

AGENDA



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MEMBERSHIP: Larry Foster (Chair), Colin Alder, Andy Cranston, Debbie Gregory, Ani Pahuru-Huriwai, Rawinia Parata, Aubrey Ria, Tony Robinson, Rob Telfer, Teddy Thompson, Rhonda Tibble, Nick Tupara, Josh Wharehinga and Her Worship the Mayor Rehette Stoltz.

Operations Infrastructure/Ngā Whakamahi – Te Hanganga Committee

DATE: Wednesday 7 December 2022

TIME: 12:30PM

AT: Te Ruma Kaunihera (Council Chambers), Awarua, Fitzherbert Street, Gisborne

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Operations

Reports to:	Council
Chairperson:	
Deputy Chairperson:	
Membership:	Mayor and all Councillors
Quorum:	Half of the members when the number is even and a majority when the membership is uneven.
Meeting frequency:	Six weekly (or as required).

Functions

- To provide governance oversight of Council's operational programmes, services, activities and projects (including major projects) related to environmental operations, community development and infrastructural assets.
- To enable the progress of the Council's operational activities, projects and services.
- Its scope includes:

Environment Services and Protection

- Building Services
- Enforcement
- Environmental Health
- Pests and Plant management
- Biodiversity
- Integrated catchments
- Land management
- Animal control
- Harbour management

Infrastructure Services

- Urban Stormwater
- Wastewater
- Water Supply
- Land, Rivers and Coastal
- Local Roding Network – including associated structures, bridges and retaining walls, walkways, footpaths and road reserve, landscaping and ancillary services and facilities, street lighting and traffic management control
- Solid Waste – including landfill and transfer stations, recycling and waste minimisation

Communities

- Cultural Activities including Theatres, Museum and Public Art, Library and Tairawhiti Navigations
- Recreation and Amenity – including open spaces, parks and gardens, cemeteries, community property and the Olympic Pool complex

Planning and Development

- Customer Engagement
- Support Services

Terms of Reference

Operational oversight

- Provide governance direction for the Council's operational activities as outlined in the general purposes and scope section.
- Review and adjust relevant working programme priorities within agreed budgets, activity management plans and levels of service as per the Council's Long Term Plan.
- Receive updates on programmes, major projects/projects and activities.
- To have input into, and make decisions on, operational proposals, options and cost of projects/major projects.
- Contribute to the development of short term plans for community services and community facilities.
- Consider the strategic regulatory and compliance issues.
- Prepare submissions on any matter that is within its rationale and terms of reference for Council approval and submit on behalf of Council when timelines do not allow Council prior approval.

Asset management

- Oversee the management of all Council's physical assets – including land, buildings and roads.
- Make decisions on infrastructure and assets becoming Council's and on infrastructure and community assets on behalf of Council.
- Progress the sale of properties as approved in the Long Term Plan and Annual Plan.
- Contribute to the development of and oversee delivery of economic development projects.
- Consider proposals to change the status or revoke the status of a reserve as defined in the Reserves Act 1977 (including the hearing of submissions).

Power to Act

To make all decisions necessary to fulfil the role and scope of the Committee subject to the limitations imposed.

To establish subcommittees, working parties and forums as required.

To appoint non-voting advisory members and/or Tangata Whenua representatives to assist the Committee.

Power to Recommend

To Council and/or any standing committee as it deems appropriate.

3.1. Governance Work Plan

OPERATIONS - COMMITTEE OF THE WHOLE						Meeting Dates				
Group Activity	Activity	Name of agenda item	Purpose	Report type	Owner	13-Apr	9-Jun	4-Aug	15-Sep	15-Dec
Community Lifelines	Journeys Infrastructure	June 2020 Weather Event	The Finance and Performance Committee requested a progress report on the June 2020 Emergency Works Project which has a repair cost of \$16.8M.	Information	Dave Hadfield					
Community Lifelines	Solid Waste & Road Safety Education	Gisborne District Council Future Recycling and Rubbish Collection Services	To improve Council's waste management system for better health and safety outcomes and emissions reduction by introducing a wheelie bin service for Gisborne City for kerbside collection of rubbish and recycling with the intent to introduce future service for organics.	Decision	Chloe Howard-Lloyd					
Community Lifelines	Journeys Operations	Tolaga Bay Wharf	Report on completed safety Improvements on Tolaga Bay Wharf and the ongoing issues we have had.	Information	Kellee Tupara					
Community Lifelines	4Waters Operation	Ruatoria Water Supply Update	Progress of establishing a potable water source for carrier supply and community collection in Ruatoria	Information	Murray Campbell					
Community Lifelines	Journeys Operations	Emergency Roothing Fund Application and Plan for Delivery	The purpose of this report is to provide information on the steps required to complete an emergency roading fund request to Waka Kotahi and provide the timeline for delivery if the funding for the latest March 2022 weather event is approved.	Information	Donna McArthur					
Community Lifelines	Solid Waste	Waste Management Collections Contract	To agree to go to direct procurement for the waste management kerbside collection	Public Exclusion (D)	Phil Nickerson					
Strategy and Science	Science monitoring	Swimming Pool monitoring programme	Requesting decision on whether to continue the pool monitoring program	Decision	Kathryn Sharman					

OPERATIONS - COMMITTEE OF THE WHOLE

Meeting Dates

Group Activity	Activity	Name of agenda item	Purpose	Report type	Owner	Meeting Dates				
						13-Apr	9-Jun	4-Aug	15-Sep	15-Dec
Community Lifelines	Solid Waste	The Future of Refuse and Recycling for Tairāwhiti	Report for Council's approval to improve our current kerbside collection to a wheelie bin system.	Information	Chloe Howard-Lloyd					
Liveable Communities	Liveable Spaces	Hawaiki Turanga Update	To mid-Feb Committee 2023	Information	De-Arne Sutherland					
Community Lifelines	4 Waters Operations - Land Rivers & Coastal	Flood Mitigation Proposal Downstream of Papatu Station - Te Arai River	The purpose of this report is to analyse the urgent flood mitigation proposal received from Clark Farming and provide implications and recommendations to the Operations Committee for approval.	Decision	Mangala Wickramanayake					
Community Lifelines	4 Waters Operations	Gisborne Water Supply - Meeting the New Water Quality Assurance Rules	The purpose of this report is to inform the Committee about the new rules for drinking water quality and explain the potential for not meeting full compliance during the 2022/2023 summer.	Information	Judith Robertson					
Community Lifelines	Solid Waste	Solid Waste Update	To report on the following in 2022: Works planned around solid waste and the timing of the review of the Waste Management and Minimisation Plan. Waste Contracts moving forward. Update on the Paokahu landfill. Update on the Tairāwhiti Environment Centre. Resource Recovery Centre regarding waste plans, waste collection contracts; and what can be done around illegal dumping.	Information	Phil Nickerson					
Environmental Services and Protection	Compliance and Enforcement	Annual Report Dog Control Policy and Practices 1 July 2020 - 30 June 2021	The Council is required under the Dog Control Act and subsequent amendments to report annually to the Secretary of Local Government on its dog control policy and operations. Section 10A requires Council to report on a number of statistical aspects of its dog control policy responsibilities.	Decision	Gary McKenzie					
Environmental Services and Protection	Compliance and Enforcement	Our Air Tairāwhiti 2022 - Review of Winter Air Quality and Consideration of New Research	Update on monitoring for air quality in Tairāwhiti for the year 2022.	Information	Kate Sykes					

