken (Tonkin+Taylor) for an assessment of technical material relating to the operation and performance of the Applicant's wastewater and stormwater infrastructure, including the ability of the Applicant to meet its proposed performance targets.

C. QUALIFICATIONS AND EXPERIENCE

17. My full name is Juliet Rosalind Milne. I am currently employed as a Resource Management Scientist at the National Institute of Water and Atmospheric Research (NIWA) in Wellington. I have held this position since May 2016.

18. My current role at NIWA has included provision of technical advice on the monitoring and consenting of global stormwater discharges across the Kāpiti Coast District and metropolitan Wellington. I am currently also an advisor to Greater Wellington Regional Council on wastewater network overflows to land and water from the Hutt Valley and Wainuiomata.

19. Prior to joining NIWA I held the positions of Team Leader Environmental Science (2007-2016) and Surface Water Quality Scientist (2005-2007) at GWRC where I had oversight of the Wellington Region's coastal and freshwater science and monitoring programmes and provided technical advice on consenting and policy development in relation stormwater and wastewater discharges. Between 1999 and 2005 I held several science and regulatory positions at the Otago Regional Council where I was involved in assessing resource consent applications and compliance for municipal and industrial wastewater and stormwater discharges to land and water.

20. I hold a Bachelor of Resource Studies in Ecology and Environmental Monitoring and a Master of Applied Science in Resource Management (first class honours) from Lincoln University, and have 23 years of work experience in environmental management, encompassing both scientific (surface water quality and ecology) and regulatory roles (resource consents and compliance monitoring) across three regional councils. My regulatory roles have primarily focused on discharges to land and fresh and coastal waters.

21. I am a member of the New Zealand Freshwater Sciences Society and the New Zealand Association for Resource Management.

Code of Conduct statement

22. I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014. I confirm that I have considered all the material facts that I am aware of which might alter or detract from the opinions that I express, and that this evidence is within my area of expertise or has been determined in consultation with colleagues with the appropriate expertise.

D. SCOPE OF THIS MEMO

23. This memo focuses on the technical aspects of the proposed discharge activities in relation to **ecological health and human health**. The memo includes:

    - comments on the technical reports assessing the effects of the overflow discharges on ecosystem and human health;
    - a brief evaluation of ecological health and human health matters raised by submitters; and
    - recommendations on granting the consent applications and draft consent conditions that provide a regulatory framework for managing and monitoring the effects of the overflows on ecosystem and human health.

24. In preparing this memo, I have reviewed the following technical reports appended to the *Gisborne Wastewater Network – Overflow Discharges Resource Consent Application and Assessment of Effects on the Environment* (the application) dated 17 June 2020:

    - Appendix H: Ecological Effects of Wastewater Overflows report – prepared by Coast & Catchment Ltd;
    - Appendix I: River water quality monitoring report – prepared by 4Sight Consulting;
    - Appendix J: Scour Event Modelling: Poverty Bay – prepared by MetOcean;
    - Appendix M: Quantitative Microbial Risk Assessment report – prepared by Streamlined; and
    - Appendix N: Emerging Organic Contaminants (EOCs) report – prepared by Streamlined.

25. To assist with my review, I have:

    - read Sections 1-7 and 9-10 of the application and Appendices D, E, F and G relating to overflow events, operation, communications, and sampling, respectively; and
    - consulted with the following relevant technical experts within NIWA:
        - Dr Helen Macdonald (Numerical Modeller with ~10 years of research and consultancy experience in ocean physics and modelling) in relation to Appendix J
        - Dr Rebecca Stott (Environmental Health Microbiology Scientist with ~20 years of research and consultancy experience in health-related water microbiology) in relation to Appendix M
        - Dr Jenni Gadd (Aquatic Chemist with a PhD in Chemistry and ~20 years of research and consultancy experience in the sources, toxicity and treatment of urban contaminants) in relation to Appendix N.

26. I have also reviewed:

    - An internal (informal) summary of submissions for matters relating to human and ecological health;

- Attachments A and C to H of the s92 further information dated 29 January 2021; and
- the second s92 information response dated 21 April 2021.

E. ASSESSMENT

27. I note as a general comment that the Applicant's Assessment of Environmental Effects (AEE) almost exclusively focusses on the ecological and human health effects associated with the overflow discharges in wet weather conditions. It appears that assessing the effects of dry weather overflows was outside of the scope of the various relevant technical reports commissioned by the Applicant. Further information was therefore sought from the Applicant on the ecological and human health effects associated with the overflow discharges in dry weather conditions.

28. The Applicant's various technical assessments of ecological and human health effects rely on the results of MetOcean's modelling of the dilution and dispersion of the discharge plume from the Tūranganui River into Tūranganui-a-Kiwa/Poverty Bay under different wind and tide conditions. This modelling is therefore addressed first. As noted at paragraph 27, the scope of MetOcean's modelling was limited to modelling of wet weather overflows but the application also seeks consent for dry weather overflows (e.g., those that might arise as a result of a pipe blockage).

Discharge and dispersion modelling

29. MetOcean's modelling of the dilution and dispersion of the discharge plume from the Tūranganui River into Tūranganui-a-Kiwa/Poverty Bay under different wind and tide conditions is documented in Appendix J of the application. Some key information on model set-up and the sources and statistics of core model input data are not included in MetOcean's report but were subsequently provided through a s92 further information request. The comments that follow are based on a review of the combined information provided through Appendix J and the further information supplied by the Applicant in January 2021 (Attachment C).

30. In terms of model choice, SCHISM is suitable for modelling the discharge plume from the Tūranganui River into Tūranganui-a-Kiwa/Poverty Bay. Whilst not explicitly stated, a 3-D version of the model appears to have been used which should be suitable to capture mixing processes. Note that a model can only ever provide a best estimate of the expected water quality concentrations; there will be some degree of uncertainty around the predicted concentrations of enterococci (and other contaminants).

31. The wastewater discharge volumes modelled were directed by BECA, as provided in Appendix K (Gisborne Wastewater Discharges to Rivers) of the application. Under this direction, future modelling simulations were run assuming that overflows will, after a period time, only occur during events of a 2-year or 10-year annual recurrence interval (ARI). The assessment provided in Appendix D of the application indicates that to date, seven overflow events have occurred at an ARI of less than two years. I defer to the expert opinion of Mr Simon Aiken for further commentary on this and on the likelihood of the Applicant obtaining its targeted reductions in overflow events.

32. Information on the river flows modelled is limited, with MetOcean only noting in the further information response (Attachment C) that river flows were provided by Gisborne District Council (GDC) and *"represent expected discharge rates for the events considered"*. The flow statistic used impacts how much dilution is provided in the hydrodynamic modelling and should be conservative.

33. I agree with the Applicant that the overflow contaminant concentrations applied in the hydrodynamic modelling are appropriately conservative. They represent 80-90th percentile concentrations determined from sampling of in-pipe wastewater during wet weather. While there is a high chance that the periodic sample collection was not able to capture the true maximum enterococci concentration during an overflow event, the Applicant has made a reasonable case that this is likely balanced by the fact that the conditions during sampling may reflect less dilution of contaminants by stormwater than could normally be expected during a wet weather overflow event (owing to inclusion of data from the Munro St location which is located *"some distance away from overflow locations and areas of high stormwater inflow").*

34. The modelling exercise has correctly taken into account the need to assess near-surface water concentrations as opposed to depth-averaged water column contaminant concentrations (the latter would have likely indicated greater dilution than might be the reality).

35. Establishing offshore boundary conditions on tide alone (as opposed to also accounting for residual currents during an overflow event) is considered an appropriately conservative approach.

36. The wind direction scenarios modelled appear reasonable, with evidence provided of good directional correlation between measured data from Gisborne Airport and modelled data.

37. Use of a constant wind field in the modelling is very idealistic. In a real storm event, one would expect some variability in both wind speed and direction that will affect the flow, mixing, spread and direction of the plume. Additionally, constant wind stress can sometimes push a model into an unrealistic state. However, overall, I concur that the use of a constant wind field is likely to represent conservative or worst-case mixing because the increased mixing – and therefore dilution – arising from the plume being advected is not being considered.

