



Te Kaunihera-ā-Rohe o Taratahi

CARTERTON
DISTRICT COUNCIL

AGENDA

Water Race Committee meeting

Date: Wednesday, 28 February 2024

Time: 1:00 pm

**Location: Carterton Events Centre
50 Holloway St
Carterton**

Cr B Deller (Chair)
J McFadzean (Deputy Chair)
Mayor R Mark
Cr S Cretney
Cr S Gallon

Member J Eastham
Member D Ellison
Member N Wadham
Co-opted member J Booth
Co-opted member M Hewison

Notice is hereby given that a Water Race Committee meeting of the Carterton District Council will be held in the Carterton Events Centre, 50 Holloway St, Carterton on:

Wednesday, 28 February 2024 at 1:00 pm

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1 KARAKIA TIMATANGA

Mai i te pae maunga, raro ki te tai

Mai i te awa tonga, raro ki te awa raki

Tēnei te hapori awhi ai e Taratahi.

Whano whano, haramai te toki

Haumi ē, hui ē, tāiki ē!

2 APOLOGIES

3 CONFLICTS OF INTERESTS DECLARATION

4 PUBLIC FORUM

5 CONFIRMATION OF THE MINUTES



5.1 MINUTES OF THE WATER RACE COMMITTEE MEETING HELD ON 22 NOVEMBER 2023

1. RECOMMENDATION

1. That the Minutes of the Water Race Committee Meeting held on 22 November 2023 are true and correct.

File Number: 374321

Author: Robyn Blue, Democratic Services Officer

Attachments: 1. Minutes of the Water Race Committee Meeting held on 22 November 2023

**MINUTES OF CARTERTON DISTRICT COUNCIL
WATER RACE COMMITTEE MEETING
HELD AT THE CARTERTON EVENTS CENTRE, 50 HOLLOWAY ST, CARTERTON
ON WEDNESDAY, 22 NOVEMBER 2023 AT 1:00 PM**

PRESENT: Cr Brian Deller (Chair), John McFadzean (Member - Deputy Chair) , Cr Steve Cretney, Cr Steve Gallon, David Ellison (Member), John Booth (Co-opted member), Mike Hewison (Co-opted member)

IN ATTENDANCE: Elected members

Deputy Mayor Dale Williams

Staff

Geoff Hamilton (Chief Executive), Johannes Ferreira (Infrastructure Services Manager), Rachel Round (Consents, Compliance and Operations Manager), Lawrence Stephenson (Compliance and Regulations Officer), Melvin Pike (Water Race Overseer), Kyra Low (Finance Manager), Elisa Brown (Communications and Engagement Manager), Robyn Blue (Democratic Services Officer)

1 KARAKIA TIMATANGA

The meeting opened with a karakia by Cr B Deller.

2 APOLOGIES

MOVED

That apologies be received from Mayor Ron Mark, Jill Eastham and Neil Wadham.

D Ellison / Cr S Gallon

CARRIED

3 CONFLICTS OF INTERESTS DECLARATION

There were no conflicts of interest declared.

4 PUBLIC FORUM

There was no public forum.

5 CONFIRMATION OF THE MINUTES

5.1 MINUTES OF THE WATER RACE COMMITTEE MEETING HELD ON 16 AUGUST 2023

MOVED

1. That the Minutes of the Water Race Committee Meeting held on 16 August 2023 are true and correct.

Cr S Cretney / J McFadzean

CARRIED

6 REPORTS

6.1 WATER RACE FINANCIAL REPORT

1. PURPOSE

To present the financial result of operational activity on water races for the period ended 30 September 2023.

NOTED

- CDC is in the process of reviewing the overheads allocated to all CDC cost centres and will get back to the Water Race Committee with details.

MOVED

That the Committee:

1. **Receives** the report.

J McFadzean / D Ellison

CARRIED

1. **Recommends** that Council revises the allocation of corporate services and overhead costs for the Water Races for the next LTP period to a fixed percentage of 10% of revenue.

J McFadzean / S Cretney

CARRIED

6.2 WATER RACE REPORT, NOVEMBER 2023

1. PURPOSE

To provide the Water Race Committee with an update on the management of the Water Races.

NOTED

- It is expected that the Water Race consent will be notified in February 2024. The current consent was 10 years and expired in June 2023. CDC is requesting a 20 year consent duration (the current legislation restricts consent to 5 years).
- The requirement for every farm with a water race to be fenced has access issues for the Water Race Overseer. The need for access needs to be clear in the Code of Practice.
- The Code of Practice will be finalised and sent out to Water Race users.
- The pine trees at the block at the Waingawa Intake were due to come out in February 2023 (after 35 years), but weather conditions made this difficult. The price for the logs has fallen and it will cost to remove them. Consideration will be given to leaving them for up to another 5 years and CDC will continue to check the price.

MOVED

That the Committee:

1. **Receives** the report.

Cr S Cretney / Cr B Deller

CARRIED

7 KARAKIA WHAKAMUTUNGA

The meeting closed with a karakia by Deputy Mayor Dale Williams.

The meeting closed at 2 pm

Minutes confirmed:

2024

Date:

6 REPORTS



6.1 WATER RACE FINANCIAL REPORT

1. PURPOSE

To present the financial result of operational activity on water races for the period ended 31 December 2023.

2. SIGNIFICANCE

The matters for decision in this report are not considered to be of significance under the Significance and Engagement Policy.

3. BACKGROUND

Financial reports are provided to the Committee at its quarterly meetings. These reports reflect the output of internal management reporting.

4. DISCUSSION

The financial performance to 31 December 2023 has provided an operating deficit of \$18k compared with a budgeted deficit of \$95k.

The financial statement to 31 December 2023 in **Attachment 1**.

Income is on budget for the period.

Expenditure for the period is \$76k under budget, as reflected in the following summary:

<i>Key Variances:</i>	2023/24 YTD Actuals December	2023/24 YTD Budgets December	2023/24 YTD Variance December	2023/24 Full Year Budget	2022/23 Full Year Actuals	2021/22 Full Year Actuals
Maintenance	140,477	153,300	12,823	306,750	268,588	298,258
Staffing	33,327	26,545	(6,782)	53,719	55,623	55,902
Support	216,908	239,188	22,280	386,135	345,431	327,707
Resource Consents	-	24,695	24,695	40,000	68,578	3,160
Health Monitoring	5,706	4,114	(1,592)	13,131	8,144	10,117
Other operating costs	8,555	9,083	528	21,770	5,216	2,750
Depreciation	26,047	50,458	24,412	100,916	49,916	47,587
	431,019	507,383	76,364	922,421	801,496	745,481

The above numbers are for the period ended 31 December 2023.

Depreciation is under budget due to capital works not yet complete, so depreciation has not yet been calculated on those items.

Overheads are under budget by \$22k.

Maintenance and resource consents are under budget this will be due to timing and should be on track by year end.

All other areas are slightly over or under, with nothing unusual to note at 31 December.

5. CONSIDERATIONS

5.1 Climate change

Nil.

5.2 Tāngata whenua

Nil.

5.3 Financial impact

This paper reports financial results for the period ended 31 December 2023.

5.4 Community Engagement requirements

Nil.

5.5 Risks

Nil.

6. RECOMMENDATION

That the Committee:

1. **Receives** the report.