OPERATIONS - COMMITTEE OF THE WHOLE

Meeting Dates

Group Activity	Activity	Name of agenda item	Purpose	Report type	Owner	Meeting Dates				
						13-Apr	9-Jun	4-Aug	15-Sep	15-Dec
Internal Partnerships	Democracy & Support Services	Appointment of the Deputy Chairperson of Operations – Environment & Communities		Decision	Heather Kohn					
Internal Partnerships	Democracy & Support Services	Appointment of the Deputy Chairperson of Operations - Infrastructure		Decision	Heather Kohn					
Liveable Communities	Liveable Spaces	Cobham School Neighbourhood Play System	Update on the progress to improve play opportunities in Elgin through the development of a neighbourhood play system.	Information	Tyler Kirk					
Liveable Communities	Liveable Spaces	Peel Street Toilets		Information	De-Arne Sutherland					
Liveable Communities	Integrated Catchments	Update Report on Projects Funded by the 2020--21 Natural Heritage Fund		Information	Melanie Cheetham					
Liveable Communities	Integrated Catchments	Allocation of the Natural Heritage Fund	To make recommendations on the allocation of the Natural Heritage Fund. This is an annual fund available to assist biodiversity related projects on private land.	Decision	Melanie Cheetham					
Liveable Communities	Liveable Spaces	Waingake 29% Future Use Issues and Options	Report & Powerpoint	Workshop	Amy England					
Liveable Communities	Liveable Spaces	Tokomaru Bay Destination Play Park	Will go to 2023 meeting - waiting until Hapu have the capacity to engage on the topic and likely to be late this year.	Information	Tyler Kirk					
Liveable Communities	Liveable Spaces	Tokomaru United Sports Club Lease	Requesting to grant a least to the Tokomaru United Sports Club for the building the club currently occupies.	Decision	Abbe Banks					
Liveable Communities	Community Projects	Waingake Transformation Programme Update	Provide an update on the Waingake Transformation Programme and associated restoration activities	Information	Amy England					
Liveable Communities	Integrated Catchments	GDC Internal Biodiversity Work Plan		Information	Don McLean					

OPERATIONS - COMMITTEE OF THE WHOLE

Meeting Dates

Group Activity	Activity	Name of agenda item	Purpose	Report type	Owner	Meeting Dates				
						13-Apr	9-Jun	4-Aug	15-Sep	15-Dec
Liveable Communities	Integrated Catchments	Land Overlay 3A and Sustainable Hill Country Project		Information	Kerry Hudson					
Liveable Communities	Liveable Spaces	Makorori Master Plan Update	The plan will set out the priorities for the protection and enhancement of the beach for the next 20-30 years.	Information	Tyler Kirk					
Liveable Communities	Liveable Spaces	Peel Street Toilet Building Restrengthening Update	To mid-Feb Committee 2023	Information	De-Arne					
Strategy and Science	Community Projects	Water Services Entity Bill	Submission Content	Information	Yvette Kinsella					
Strategy and Science	Strategy and Science	AIA Water Availability Project	Aqua Intel Aotearoa (AIA) External presenters	Information	Tom Porter					
Strategy and Science	Strategy and Science	Uawa-Hikuwai Catchment Scientific Bore Drilling Project	Completion Information Report	Information	Tom Porter/ Joanne Ferry/ Graeme Card					
Community Lifelines	4 Waters Infrastructure	Vehicle Fleet Update	To identify the relevant sections of Policy for Council's vehicle fleet acquisition/retention (ie what criteria is used to determine the current fleet and who makes the decision on acquiring and retiring vehicles); what the plan, timeframe and budget is for decarbonising the fleet (ie electrification) and explain the steps/policy/practice employed to ensure the fleet use is optimised.	Information	Simon Jeune & Graham MacLean					
Community Lifelines	Journeys Infrastructure	Emergency Works Roading Repairs	The purpose of this report is to obtain local share of funding for emergency works roading repairs for years 2022-23 and 2023-24	Decision	Dave Hadfield					

10. Reports of the Chief Executive and Staff for DECISION



22-237

Title: 22-237 Flood Mitigation Proposal Downstream of Papatu Station - Te Arai River

Section: 4 Waters Operations

Prepared by: Mangala Wickramanayake – Team Leader Land Rivers Coastal

Meeting Date: Wednesday 7 December 2022

Legal: Yes

Financial: Yes

Significance: **Medium**

Report to OPERATIONS - INFRASTRUCTURE/NGĀ WHAKAMAHI - TE HANGANGA for decision

PURPOSE - TE TAKE

The purpose of this report is to analyse the flood mitigation proposal received from Clark Farming and provide implications and recommendations to the Operations Committee for approval.

SUMMARY - HE WHAKARĀPOPOTOTANGA

Clark Farming and a number of other private farmlands were affected by Te Arai River flooding at Papatu Station in March 2022. Clark Farming has been actively engaged with the Gisborne District Council in seeking solutions for preventing future flooding for a number of years. Land Rivers and Coastal (LRC) has explained to Clark Farming that Council cannot afford an immediate one-off solution for the affected areas. This is due to funding issues as well as other flood related priorities of a similar nature in other areas.

Clark Farming submitted a flood mitigation proposal on 9 September 2022 to Council to safeguard their affected farmland from future flooding. This proposal suggests the work estimated at \$100,000 be implemented and completed by March 2023. The cost of the work would be paid by Clark Farming (Opou Station) directly to the contractor and Council could then reimburse this total cost of \$100,000 to Clark Farming over 3 years (\$33,333 each year) with no interest.

RECOMMENDATIONS - NGĀ TŪTOHUNGA

That the Operations/Ngā Whakamahi Committee:

1. Declines the Clark Farming Proposal (Option 1).
2. Prioritises the works as needed across the Te Arai catchment and implement through the Annual Plan for the next 10 years (Option 2).
3. Implements a Council review of the level of service across the district for drainage district maintenance as part of the Long Term Plan

Authorised by:

David Wilson - Director Lifelines

Keywords: Te Arai Flooding, Immediate solution, Fund reimbursement

BACKGROUND - HE WHAKAMĀRAMA

1. Land Rivers and Coastal (LRC) is managing four Flood Control Schemes (FCS) and has an operational budget of \$1.2 million over the Gisborne region. Te Arai River as a tributary of Waipaoa River has been operated as a part of the Waipaoa FCS. LRC has an ongoing contract with Fulton Hogan for maintenance work. Within this contract \$238,000 has been allocated for Waipaoa FCS for pre-determined work.
2. Due to the recent consecutive floods since June 2021, there is a huge demand for flood recovery and mitigation work across the region. Mangahauini and Waiotu, Makarika and Te Arai are of major concern and need immediate and long-term solutions.
3. Te Arai River flooded on 22-23 March 2022, causing damage to the farmlands in the middle-lower reaches including Papatu Station. The river overflowed its banks across the Papatu Station flats, down the upper section of the Papatu Road, through orange and kiwifruit orchards, then down the Whatatuna drain. The damage included 135Ha of cropped land owned by Papatu Station, Opou Station, Rongowhakaata and two residential properties. The same areas had been flooded in 1985.
4. The Hawkes Bay Regional Council Asset Management Group undertook a study downstream of Te Arai River and produced a report in March 2013 "Te Arai Riverbank Protection", with solutions and cost estimates. HRBC proposed alternatives for riverbank protection starting from rock, gabions and willow planting. The proposed work was considered too expensive, the cheapest alternative willow planting was already being implemented by LRC.
5. Since 2005 minimal river maintenance work (tree removal from the river channel, attending on complaints on river scouring, inaccessibility, etc.) has been done in Te Arai River upstream areas until 2017. Since 2017 LRC has done some maintenance work in the downstream areas under the Fulton Hogan Contract, with an annual cost range of \$10,000 – \$15,000.
6. In June 2019 LRC undertook a routine inspection of Te Arai (the same flooded area) using a drone as most areas were inaccessible. This drone footage provided evidence of the magnitude of the problem which is significant in some places but is manageable.
7. In January 2022 LRC arranged a kayak survey in the same river section as a drone couldn't capture river channel blockages due to overgrown trees. This inspection was done just prior to the flooding in March and identified 117 issues needing attention. Among these, 35 work orders have been created for the critical blockages including 21 hot spots and this work has been identified prior to the recent floods. These work orders were partially completed and delayed due to the flooding in March. Post flooding inspections were done in April 2022 and it was observed that some river channel blockages like fallen trees across the river were cleared and mobilised by the flood waters naturally.
8. Clark Farming presented this issue to the Operations Committee in early June 2022, which was followed by a visit to the problem area by 5 councillors and 3 council staff. All are aware that these restrictions/blockages need to be removed before another flood. A drain was cut by Papatu Station from the riverbank towards Papatu flats. This drain acted as a flood path during last flood event. A culvert with a valved structure (at the drain connection point to the river) needs to be installed urgently, otherwise Papatu flats will be flooded when the flow levels reach above drain invert level.