38. Although not essential, it was suggested to the Applicant that it could be useful to verify the influence of a varying wind field because changes in plume position (e.g., under a different wind field) could significantly alter the predicted water quality in the Tūranganui-a-Kiwa/Poverty Bay. One option would be to identify the location(s) of maximum predicted contaminant concentrations within the plume under the two wind direction scenarios modelled to confirm if these fall within or close to one of 14 'analysis' locations shown in Figure 3.1 (p21) of MetOcean's report and reproduced here as Figure 1 for ease of reference. This would add confidence that the selected upper bound of the model has captured worst-case receiving water concentrations.

39. The modelling results clearly illustrate that the contaminated river plume is:
    - forced offshore under NW conditions; and
    - 'held' in the tidal reaches and near the coast under strong SE wind conditions.

    This indicates the highest risk to human health from recreational activities along the shoreline of Waikanae Beach occurs during SE conditions.

40. It is reasonable to expect that storm events and wind fields will change in the future. MetOcean's further information response has noted that projected New Zealand climate models predict an increase in easterlies and rainfall in the Gisborne region in the summer months, and a decrease in rainfall in the winter months. The likelihood of heavy rainfall events is also predicted to increase. I defer to the expert opinion of Mr Simon Aiken about the capacity, and therefore likely performance, of the Applicant's wastewater network under potentially heavier rain events.

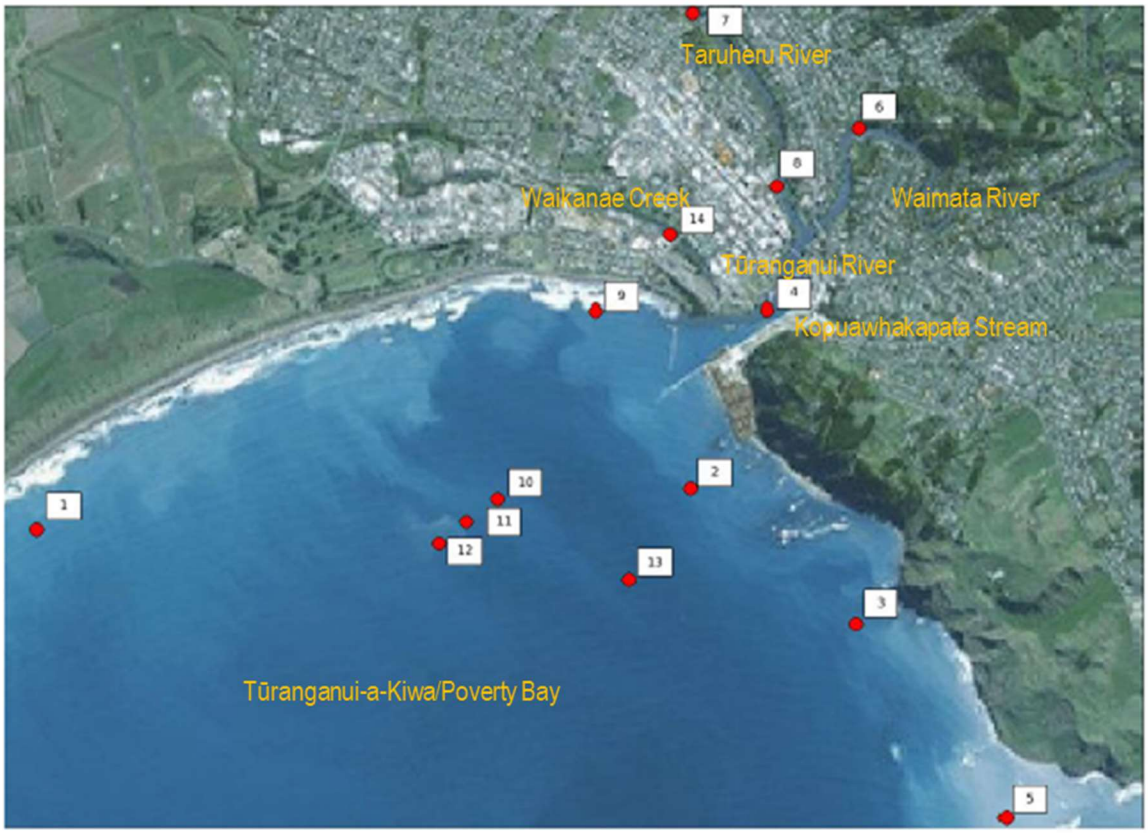

Figure 1: Aerial image of MetOcean's modelling points with key surface water bodies also labelled. The Waipaoa River enters Tūranganui-a-Kiwi/Poverty Bay to the left of the Site 2.

Actual or potential effects on ecological health

41. Three technical reports are relevant for the assessment of actual or potential effects on ecological health. Each is addressed in turn below. As noted at paragraph 27, the scope of these reports was limited to assessing the effects of wet weather overflows.

River and coastal ecology

42. The "principles and data" driven approach adopted in the report prepared by Coast & Catchment (Appendix H of the application) is pragmatic; the complex interaction of factors such as the timing of wastewater overflows across different locations and under different rainfall and river conditions complicates assessing the ecological effects of the wastewater overflows. Note that the report (p30) refers to the use of median wastewater nutrient concentrations in the hydrodynamic modelling carried out by MetOcean but, based on the s92 further information response provided by the Applicant, 80-90th percentile values were used (see paragraph 33). However, this error of model input details does not undermine the assessment of ecological effects. The adoption of 80-90th percentile values means that the assessment was actually more conservative (i.e., considered a worse case) than would have been the case if median values had been used.

43. The report robustly and conclusively demonstrates the highly modified nature of the urbanised river reaches and a lack of evidence of any significant patterns in benthic ecology, water quality or sediment quality that can be definitively linked to existing overflows. Despite the highly modified river and stream receiving environments, the Taruheru, Waimata and Tūranganui river systems

support a number of native freshwater fish species, including the nationally 'At Risk -Declining' longfin eel (*Anguilla dieffenbachii),* torrentfish *(Cheimarrichthys fosteri)* and inanga *(Galaxias maculatus).* Ducks, gulls and wading birds such as the white-faced heron *(Egretta novaehollandiae)* also found in and around the lower river reaches.

44. I agree with the authors' note that dry weather overflow discharges could impact river water quality and ecosystem health. Further information provided by the Applicant that trade waste has a separate pipeline with no *"formal overflow points"* on it suggests that the main impacts of dry weather overflows will be associated with potential ammonia toxicity and reduced dissolved oxygen arising from the high organic loading in the untreated wastewater. Except where a large volume of wastewater enters a river over an extended period, these impacts should be short term and localised. However, dry weather overflows entering the smaller tributaries (e.g., Waikanae Stream) pose a more significant risk to ecological health. This is revisited at paragraph 56.

45. In relation to the sediment quality sampling results (p36), the upstream rural catchment is a likely significant source of sediment and other contaminants that may 'dilute' the influence and spatial extent of urban-derived inputs on surface sediments, including zinc. It is unclear why total recoverable copper was not included in the list of monitored sediment quality variables and how samples were collected but the dominant sources of copper to the river would likely originate from urban stormwater runoff.

46. It is noted that localised contamination (total recoverable zinc and phosphorus) is present in the Taruheru River surface sediments in the vicinity of the Peel St/Palmerston Rd secondary overflow site.

<u>River and coastal water quality</u>

47. Considerable effort has been made in the report prepared by 4Sight Consulting (Appendix I of the application) to characterise existing background river water quality in the absence of overflow discharges as well as during actual overflow events. I concur that a complex interaction of factors such as the timing of overflows across different locations and under different rainfall and (tidal) river conditions complicates the assessment of the effects of wastewater overflows on receiving water quality.

48. A particular challenge in understanding potential localised effects on river water quality is that the period assessed involved 10 different discharge locations rather than, as proposed in the consent application, to control future overflows through two primary (Wainui and Seymour Rd/Turenne – discharging into the Waimata River) and two secondary locations (Peel St/Palmerston Rd and Oak St – discharging into the Taruheru River). To date, according to the Appendix H report (p4), the four primary and secondary overflow locations have only accounted for 55% of the total number of overflow discharges since 2006 (i.e., discharges have occurred more frequently from two tertiary overflow locations (Esplanade slide gate and Coleman Rd/Cheeseman Rd) and the two secondary overflow locations listed above.

49. Overall, despite the challenges outlined above, the report conclusively demonstrates that existing water quality upstream of the overflow inputs is impacted in both dry and wet weather, with the large rural upstream catchment the likely primary contributor to these impacts. I agree with the report authors (p3) that unless mitigation measures are put in place upstream in the catchment, background water quality will remain impacted regardless of any reduction in wastewater network overflows. Nonetheless, the overflows represent an *additional* source of contamination that

increases contaminant concentrations over and above levels that would have occurred during rainfall events without wastewater overflows.