File Number: 386027

Author: Kyra Low, Finance Manager

Attachments: 1. Financial Statement [↓](#)

RURAL WATER	2023/24	2023/24	2023/24	2023/24	2022/23	2021/22
December 2023	YTD	YTD	YTD	Full	Full	Full
	Actuals	Budgets	Variance	Year	Year	Year
	December	December	December	Budget	Actuals	Actuals
Income						
Rates Income - General	-	30,048	(30,048)	60,095	60,812	83,451
Rates Income - Water Races	411,958	379,542	32,416	759,079	751,488	744,252
Fees - Industrial Use	1,107	2,841	(1,734)	28,000	12,187	14,632
Miscellaneous Income	-	-	-	-	850	3,372
Total Income	413,066	412,431	635	847,174	825,338	845,708
Expenditure						
Corporate Services	108,217	134,964	26,747	201,310	168,607	164,479
Operations Overhead	107,977	102,810	(5,167)	182,544	176,005	162,623
Garage	713	1,414	701	2,281	819	605
Consultancy - Other	-	-	-	-	-	3,120
Fringe Benefit Tax	3,585	-	(3,585)	-	4,644	-
General Expenses	180	-	(180)	-	-	379
Maintenance - General	-	-	-	-	662	3,838
Maintenance - Intake Gates	-	5,550	5,550	11,100	3,600	7,583
Maintenance - Water Races	139,006	120,325	(18,681)	266,750	251,494	273,590
Materials - General	1,471	27,425	25,954	28,900	12,832	13,248
Monitoring - Health	5,706	4,114	(1,592)	13,131	8,144	10,117
Plant & Machinery- minor purchases	-	-	-	-	-	788
Resource Consent	-	24,695	24,695	40,000	68,578	40
Telephone & Tolls	1,758	1,025	(733)	2,040	806	426
Vehicle Expenses	832	1,872	1,040	3,520	1,015	1,007
Fuel Expenses	2,670	6,186	3,516	5,000	2,596	150
Wages Allocated	29,742	25,543	(4,199)	51,719	50,979	55,902
Staff Training	-	1,002	1,002	2,000	-	-
Depreciation	26,047	50,458	24,412	100,916	49,916	47,587
Interest expense	3,115	-	(3,115)	11,210	798	-
Total Expenditure	431,019	507,383	76,364	922,421	801,496	745,481
Operating Result surplus/(deficit)	(17,953)	(94,952)	76,999	(75,247)	23,842	100,226



6.2 WATER RACE ELECTIONS 2024

1. PURPOSE

To provide the Water Race Committee with information about the timeline for the upcoming Water Race elections.

2. SIGNIFICANCE

The matters for decision in this report are not considered to be of significance under the Significance and Engagement Policy.

3. DISCUSSION

Water Race elections are held every three years. The term for the current community members of the Water Race Committee will expire on 30 June 2024.

This year council officers have a high workload associated with planning associated with the Council's Long-Term plan which is planned to be adopted on 26 June 2024. The Plan will go out for consultation in late April / May, and it is preferable that the nomination/election process does not conflict with this.

Due to these extenuating circumstance officers request permission to extend the term of current community members three months.

Subject to the Committee's agreement, the indicative timeline would be as follows:

March		Formally advise Water Race community members that their term of office has been extended 3 months and will expire 30 September 2024.
July	<u>One month</u> Wed 3 July – Wed 31 July	Public notice Wed 3 July in the Wairarapa Times Age <ul style="list-style-type: none"> • Call for nominations to the Water Race Committee • Nominations close 12 pm Wed 31 July
August	<u>One month</u> Fri 9 August – Fri 6 September	Send out voting forms <u>Voting closes 12 pm Fri 6 Sept</u>
Week of 9 September		Notify successful candidates Notify Water Race users about the election result

4. CONSIDERATIONS

4.1 Climate change

There are no climate change considerations relating to the decision in this report.

4.2 Tāngata whenua

There are no significant tāngata whenua considerations relating to the decisions in this report.

4.3 Financial impact

There are no significant financial impacts related to the decision in this report.

4.4 Community Engagement requirements

The opening of nominations for the Water Race Committee will be publicised in the Wairarapa Times Age. Water Race users will also be advised about the nomination period and sent voting papers.

4.5 Risks

There are no risks related to the decisions in this report.

4.6 Wellbeings

There are no social, cultural, environment, or economic considerations relating to the decisions in this report.

5. RECOMMENDATION

That the Committee:

1. **Receives** the report.
2. **Agrees** to deferring the Water Race elections and extending the term of current members 3 months.
3. **Notes** the indicative timeline for the CDC Water Race elections 2024.

File Number: 377452

Author: Karon Ashforth, Corporate Services Manager

Attachments: Nil



6.3 WATER RACE REPORT, FEBRUARY 2024

1. PURPOSE

To provide the Water Race Committee with an update on the management of the Water Races.

2. WATER RACE RECONSENT APPLICATIONS

The consent application was submitted in May 2023, and the continued operation of the Water Races has been approved by GWRC. Lawrence Stephenson has been continuing with the consent processes:

- This will be a continuation of the gauging started this summer, and more targeted sampling is planned. A draft water monitoring plan is **attached** which will allow further sampling to be adjusted and reviewed annually.
- The further information request sent in October was responded to at the end of February 2024. This is being considered by the Regional Council. It will be publicly notified, but we are still waiting on timeframes.
- At the moment, a 20-year consent is requested, but we have not had any feedback from the regional council yet. The Natural and Built Environment Act (maximum of 5 years) has been repealed.

3. CARRINGTON INTAKE

The high river flows have meant that the replacement of the Carrington Intake has not progressed. The pipeline may be able to be installed now that low flows in the Mangatarere stream are likely. A plan will need to be developed for the install of the intake structure.

4. REQUESTS TO STOP WATER RACE ACCESS

The Council has received a request to remove the water race rates from a property along Cobden Road. The water race will still flow through the property, but it will be fenced and not used.

The recommendation is for this request to be denied because the water race is still available for use (i.e. pumped) and will still require maintenance to maintain the supply to users downstream. The water race can also not be redirected around the property. Refer to **Attachment 2** – Water race rating policy and the section on closure.

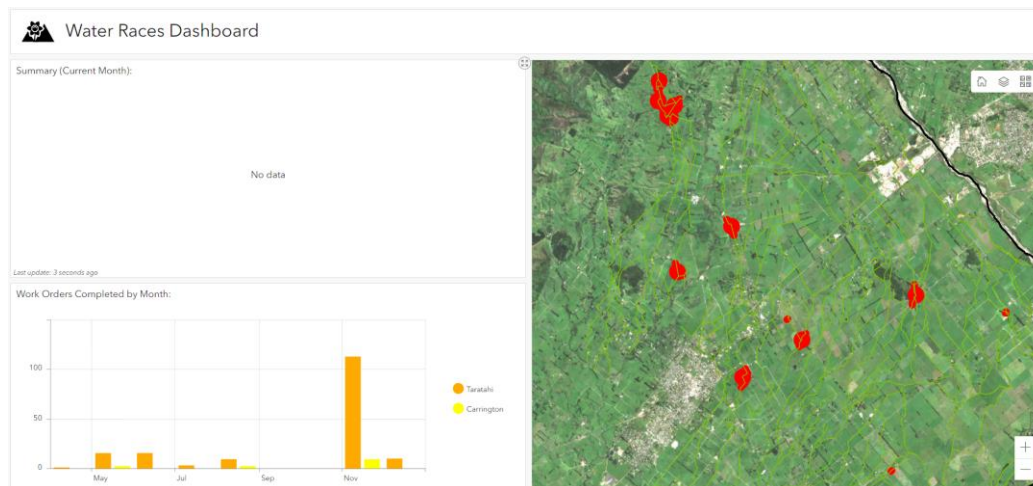
It does raise the case that if a water race/tail race could be redirected, is there an agreed process for this to happen?