9. The damage due to the river overflow during a cropping season in this intensively farmed area can be significant but are mostly covered under private insurance.
10. Clark Farming suggests that 1.0 – 1.5km needs to be cleared and managed downstream of the overflow area from the drain cut. They suggest the cost would be \$100,000.
11. Clark Farming pays \$56,545 as annual rates to Council for these flooded properties including total drainage rates of \$8,724 as shown in the table below.

id	RT.VAL.OCCUPIER	RT.VAL.LOCATION	Annual Rates Drainage Rates		
08260*351*00*	CLARK, DAVID JOHN	PAPATU ROAD	\$ 105	\$ 23	Drainage Manutuke
08260*381*00*	CLARK, DAVID JOHN	237 PAPATU ROAD	\$ 42,720	\$ 8,401	Drainage Manutuke
08260*381*05*	CLARK, DAVID JOHN	170 PAPATU ROAD	\$ 4,899	\$ 280	Drainage Manutuke
08260*381*10*	CLARK, DAVID JOHN	PAPATU ROAD	\$ 97	\$ 20	Drainage Manutuke

12. LRC has undertaken maintenance work in the downstream area of Te Arai River for around \$70,000 within the last 5 years as a part of the annual work program. Clark Farming regularly requests more work in the affected areas. However, LRC has other priorities and financial restrictions. Due to the financial and competing priorities for Council budgets Clark Farming has submitted the proposal below (the full proposal is in **Attachment 1**).

Summary of Clark Farming Proposal

- Work to be commenced in an urgent manner, in the area to approximately 1.0 -1.5km down steam of the overflowed area to reinstate the capacity of Te Arai River during next summer and finish work by March 2023.
- In the absence of adequate funds available from Council, they would pay \$100,000 to the contractor upfront, and would recover this from Council interest free in 3 equal instalments over the next 3 years, commencing 1 April 2023.
- This work would be supervised by Tane Tamanui of Fulton Hogan.
- Any budgeted Council work would continue and be outside of this arrangement.
- They would coordinate with the supervisor to ensure the work is progressing.

DISCUSSION and OPTIONS - WHAKAWHITINGA KŌRERO me ngā KŌWHIRINGA

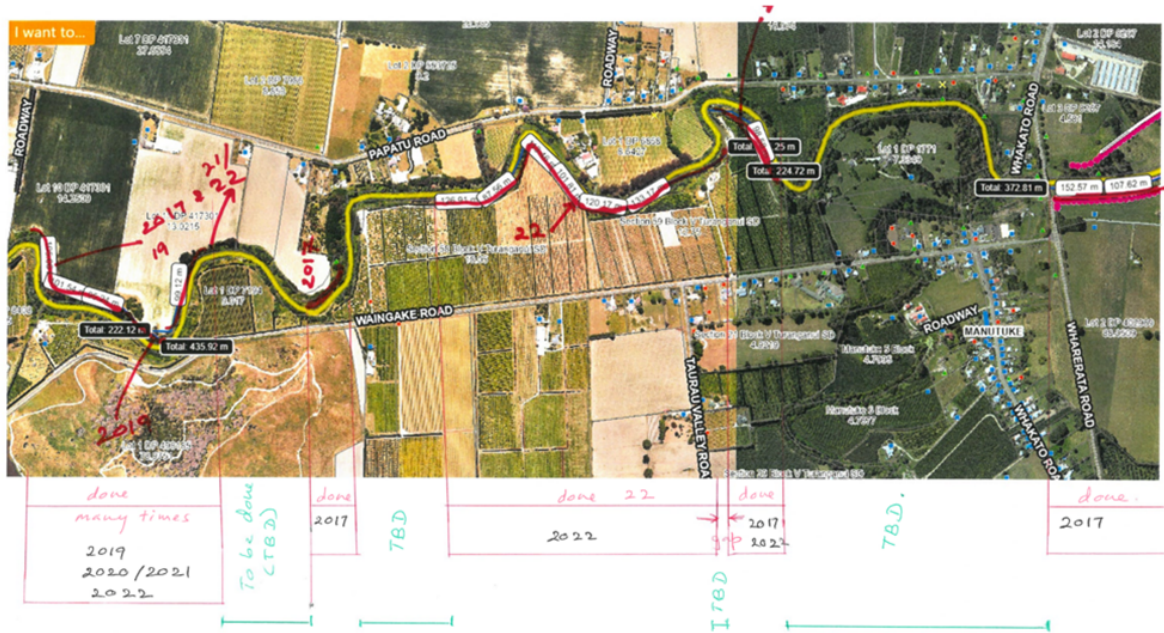
13. It is evident that the removal of the blockages of the main river channel does have an effect of lowering flood levels during a flood. However, it also increases erosion due to increased flow velocity and therefore increased bed scour and bank scour downstream. There should be a balance in removing all these blockages as it may have a significant impact downstream of the river. As the flow velocities are increased, there could be an increased risk for downstream flooding.
14. Maintenance work is done section by section, LRC has identified some gaps that need to be attended to downstream of Te Arai River. These are marked as TBD (To be done) in Figure 1 below. It is worth noting that it will cost considerably more than \$100k to rectify the issues along the entire length of the Te Arai.
15. If the upstream blockages were removed and thereby increased the river flow velocities, these gaps may recover naturally if the work is done upstream of the location marked in Figure 1. If is the case, downstream of Te Arai River in Figure 1 would not need any major works for the next 10 years, except regular Requests for Service (RFS). LRC could then focus on tree/blockages removal upstream of Te Arai River at stages as a part of the Annual Plan.

Figure 1: LRC Maintenance Work from 2017 -2022 at Te Arai River

Wok Plan Te Arai – 2022 -2024 (Priorities to be decided for Year 1 & Year 2)

Work done from 2017 -2022 in Red

Work to be done 2022 -2024



- The primary reason of this overflow of Te Arai River at Papatu Station is lack of funding and the maintenance issues in the river. The tree growth, slumping of riverbanks over time, overgrown willows, many fallen trees across the river, inaccessibility issues, blockages of the main channel, clogging of the riverbed and riverbanks were the key issues for flooding.
- The other major contributing factor for the river overflowing was the drain cut at Papatu flats river bend marked in Figure 2.

Figure 2: Drain Cut Location at Te Arai River (blue oval)



18. This cut is an unconsented drain about 2.5 -3.0 m deep, at the overflow location. This drain has acted as a funnel, conveying water out of the river and contributing to the flow down Papatu flats. The debris line (post flood levels on the fences) confirmed that this was a major cause for the flooding of Papatu flats. This drain is a private asset, and it is not Council's responsibility to fix. Council has sent 4 reminders to the landowner to fix the drain with a culvert and a floodgate (valved structure) if they want to use the drain. No efforts to fix the drain have been undertaken and urgent action is needed otherwise flooding from this drain is unavoidable. The landowner agreed to fix the drain at the inspection done on 7 April 2022, however, has postponed this work with various reasons. If this necessary work is not done, the next step is to carry out compliance procedures as this is a major concern for future flooding.

Option 1: Decline the Clark Farming proposal and carry out normal routine work as identified by LRC

19. Council declines the Clark Farming Proposal and LRC continues with the routine work as usual. Council will also work with the landowner to rectify the issues that arise from the drain works that are compounding the issues. LRC will continue the annual work plan, blockages will be removed at Te Arai River at the current rate of approximately \$15,000 per year.

Option 2: LRC carries out the work proposed by Clark Farming within three years including other hot spots of Te Arai River that have not yet been attended to

20. This option is similar to having a maintenance plan, in that LRC will be carrying out the maintenance work of Te Arai River section by section over a 10-year period.