50. Clarification was sought through the initial s92 further information request on tidal state and height, wind direction and intensity, and the number of overflow valves open at the time of overflow event sampling between March 2017 and July 2018 (these events are listed in Section 4 of Appendix I). This additional information, documented in Attachment D of the Applicant's s92 further information response, confirms that sampling spanned a range of tidal and wind conditions. It also confirms that on an incoming tide, especially when the wind blows from the south, wastewater overflows could affect water quality in Gisborne urban rivers that do not have overflow valves open. This highlights the need for a comprehensive overflow Health Risk Management and Communication Plan (this plan is discussed later in Part H).

51. The report identifies that water quality in the Kopuawhakapata Stream is very poor, with median and maximum enterococci indicator bacteria concentrations of 3,050 and 32,700 cfu/100mL, respectively (based on routine monitoring over 2015 to 2019 in the absence of any wastewater overflows). The Land Air Water Aotearoa (LAWA) website (accessed on 21 May 2021) indicates that the current 5-year median *E. coli* count at Hirini Street is 2,500 cfu/100mL, placing it in the worst 25% of lowland urban stream sites monitored by regional councils across New Zealand. While the source of this chronic faecal contamination cannot be attributed to be intermittent overflows, elevated median faecal indicator bacteria and ammoniacal nitrogen concentrations indicate that the contamination is likely arising from the sewerage network (from sources other than overflows: e.g., leaking pipes, cross connections). This level of contamination poses a potential health risk to anyone having contact with the stream waters.

52. The lower Kopuawhakapata Stream also exceeded copper and zinc toxicity guidelines on 26 and 67% of sampling occasions, respectively. Additional information on the potential for toxic effects on aquatic life could be determined from the collection of hardness, dissolved organic carbon and pH data. The analytical detection limits for zinc water column measurements were sometimes higher than the ANZG (2018) toxicity guideline (0.008 g/m^3) against which results were assessed and it appears that there was also a change in test methods (p24 of Appendix I). Although these laboratory protocols were not ideal for the assessment, the results reflect stream sampling in the absence of wastewater overflows and so suggest that zinc (and copper) entering the stream are primarily sourced from stormwater inputs.

53. The report suggests that the wet weather monitoring results for Waikanae Stream are indicative of contaminants from sources other than wastewater (i.e., stormwater) because there were no wastewater overflows to the stream during sampling. While I agree, depending on the integrity of the sewerage and stormwater networks in this catchment, it is also possible that wastewater could potentially enter the stream in wet weather via the stormwater network. This highlights the need to manage and monitor wastewater and stormwater in an integrated manner.

54. Table 4 (p12) of the report applies annual medium and maximum ammonia limits from the Tairāwhiti Resource Management Plan (TRMP, Gisborne Urban Freshwater Management Unit) of 1.3 and 2.4[1] g/m^3, respectively. I note that both of these limits are an order of magnitude more lenient than the mandatory national bottom line concentrations for the revised ammonia toxicity attribute in the National Policy Statement for Freshwater Management 2020 (NPS-FM) (median

[1] This appears to be a typographical error. The TRMP specifies a maximum ammonia concentration of 2.2 g/m^3.

0.24 and maximum 0.4 g/m^3)[2]. A comparison of river water quality reported in Table 9 (p21) against these 2020 national bottom lines indicates that no sites exceeded the median of 0.24 g/m^3 but, based on the 80th percentile values presented, some sites likely exceeded the annual maximum of 0.4 g/m^3, including 'Taruheru River at Tuckers' and 'Waikanae River at Grey'. The Tuckers site is considered the upstream 'control' site, being located above the point of wastewater overflow discharges. This site appears to be well upstream of tidal backflow, suggesting that nutrients from other sources (e.g., horticulture or cropping) in the rural upstream catchment, are responsible.

55. The report references the recommendation of the 2003 Ministry for the Environment (MfE) and Ministry of Health (MoH) microbiological water quality guidelines to measure enterococci in saline waters and *E. coli* in freshwaters, with enterococci used in the application given the tidal nature of the sampling locations (and its reference in the TRMP). It is worth noting that more recent guidance is available on the most appropriate indicator to use in brackish waters (McBride et al. 2017); this guidance recommends the use of *E. coli* for short residence-time estuaries (less than three days) when near the inflowing river water, but enterococci should be chosen near the mouth. Between these locations, either indicator may be suitable. Accordingly, it appears wise to measure both indicators in low residence time systems and use the more stringent of the two test results for assessment against the MfE/MoH (2003) microbiological water quality guidelines.

56. The report focussed on the effects of wet weather overflow discharges on receiving water quality. In response to the initial s92 request for further information, 4Sight Consulting provided a desktop assessment (Attachment D) of the potential ecological health effects of dry weather overflows through calculation of expected dilution of an overflow entering a small stream (Kopuawhakapata) and a larger river (Taruheru). This assessment does not account for the likelihood that – in calm conditions at least – the discharged wastewater (which will be much lower in salinity compared with the brackish river water)[3] may remain on or near the surface of the receiving waters (revisited in relation to human health at paragraph 73).

57. The assessment is otherwise appropriately conservative (e.g., use of chronic rather than acute toxicity guidelines and low flows) and demonstrates that the potential for ammonia concentrations in the dry weather discharge to adversely affect aquatic fauna are likely to be limited to a worst-case scenario in which the entire overflow discharge volume enters one of the smaller tributaries. While the Applicant states that the likelihood of a large volume discharge entering a stream in dry weather is low, it has occurred in the past. For example, in March 2015, a failure of the Steele Rd pump station led to around 450 m^3 of untreated wastewater entering into Wainui Stream over a 32-hour period.[4] This coincided with low stream flows and high water temperatures, and resulted in the death of eels and other aquatic life (P. Murphy[5], pers. comm. 2021), most likely due to dissolved oxygen and ammonia water column concentrations reaching lethal levels.

58. Although the Wainui Stream example likely represents an extreme dry weather overflow event in terms of its volume, it does demonstrate the significant adverse ecological effects that could arise in a receiving river or stream. The risk of significant adverse effects will be greatest in Gisborne's smaller streams, particularly during summer low flows and if there is limited or no tidal flushing (as

[2] Note that the TRMP values align with the national bottom lines specified in the 2017 amendment to the NPS-FM 2014 (Band D) (NZ Government 2017). The NPS-FM 2020 (NZ Government 2020) introduced more stringent national bottom lines (equivalent to Band B/C concentrations in the 2014 iteration), shifting the level of protection of aquatic species from toxicity from 80% of species to 95% of species.

[3] Measurements of Gisborne's WWTP effluent by NIWA during whole effluent toxicity testing indicate a salinity of between 0.35 and 0.6 ppt (Bell 2021; Bell and Thompson 2020) . This compares with salinity in brackish and coastal waters of around 10 ppt and 35 ppt, respectively.

[4] As reported in The Gisborne Herald on 30 July 2016 - No silver bullet to improving water quality – The Gisborne Herald (accessed 11 June 2021).

[5] Paul Murphy, GDC Environment Science Team Leader.

was the case in the Wainui Stream example). The Applicant will need to manage this risk through regular and proactive maintenance of the sewerage network (e.g., jet blasting to reduce the likelihood of blockages) and adherence to a robust dry weather overflow response protocol.

Emerging contaminants

59. The assessment of the potential impacts of emerging organic contaminants (EOCs) prepared by Streamlined (Appendix N of the application) is considered fit for purpose. The assessment has been based on data from raw wastewater influent samples collected at the Gisborne Wastewater Treatment Plant (WWTP) rather than literature. The assessment has also taken a conservative approach by comparing undiluted total concentrations of each EOC to marine "predicted no effects concentrations" (PNECs), or to freshwater PNECs with a safety factor of 10.

60. Similar to the other assessments relating to ecological and/or human health effects, the assessment draws on the MetOcean modelling report and is therefore based on the assumption that future overflows will only occur during wet weather events of a 2-year or 10-year annual return interval (ARI).

61. Based on the ARI events modelled, the dilution rates after 6 hours are sufficient at all river and coastal sites to reduce the risk quotient below 1, indicative of no potential ecological risk; this time period is appropriate as the PNECs are based on chronic exposure, not short-term effects. Although this approach of using dilution rates from the model would not be appropriate for a frequent discharge, it is acceptable for this assessment, assuming <1 overflow every two years.