5. SUMMARY OF SERVICE REQUESTS, WATER RACE FLOWS AND MAINTENANCE

Request Activity from 01/08/23 to 10/11/23

	opened with		received	completed	closed with	
	current	hold			current	hold
Referred to Rural Water						
No Water	-	-	4	4	-	-
Other	-	-	5	4	1	-
Waterrace	2	-	15	15	2	-
Total for Rural Water	2	0	24	23	3	0

New – Water Races Dashboard



The team is still working on the process to get the information into the application.

6. OVERSEER'S REPORT

Continued Seasonal Impact

The site flows have reduced after the unstable spring weather, and we are getting longer periods of lower flows.

The dry weather has allowed catch-up work to progress after the heavy winter rains which caused overtopping and flooding. The contractor has been catching up after the wet ground conditions which restricted access.

The overseer is having to respond to an increasing number of "no-water" call outs, requiring the adjustment of the weirs.

The accuracy of the flow through the gates will be checked before Christmas to ensure there is no non-compliance and we are not under-reporting.

Ground conditions are improving but we are still catching up from winter to clear out the weeds. Some sections are being left with weed to filter elevated e-coli readings.

7. CONSIDERATIONS**7.1 Climate change**

There are no direct climate change issues relating to the decisions in this paper.

7.2 Tāngata whenua

There are no issues in this paper that impact on tāngata whenua.

7.3 Financial impact

There are no financial impacts relating to the decisions in this paper.

7.4 Community Engagement requirements

There are no community engagement requirements relating to the decisions in this paper.

7.5 Risks

There are no risks associated with the decisions in this paper.

8. RECOMMENDATION

That the Committee:

1. **Receives** the report.

File Number: 386557

Author: Lawrence Stephenson, Waters Operations Manager

Attachments:

1. Draft Water Quality Monitoring Report - Carrington [↓](#)
2. Water Race Rating Policy [↓](#)

Carterton District Council

Water Quality Monitoring Plan - Carrington



22/01/2024

Ref: 310104195

PREPARED FOR:

Lawrence Stephenson
Stantec

PREPARED BY:

Caitlin Meister & Henrietta Jackson



Revision Schedule

Revision No.	Date	Description	Prepared by	Quality Reviewer	Independent Reviewer	Project Manager Final Approval
1	15/01/2024	First draft	CM	HJ	CH	HJ
2	7/02/2024	Final	CM	HJ	CH	HJ

Disclaimer

The conclusions in the report are Stantec's professional opinion, as of the time of the report, and concerning the scope described in the report. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. The report relates solely to the specific project for which Stantec was retained and the stated purpose for which the report was prepared. The report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorised use or reliance is at the recipient's own risk.

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Appendix A Proposed Condition 30 Requirements



1. Introduction

1.1 Background

Carterton District Council (CDC) own and operate a network of water races that distribute water throughout the Carterton District. The water races have been in place for over a century and are used to irrigate pasture and to provide stock drinking water, household supply (non-potable) and a water source for firefighting (WSP, 2023).

The network is made up of two water races: Carrington and Taratahi, which are fed by diversions of the Mangatāre Stream and Waingawa River respectively. These races discharge either to land, or to waterbodies. This document relates to the Carrington Water Race (CWR) only.

The CWR includes 36 km of open channel and piped sections of water race. Most recently, the race has been operated and maintained under resource consent (WAR010202) (June 2013 to July 2023). This consent permitted a number of surface water takes, surface water diversions, discharges to water and bed works. An application for a new consent has been submitted to Greater Wellington Regional Council (GWRC) and is currently being assessed.

The consent application includes a number of proposed consent conditions. A requirement of proposed condition 30 is to prepare a monitoring plan that can be used to assess the effects of the CWR on the receiving environment. The primary receiving environments for the CWR are the Mangatāre Stream and Enaki Stream. This document provides the monitoring plan to satisfy proposed condition 30.

1.2 Purpose and Scope

This document is the monitoring plan required under proposed condition 30 as outlined in the CWR Resource Consent Application. The monitoring plan is required to be developed for the purpose of:

- Assessing the impacts of discharges from the race network on the waterways and waterbodies receiving outflows from the network.
- Monitoring changes in water quality within the network to assess long term trends.
- Identifying 'hotspots' or sources of contamination within the race network, based on high-risk areas identified during the Longitudinal Study (Stantec, 2022).
- Tracking improvements in water quality resulting from the implementation of measures to address water quality impacts.

This monitoring plan has been designed based on an adaptive monitoring approach, where the plan will be reviewed and revised (if needed) on an annual basis. An adaptive monitoring approach enables key parameters, monitoring locations and monitoring frequency to be revised based on data gathered from the previous years' monitoring.

1.3 Assumptions

This monitoring plan has been prepared on the basis of the following assumptions:

- The development of this monitoring plan is for the purpose of the Carrington water race resource consent only. We have assumed that the wording of any water quality monitoring conditions in the granted resource consent will be as per proposed condition 30 in the CWR Resource Consent Application.
- Methods for assessing fish passage (as per condition 30) will be addressed outside of this monitoring plan.
- If appropriate, CDC is to coordinate engagement with local iwi and monitoring alongside the monitoring currently conducted by the regional council as part of the Whaitua Implementation Plan (WIP). This monitoring plan has not advised on this.

1.4 Consent Requirements

This monitoring plan has been prepared to address the requirements of proposed condition 30 as outlined in the CWR Resource Consent Application (see full condition wording in Appendix A). The sections where these conditions are addressed are outlined in Table 1-1 below.



Table 1-1 Consent condition and respective location in the document

Condition 30	
Consent condition	Location in Document
Purpose and scope of the plan	Section 1.2
Key parameters to be monitored (contaminants, physical attributes, and ecological indicators)	Section 2.4
Location of water quality monitoring sites	Section 2.1 and Section 2.2
Methods for assessing fish passage	Not included in this document
Description of methods used to collect, check, store and analyse data	Section 2.5
Frequency of monitoring	Section 2.6
Trigger level and limits for results to be assessed against	Section 2.7
Requirements for recording and reporting	Section 3

1.5 Roles and responsibilities

Table 1-2 lists the current roles and contact names for the personnel responsible for the implementation of this monitoring plan.

Table 1-2 Personnel responsible for the implementation of the monitoring plan

Personnel	
Role	Contact
Primary field sampler(s)	Glenn Belham (Carterton District Council)
Data management, analysis, and reporting	Lawrence Stephenson (Carteron District Council)
Operations and Compliance Manager	TBC (Carteron District Council)
Race maintenance	Melvin Pike (Carteron District Council)
Key water race committee members	John McFadzean, Jill Eastham
	Neil Wadham, David Ellison



2. Monitoring Requirements

This section outlines the requirements for monitoring. As outlined in Section 1.2 above, this monitoring is undertaken for the purposes of measuring the effects of discharges from CDC's CWR network on receiving waterbodies. The monitoring plan is not intended to or required to encompass state of the environment or overall waterway health monitoring, as this is outside the scope of the consent. However, a number of the parameters being monitored as part of this plan are likely to be indicators of environmental and ecological health and cannot be solely attributed to the quality of water race network discharges.

2.1 Existing Monitoring Locations

CDC have an existing monitoring programme in place for the CWR. The current monitoring plan is made up of two monitoring sites, both of which are located along the Mangatāre Stream: one located in the upper reaches of the catchment at the water intake (CM01), and the second located in the lower catchment at the discharge to the Mangatāre Stream (Figure 2-1). In addition to monitoring facilitated by CDC, GWRC also undertakes monitoring at one site in the lower catchment, at Enaki Stream (upstream of the confluence with the Mangatāre Stream).