21. Current funding is approximately \$15,000 per year. Additional funding of another \$25,000 needs to be generated. LRC could allocate an additional \$25,000 for the next 3 years for the Te Arai River Scheme. The total spendings on Te Arai would be \$120,000 for the next 3 years (2023-2025), however this would mean that we would be reprioritising works within the wider Manutuke catchment, which could lower the level of service to the landowners in the wider catchment who will not directly benefit from these works.

22. There is no third-party involvement directly and LRC and Fulton Hogan could handle this work. There would be no financing complications and there would be no pressure on LRC and Fulton Hogan staff from an external party.

Option 3: Accept the Clark Farming proposal

23. This option would solve the flooding issue at Papatu Station (although still no guarantee for a 100-year flood event). Council will have to face all the risks identified in the Risks section. A legal opinion would be required if there are provisions to local government authorities on such arrangements, that to take a loan from a third party and reimburse the costs at stages. Council's Finance and Affordability team confirmed their view on this arrangement as below.

"This is not an arrangement that we have come across, and not one which we would like to commence. We can envisage issues in identifying works completed that have been pre-paid, and also identifying and quantifying the liability to Clark Farming on an ongoing rolling basis".

24. LRC region wide work would be seriously affected, as would the Fulton Hogan contract work. There would be consequences if there is another flood in the region before March 2023, as Council and Fulton Hogan have committed to Clark Farming to complete the proposed work by March 2023 and have no capacity to attend on other emergency situations or other scheduled works in other catchments.

Equity with other Rivers in Region

25. Due to the recent consecutive floods since June 2021, there is a huge demand for flood recovery and mitigation work across the region. Mangahauini and Waiotu, Makarika and Te Arai are of major concern and need immediate and long-term solutions. Te Arai River although a tributary of the Waipaoa River, is outside the Waipaoa Flood Control Scheme. It is separately funded from the Manutuke Drainage Area (Targeted Rate). Rivers such as Mangahauini and Waiotu, Makarika are funded from the Waiapu General Drainage Area, (General Rate) or by separate project budgets (General Rate). Expenditure on the Te Arai from the Manutuke Drainage Area, being a targeted rate has no effect on river repairs from other budgets, however there is limited capacity within the Council LRC team to work across all of the outstanding issues across the number of catchments that need attention. Council needs to consider that whilst the Te Arai catchment does need increased funding and works there are a number of catchments that have no scheme or plan in place and these are all requiring council time and resource.

Long-term solution

26. Council staff have met with the landowners and understand their frustration at the lack of budgets and ability to undertake the works. A long-term approach needs to be developed with landowners and mana whenua as to how best manage the Te Arai Catchment long term. Local iwi have indicated a preference to develop a longer-term catchment approach rather than continuing in an ad hoc manner. Staff recommend the inclusion of a Te Arai Catchment Plan as part of the 2023 Long Term Plan Development.
27. Acknowledging the funding and capacity constraints of Council Resources a region wide prioritisation needs to be undertaken to feed into the Long Term plan so that Council funds and resources can be prioritised to the most affected catchments and a work program developed that is able to incorporate the worst affected areas now and into the future as the effects of Climate Change become more acute.

Conclusion

28. Based on our analysis, it is recommended that the best, most cost-effective and simple option to minimise flooding issues at Te Arai would be to:
- Option 1: Decline the Clark Farming Proposal.
 - Option 2: Prioritise the works as needed across the Te Arai catchment and implement through the Annual Plan for the next 10 years.
 - Implement a Council review of the level of service across the district for drainage district maintenance as part of the Long Term Plan.

ASSESSMENT of SIGNIFICANCE - TE AROTAKENGA o NGĀ HIRANGA

Consideration of consistency with and impact on the Regional Land Transport Plan and its implementation

Overall Process: Low Significance

This Report: Low Significance

Impacts on Council's delivery of its Financial Strategy and Long Term Plan

Overall Process: Low Significance

This Report: Low Significance

Inconsistency with Council's current strategy and policy

Overall Process: High Significance

This Report: Medium Significance

The effects on all or a large part of the Gisborne district

Overall Process: Low Significance

This Report: Low Significance

The effects on individuals or specific communities

Overall Process: Medium Significance

This Report: High Significance

The level or history of public interest in the matter or issue

Overall Process: Low Significance

This Report: Low Significance

29. The decisions or matters in this report are considered to be of **Medium** significance in accordance with Council's Significance and Engagement Policy.

TANGATA WHENUA/MAORI ENGAGEMENT - TŪTAKITANGA TANGATA WHENUA

30. Soraya Pohatu (Rongowhakaata Iwi Trust) represented Tangata Whenua interests at the inspection undertaken with all stakeholders in Te Arai with 5 councillors. Rongowhakaata Iwi Trust through Soraya have firmly stated that they do not support the proposal. They are in favor of a solution that considers the entire Te Arai River scheme.

COMMUNITY ENGAGEMENT - TŪTAKITANGA HAPORI

31. Farming community, councillors, and council staff have had continuous discussions on finding a solution since the floods occurred. Council inspected flood damages twice, visited all flooded houses and farms and flood heights were recorded. Several meetings were held with David Clark and adjoining landowners, however wider consultation across the Manutuke catchment has not been undertaken or with all of the targeted ratepayers who would have to contribute to this proposal.

CLIMATE CHANGE – Impacts / Implications - NGĀ REREKĒTANGA ĀHUARANGI - ngā whakaaweawe/ngā ritenga

32. Climate change impacts are evident in that the region has experienced more high intensity rainfalls and frequent flooding. The last flood in March was estimated as a nearly a 100-year event. There is a need for a management plan for Te Arai considering the climate change scenario RCP 6.5.

CONSIDERATIONS - HEI WHAKAARO

Financial/Budget

33. If Council were to accept the offer of \$100,000 and reimburse the cost over 3 years, the annual cost to Council to repay is \$33,333. LRC has checked the reimbursement process with the Finance and Affordability Team. They confirmed that:
- Finance and Affordability have never come across on a such arrangement.
 - They don't want to introduce this arrangement due to legal issues.
 - They could envisage issues in identifying works completed that have been pre-paid.
 - There could be issues related to identifying and quantifying the liabilities to Clark Farming.
34. As the works are benefiting some of the rate payers in the Te Arai catchment the repayments would need to come from the targeted ratepayers of the Te Arai targeted drainage district which would mean we would need to consult with the landowners if we were to charge them extra to repay the loan.
35. Council has sufficient debt capacity to borrow the suggested amount however it is a question of who pays the loan back and how that needs to be consulted on with the affected parties.

Legal

36. If Council considered Clark Farming's proposal, both parties must come to a legal agreement on the repayment process.

POLICY and PLANNING IMPLICATIONS - KAUPAPA HERE me ngā RITENGA WHAKAMAHERE

37. Council's Land Rivers and Coastal Asset Management Plan details a level of service requirement that must be provided and maintained for Council Flood Control Schemes.
38. The Local Government Act 2002 and Soil Conservation and River Control Act 1941 grant powers to control activities that may interfere with flood schemes.

RISKS - NGĀ TŪRARU

39. As the March flood was not a 100-year event but close to it, it is evident that the Papatu Station work is needed. However, below are the major risk factors in considering the proposal submitted by Clark Farming.
- a. There are many other neglected areas on Te Arai River that need action and committing council funds to one section would have adverse effects on other communities.
 - b. Other communities might question Council about the process and reimbursement arrangement.
 - c. If the proposal was accepted, Council must consider other proposals should another party came up with the same sort of proposal.
 - d. Risk of losing credibility of Council among other communities, working for farmers who have the ability to advance funds.