62. While higher concentrations of EOCs could be expected at the various modelled sites within the 6-hour period, EOCs are generally not associated with acute toxicity effects.

63. There is the potential for bioaccumulation of several EOCs (six compounds) but it is not easy to assess the risks associated with this. I agree that the potential for bioaccumulation will be reduced through the Applicant's proposed reduction in the frequency and volume of overflow events.

Actual or potential effects on human health

64. Two technical reports are relevant for the assessment of actual or potential effects on human health. Each is addressed in turn below. As noted at paragraph 16, the scope of these reports was limited to assessing the effects of wet weather overflows.

Quantitative Microbial Risk Assessment

65. The primary report assessing the potential impacts of wastewater overflows on human health is a Quantitative Microbial Risk Assessment (QMRA) (Appendix M of the application, prepared by Streamlined). This report, like other reports, draws on the MetOcean's modelling results for future overflow discharges in wet weather events of a 2-year or 10-year ARI.

66. QMRAs are typically used to assess risks associated with continuous discharges from wastewater treatment plants where core inputs to the model (i.e., wastewater discharge volume, contaminant concentrations) are well quantified. Quantifying these inputs for wastewater overflows is more

difficult. In any case, the approach taken is appropriate for a human health risk assessment in that it is conservative (i.e., more protective) with respect to:

- assuming the wastewater overflow is not diluted by stormwater (i.e., by using raw WWTP pathogen concentrations);
- adopting a more conservative range of pathogen concentrations for the assessment than the pathogen concentrations determined from (limited) testing of Gisborne's raw wastewater;
- reporting children's illness risk as opposed to the generally lower adults' illness risk;
- including a dilution-only scenario that does not include solar UV-based inactivation of viruses; and
- applying a bioaccumulation factor to shellfish.

67. The report is unclear on a few aspects of the methodology relating to the raw pathogen concentrations (e.g., if based on infectious units vs PCR analysis for adenovirus) and whether or not some 'harmonisation' of data was needed for the influent concentrations to be applied to the dose-response model. The response to the initial s92 request for further information on these aspects identified that there was no harmonisation of norovirus data and the assumption that all detected viral genetic materials (e.g., for enterovirus and adenovirus) are infectious. This further supports the conservative approach taken to assessing potential public health risk.

68. Overall, the assessment indicates that the risks to human health from recreational activities such as swimming (spanning the 5 river and 9 coastal water point locations shown in Figure 1) attributable to the overflows are low or below observable levels under the current and future wastewater overflow scenarios modelled.

69. Risks to human health from the consumption of shellfish are higher, although the risks are projected to decrease significantly under future wastewater overflow scenarios compared with the current 2- and 10-year ARI scenarios. The main exceptions are the consumption of raw shellfish at:

    - sites 6, 7 and 8 in Figure 1 where the risks are only predicted to reduce from "high" (current risk) to "moderate" under the future 10-year ARI scenario in all NW and SE conditions modelled; and
    - sites 10 to 13 in Figure 1 where the risks are only predicted to reduce from "high" (current risk) to "moderate" under the future 10-year ARI scenario in stronger SE wind conditions.

70. Although the Applicant was unable to advise with certainty what shellfish species may be found and harvested at each model location, in its s92 further information response it was acknowledged that:

    - anecdotal evidence suggests there is widespread harvesting and consumption of mussels from within the Tūranganui and Waimata rivers in the vicinity of sites 4, 6 and 8; and
    - a wide variety of bivalve shellfish are present along the stretch of coast between the Tūranganui and Waimata river mouths, with tuatua frequently collected (sites 1 and 9 (Midway Beach) are located within this stretch of the coastline).

71. As acknowledged in the report, the QMRA results represent only the *increment in risk* that can be attributed to the overflow discharges. The actual risks to human health from contact recreation and shellfish collection in Tūranganui-a-Kiwa/Poverty Bay are higher when other existing contaminant sources – notably the (continuous) Gisborne WWTP discharge – are considered. For this reason, while I support the statement (p8) that regulatory authorities should continue to advise the public

to avoid the use of the receiving waters after an overflow event or heavy rainfall, a more comprehensive Health Risk Management and Communication Plan is needed that extends to dry weather. For example, as noted at paragraph 39, the MetOcean modelling identifies that a southeast wind retains the outflow of the Tūranganui River near its mouth and along Waikanae Beach. Given that background enterococci indicator bacteria concentrations in the river can be elevated in dry weather, and the potential exists for dry weather overflows to enter surface water, a communication plan might need to look at discouraging use of some parts of Waikanae Beach under strong south-easterly winds.[6]

72. The QMRA focussed on water column microbial contamination. River sediments and beach sands have been recognised as reservoirs for pathogens and epidemiological studies have shown that exposure to these can increase the risk of gastroenteritis. The Applicant was not able to quantify this risk but has acknowledged the potential risk of exposure to pathogens when tidal and wind conditions resuspend bottom sand/sediment and into the water column. I recognise that resuspension of pathogens in bottom sediments will likely reflect multiple contaminant sources, including wastewater, stormwater, waterfowl and upstream rural inputs. I agree that solar-based inactivation will play a role in reducing residual pathogen concentrations in river and stream sediments.

73. The report scope was limited to the effects of wet weather overflow discharges. In response to the initial s92 request for further information, 4Sight Consulting provided a desktop assessment (Attachment D) of the potential human health effects of dry weather overflows through calculation of the expected dilution of a wastewater overflow entering a small stream (Kopuawhakapata) and a larger river (Taruheru). This assessment demonstrates that 2,000 L of untreated wastewater entering both the larger rivers and smaller streams under median flow conditions would lead to instream enterococci concentrations above the action (i.e., unacceptable) level of the MfE/MoH (2003) national microbiological guidelines for recreational contact.

74. While the s92 response considers that a discharge volume of 2,000 L represents a likely worst case dry weather discharge to water, based on the dilution ratios presented in Table 1 of Attachment D, the action guideline would also be exceeded at both the stream and river sites if they were to receive even half of that volume. Further, I note that the wastewater (which will be less saline than the frequently brackish receiving waters) could – in calm conditions at least – remain on or near the surface of the receiving waters for a considerable period of time, therefore posing a potential risk to recreational water users some distance upstream or downstream (depending on the waterbody and if it is tidal).

75. The potential risk to human health posed by dry weather overflows – both on land and if they reach surface waters – highlights the importance of preventing dry weather overflow discharges (e.g., through continued education and preventative maintenance such as regular jet-blasting of fat/grease from pipes – refer to Mr Simon Aiken's evidence) and, where these overflows do still occur, promptly acting to stop them from reaching surface waters. The inclusion of a specific Dry Weather Overflow Protocol in the s92 response (Attachment E) does demonstrate that the Applicant has a good response protocol in place. The overflow reporting form (Appendix 4 to Attachment E) should include additional fields to capture:

[6] I visited Gisborne over 11-13 September 2020; the 11th was characterised by intermittent heavy rain and strong southeasterly winds. On the morning of the 12th, under a moderate southeasterly, there was a significant number of kite surfers present at Midway/Waikanae Beach (near MetOcean modelling site 9) as well as three people fishing at the mouth of the Tūranganui River (near site 4).

- whether or not the overflow has reached a surface water body, and if so, which one and where;
- the weather and tidal conditions at the time of the overflow; and
- details of any water samples and photos taken.

Emerging contaminants

76. The assessment of the potential impacts of emerging contaminants prepared by Streamlined (Appendix N of the application) also considered human health effects. As noted at paragraph 41, the assessment has taken a conservative approach. I agree with the conclusion that human health risk through ingestion of water contaminated with EOCs is likely low due to the small volume of saline water that would be ingested.

F. SUBMISSIONS

77. A total of 21 submissions were received on the application. A number of these submissions raised concerns relating to some aspect of ecosystem or human health.

78. Several submitters raised concerns about significant risks to the community, including schools and private property, associated with wastewater overflow discharges located behind properties on Seymour Road (Seymour – Turene Overflow Point) and entering the Waimata River via Owen Drain. The Applicant has stated in its s92 further information response dated 29 January 2021 (Attachment G) that it has since undertaken initial remedial works intended to make the Seymour Road wastewater overflow redundant, thereby preventing the potential for overflows onto school or private property. The effectiveness of these works should be monitored and reported as a condition of consent, particularly given the Applicant notes a possibility that the overflow would need to be retained for use as a tertiary overflow point (in extreme rainfall events). I understand the Applicant will provide an update on proposed works at the Seymour – Turene Overflow Point at the hearing.