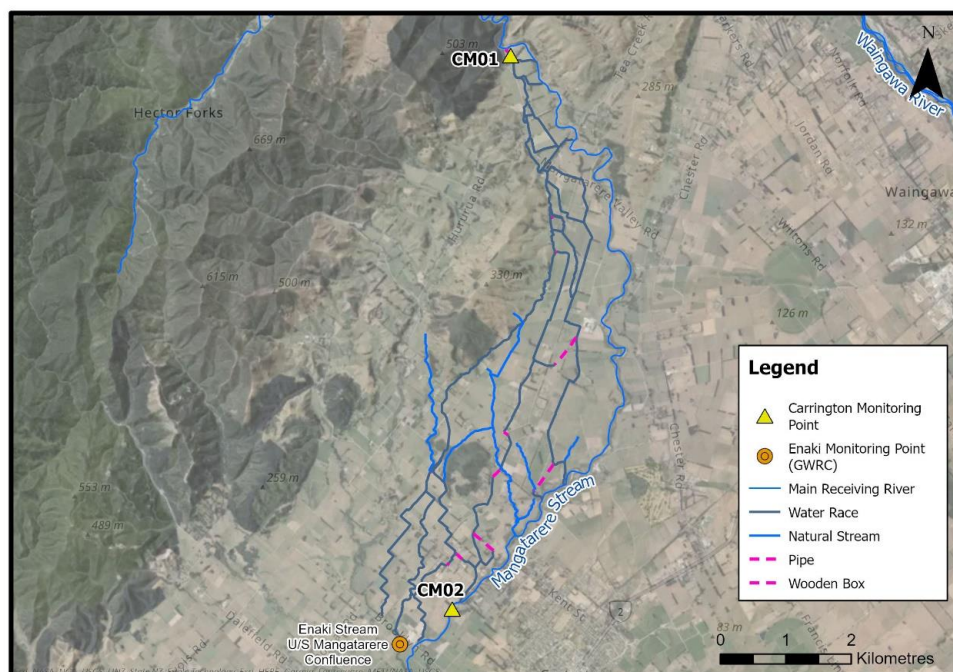


Figure 2-1 Existing monitoring locations at CWR

The following parameters are monitored at the existing CDC monitoring sites (CM01 and CM02):

- *In-situ* physical parameters: dissolved oxygen (DO) (absolute and percentage), water temperature, suspended solids, pH, and conductivity.
- *E. coli*, ammoniacal nitrogen, nitrate-nitrite nitrogen, total nitrogen, soluble inorganic nitrogen, dissolved reactive phosphorous (DRP) and total phosphorous.

These parameters have been measured at CM01 and CM02 since 2015.

GWRC monitors the Enaki Stream site for:

- *In-situ* physical parameters: water clarity and turbidity.



310104195 | Water Quality Monitoring Plan
Carrington Water Race

Monitoring Requirements | 3

- *E. coli*, total nitrogen, total oxidised nitrogen, dissolved inorganic nitrogen, ammoniacal nitrogen, nitrate nitrogen, DRP and total phosphorus.

It is noted that the site was historically part of a riparian rehabilitation programme and monitoring of in-situ physical parameters was carried out as part of this (LAWA, 2023).

Water quality results collected during the last 13 years (data analysed in the Longitudinal Study (Stantec, 2022)) indicated that there has been no deterioration in water quality between sites CM01 (upstream) and CM02 (downstream of the race network) over this time.

Results from the Enaki Stream may indicate deterioration of water quality over time. As there is no control site, it is unclear whether this is a result of the race network.

2.2 Proposed Monitoring Locations

Land use in the Carterton area that the CWR flows through is defined as primary production in the CDC District Plan. There are many pathways for contaminants to enter the watercourse and water race given this highly utilised land. Monitoring locations have been informed by the Longitudinal Study (Stantec, 2022) which identified potential high-risk areas for discharge of contaminants.

Potential high-risk areas were determined on the basis of surrounding land use and water quality assessments from all available data. Identified potential high-risk areas are summarised below in Table 2-1.

Table 2-1 Potential high-risk areas on CWR and nearby existing monitoring sites

High-risk Areas			
Location	Land Use	Pre-existing Monitoring Site	Receiving Waterbody
Western catchment	Dairy Farming, Lifestyle	No	Mangatāre Stream
Upstream of Enaki confluence	Beef farming, Dairy Farming, Lifestyle	Enaki Stream U/S Mangatāre Confluence (GWRC)	Enaki Stream
Downstream of CM01	Sheep and Beef Farming	No	Mangatāre Stream
Reid's Piggery	Dairy Farming	No	Mangatāre Stream

2.2.1 Mangatāre Stream

The Mangatāre Stream is a gravel-bed stream, with a catchment area of approximately 160km². It flows for 31km before it's confluence with the Waiohine River. The Mangatāre Stream receives water from the CWR from six discharge (end) locations before it's confluence with Enaki Stream (upstream of the Waiohine confluence). Water quality results indicate that there is no deterioration in water quality between upstream and downstream of the race network during the last 13 years of monitoring under the previous consent. As such, expansion of the routine monitoring on this branch of the race network is not proposed.

Two routine and two contingency monitoring locations are proposed within the race network and on the Mangatāre Stream. These sites are listed in Table 2-2 below and shown in Figure 2-2.



Table 2-2 Summary of proposed and existing monitoring locations

Mangatāre Stream Monitoring Locations			
Status	Monitoring Location	Site ID	Purpose
Existing	Carrington Water Race at Intake	CM01	Routine
Existing	Mangatāre Stream U/S of confluence	CM02	Routine
Proposed	Mangatāre Valley Road bridge at Mangatāre Stream	CM03	Contingency
Proposed	Belvedere Road bridge (379) at Mangatāre Stream	CM04	Contingency