- e. Risk of downstream flooding due to increased velocity of flood waters, as there was no flood attenuation that results in shifting the problem elsewhere downstream.
- f. Greater risk at State Highway bridge due to high velocity flood waters, as work is done on extremes, fully blocked valves fully cleared (absence of attenuation), which could coincide with a major flood.
- g. There is a risk that Clark Farming would repeat the same request on regular basis and this becoming a practice, thereby other rivers and streams are neglected.
- h. Risks related to LRC's other commitments.
- i. There is a risk of involving a third party to LRC's ongoing contract with Fulton Hogan.
- j. Most of the LRC work is done during summer, as LRC work is weather related. If this proposed work of \$100,000 needed to be finished by next March, LRC's regular maintenance work would be affected adversely. There is a risk doing a selected section.
- k. LRC generally work from downstream to upstream maintenance or attend on critical areas to get the best value for money.
- l. Risk of having an emergency flooding situation in another area of the region and the customer wants priority, as they have paid/committed payments in advance.
- m. Council pays for the work at the end, but a third party dominates our routine work.
- n. Unable to finish the proposed work by March 2023, due to weather related matters.
- o. Long-term risk of repeated events in the future due to climate change, and no major effect of the work carried out.
- p. There would be additional costs related to legal fees and drawing up a contract agreement with Clark Farming.

NEXT STEPS - NGĀ MAHI E WHAI AKE NEI

Date	Action/Milestone	Comments
30/06/2023	LRC to complete the planned work – Year 1	Annual Work Program
2/2/2023	Council staff to work with the community on a wider catchment plan for funding in the next Long Term Plan.	
30/06/2024	LRC to complete the planned work – Year 2	Annual Work Program
30/06/2025	LRC to complete the planned work – Year 3	Annual Work Program

ATTACHMENTS - NGĀ TĀPIRITANGA

1. Attachment 1 - Annex 1 Clark Farming (1) [22-237.1 - 2 pages]

Appendix 1: Clark Farming Proposal submitted on 9 September 2022

From: david@clarkfarming.co.nz <david@clarkfarming.co.nz>
Sent: Friday, 9 September 2022 3:47 pm
To: Nedine Thatcher Swann <Nedine.Thatcher-Swann@gdc.govt.nz>; Rehette Stoltz <Mayor@gdc.govt.nz>; Pat Seymour <Pat.Seymour@gdc.govt.nz>; Josh Wharehinga <Josh.Wharehinga@gdc.govt.nz>; Andy Cranston <Andy.Cranston@gdc.govt.nz>; Larry Foster <Larry.Foster@gdc.govt.nz>; David Wilson <David.Wilson@gdc.govt.nz>
Cc: Meredith Akuhata-Brown <Meredith.Akuhata-Brown@gdc.govt.nz>; Sandra Faulkner <Sandra.Faulkner@gdc.govt.nz>; Debbie Gregory <Debbie.Gregory@gdc.govt.nz>; Kerry Worsnop <Kerry.Worsnop@gdc.govt.nz>; Terry Sheldrake <Terry.Sheldrake@gdc.govt.nz>; Tony Robinson <Tony.Robinson@gdc.govt.nz>; Bill Burdett <Bill.Burdett@gdc.govt.nz>
Subject: FW: Papatu Stn, Flood Inspection 7/4/2022

Dear Nadine,

As you are aware the Te Arai River overflowed its banks in late March - as it flowed across Papatu Station flats, down the upper section of the Papatu Road, then through Orange and Kiwi Fruit Orchards, around and through two residential properties then down the Whatatuna Drain – breaking its banks and across over 135Ha of cropped land owned by Opou Station and Rongowhakaata before re entering the Whatatuna under the SH2 bridge and re-entering the Te Arai river at the flood gates.

The primary reason this overflow happened (it wasn't a large flood in this river) is that the tree growth clogging the river bed and flood zone in the river and has not been managed for many years.

The River was cleared following the Ngatapa Flood in 1985 and managed annually until around 2005.

Very little has been done on any scale since – It has been discovered that there is no known Management Plan for this whole river system hence no planned work hence no budget.

I have been communicating with Mangala Wickramanayake in council – she has had the below report by Nick Gordon done following the overflow.

I presented to the Operations Committee in early June which was followed by a visit to the problem area by 5 GDC Councillors and 3 Council staff – this was a very worthwhile visit with Councillors and Staff getting a look at the magnitude of the problem.

Now we are all aware of the problem these restrictions need to be removed urgently this summer.

As we are now getting close to the drier part of the year we need to know that there is a plan to try to minimise the risk of this overflow happening again from low level rain events and get some more capacity into the river bed – a major flood will still test this pressure point.

The implications of this river overflowing during a cropping season in this intensively farmed area are huge.

With Global warming and Climate Change we are going to have these weather events more frequently.

The crops affected by an overflow are – oranges, kiwi fruit apples, pasture with stock, maize seed Maize, sweetcorn and squash worth some millions of dollars depending on the timing of a flood as well as the 2 domestic houses.

I am suggesting a length of about 1.0 – 1.5km is needing to be cleared and managed downstream of the overflow area (as per attachment, which more or less lines up with Nick Gordons map below).

Mangala has stated that there is only \$15,000 - \$20,000 for the whole Te Arai River this year with no priorities set for this money yet.

Fulton Hogan cleared a section on my property last summer of about 200 meters at a cost of about \$7000 for 1 side of the river (approximately \$35/m).

At that rate 1.5km at \$35/m x 2 sides could cost approximately \$105,000.

My annual GDC rate for my 3 properties in Manutuke is \$52,249 (GST incl) of which \$8038 is for Manutuke drainage and Waipaoa flood control.

The GDC should also not loose site of the fact that there is still approximately 18km x 2 sides in this river that is at the point of an environmental disaster with no management plan.

My Proposal:

Work to commence in an urgent manner, in the area to approximately 1.0 -1.5km down steam of the identified overflow area, and to clear trees in a planned manner to reinstate the capacity of the Te Arai River to minimise the risk of damage to property, houses and crops.

In the absence of adequate funds available from the GDC, I would propose to guarantee \$100,000 interest free to enable work to start more or less immediately.

This would be for work specifically in the area described above, presumably supervised by Tane Tamanui of Fulton Hogan.

Opou Station would guarantee to pay the contractors invoices by due date direct up to the maximum value of \$100,000.

The full value of the work would be done in the 2022 year to 31 March 2023.

Any budgeted GDC work would continue and be outside this arrangement.

I would be able to be in communication with the supervisor to ensure the work is progressing.

Repayment:

1. First repayment of \$33,333 in the GDC's new financial year 1/4/2023.
2. Second payment of \$33,333 1/4/2024.
3. Third payment of \$33,333 1/4/2025.

These are suggestions which can be discussed further but are an indication of how urgent I consider the work to be.

I will be available to discuss this further at the Operations Committee meeting next Thursday.

Regards
David Clark

Clark Farming

Title: 22-274 Appointment of the Operations - Infrastructure Committee
Deputy Chairperson

Section: Democracy & Support Services

Prepared by: Heather Kohn - Democracy & Support Services Manager

Meeting Date: Wednesday 7 December 2022

Legal: Yes

Financial: No

Significance: **Low**

Report to OPERATIONS - INFRASTRUCTURE/NGĀ WHAKAMAHI - TE HANGANGA COMMITTEE for decision

PURPOSE - TE TAKE

The purpose of this report is for the Operations – Infrastructure Committee to appoint its Deputy Chairperson.

SUMMARY - HE WHAKARĀPOPOTOTANGA

Each Committee at its first meeting is required to elect a deputy chairperson.

The role of the Deputy Chair is to stand in for the Chair in the event of sickness, leave or any other absences.

The system of voting for the Deputy Chair will be in accordance with Standing Order 5.6 (Attachment 1) and Council has set System A as its election procedure.

The decisions or matters in this report are considered to be of **Low** significance in accordance with the Council's Significance and Engagement Policy.

RECOMMENDATIONS - NGĀ TŪTOHUNGA

That the Operations - Infrastructure/Ngā Whakamahi - Te Hanganga Committee:

1. **Appoints Councillor who received the majority of votes from members present and voting, to be the Deputy Chair.**

Authorised by:

James Baty - Director Internal Partnerships

Keywords: committee, deputy chairperson, standing orders, chairperson, Operations - Infrastructure

ATTACHMENTS - NGĀ TĀPIRITANGA

1. Attachment 1 - Standing Order 5 6 Voting system for deputy chairs [22-274.1 - 1 page]

5.6 Voting system for deputy mayors, committee chairs and deputy chairs

When electing a deputy mayor, a committee chair or a deputy chair, the local authority must resolve to use one of the following two voting systems.