79. A number of submitters commented on the dry weather overflows, with several concerned about significant ecological effects (arising from a lack of dilution) should overflows reach rivers and streams. I agree that a degree of risk exists to smaller streams such as Wainui Stream, particularly if a large volume of discharge entered one of these streams in summer when flows would likely be low and water temperatures high. As noted at paragraph 58, the Applicant will need to manage the risks of dry weather overflows through regular and proactive maintenance of the sewerage network and adherence to a robust dry weather overflow response protocol. The effectiveness of this protocol should be monitored and reported on annually as a condition of consent.

80. Some submitters expressed concerned about the potential risk wastewater overflows pose to the health of recreational water users, particularly overflows in dry weather conditions when the urban waterways are most frequently used for recreation and food gathering. While the likelihood of wastewater entering these streams for a prolonged period is very low, as noted at paragraphs 73-74, there is a significant risk to the health of recreational water users if this does occur – particularly if wastewater remains on the water's surface.

81. One submission specifically raised the need for a better understanding of residual contaminants, including viruses, in sediments and shellfish (no such testing was performed to support the application). As noted at paragraph 72, river sediments and beach sands have been recognised as

reservoirs for pathogens and epidemiological studies have shown that exposure to these can increase the risk of gastroenteritis. However, it is difficult to quantify this risk and pathogens in bottom sediments will likely reflect faecal inputs from multiple sources, including wastewater, stormwater, waterfowl and upstream rural inputs. This will also be the case for shellfish which are unlikely to be safe for consumption (at least raw) from the rivers regardless of weather or overflow conditions (as reflected in the presence of multiple health warnings in the lower reaches). Shellfish flesh testing could be performed to verify the risks to human health in dry weather.

82. One submitter queried the appropriateness of assessing river water quality against ANZECC (2000) freshwater guidelines given that the Tūranganui, Taruheru and Waimata rivers are estuarine systems and are tidal in their lower reaches. According to Table 4 of the water quality technical report (Appendix I of the application), the ANZG (2018) freshwater guidelines were used to assess both background water quality and water quality during monitored overflow events (only for selected variables where the TRRP lacked a numerical objective). There is a lack of guidelines applicable to nutrients in estuarine and coastal waters in New Zealand and use of freshwater guidelines is appropriate for the uppermost river sites. In terms of dissolved copper and zinc, while ANZG guidelines do exist for assessing aquatic toxicity in coastal waters, the freshwater value for zinc is lower than (i.e., more conservative), and the value for copper is similar to, the respective marine values. Moreover, both sets of these guidelines are considered conservative because they relate to chronic toxicity aligned with prolonged exposure; acute toxicity guidelines are more appropriate for assessing the effects of short-lived intermittent wastewater overflows on aquatic life but no such guidelines are available for New Zealand waters.

83. Although not specifically raised by any submitters, I am aware of reports in the media that waka ama members have experienced sores, skin rashes and infections after contact with river water. I am aware of similar reports by rowers and kayakers in other parts of New Zealand, such as Otago Harbour in the vicinity of fluoride and stormwater discharges from Ravensdown Fertiliser and in the Onepoto Arm of Te Awarua-o-Porirua Harbour in the vicinity of stormwater and (wastewater-impacted) stream inputs. In both cases, as is also the case for Gisborne's urban rivers, water quality during wet weather is regularly impacted by contaminants from multiple sources, making it difficult to attribute the skin conditions to any one contaminant source. Overall, the application indicates that microbial water quality in Gisborne's urban waterways is at times highly compromised and, at these times, exposure of cut, scratched or otherwise broken skin to the water could lead to an infection. The risk of this happening can be expected to be elevated if wastewater is present in the water at the time of this exposure.

G. RECOMMENDATION

84. Based on my assessment, which has been limited to ecological and human health effects, I consider that a term of up to 20 years could be appropriate for a resource consent to discharge wastewater overflows under wet weather conditions, subject to a number of conditions (outlined in Section H).

85. However, I consider that there is potential for significant ecological and, in particular, human health effects arising from dry weather overflows to land and water and do not support a term of more than 5 to 10 years. Dry weather discharges occur in public areas regularly frequented by pedestrians and in the last five years 25% of these discharges have reached surface waters which are frequented by birdlife and, in places, are used by the public for both recreation and food gathering. In my opinion, a term of 5 to 10 years will provide an incentive for the Applicant to progress targeted interventions that get dry weather overflows – which are stated as primarily

being due to blockages – under better control so that any future overflows are limited to infrequent and unforeseen emergencies (e.g., pipe breakage).

H. CONDITIONS

86. The wastewater overflows require good operational management, including overflow response and health risk communication procedures. I comment on these aspects below, along with monitoring, reporting and other considerations. My comments are made on the assumption that the consents sought are granted subject to conditions.

Operations and maintenance

87. I support the intent of proposed condition 4 (in Section 9.2 of the application) to have in place and adhere to an Operations and Maintenance Plan (including a Maintenance Programme), a Wastewater Overflow Location and Operation Manual (including overflow valve opening procedures and notification processes) and an Overflow Response and Contingency Plan. However, more detail is recommended on the minimum requirements of these plans, including keeping them up to date (e.g., through annual review). It is also important to include in either the Operations and Maintenance Plan, or to be prepared in the first 12 months of the consent through a specific condition of consent, a prioritised list of system improvements that will enable the Applicant to get from where they are now to where they need to be to achieve their target overflow frequencies and volumes.

88. In considering the various operational management (and, as noted below, monitoring) plans proposed, there may be benefits in preparing (and maintaining through annual review) a combined *Wastewater Network Overflow Management and Monitoring Plan*. This plan should include such things as:

- details on the network of discharge points and their operation, including relevant inter-relationships with stormwater and reticulated wastewater;
- schedules for wastewater network inspection and maintenance (e.g., periodic jet-blasting of areas of inner pipe known to block up, CCTV inspections, cleaning out of adjacent pipes prior to forecast storms and post-storm maintenance); and
- the location of monitoring points, including when and how these are sampled and the laboratory test requirements.

89. The Wastewater Network Overflow Management and Monitoring Plan should specifically address both wet and dry weather overflows. I defer to Mr Simon Aiken for furthers specific advice on appropriate operational and operational requirements and performance measures that should be specified as a condition of consent. In the case of dry weather overflows, I note that the Dry Weather Overflow Protocol (dated November 2020 and provided in the s92 response as Attachment E) states there is a performance target of responding to an overflow within 30 minutes.

Human health risk management and communication

90. I recommend that, alongside a Wastewater Network Overflow Management and Monitoring Plan, the Applicant works with relevant public health, iwi representatives, recreational users and other interested parties (e.g., local schools), to develop and implement a *Health Risk Management and Communication Plan***.** This Plan should incorporate relevant notification processes from the existing "Overflow Location and Operation Manual" (Appendix E of the application) and relevant material

from the "Overflow Discharge Communications Plan" (Appendix F of the application) but have a sole focus on procedures and education initiatives (e.g., Drainwise) relating to safeguarding human health under both dry and wet weather overflows. This Plan should build on the insights gained from technical assessments prepared for the application relating to the influence rainfall, wind (e.g., south-easterly winds increase the risk of exposure to harmful concentrations of pathogens along Wainui Beach) and other factors that influence water quality in the absence of overflow events (e.g., rural and stormwater runoff and the Gisborne WWTP discharge) to provide a more integrated and proactive approach to managing risks to human health at various locations.

91. I recommend a condition that the Applicant investigates, within 18 months of any consents commencing, the feasibility of developing and publishing a 'water quality forecast' on both the Gisborne District Council and LAWA website based on predicted future (e.g., 48-hour) rainfall and wind conditions. At present (according to Appendix G), the standard practice is to leave health warning signs out for five days after overflow valve closure, regardless of wind conditions. Based on the hydrodynamic modelling results and with only two primary overflow locations in future, a more customised or targeted approach is possible where high risk environmental conditions in terms of wind and/or rainfall are used to trigger an immediate internal action to add precautionary warnings for specific recreational sites on LAWA. This could also be linked with automated mobile phone text alerts for schools, recreational clubs/users and other potentially affected or interested parties. Subscribers to this service could receive automatic text alerts when an overflow is imminent and after it has ceased. Wellington Water has developed a system like this for wastewater overflows in Wellington City.