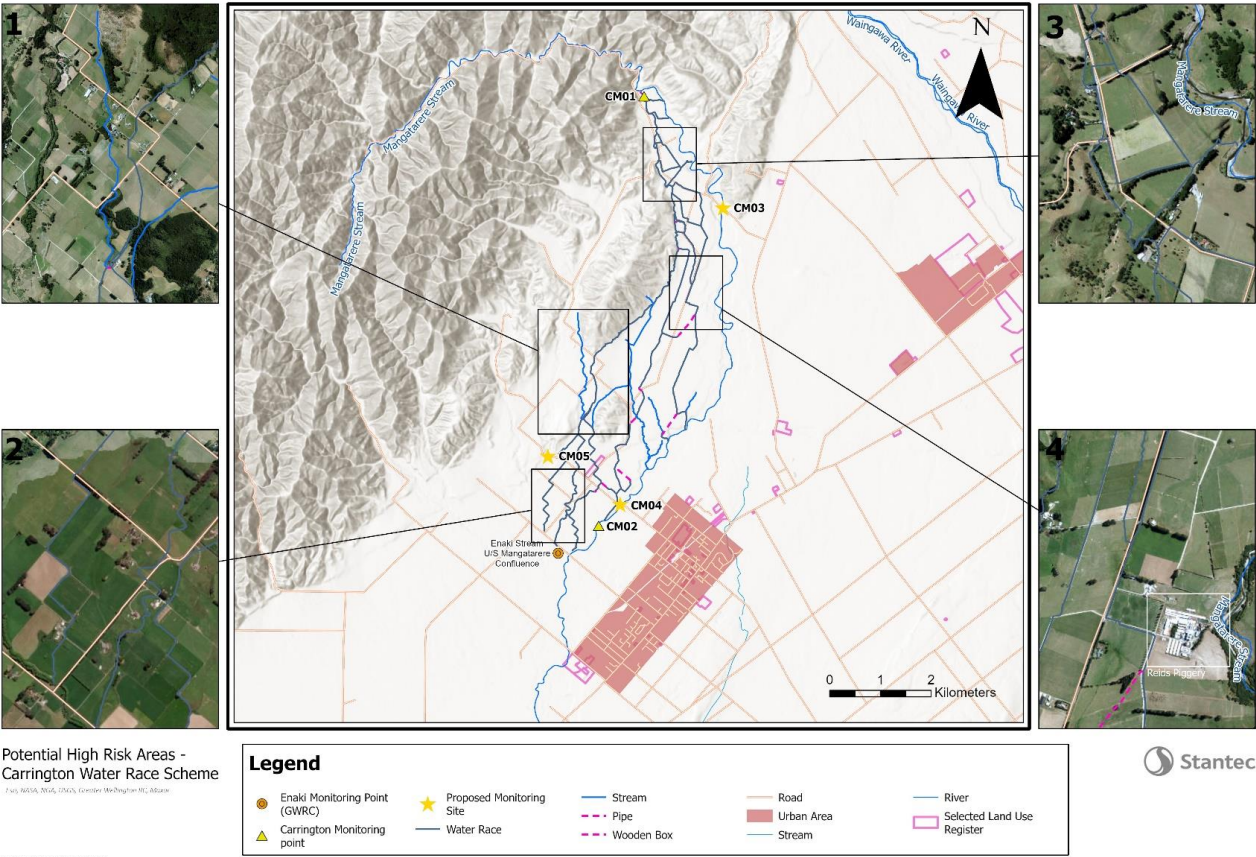


Figure 2-2 Proposed monitoring sites in relation to identified high-risk areas

Figure 2-3 outlines the process of routine monitoring and the triggers and actions associated with contingency monitoring. As no deterioration in water quality has been detected in the last 13 years of monitoring, routine monitoring will only involve the monitoring of existing monitoring sites above and below the race network (CM01 and CM02 respectively).

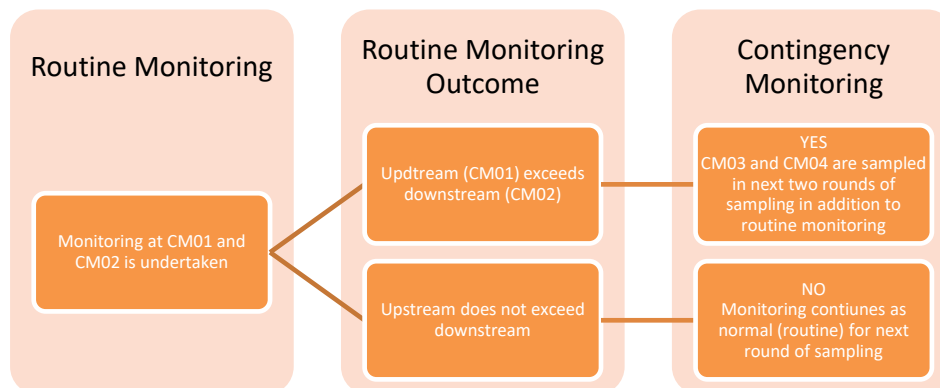


Figure 2-3 Routine monitoring process including triggers for contingency monitoring for Mangatārerere Stream

If the upstream results (from CM01) are exceeded by the downstream (CM02) results (indicating potential deterioration of water quality in the Mangatārerere Stream due to the network) for more than two consecutive monitoring rounds, contingency monitoring will be triggered and two additional sites will be added to the routine monitoring for two rounds after the measured exceedance.

Site CM03 and CM04 have been selected as contingency sites as they are both downstream of high-risk areas. This additional monitoring following an exceedance will help capture changes in the long-term water quality of the race and will assist in determining the point at which deterioration may be occurring along the race and possible cause of contamination.

Imagery of the monitoring site locations are shown below (Figure 2-4 and Figure 2-5).





Figure 2-4 Proposed site CM03



Figure 2-5 Proposed site CM04



2.2.2 Enaki Stream

The Enaki Stream is located north-east of the Mangatāre Stream and drains a catchment of approximately 24.7km². The Enaki Stream flows into the Mangatāre Stream just south of Brooklyn Road. Directly upstream of this confluence is the GWRC monitoring site (Enaki Stream U/S Mangatāre Confluence). This is the only current monitoring site on the stream. There is one direct discharge from the CWR into the Enaki Stream, which is upstream of GWRC's monitoring site, and one discharge transfer further up the catchment.

As informed by the LAWA (2023) data, the water quality of the Enaki Stream does not meet current guidelines for nitrogen. While trends may indicate deterioration over time, as there is no control site, it is unclear whether this deterioration is related to the water race or other factors within the catchment. As such, an upstream control site is proposed (CM05). The location of this site is shown in Figure 2-7. No monitoring is proposed downstream in the Enaki Stream, as this site is already monitored by GWRC.

A contingency monitoring site has not been proposed for the Enaki Stream. This is attributable to the Enaki Stream's short length, and sole discharge point from the race to the stream. The water race discharge point is additionally located between the up and downstream control site proposed (CM05).

Imagery of the monitoring site are shown below (Figure 2-6).

Table 2-3 Enaki Stream current and proposed monitoring locations

Enaki Stream Monitoring Locations			
Status	Monitoring Location	Monitoring Code	Purpose
Existing	Enaki Stream U/S of confluence	Monitored by GWRC. Not sampled under this monitoring plan.	Routine
Proposed	Belvedere Road bridge at Belvedere Hall (579) at Enaki Stream	CM05	Routine