System A: The candidate will be elected or appointed if he or she receives the votes of a majority of the members of the local authority or committee who are present and voting. This system has the following characteristics:

- (a) There is a first round of voting for all candidates;
- (b) If no candidate is successful in the first round, there is a second round of voting from which the candidate with the fewest votes in the first round is excluded; and
- (c) If no candidate is successful in the second round, there is a third round and, if necessary, subsequent rounds of voting from which, each time, the candidate with the fewest votes in the previous round is excluded.

In any round of voting, if two or more candidates tie for the lowest number of votes, the person to be excluded from the next round is resolved by lot.

11. Reports of the Chief Executive and Staff for INFORMATION



22-270

Title: 22-270 Gisborne Water Supply - Meeting the New Water Quality Assurance Rules

Section: Community Lifelines 4 Waters Operations - Water

Prepared by: Judith Robertson - Team Leader Water

Meeting Date: Wednesday 7 December 2022

Legal: No

Financial: No

Significance: **Low**

Report to OPERATIONS - INFRASTRUCTURE/NGĀ WHAKAMAHI - TE HANGANGA for information

PURPOSE - TE TAKE

The purpose of this report is to inform the Committee about the new water quality assurance rules for drinking water safety and explain the potential for not meeting full compliance this summer.

SUMMARY - HE WHAKARĀPOPOTOTANGA

The new rules for assurance that drinking water is safe took effect 14 November 2022. When operating at low and medium flows, the Waingake treatment plant meets the new rules. During high summer flows, the bacterial treatment assurance rule cannot be met from the Waingake plant and so medium flows will be maintained this summer. The Waipaoa treatment plant will also need to operate from mid-November to April to supply water needed to meet the city water demand.

In event that water demand exceeds this operating programme this summer, and more water from Waingake is needed, full compliance with the new bacterial treatment rule is unlikely.

A new UV facility is being constructed at Waingake to meet full compliance with the new rules, but this won't be commissioned until after summer.

The decisions or matters in this report are considered to be of **Low** significance in accordance with the Council's Significance and Engagement Policy.

RECOMMENDATIONS - NGĀ TŪTOHUNGA

That the Operations - Infrastructure/Ngā Whakamahi - Te Hanganga Committee:

- 1. Notes the contents of this report.**

Authorised by:

David Wilson - Director Lifelines

Keywords: Drinking-water, Compliance

BACKGROUND - HE WHAKAMĀRAMA

1. The Water Service Act 2021 (the Act) set out duties and responsibility of water suppliers. Water Quality Assurance Rules (rules) made under this Act require additional treatment and monitoring processes for assurance water supplied is safe. Taumata Arowai is the new Regulator for administration of the Act and assurance rules.
2. The supply from Waingake has meet the required Standards for safe water for many years and this new rule regime does not mean the water is now unsafe. The treatment assurance parameter has changed, not the quality of the water supplied.
3. The new bacteriological treatment rule has significantly increased the contact time for water disinfection processes using chlorine and at high flows this rule cannot be met at the Waingake treatment plant. The rule can be met at low and medium flows with the existing treatment facility.
4. In June 2022 the Council approved \$1.2M of unbudgeted new capital to fund the installation of a UV disinfection facility at the Waingake plant. Procurement and design for this facility is underway and commissioning is planned for May/June 2023.
5. The majority of drinking water for Gisborne is treated and supplied from the Waingake plant, year-round. The Waipaoa treatment plant is used to augment the city supply, commonly in spring to conserve supply in the dams and for a few weeks in January / February if necessary to meet peak demand. With a UV treatment process step, the Waipaoa plant meets the new water disinfection rule and for this summer will operate for multiple months to off-set the deficit in supply from the Waingake plant.
6. Reporting compliance is done through the Councils annual performance report and associated audit. Historically the Ministry of Health confirmed the level of compliance against the Standards. Some of the industry producers have relied on this annual compliance reporting to meet their own audit outcomes. Taumata Arowai have not yet provided guidance on their compliance reporting expectations except that notification is required for any event where the safety of drinking water supplied could be compromised.

DISCUSSION and OPTIONS - WHAKAWHITINGA KŌRERO me ngā KŌWHIRINGA

7. Operating Waingake plant within the new bacterial treatment rule is manageable but requires maintaining a higher chlorine concentration than previous and control of flow through the treatment process at maximum of 750m³/hour. In summer the flows from Waingake plant are commonly at 900 – 1100m³/hour.
8. Reliance on supply from the Waipaoa plant comes with risk due to river water quality and available water. Very dirty water after rain events reduces the speed and volume of water the plant can treat. In periods without rain, if the Waipaoa River reaches minimum flow, extraction for water supply use must cease.
9. In the event more than 750m³/hour of treated water is required from the Waingake plant for the Gisborne supply, likelihood is low of meeting full compliance with the new bacterial treatment assurance rule. This does not mean the water supplied is unsafe.

10. Guidance sought from Wai Comply, water consultancy, considered the Waingake plant operating programme and possibility of implementing water use restrictions until the Waingake UV facility is commissioned and their report is appended. Two recommendations will be acted on to provide the most robust operating programme for meeting compliance.
11. The decisions or matters in this report are considered to be of **Low** significance in accordance with Council's Significance and Engagement Policy.
12. The change in statutory assurance / compliance is the driver for the revised operating programme.

ASSESSMENT of SIGNIFICANCE - TE AROTAKENGA o NGĀ HIRANGA

Consideration of consistency with and impact on the Regional Land Transport Plan and its implementation

Overall Process: **Low** Significance

This Report: **Low** Significance

Impacts on Council's delivery of its Financial Strategy and Long-Term Plan

Overall Process: **Low** Significance

This Report: **Low** Significance

Inconsistency with Council's current strategy and policy

Overall Process: **Low** Significance

This Report: **Low** Significance

The effects on all or a large part of the Gisborne district

Overall Process: **Medium** Significance

This Report: **Low** Significance

The effects on individuals or specific communities

Overall Process: **Medium** Significance

This Report: **Low Significance**

The level or history of public interest in the matter or issue

Overall Process: **Medium** Significance

This Report: **Low** Significance

13. The decisions or matters in this report are considered to be of **Low** significance in accordance with Council's Significance and Engagement Policy.

TANGATA WHENUA/MĀORI ENGAGEMENT - TŪTAKITANGA TANGATA WHENUA

14. The need to make operational changes within a short time frame means that meaningful engagement with tangata whenua – outside of existing general and project-specific relationship processes has not been possible.

COMMUNITY ENGAGEMENT - TŪTAKITANGA HAPORI

15. Consistent with Council's Significance and Engagement Policy:
 - a. Taumata Arowai, are responsible for communicating the reasons why these changes (to drinking water treatment) are needed.
 - b. Council won't generally engage with our communities about decisions to act where it is necessary to comply with the law.
16. A media release on 12 November 2022 updated the public about the operating programme and communication with key industry has been done.

CLIMATE CHANGE – Impacts / Implications - NGĀ REREKĒTANGA ĀHUARANGI - ngā whakaaweawe / ngā ritenga

17. Climate change projections are for longer hot dry periods and droughts and for storm systems bringing torrential rains. Provision of water from the Waingake and Waipaoa sources is affected by these climate conditions. Heavy rain affects water quality and the ability to reliably treat high volumes of water.
18. Having multiple barriers for treatment increases confidence of meeting compliance requirements. The Waingake UV facility will provide a multi barrier system going forward.
19. Consent controls and limits on taking water below the minimum river flows affects the volume and sources of water available for water supply.

CONSIDERATIONS - HEI WHAKAARO

Financial/Budget

20. Treatment plant operations will be funded from existing budgets, although budget overrun for Waipaoa plant is possible because of the prolonged operating period, cost of power, chemicals and staff.

Legal

21. There are legal implications set out in the Water Services Act 2021 for Council as the water supplier to meet duties including provision of safe drinking water.