Monitoring and investigations

92. The proposed Wastewater Overflow Monitoring Plan proposed as part of the Monitoring Plans (conditions 7-10) requires more detail. For example, the current "Scour Overflow Event Sampling Protocol" (Appendix G of the application) should be revised and more specifics added to ensure that it can stand alone. At present this protocol references internal (GDC) Environmental Monitoring Standard Operating Procedures. Field measurement and water sample collection instructions and laboratory test method details should be added, and the key metadata to be recorded listed (e.g., tidal state and height, rainfall in the preceding 24 hours). Relevant GDC bathing beach and State of the Environment (SoE) water quality monitoring sites that may inform some aspect of the exercise of the consent should also be included. One coastal recreation site either side of the Tūranganui River mouth ("Waikanae Beach at Grey St" and "Kaiti Yacht Club") could also be monitored for enterococci indicator bacteria as part of overflow response.

    Note:

    - General reference within the consent to GDC bathing beach and SoE monitoring is insufficient because this monitoring is likely subject to change independent of the consent.
    - The laboratory should be instructed to ensure that wet weather river and stream samples are diluted to enable enterococci counts above the upper detection limit of 24,000 MPN/100mL to be quantified. This will enable better characterisation of receiving microbial water quality and improve any future modelling that requires input of actual river concentrations.
    - As noted at paragraph 55, consideration may need to be given to assessing both *E. coli* and enterococci counts when assessing potential health risk from river-based recreational activities.

93. I recommend that the Applicant, in partnership with iwi and public health representatives, collectively undertakes some testing of background microbial indicator and pathogen

concentrations in tuatua, mussels and other bivalve shellfish at popular estuarine and coastal shellfish gathering locations in the vicinity of the Tūranganui River mouth. The results of this monitoring should be fed into to the Health Risk Management and Communication Plan (paragraph 90).

Reporting

94. The Applicant has proposed annual (conditions 18 and 19) and five-yearly (condition 20) reporting. The minimum requirements of this reporting should be specified. For annual reporting, I recommend that these requirements include:
    - A summary of all overflow conditions that occurred in the preceding 12 months, including the location, volume and duration and rainfall, wind, tide and river flow conditions associated with each as well as commentary on the likely source or cause of the overflow and associated actions taken to address it;
    - A summary of Drainwise and other inspection and educational activities carried over the last 12 months;
    - An assessment of the overflow events in terms of trends and causal factors and an evaluation of the overflows against agreed targets and performance measures;
    - Fulfilment of consented and internal performance targets around such things as network maintenance, overflow response time, and the number of overflows (see recommendations by Mr Simon Aiken); and
    - Priority works and initiatives planned for the coming 12 months to continue to reduce the occurrence of both dry and wet weather overflows.

95. In addition to prompt notification of overflow events in accordance with the plans outlined at paragraphs 89 and 90, I recommend Overflow Event Reporting is required as a condition of consent (referred to as an "Overflow After Action Report" in Attachment E of the Applicant's s92 further information response). Under this condition, a short report would be provided within (say) 10-20 working days of the event providing the location, volume and duration of overflow, the rainfall, wind, tide and river flow conditions at the time, and brief commentary of any contributing factors and any subsequent actions that have been and/or still need to be undertaken. A copy of this report would be provided to both GDC's regulatory arm as well as any submitters or stakeholders that have registered an interest in receiving this information.

96. Five-yearly reporting should focus on a detailed assessment of progress against achieving targeted reductions in dry and wet weather overflow events and durations, including any reprioritisation or revision of the long-term programme of network improvements.

Other considerations

97. The effectiveness of works to reduce overflows discharges located behind properties on Seymour Road (Seymour – Turene Overflow Point) and entering the Waimata River via Owen Drain should be monitored and reported as a condition of consent.

98. I consider it appropriate to include a specific consent condition by which the Applicant makes a commitment, within two years of the commencement of any consent, to identify the causes of chronic faecal contamination in Kopuawhakapata Stream and develop and implement remedial options to prevent or minimise further inputs associated with the wastewater network. The relative urgency of this investigation reflects the high risk to human health posed by current the level of faecal contamination. Mr Aiken has suggested some possible investigation options.

99. Even with adherence to a prioritised list of system improvements to achieve targeted reductions in overflow frequencies and volumes, and a review of these priorities annually, it would be prudent to also include a condition that requires contingency planning in the first few years of the consent should remedial works not produce the expected reduction in dry and wet weather overflow events and durations. This is because, as described in Mr Aiken's evidence, there is a risk that progress made in reducing inflow and infiltration in some areas of the private network might be somewhat nullified by this providing 'capacity' for new/unexpected inflow and infiltration in other parts of the network.

100. I support Mr Aiken's recommendation that the wastewater hydraulic model is periodically updated as network I&I and other improvements are made and recommend that dilution and dispersion modelling of overflows into the Tūranganui River and Tūranganui-a-Kiwa/Poverty Bay is revisited between years 5 and 10 to incorporate this updated information. This would provide updated information on the potential ecological and human health effects.

101. I understand that an integrated catchment management plan (ICMP) is under development that will encompass the waterways affected by wastewater overflows. An ICMP is now a common tool for managing urban infrastructure, including sewerage and stormwater networks, flood protection and future development. Ensuring water quality in the urban reaches of the main rivers and streams and in Tūranganui-a-Kiwi/Poverty Bay can better support the aspirations of the public requires the cumulative impacts of all upstream rural and urban sources of contaminants to be managed, rather than considering each type of source in isolation.

I. CONCLUSIONS

102. The application is comprehensive in terms of the extent of technical assessments relating to the effects of wet weather wastewater overflows on ecological and human health. I concur with the authors of the river water quality and ecological effects reports that it is very difficult to disentangle the effects of intermittent wastewater overflows on the receiving environment from the effects of other (interrelated) urban discharges, including stormwater and, in terms of Tūranganui-a-Kiwa/Poverty Bay, the effects of the Gisborne Wastewater Treatment Plant (WWTP) discharge. The tidal nature of the receiving environment, the influence of wind, and variation in the number, location and timing of discharges with rainfall present further challenges.

103. The hydrodynamic modelling performed by MetOcean is robust and provides confidence that the assessment of risks to ecological and human health are based on appropriate information. I note that the modelling is based on future overflows occurring during wet weather events of a 2-year or 10-year ARI and that it will take up to 10 years for these ARI targets (and therefore reduced impacts on receiving water quality) to be met.

104. Water quality in Gisborne's urban rivers and streams in wet weather is impacted by multiple sources in the absence of wet weather overflows. These include rural runoff in the upstream catchment, urban stormwater and, to a lesser extent, likely leaks and cross connections within the wastewater network. Wastewater overflows add to the already high instream faecal, sediment and nutrient contamination that is present in wet weather but unless upstream catchment mitigation measures are put in place, background water quality will remain impacted in wet weather regardless of any reduction in wastewater network overflows.

105. I am satisfied that there is unlikely to be any significant effect on aquatic ecology arising from intermittent wet weather wastewater overflows. The potential for adverse effects of wet weather overflows on human health is greater. For example, although QMRA modelling indicates that the (incremental) risks to human health attribute to wastewater overflows from the consumption of shellfish are expected to decrease significantly under future wastewater overflow scenarios, risks from consumption of raw shellfish from some sites where shellfish are believed to be collected (against recommended advice), will still be "moderate" under the proposed future overflow scenarios. Overall, I consider that risks to human health from wet weather overflows should be able to be mitigated through careful management of the overflow discharge regime and compliance with well-designed consent conditions, including proactive risk-based communication.

106. The risks of toxic impacts on aquatic life arising from dry weather discharges are likely limited to Gisborne's smaller streams. While the impact of a small volume discharge on these streams is likely to be short-lived and relatively localised, the potential exists for significant impacts through greatly reduced dissolved oxygen concentrations and ammonia toxicity effects if a discharge should occur for a prolonged period of time. This is particularly the case if a prolonged discharge coincided with summer low flows, as has occurred at least once previously.