Figure 2-6 Proposed site CM05



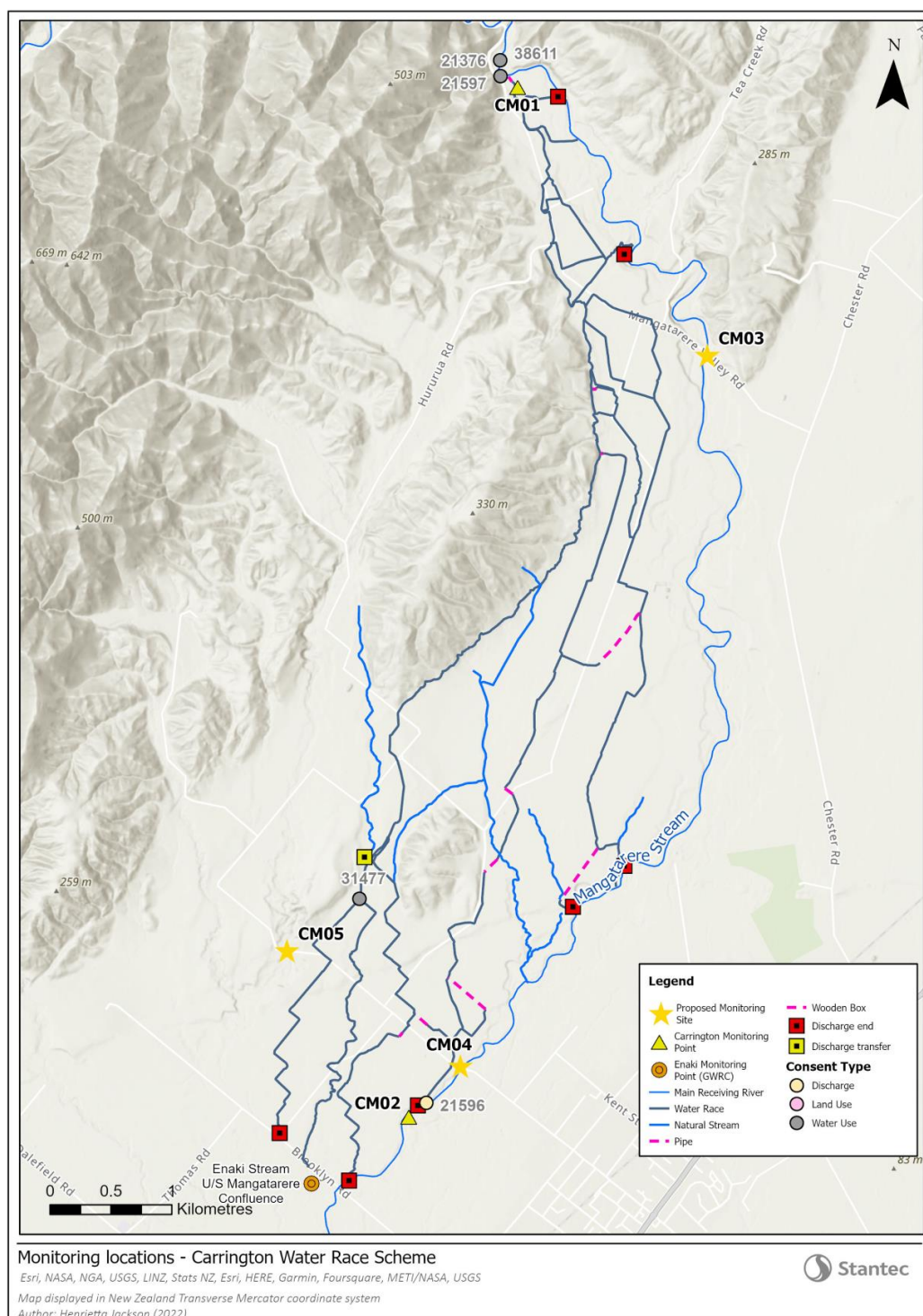


Figure 2-7 Current and proposed monitoring locations



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 Carrington Water Race

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2.3 Selection Criteria for Monitoring Locations

As the CWR runs across public and private land, access and safety are key factors in determining sampling locations, as such monitoring sites have been chosen on the basis of:

- Their location in relation to discharge points and potential high-risk areas.
- Public access to provide accessibility for monitoring. Sites selected do not cross private land and are accessible from roads.
- A desktop health and safety assessment i.e. to determine whether the stream at the proposed location has a bank that is safe and accessible for sampling.

2.4 Monitoring Parameters

Monitoring parameters are summarised below in Table 2-4. The parameters remain largely the same as the previous monitoring. However, visual clarity is also proposed based on the recommendations of the Longitudinal Study (2022). Visual clarity is an indicator of fine sediment and algae in the water and is a useful indicator of underwater visibility (SHMAK, 2019).

Table 2-4 Monitoring parameters and detection limits

Parameter	Detection Limit
Microbiological	
<i>Escherichia coli</i>	1 cfu/100 mL
Physical parameters (in-situ)	
Dissolved oxygen	0.01 g/m ³ and/ or 1%*
Water temperature	0.01 °C*
Total suspended solids (TSS)	<3 g/m ³
pH	0.01 pH units*
Conductivity	0.1 uS/cm*
Visual clarity	10 cm**
Nutrients	
Ammoniacal nitrogen	0.001 g/m ³
Nitrate-nitrite nitrogen	0.002 g/m ³
Dissolved reactive phosphorous (DRP)	0.004 g/m ³

* using field meter

** using clarity tube



2.5 Monitoring Methodology

The monitoring methodology outlined below has been informed by the SHMAK manual. The sampling methodology for each of the parameters are summarised below.

2.5.1 *In-situ* Physical Parameters

In-situ physical parameters are summarised in Table 2-4 and include dissolved oxygen, water temperature, TSS, pH, conductivity, and visual clarity. *In-situ* physical parameters will be measured using handheld water quality meters during sampling. The meter will be calibrated on the day of, or on the day before sampling.

Sampling will be undertaken using the following protocol:

1. Water quality probes are rinsed thoroughly and lowered into the water at the sample location. The probes shall be fully submerged to ensure accurate readings. The probes should not be resting within the sediment as this can impact results, particularly dissolved oxygen.
2. Water quality results should be recorded after readings have stabilised on the meters. The probes can then be removed from the water.

In-situ physical parameters should be measured away from any disturbance caused by sample collection.

2.5.1.1 Visual Clarity

Water clarity will be measured using a visual clarity tube. The measurement will be undertaken using the following protocol:

1. Collect a 2-litre sample of water from the river or stream using a clean bucket and taking care not to disturb bottom sediment. Where a bucket cannot be used due to dense macrophyte growth or steep banks, sample bottles can be filled using an extendable mighty gripper.
2. Fill the tube with the water from the bucket/sample bottle and place the cap over the end of the tube.
3. Orient the tube horizontally and slide the magnet down the tube until the black disk disappears. Record the disappearing distance.
4. Move the magnet further down the tube and then slide the magnet back towards yourself. Record the distance that the black disk reappears. Take the average of the disappearing and reappearing distances.
5. Repeat steps 3 and 4, preferably using a second person, and average the results.

2.5.1.2 Nutrient Sampling

For nutrient sampling, a clean sampling bottle is required, labelled with date and location of sampling point. The sample will be undertaken using the following protocol:

1. Approach the desired sampling location from downstream to ensure disturbed sediment does not flow into the sample.
2. Collect a 1L sample from the main flow of the stream (tends to be mid-channel).
3. Without touching any inside part of the bottle or lid, tip the bottle down until it is submerged about $\frac{3}{4}$ from the surface and full of water. Tip out this water and repeat without tipping out the second sample.
4. Immediately seal, and store in a chilly bin with ice for transport to the lab.

2.5.2 Microbiological Parameters

Microbiological samples should be collected similarly to nutrient samples, except the sample container should not be submerged with stream water first. Microbiological samples MUST be kept chilled and in a dark place and tested within a maximum of 24 hours of collection.

2.6 Monitoring Frequency

Monitoring is proposed to be undertaken bi-monthly (every second month) (Table 2-5). This is consistent with the monitoring requirements of the previous consent (WR010202), monitoring at CM01 and CM02. Under condition 30(b), monitoring is to be completed to assess changes in water quality within the race network to assess long term trends.



Monitoring frequency will therefore be reassessed on an annual basis and considered in the context of the potential impact of discharges to the water race. It will not include a review of wider state of the environment monitoring.



Table 2-5 Monitoring calendar

	Physical parameters					Microbiological		Nutrients			
	Dissolved oxygen	Water temperature	TSS	pH	Conductivity	Visual clarity	<i>E. coli</i>	Ammoniacal nitrogen	Nitrate-nitrite nitrogen	Soluble inorganic nitrogen	Total nitrogen
June 2024	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
July 2024											
August 2024	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
September 2024											
October 2024	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
November 2024											
December 2024	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
January 2025											
February 2025	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
March 2025											
April 2025	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
May 2025											



2.7 Assessment of Results

The monitoring that has been proposed in this document provides information for each of the points stated in Section 1.2. Table 2-6 provides a summary of the details on how assessing, monitoring, identifying, and tracking of data will achieve the proposed condition set out in the application.

Table 2-6 Purpose of monitoring and method of achieving

Purpose	Action
Assessing the impacts of discharges from the network on the waterways and waterbodies receiving outflows from the network	Monitoring parameters that are associated with rural land use (e.g. nitrate-nitrite nitrogen, total nitrogen, soluble inorganic, <i>E. coli</i> , ammoniacal nitrogen). Monitoring a control and downstream of discharges to quantify potential impact.
Monitoring changes in water quality within the network to assess long term trends	Continue to monitor long-term parameters at existing sites to enable trend analysis.
Identifying 'hotspots' or sources of contamination within the race network, based on high-risk areas identified during the Longitudinal Study (Stantec, 2022)	Given no deterioration in water quality between the routine monitoring sites, contingency sites have been identified. The monitoring plan is adaptive, therefore additional sites can be included in the following year if deteriorating trends are identified.
Tracking improvements in water quality resulting from the implementation of measures to address water quality impacts	Continue to monitor long-term parameters at existing sites to enable trend analysis. Monitoring of parameters that reflect ecosystem health (visual clarity, dissolved oxygen, water temperature, TSS, pH, conductivity). Results will be reviewed on an annual basis, with the production of an annual monitoring report.