POLICY and PLANNING IMPLICATIONS - KAUPAPA HERE me ngā RITENGA WHAKAMAHERE

22. The new statutory regime for drinking water is the driver for requiring this unbudgeted operating expenditure in the 2023 budget.

RISKS - NGĀ TŪRARU

23. There is always risk with operating water treatment and delivery systems and in meeting full compliance with the Act and now the new water quality assurance rules. The operating and maintenance programmes manage and mitigate risks as much as possible.

NEXT STEPS - NGĀ MAHI E WHAI AKE

Date	Action/Milestone	Comments
March 2023	Update report to Committee	Update report on water supply summer operation programme.
May - June 2023	Containerised facility commissioning at Waingake.	Project completion within 22/23 financial year.

ATTACHMENTS - NGĀ TĀPIRITANGA

1. Attachment 1 - 22-270 Gisborne Water Supply Bacteriological C.t Compliance [**22-270.1** - 11 pages]


WAINGAKE WATER TREATMENT PLANT BACTERIOLOGICAL COMPLIANCE

NOVEMBER 2022





Document Control

Document Development Information	
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Date:	November 2022
	Version No: 1
Wai Comply Filename:	2022-11_Gisborne DC_Waingake WTP Bacteriological C.t Compliance_FINAL_JT_v1
Header:	Waingake Water Treatment Plant Bacteriological Compliance

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This report is intended to be used for improving knowledge solely relating to drinking water compliance requirements and does not determine and/or guarantee compliance.

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Terms & Acronyms

TERM/ACRONYM	DEFINITION
GDC	Gisborne District Council
WSA	Water Services Act 2021
QAR	Drinking Water Quality Assurance Rules 2022
DWSNZ 2018	Drinking-water Standards for New Zealand 2005 (Revised 2018)
WTP	Water Treatment Plant
NTU	Nephelometric Turbidity Units
FAC	Free available chlorine
UV	Ultraviolet
C.t	The product of the concentration (C) of a disinfectant and the contact time (t) required to control micro-organisms.



BACKGROUND

In 2021, the New Zealand government passed primary legislation relating to the regulation of the three waters (drinking water, wastewater stormwater). With respect to drinking water, the Water Services Act 2021 (WSA) (Department of Internal Affairs, 2021) aims to ensure that drinking water suppliers provide safe drinking water to its consumers. To assist in achieving this, the WSA establishes a framework of high-level functions and duties for drinking water supplies.

Taumata Arowai has been tasked with regulating this framework, and in accordance with section 49 of the WSA has created the Drinking Water Quality Assurance Rules 2022 (QAR) (Taumata Arowai, 2022). These rules primarily impose requirements relating to drinking water supplier duties to:

1. supply safe drinking water (WSA section 21)
2. ensure that drinking water complies with the Water Services (Drinking Water Standards for New Zealand) Regulations 2022. (WSA section 22)¹

In July 2022, Taumata Arowai finalised and released the QAR after its mandatory consultation period. GDC officers then reviewed the new rules and determined that adjustments will be required to the Waingake Water Treatment Plant treatment systems and/or processes to meet stricter requirements. Of particular note to GDC are more stringent requirements that relate to bacteriological compliance.

GDC has requested that Wai Comply conducts an independent review of its proposed interim operational changes and advise of any additional actions that could be considered. To clarify, the interim operational changes aim to allow GDC to have the capability to continue to meet the new QAR requirements during the period where significant capital works are not yet completed.

Water Quality Compliance Requirements

With the introduction of the WSA, the requirements relating to demonstrating water quality compliance changed. This change became active on the 14th of November 2022 where the transition from the Drinking Water Standards for New Zealand 2005 (Revised 2018) (Ministry of Health, 2018) or DWSNZ 2018 to the QAR occurred.

For the aforementioned compliance requirements and changes to the current reporting, the differences specifically relating to bacteriological compliance are outlined in Table 1 below.

Table 1: DWSNZ 2018 vs QAR Bacteriological Requirement Comparison

DWSNZ 2018 Criterion 2A	QAR T3 Bacterial Rules - Chlorine	Difference(s)
The sampling and analytical requirements in sections 4.2.6 and 4.2.7 must be met, where applicable.	All water passing through the treatment plant must be treated with chlorine	Differences in acceptable locations for turbidimeters however this is not expected to affect Waingake WTP's ability to demonstrate meeting this requirement.

¹ This refers to the secondary legislation that came into force on 14th November 2022. Not to be confused with the Drinking-water Standards for New Zealand 2005 (Revised 2018) which will be phased out.



DWSNZ 2018 Criterion 2A	QAR T3 Bacterial Rules - Chlorine	Difference(s)
The FAC, pH and turbidity must be monitored continuously (sections 3.2 and 4.2.8.2 to 4.2.8.4).	and must be monitored in accordance with Table 19.	Both standards refer to 'prescribed disinfection contact time' which has already required active management to meet the DWSNZ 2018 criterion at Waingake WTP to date. Some additional parameters need to be monitored as seen in Table 19 of the QAR. These include FACe, contact time and C.t values. (SEE RECOMMENDATION 2)
The chlorine C.t value (Appendix A1.3.4) must be at least <u>6</u> for at least 98 percent of the compliance monitoring period, taking account of short-circuiting in the contact tank (Guidelines, section 15.2.9). A minimum retention of five minutes is required.	Treated water must achieve a chlorine C.t value of at least <u>15</u> min.mg/L for at least 95 % of each day. Treated water must have a FACE of no less than 0.2 mg/L. T10 contact time of at least 5 minutes must be demonstrated.	Significant change with the chlorine C.t value minimum moving from 6 to 15. As the C.t is calculated based a combination of chlorine concentration (dose) and time (in the form of treated water stored and flow rate), one or both of these factors will need to be adjusted to increase the C.t. Appendix A includes graphs of different C.t scenarios for comparison. Other C.t disinfection approaches outside of chlorine are available, including UV disinfection.
Measurements of the water's turbidity must satisfy the following requirements. See Figure 4.1 for remedial actions. a. The turbidity is less than 1.0 nephelometric turbidity unit (NTU) for at least 95 percent of the compliance monitoring period (Table 4.1). b. The turbidity does not exceed 2.0 NTU for the duration of any three-minute period.	Turbidity of water leaving the treatment plant must be less than 1.0 NTU for at least 95% of each day. Turbidity must not exceed 2.0 NTU for the duration of any consecutive 15-minute period.	Slight difference in the 2.0 NTU consecutive period however this is not expected to affect Waingake WTP's ability to demonstrate meeting this requirement.

As seen in Table 1 the biggest change that affects GDCs ability to achieve compliance with Taumata Arowai's QAR relate to the change in the C.t value. As at the time this report is published, Wai Comply are not aware of



Waingake Water Treatment Plant Bacteriological Compliance

any guidance or formal clarification from Taumata Arowai on why this change to a stricter C.t limit was required. Taumata Arowai convened expert working groups which may have recommended these changes based on overseas requirements. A discussion on the potential health benefits and risks of these changes has not been covered in this report.

It should be noted that the performance of the Waingake WTP in relation to chlorine disinfection C.t values and retention times has been at levels consistent with the DWSNZ 2018 since 2005 when the original Drinking-water Standards for New Zealand 2005 (Ministry of Health, 2005) were released. As such, this step change is very new and will take time for some water suppliers to successfully implement.

Existing Waingake WTP Treatment Processes

Waingake WTPs primary disinfection process currently relies on the addition of chlorine whilst ensuring an acceptable pH level is attained. The location of the chlorine system can be seen in Figure A as well as locations where chlorine levels (Cl₂), pH and turbidity are continuously monitored.