107. Faecal contamination arising from a dry weather overflow entering a river or stream could pose a significant health risk to recreational water users and those collecting and consuming shellfish. A 1,000 L volume wastewater overflow entering a stream or river (at least up to the size of the Taruheru River) in median flow conditions in summer would exceed national guidelines and GDC's Tairāwhiti Resource Management Plan limits for contact recreation activities such as swimming. Depending on tidal and wind conditions, wastewater could potentially remain on the surface of the receiving waters for some distance upstream or downstream, increasing the risk of recreational users coming into contact with it.

108. Reflecting on the fact that around one in four dry weather overflows have reached surface water in the last five years, and the potential for significant adverse effects on ecological and, particularly human health, I have recommended a shorter duration consent for dry weather overflow discharges. This approach aims to incentivise the Applicant progressing targeted interventions that will significantly reduce this health risk in the near term.

J. REFERENCES

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APPENDIX 5 SCHEDULE OF COMMENTS AND RECOMMENDATIONS ON CONDITIONS

GDC - OVERFLOW DISCHARGES

S.42A SCHEDULE OF COMMENTS AND RECOMMENDATIONS ON CONDITIONS

This schedule has been prepared to assist with the assessment and consideration of consent conditions. Any conditions will need to be developed and applied in conjunction with the term of consent.

This schedule has collated the comments and recommendations from the technical reviews and the numbering is based on the conditions presented in the Applicant's AEE, Section 9.

Proposed Condition (Applicant's AEE Section 9)	S.42A Schedule of Comments/Recommendations
Scope 1) This consent authorises the discharge of wastewater via overflows from the Gisborne City Wastewater System (GWS) within the Gisborne Reticulated Services Area subject to the conditions below. This includes: a) Discharges from formal and informal overflow points within the system during wet weather events; b) Discharges from formal and informal overflow points within the system, and from pipes as a result of dry weather overflows. *Advice Note:* *The following activities are not authorised under this consent:* *a. The discharge of Wastewater from the Gisborne Wastewater Treatment Plant which is authorised by separate consents.* *b. Discharges from other wastewater networks within the wider Gisborne District (for example, Te Karaka).*	**Sch1.1** Scope of discharges will need to be confirmed following evidence and material presented to hearing. **Sch1.2** S.42A recommendation for an eradication strategy to be adopted for dry weather overflows.
Expiry 2) This consent shall expire on XX/XX/XXXX, 20 years from the date consent is granted.	**Sch2.1** S.42A recommendation that a 20-year term be granted for wet weather overflows subject to more rigorous conditions to manage the overflow effects. **Sch2.2** S.42A recommendation that a 10-year term be granted for dry weather overflows subject to more rigorous conditions to reduce and ultimately eradicate dry weather overflows.

Documentation 3) This consent shall be exercised generally in accordance with the information and processes included in this consent application and appendices, updated as required by these conditions, including: a) Capital and operational works required to achieve the outcomes sought in Table 13 and Table 14, in accordance with the LTP 2018 to 2028 and subsequent versions; b) Wastewater Overflow Location and Operation Manual; c) Scour Overflow Events Sampling Protocol; d) Infrastructure Investment on Private Property Strategy (IIOPPS)	**Sch3.1** More specific details required on plan content including the process for updating and review.
Operation and Maintenance 4) The Consent Holder shall ensure that the following Operational Management Plans/Protocols shall be in place and adhered to at all times: a) Operations and Maintenance Plan (including a Maintenance Programme); b) Wastewater Overflow Location and Operation Manual (including scour valve opening procedures and notification processes); c) Overflow Response and Contingency Plan (including response procedures, notification, public health risk management such as signage and notification via Council's website or Facebook and to Tangata Whenua so they can implement inter alia rahui). (together the "Operational Management Plans/ Protocols") 5) Where these Operational Management Plans/Protocols do not currently exist as a standalone document, or require updating as a result of the resource consent process, the Consent Holder shall ensure the Management Plans/Protocols are prepared within 6 months of the conditions of this consent being concluded as final (following the disposition of any appeals), and submitted to Gisborne District Council. 6) The Consent Holder may submit the Operational Management Plans/Protocols either separately, or together in the form of a single document.	**Sch4.1** All reference to submission of documents should be to GDC-Consents Manager. **Sch4.2** It is recommended that the Applicant works with relevant public health, iwi representatives, recreational users and other interested parties (e.g., local schools), to develop and implement a *Health Risk Management and Communication Plan***.** **Sch4.3** It is recommended that the Applicant investigates, within 18 months of any consents commencing, the feasibility of developing and publishing a 'water quality forecast' on both the Gisborne District Council and LAWA website based on predicted future (e.g., 48-hour) rainfall and wind conditions. **Sch4.4** **I**t would be prudent to include a condition that requires contingency planning in the first few years of the consent should remedial works not produce the expected reduction in dry and wet weather overflow events and durations. **Sch4.5** More detail is recommended on the minimum requirements of these plans, including keeping them up to date (e.g., through annual review or response to network upgrades).

	Sch4.7 Schedules and KPIs for wastewater network inspection and maintenance (e.g., periodic jet-blasting of areas of known to block up, CCTV inspections, cleaning out of adjacent pipes prior to forecast storms and post-storm maintenance). **Sch4.7** Recommendation to adopt the following: a. Quantification of the available storage at each pump station, including any network storage available, to determine the required time to respond to issues at a particular pump station. b. Installation of cost depth sensors to be installed that can be remotely monitored. These would be located within manholes where the gravity network that fails to meet self-cleansing velocities or known 'hotspots' (i.e., manholes with a history of repeat overflows) to allow prior warning of blockages occurring before an overflow occurs; and c. Development and implementation of I&I monitoring plans in accordance with Water NZ I&I manual. These would be focused specific sub catchments relevant to the DrainWise programme and would be used to track the efficacy of I&I reduction efforts. d. Dilution and dispersion modelling of overflows into the Tūranganui River and Tūranganui-a-Kiwa/Poverty Bay is revisited between years 5 and 10 to incorporate updated data gathered through the consent on wastewater overflows. This would provide updated further information on the potential ecological and human health effects.
Monitoring 7) The Consent Holder shall ensure that the following Monitoring Plans shall be in place and adhered to at all times: a) Wastewater Overflow Monitoring Plan (identifying monitoring required following an overflow event to water); b) Tangata Whenua Cultural Monitoring Plan.	**Sch7.2** It will be important to have a clear structure on all relevant operational and monitoring plans and that this is presented in a manner which is easily communicated and understood by the community. Summary Reports may be useful as an introduction to any more comprehensive and technical reports. There may be benefits in preparing (and maintaining through annual review) a <u>combined</u> *Wastewater Network Overflow Management and Monitoring Plan*. This plan should include such things as:

(together the "Monitoring Plans") 8) Where these Monitoring Plans do not currently exist as a standalone document, or require updating as a result of the resource consent process, the Consent Holder shall ensure the Monitoring Plans are prepared within 6 months of the conditions of this consent being concluded as final (following the disposition of any appeals), and submitted to Gisborne District Council for approval. 9) The Consent Holder may submit the Monitoring Plans either separately, or together in the form of a single document. 10) The Consent Holder shall undertake all monitoring in accordance with, and shall comply with, the approved Monitoring Plans.	• details on the network of discharge points and their operation, including relevant inter-relationships with stormwater and reticulated wastewater; • schedules for wastewater network inspection and maintenance (e.g., periodic jet-blasting of areas of inner pipe known to block up, CCTV inspections, cleaning out of adjacent pipes prior to forecast storms and post-storm maintenance); and • the location of monitoring points, including when and how these are sampled and the laboratory test requirements.
Progressive Overflow Reduction 10) The Consent Holder shall implement a programme (the DrainWise Programme) to achieve the wastewater levels of service in Table 13 and Table 14. 11) The Consent Holder shall manage the GWS and stormwater system to achieve performance a wet weather overflow occurrence of no more than 50% probability in any given year by [insert date - being year 10 of this consent being concluded as final (following the disposition of any appeals)]. 12) The Consent Holder shall manage the GWS so that Dry Weather Overflows only occur as a result of network failures including, but not limited to, breakages, blockages, third party damage and mechanical or power failure at pump stations or storage facilities. At no time shall components of the network have insufficient capacity to cater for peak dry weather flow from the contributing catchment area.	**Sch10.1** It is recommended that the performance standard for dry weather overflows adopts a eradication strategy with zero dry weather overflows by year 10 (expiry of consent). **Sch10.2** The LTP targets in Table 13 set performance standards that are less stringent than the 2018/19 base year. **Sch10.3** The relationship between the LTP targets and the consent objectives and targets needs to be clarified. It is recommended that one set of performance standards is adopted. **Sch10.4** Key performance standard of no wet weather overflows in a 50% AEP storm event needs to be tested; can this target be brought forward or a higher standard set? **Sch10.5** Key performance standards need to be quantified for progressive reduction targets from year 10 to year 20. **Sce10.6** Table 14 includes a performance standard on number of private properties inspected under DrainWise Programme. This should be supported by additional standards for how many properties have been fixed. **Sch12.1** Condition 12 should be reframed such that the Applicant is required to have contingency measures in place to manage and remedy foreseeable risks.