Results will be assessed against the guidelines specified below (Table 2-7). These limits have been derived from both the Australian & New Zealand Guidelines for Fresh & Marine Water Quality (ANZG) (2018) and the NPS-FM (2020). Where a National Bottom Line (NBL) from the NPS-FM (2020) is not available for the relevant metric, the ANZG trigger limit is to be used. The trigger values specified below are to be used to monitor whether contingency monitoring is required.



Table 2-7 Water quality indicators specific to CDC's monitoring programme and the associated trigger limits

Parameter	Detection limit	Reported metric	Trigger Limits		Unit	Comments
			Physical Chemical Stressor (ANZG 2018)**	National Bottom Line (NPS-FM 2020)		
<i>E. coli</i>	1 cfu/100 mL	95th percentile		540	<i>E. coli</i> /100mL	Included as monitoring parameter in NPS-FM (2020)
Ammoniacal nitrogen	0.001 g/m ³	80th percentile	0.007		g/m ³	Included as monitoring parameter in NPS-FM (2020) – needs to be adjusted for pH
Nitrate-nitrite nitrogen	0.002 g/m ³	Annual median		2.4		Included as monitoring parameter in NPS-FM (2020)
		95th percentile (annual)		3.5		
Total nitrogen	0.1 g/m ³	80th percentile	0.104		g/m ³	Mainly a requirement for lakes in the NPS-FM (2020), therefore the ANZG value is used as a trigger limit here.
Soluble inorganic nitrogen	0.1 g/m ³					No trigger limit defined
Dissolved reactive phosphorus	0.004 g/m ³				mg/L	No recent trigger limit reported
Total phosphorus	0.004 g/m ³	80th percentile	0.013		g/m ³	Mainly a requirement for lakes in the NPS-FM (2020), therefore the ANZG value is used as a trigger limit here.
Dissolved oxygen (percentage saturation)		80th percentile	105		%	Included as monitoring parameter in NPS-FM (2020)
		20th percentile	94		%	
Dissolved oxygen (absolute)		mean 7-day minimum		5	mg/L	
		1-day minimum		4	mg/L	
Water temperature	0.01°C (field meter)					Included as a suggested monitoring parameter in most guidelines but is not compared to a trigger limit
Suspended solids	<3 g/m ³	80th percentile	1.6		mg/L	Included as monitoring parameter in most guidelines
pH	0.01 units (field meter)	80th percentile	7.70			Included as monitoring parameter in most guidelines – need for ammoniacal nitrogen interpretation
		20th percentile	7.31			
Conductivity	0.1 µs/cm (field meter)	80th percentile	102		µs/cm	Included as monitoring parameter in most guidelines
Clarity						



3. Recording and Reporting Requirements

Field observations will be recorded at the time of sample collection. Two examples of good record keeping are shown below in Table 3-1 and Table 3-2. These templates have been designed to assist the CDC staff to assess potential water quality risks to the water race. Its intended use is for real-time collection of information (qualitative) and is to be kept on record if needed at a later date. The two examples provide CDC the opportunity to decide which recording template is effective at capturing the activities taking place in the vicinity of the water race. Table 3-1 is a short form and can be used to briefly summarise the current state of the watercourse, while Table 3-2 provides the user opportunity to go into more detail about the potential presence of activities causing risk to water quality.

In addition to recording observation and site data, the results of the monitoring data collected will also be collected and reported annually. This report is required to be prepared at the end of the monitoring year and results provided to GWRC will include updated data from the following year.

The annual report should include the following:

- An evaluation of the monitoring results compared to the trigger levels as stated in Section 2.7.
- Any changes to the monitoring plan required for the following year to comply with the consent conditions.
- Identification of trends in monitored parameters from the monitoring year.
- Summary and tracking of any measures implemented to address water quality impacts.
- Identification of 'hotspots' of sources of contamination if identified in monitoring results.

Table 3-1 Short form field observation template

Site:		
Date: _____		Sampler: _____
Time: _____ am/pm		Additional notes:
Site name	<i>In field</i>	
Waterbody name	<i>In field</i>	
Co-ordinates	<i>To be filled out in office</i>	
REC classification	<i>To be filled out in office</i>	
Weather	<i>In field</i>	
Water level	<i>In field</i>	
Surrounding land use	<i>In field</i>	
Changes since last sampling of water or surrounding	<i>In field</i>	
Bank condition	<i>In field</i>	
Rubbish	<i>In field</i>	

Adapted from SHMAK (NIWA, 2019)



Table 3-2 Long form field observation template

Part 1: Details					
Name and position of person(s):					
Date:					
Time:					
Weather conditions:					
Part 2: Location of monitoring					
Water Source:	Mangatāre Stream <input type="checkbox"/> Enaki Stream <input type="checkbox"/>				
Monitoring site:	CM01 <input type="checkbox"/>	CM02 <input type="checkbox"/>	CM03 <input type="checkbox"/>	CM04 <input type="checkbox"/>	CM05 <input type="checkbox"/>
Stream conditions:					
Bank conditions (maintenance occurred?)					
Part 3: Assessment					
<i>Indicate (✓) for presence of any of the below with any necessary detail</i>					
Presence of:	Details				
Stock crossings and access:	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
Drainage channels:	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
Road and urban runoff:	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
Visible discharges:	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
Sediment deposition:	Yes <input type="checkbox"/>	No <input type="checkbox"/>			



Chemical use on surrounding land:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Other:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Part4: Follow-up actions			
<i>Consider urgency and criticality of any issues raised above and who needs to be notified</i>			



4. References

Land, Air, Water Aotearoa, 2023. National Picture. River Quality Data.

Ministry for the Environment, 2020. National Policy Statement for Freshwater Management. Amendment 2023.

NIWA, 2019. Stream Health Monitoring Assessment Kit 2019-2020 User Manual. Draft version.

Stantec, 2022. Water Race Longitudinal Study. Prepared for Carterton District Council.

WSP, 2023. Taratahi Water Race Network. Resource Consent Application No. 3-53731.00.





Appendices

Appendix A Proposed Condition 30 Requirements

Proposed Condition 30 specifies:

Within six months of the commencement of this consent, the consent holder shall submit to the Wellington Regional Council [Attn: The Manager Regulations], a Water Quality Monitoring Plan that will include details of a monitoring programme designed to provide data for the purpose of:

- A. Assessing the impacts of the discharges on the waterways and waterbodies (such as significant natural wetlands) receiving outflows from the network.*
- B. Monitoring changes in water quality within the race network to assess long term trends.*
- C. Identifying 'hotspots' or sources of contamination within the race network.*
- D. Tracking any improvements in water quality resulting from the implementation of measures to address water quality impacts*
- E. To collect data to inform the strategy required under Condition 2(d)¹ of this consent.*

This Monitoring Plan shall as a minimum include:

- The purpose(s) and scope of the monitoring programme.*
- The key parameters to be monitored including contaminants, physical attributes, and ecological indicators.*
- The location of water quality monitoring sites.*
- Methods for assessing fish passage.*
- A description of the methods used to collect, check, store and analyse data.*
- Establishing the frequency of monitoring.*
- Establishing appropriate trigger levels and limits that will be used to assess results against.*
- Recording and reporting requirements, including the frequency and format of reporting and the results and information that will be reported on.*

Note 1: The consent holder may review and amend the monitoring plan for the purposes of improving the monitoring programme to achieve the purpose of the monitoring plan as set out in (a) to (d) of Condition 30.