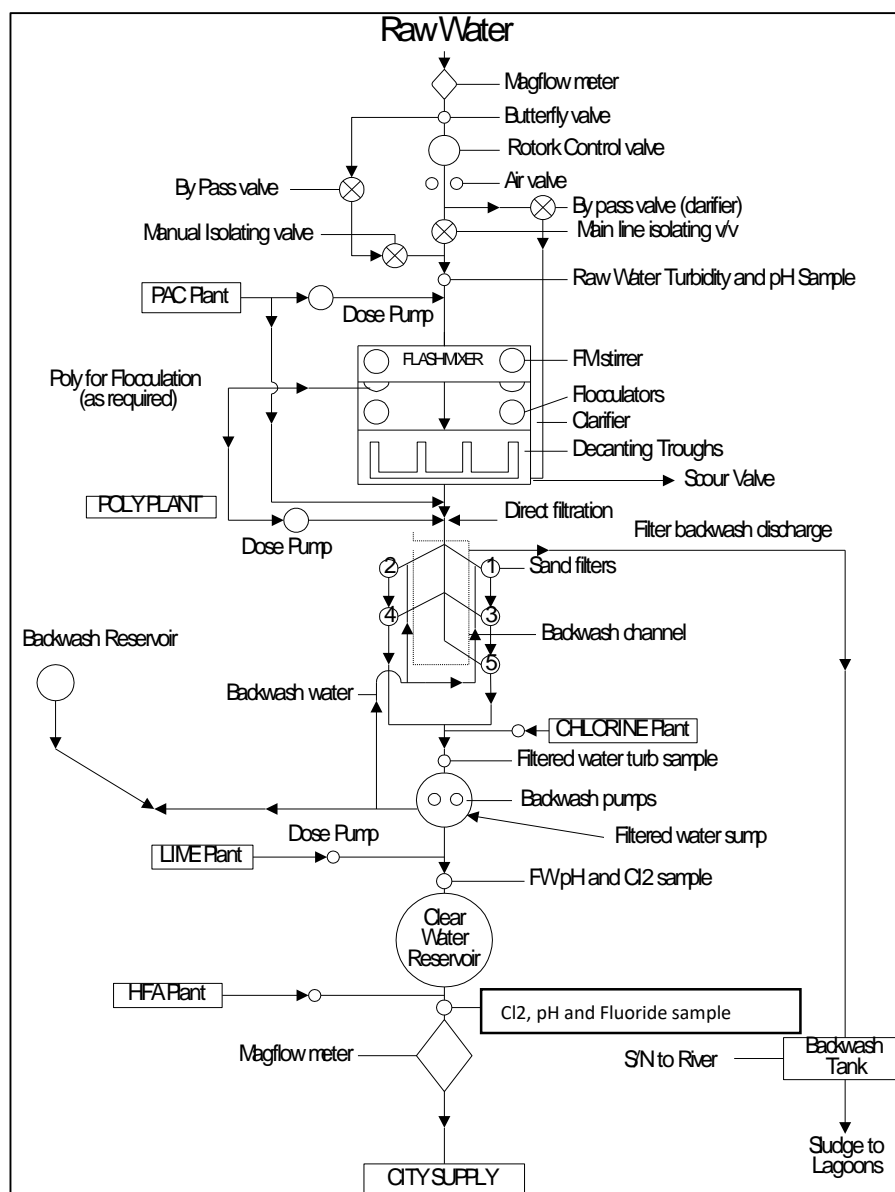


Figure A: Waingake WTP Flow Diagram



PROPOSED CHANGES RELATING TO QAR REQUIREMENTS

Waingake WTP Upgrade

The proposed upgrade includes installation of two UV reactors for bacterial disinfection of water, analytical measurement instrumentation, back-up power supply. This upgrade has been approved by Council and is planned for delivery around May 2023.

Interim Actions (Until Waingake WTP Upgrade is Completed)

In preparing this report, GDC staff have communicated several changes and approaches that have been or are being implemented. These changes aim to mitigate any compliance related issues until the Waingake WTP upgrade is completed.

The interim actions were communicated via email from the Drinking Water Team Leader on 08/11/2022 and during a phone call with the Senior Water Treatment Operator on 09/11/2022. Table 2 outlines the interim actions discussed.

Table 2: QAR Requirement Interim Actions

ID	Water Supply Component	Interim Action	Benefits to compliance
1	Waingake WTP	Increase of chlorine concentration	These three actions work best in combination with each other. Increasing the chlorine concentration is self-explanatory. Reducing Waingake WTP outflows to 700-750 m ³ /hr and supplementing flow from Waipaoa WTP increases the retention time of the Waingake Clearwater Reservoir which is prior to the location used to demonstrate compliance. As mentioned in Table 1, C.t is calculated based a combination of chlorine concentration and time. If any of these are adjusted, C.t is increased and therefore the likelihood of achieving a C.t value of 15 also increased.
2	Waingake WTP	Reduce to full gravity flows (700-750 m ³ /hr)	
3	Waipaoa WTP	Operating Waipaoa plant to make up the demand starting the week of 21/11/2022 through to late March or April 2023 when demand reduces back to Waingake gravity flow volumes. Bacterial compliance at Waipaoa WTP is achieved using UV. Multi Barrier can also be met C.t at Waipaoa WTP.	
4	Gisborne City	Water restrictions could be implemented to try and reduce demand. Level 2 Sprinkler Restriction use 6am to 8am only. Level 3 Restrictions Sprinkler Ban and only handheld hosing allowed. Level 4 Restrictions Total ban on residential outdoor water use and Industrial – essential use only.	Reducing the load on the Waingake and Waipaoa WTPs will allow the management of production between each WTP to be easier, therefore making it easier to meet C.t requirements (reduced flows).
5	Gisborne City	Communication planning through water conservation messaging is in place (i.e., don't waste water/conserves water billboards around the city). A refreshed programme is planned for December 2022 release.	



ID	Water Supply Component	Interim Action	Benefits to compliance
6	Operational	<p>Operating process improvements at Waingake WTP outlined in the recently reviewed Water Safety Action & Reporting Protocol (ref A804303) (Gisborne District Council, 2022).</p> <ul style="list-style-type: none"> • Adjustment of performance criteria related to chlorine disinfection system² • Adjustment of corrective actions if new performance criteria limits are exceeded³ • Availability of new tools within 'Water Outlook' software to assist with C.t review. 	Allows for additional quality assurance steps to be activated should the performance of the Waingake WTP chlorine disinfection system be affected.

CONCLUSION & RECOMMENDATIONS

The review of the Waingake WTP chlorine disinfection performance relates to a change in the yardstick associated with demonstrating drinking water safety. There have been no material changes to source water quality or associated risks to the potability of drinking water supplied. The changes to the chlorine Ct values are more conservative and will offer greater assurance around primary disinfection performance. The interim actions outlined in Table 2 if executed correctly should assist GDC with meeting the QAR and its associated duties relating to the supply of safe drinking water to its consumers. However, some consideration could be given to some additional actions that could supplement the interim actions defined. These have been identified as recommendations and are described below:

RECOMMENDATION 1: Failure of continuous monitoring equipment

Rule G17 of the QAR states that if continuous monitoring equipment used to demonstrate compliance fails or cannot provide data, grab samples can be taken at 30 minute intervals and used for compliance demonstration. A review of surrogate manual sampling to give effect to the requirements of the QAR should be conducted and trialled to provide confidence that the water is demonstrably safe, and compliance could be demonstrated. This could include grab samples for FAC, pH and turbidity, and the collection of flow and reservoir level readings from SCADA (if possible).

RECOMMENDATION 2: New values that need to be continuously monitored

Rule T3.1 of the QAR states that monitoring is required in accordance with Table 19 of the QAR. Table 19 of the QAR includes a section that prescribes values that need to be continuously monitored. Parameters that are currently not monitored at the Waingake WTP include FACe, contact/retention time and C.t, so it is recommended that GDC continue its investigation into the control system's ability to calculate and add these parameters so they can be monitored. In the interim, it is understood that GDC will continue relying on monitoring and alarming of chlorine concentration and reservoir level as described in interim action 6 from Table 2.

² As of 09/11/2022, the alarms for parameters at the outlet of the clearwater reservoir were set at 45% for level and 0.9 mg/L for chlorine concentration (or FAC).

³ As of 09/11/2022, the responses include verifying C.t, reducing flow leaving the WTP and stopping flow at Makaraka Pump Station.



REFERENCES

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APPENDIX A. CHLORINE C.T SCENARIOS FOR THE WAINGAKE WTP