Tangata Whenua Reference Group (TWRG) 14) By [date – being 2 months of the conditions of these consents being concluded as final (following the disposition of any appeals)], the Consent Holder shall provide an offer to tangata whenua groups or entities affected by the wastewater overflows, to establish and maintain a TWRG for the term of this consent with the intent of establishing the TWRG within six months of the commencement of the consent. 15) On acceptance of the offer a Memorandum of Understanding (MoU) shall be entered into by the Consent Holder and the members of the TWRG that includes as a minimum: a) The conditions of these consents; b) The composition of the TWRG and the process by which membership may be amended; c) A terms of reference; d) The rates of remuneration for members of the TWRG; e) Period of review of the MoU and rates of remuneration. 16) The purpose/role of the TWRG shall be to: a) Recognise the importance of the wai and to recognise the kaitiakitanga of Māori who have a kaitiaki relationship with the wai; b) Provide a forum for discussing the cultural aspects and effects of the operation of the consent; c) Advise on management protocols related to dry and wet weather overflows to integrate tikanga aspects such as the placement of rahuis and other processes d) Provide input in setting priorities for works and associated programmes to mitigate cultural effects; e) Assist in identifying any research or investigations necessary to help improve the management of the stormwater and wastewater networks to mitigate cultural effects; and f) Advise on wastewater monitoring related to wastewater overflows to include cultural elements, and make the monitoring relevant to kaihoe waka, shellfish gathering, and other Māori resource-use practices, including inputing into, reviewing and providing feedback on the Tangata Whenua Cultural	**Sch14.1** Provision for TWRG is supported. Final terms and conditions subject to input from iwi/hapu members.

Monitoring Plan (See Condition 7) to report on the performance of the wastewater network from a cultural perspective. 17) The Consent Holder shall: a) Facilitate and fund the administration of each formal meeting of the TWRG. The first TWRG meeting shall be held as soon as practicable after the establishment of the TWRG. The TWRG shall then meet at least twice yearly, including after the Annual Report is prepared under Condition 18 or the Five Year Report prepared under Condition 20 thereafter for the term of this consent. b) Take minutes of the TWRG, which shall be forwarded to Gisborne District Council Regulatory within four weeks of each meeting being held.	
Annual Reporting 18) The Consent Holder shall report on the performance of the wastewater network and progress towards achieving the wastewater levels of service on an annual basis (Financial Year) by September of each calendar year. Reports shall be provided to: a) Gisborne District Council Regulatory; b) Gisborne District Council Wastewater Management Committee; c) The Tangata Whenua Reference Group; d) Gisborne District Council's website in a location that is accessible to all members of the public. 19) The reporting shall include: a) The matters identified in Table 14; b) The results of any monitoring undertaken in accordance with Condition 7a and b. *It is noted that Council undertakes bathing beach monitoring and State of the Environment monitoring. It is envisaged that this will be used as part of the on-going monitoring programme required under this consent.*	**Sch18.1** Annual Reporting should include: • A summary of all overflow conditions that occurred in the preceding 12 months, including the location, volume and duration and rainfall, wind, tide and river flow conditions associated with each as well as commentary on the likely source or cause of the overflow and associated actions taken to address it; • A summary of Drainwise and other inspection and educational activities carried over the last 12 months; • An assessment of the overflow events in terms of trends and causal factors and an evaluation of the overflows against agreed targets and performance measures; • Fulfilment of consented and internal performance targets around such things as network maintenance, overflow response time, and the number of overflows; and • Priority works and initiatives planned for the coming 12 months to continue to reduce the occurrence of both dry and wet weather overflows. **Sch18.2** In addition to prompt notification of overflow events Overflow Event Reporting should be required as a condition of consent (referred to as an "Overflow After Action Report" in Attachment E of the applicant's s92 further information response. **Sch18.3** A specific consent condition is recommended by which the applicant makes a commitment, within two years of the commencement of any consent, to identify the causes of chronic faecal contamination in

	Kopuawhakapata Stream and develop and implement remedial options to prevent or minimise further inputs associated with the wastewater network. The relative urgency of this investigation reflects the high risk to human health posed by current the level of faecal contamination. **Sch18.4** Need to consider processes to ensure that the public can engage with the Applicant to seek responses and understanding on the consent conditions and monitoring data. This could involve a Community Consultation Reference Group and a process to hold publics meetings on an as required basis.
Five Year Reporting 20) The Consent Holder shall report on the performance of the wastewater network and progress towards achieving the wastewater levels of service on a five yearly basis. This report shall assess: a) The consolidated inspections and improvements undertaken over the preceding five year period; b) Trends in overflow occurrence, including consideration of rainfall events, and an assessment of the basis for any trends; c) Trends in water quality monitoring – both state of the environment and overflow event related; d) The outcomes of monitoring (including cultural) that has been undertaken; e) The implications of this monitoring on future management approaches. f) Any updated wastewater dispersion modelling.	**Sch20.1** It is recommended that the 5 year reporting involves a presentation to a review panel as part of a public meeting process. The review panel could then make a recommendation on whether a S.128 review process should be undertaken for the next 5 year period. The consent authority would then need to make a decision on whether to proceed with a review process including a notification decision. **Sch20.2** Five-yearly reporting should focus on a detailed assessment of progress against achieving targeted reductions in dry and wet weather overflow events and durations, including any reprioritisation or revision of the long-term programme of network improvements. **Sch20.3** Recommend that the Applicant undertakes a periodic update of the wastewater hydraulic model to account for significant changes in the network, a demonstrated reduction in I&I, changes in population predictions etc. This could be incorporated into 5 year review and reporting. .
Review	**Sch21.1** It is recommended that the review condition be linked to the 5 year reporting cycle and that a mandatory review be undertaken before year 10. The mandatory year 10 review should be a publicly notified process.

21) The conditions of this consent may be reviewed by the Council pursuant to section 128 of the RMA (with the costs of the review process being borne by the Consent Holder) by the giving of notice, pursuant to section 129 of the RMA: a) Within three years of the consent being granted and thereafter at three yearly intervals; b) At any time: i. to address any unanticipated adverse effects that arise from the exercise of the consent; or ii. where a regional plan has been made operative which sets rules relating to minimum standards or water quality and in Gisborne District Council's (as regional authority) opinion it is appropriate to review the conditions of consent in order to enable the standards set by the rule to be met; or iii. when a relevant national environmental standards or national planning standards have been made. 22) The review under Condition 21) may only be for one or more of the following purposes: a) To address any material adverse effects on the environment, that in the opinion of the Council, is not contemplated by this consent which may arise from the exercise of the consent, or upon which the exercise of the consent may have an influence, including, but not limited to: i. modifying existing conditions, to require the Consent Holder to identify the character or nature of any discharges authorised by this Consent and to report the results of any monitoring or investigations to the Manager; ii. consideration of the conditions of this consent that may relate to the matters contained in s.108(4) of the RMA or any Act in substitution thereof; iii. inserting conditions, or modifying existing conditions, related to water quality standards. b) To insert conditions, or modify existing conditions to the extent necessary to give effect to any National Policy Statement or National Environmental Standard	**Sch21.2** Clause 21(b) should also include provision for a review if there is an established trend of non-compliance with the performance standards for reduction of frequency and volume of overflow discharges. **Sch22.1** It will be necessary to recognise that there may be structural changes for the management of three waters and this may also introduce new funding models or sources for upgrading the wastewater network.
Administrative Charges	

23) The consent holder shall pay the Council's full and reasonable costs in carrying out its functions in terms of certification and monitoring under this consent.	
Other matters	**Sch A1** The effectiveness of works to reduce overflows discharges located behind properties on Seymour Road (Seymour – Turenne Overflow Point) and entering the Waimata River via Owen Drain should be monitored and reported as a condition of consent.