Note 2: Any amendments to the monitoring plan shall not replace the previous version until the revised plan has been certified by the Wellington Regional Council as being suitable to achieve the purpose of the monitoring plan as set out in (a) to (d) of Condition 30.

Note 3: The Water Quality Monitoring Programme shall be prepared by appropriately experienced and qualified practitioner(s) and include a description of the sites, method(s), and frequency to be used for monitoring.

¹ A strategy that identifies localised areas, water race sections, and/or properties where water quality and water efficiency within the Carrington Water Race network could be improved. The strategy shall set out a timetabled programme to be implemented during the term of the consent which investigates opportunities to proactively work with landowners in any identified localised areas, water race sections, and/or properties. This shall include (but is not limited to) investigating closing section of water races where alternative sources of supply exist, and actively promoting best practice of land and stock management to minimise water quality impacts.

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Carterton District Council
Water Races Policy

The following policy relates to the Taratahi and Carrington Water Race schemes and should be read in conjunction with the Council's water race bylaws.

RATES & CHARGES FOR WATER RACE SERVICES

The Taratahi and Carrington Water Races provide water for stock use, non-potable domestic use, and (irrigation purposes on a case by case basis).

Costs associated with the maintenance of the water race systems are met by targeted rates.

A targeted rate on a differential basis, calculated on land area, on rating units within the Taratahi & Carrington water race system classified areas as follows:

Class A Land area 200 metres either side of the centreline of the water race

Class B Land area from 200 to 500 metres either side of the centreline of the water race.

Class C Land area able to be irrigated from water drawn from natural water course fed from a water race system, calculated from conditions of the applicable resource consent.

A targeted Rural Water Service Rate per rating unit on land situated in the Taratahi or Carrington Water Race Classified Area.

Each property unit is liable for the payment of rates where the property is serviced by the water race system (see fig's 1 & 2)

EXEMPTIONS FROM PAYING WATER RACE RATES

1) Where the property is within a water race area and stock water is unable to be supplied to that property or it is impracticable to do so, then:

- a) The property shall be exempted from payment of stock water rates.
- b) Application for such exemption must be in writing and not be retrospective prior to the current financial year in question.

2) Where a property separates two parcels of land by way of right of way (ROW) or other access way, and where a water race traverses the ROW or other access way, and conditional there is no draw off or access to water from the ROW or access way, then that property will be exempt from payment of water race rates, (see fig 3).

IRRIGATION FROM WATER RACES

Taratahi & Carrington Water Race Scheme Conditions:

- Application for an irrigation permit must be made in writing to the Operations Manager.
- A flow monitoring device shall be installed at all abstraction points to the Council's requirements before irrigation commences.
- There is no guarantee of water for irrigation use.

- That the water race that irrigation is proposed to be taken from is of sufficient size so there shall not be detrimental effect to downstream users.
- All Illegal Irrigation. Any person irrigating without a permit or approval of the Carterton District Council shall be required to cease immediately and the Council may at their discretion proceed with prosecution.

WATER RACE CLEANING AND MAINTENANCE

- The Carterton District Council is responsible for race cleaning of designated main and lateral water races.
- Cleaning means maintaining a continuous flow of water within the water race system
- The Council undertakes cleaning and/or spraying along designated main races

RELOCATION OF WATER RACES

Relocation of water races may be permitted subject to:

- Relocation of the race shall not have a detrimental effect on any other water race users or the water race system operation.
- Application for relocation shall be made in writing to the Operations Manager and shall include:
 - a) Map showing existing and proposed works
 - b) Specifications for construction of work.
 - c) Non-refundable payment of the application fee.
 - d) No works can proceed until engineering approval of the works has been obtained from the Operations Manager.
 - e) All costs associated, including any supervision, with the relocation shall be at the applicant's expense.
 - f) If any leakage occurs from the relocated race, including anytime in the future, the applicant shall undertake all necessary repairs as directed by the Operations Manager.
 - g) A water loss test must be carried out in consultation with the Council representative prior to the water being fully diverted. If this is not undertaken the Council reserves the right to do this at the applicant's cost and all repairs that may be required are at the applicant's expense.
 - h) Where a water race relocation application is an enhancement to the scheme, then a cost sharing arrangement may be entered into between the Council and the applicant at the Council's discretion.

CLOSURES OF WATER RACES.

- 1) The water race network may be rationalised from the extremities of the Water Race Scheme on a race by race basis, in consultation with property owners, and in light of any other decisions pertaining to enhanced use of the scheme for irrigation and/or aquifer recharge for water supply and stream augmentation.
- 2) Any request by a property owner for a closure of a water race must be made in writing to the Operations Manager.

NEW RACES OR ASSOCIATED STRUCTURES

Installation of new races may be permitted:

- 1) Where new properties are requested to be served.
- 2) To serve additional areas of individual properties.
- 3) Conditions required to be met include:

- a) Cost of all works including the associated supervision is at the applicant's expense.
- b) Design and construction to the approval of the Operations Manager.
- c) If any leakage occurs from the race, including anytime in the future, the applicant shall undertake all necessary repairs as directed by the Operations Manager.
- d) A water loss test must be carried out in consultation with the Council representative prior to the water being fully diverted. If this is not undertaken, the Council reserves the right to do this at the applicant's cost and all repairs that may be required are at the applicant's expense.

CARRY OUT WORK ON PRIVATE PROPERTY

Where Council has been requested to carry out works on private property, at the completion of the relevant works Council shall invoice the property owner(s) to recover costs incurred.

LAND SUBDIVISIONS

- 1) Where land subdivision is carried out within a water race area, a classification calculation to determine water race rates on the extent of new lot sizes and associated water race provision will be made.
- 2) The water race shall be piped at the developer's expense where any water race traverses a right of way or other access.
- 3) The developer/owners shall provide gates, in the fences adjacent to the water races, to allow the Council to access and maintain the water races. The location and size (normally 3.6m wide) shall be to the approval of the Carterton District Council.

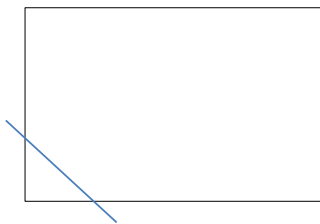


Fig 1 Extent of water Race (rateable)

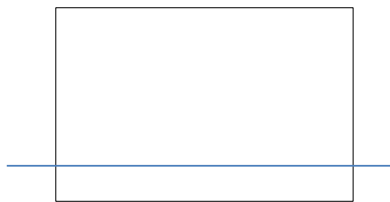


Fig 2 Extent of water race (rateable)

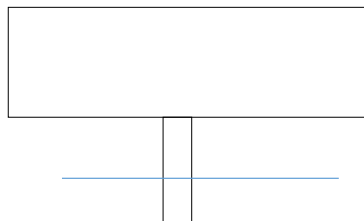


Fig 3 water race traversing access way (non - rateable)



6.4 QUARTERLY WATER QUALITY REPORT

1. PURPOSE

For the Committee to be informed about water quality in the Water Races.

2. SIGNIFICANCE

The matters for decision in this report are not considered to be of significance under the Significance and Engagement Policy.

3. DISCUSSION

The quarterly Water Race water monitoring report will be provided at the meeting.

4. RECOMMENDATION

That the Committee:

1. **Notes** the Water Race Quarterly Water Monitoring Report.

File Number: 386580

Author: Lawrence Stephenson, Waters Operations Manager

Attachments: Nil

7 KARAKIA WHAKAMUTUNGA