WAIMAKARIRI
DISTRICT COUNCIL

Utilities and Roading Committee

Agenda

Tuesday 19 July 2022

3.30pm

Council Chamber
215 High Street
Rangiora

Members:
Cr Robbie Brine (Chairperson)
Cr Al Blackie
Cr Sandra Stewart
Cr Joan Ward
Cr Paul Williams
Mayor Dan Gordon (ex officio)

The Chairperson and Members
UTILITIES AND ROADING COMMITTEE

A MEETING OF THE UTILITIES AND ROADING COMMITTEE WILL BE HELD IN THE COUNCIL CHAMBER, RANGIORA SERVICE CENTRE, 215 HIGH STREET, RANGIORA ON TUESDAY 19 JULY 2022 AT 3.30PM

Recommendations in reports are not to be construed as Council policy until adopted by the Council

BUSINESS

Page No

1 APOLOGIES

2 CONFLICTS OF INTEREST

Conflicts of interest (if any) to be reported for minuting.

3 CONFIRMATION OF MINUTES

3.1 Minutes of a meeting of the Utilities and Roading Committee held on Tuesday 21 June 2022

RECOMMENDATION *6-13*

THAT the Utilities and Roading Committee:

(a) **Confirms** the circulated Minutes of a meeting of the Utilities and Roading Committee held on 21 June 2022, as a true and accurate record.

3.2 Matters arising

4 DEPUTATION/PRESENTATIONS

Nil.

5 REPORTS

5.1 Proposed Roading Capital Works Programme for 2022/23 – Joanne McBride (Roading and Transport Manager)

RECOMMENDATION *14-25*

THAT the Utilities and Roading Committee:

(a) **Receives** Report No. 220705114266.

(b) **Approves** the attached 2022/23 Roading Capital Works Programme (TRIM No. 220705114267).

(c) **Authorises** the Roading Manager to make minor changes to this programme as a result of consultation or technical issues that may arise during the detailed planning phase, provided the approved budgets and levels of service are met, and the changes are reported to the Utilities & Roading Committee.

(d) **Endorses** the indicative Roading Programme for the three years following 2022/23.

(e) **Circulates** this report to the Community Boards for information.

5.2 Ocean Outfall Benthic Survey – Caroline Fahey (Water Operations Team Leader) and Kalley Simpson (3 Waters Manager)

RECOMMENDATION *26-87*

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 220707115265.

(b) **Notes** that the survey of physical, chemical, and bacteriological parameters of surface waters, sediment physicochemical properties and seabed fauna assemblages undertaken by NIWA in May 2022 found no significant effects from the Ocean Outfall, based on sampling and analysis undertaken.

(c) **Notes** that no significant effects attributable to discharge from the Ocean Outfall were evident from the analysis of the spatial and temporal distribution of benthic biota living in and around the seabed when comparing the results of this survey with previous post-construction surveys.

(d) **Notes** that this report will be submitted to Environment Canterbury and circulated to the Community Boards, Mahi Tahi Committee and the Waimakariri Water Zone Committee as part of the Ocean Outfall Annual Compliance Report 2021/22.

5.3 Wastewater Treatment Plant Compliance Reporting – Caroline Fahey (Water Operations Team Leader) and Kalley Simpson (3 Waters Manager)

RECOMMENDATION *88-206*

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 220707115263.

(b) **Notes** that based on the current compliance grading we expect to achieve 96.2% compliance with our wastewater consents conditions for the 2021/22 financial year.

(c) **Notes** that of the 13 compliance monitoring reports recently received from Environment Canterbury for various consents held for the Woodend, Rangiora, Oxford, Waikuku Beach and Kaiapoi wastewater treatment plants, six of these reports were graded as non-compliant with further action required against 9 consent conditions.

(d) **Notes** that Council staff have formally responded to Environment Canterbury requesting that they regrade the administrative and technical non-compliances, and also to provide an update on measures we are implementing to address the process non-compliances.

(e) **Circulates** this report to the Community Boards, Mahi Tahi Committee and the Waimakariri Water Zone Committee for their information.

5.4 May 2021, December 2021 & February 2022 Flood Events – Service Requests Update – Emile Klopper (Flood Team Leader), Caroline Fahey (Water Operations Team Leader) and Kalley Simpson (3 Waters Manager)

RECOMMENDATION *207-215*

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 220609098129.

(b) **Notes** that 598 drainage service requests were received related to the significant rainfall events in May 2021, December 2021 and February 2022, which have all been responded to although approximately 138 requests require further maintenance or investigation work.

(c) **Notes** that there are currently 61 drainage assessments identified and this is likely to increase as the service requests are worked through. Progress made since the previous Utilities & Roading Committee meeting is set out in Section 4 and is supported by the weekly update memos.

(d) **Notes** that 17 of these investigations are either complete, and the issue resolved, or incorporated into the Business as Usual (BAU) work, and is being tracked as part of a maintenance or capital works programme.

(e) **Notes** that background information in regards to the recent flooding event can be viewed in report No. 220310034384 entitled: "*February 2022 Flood Event - Update on Service Requests*".

(f) **Notes** that a webpage has been set up on the Council's website to provide updates on the status of drainage works underway and targeted information will be sent out to the Waikuku Beach and Kaiapoi communities.

URL:https://www.waimakariri.govt.nz/services/water-services/stormwater/drainage-works

(g) **Notes** that additional budgets for the Swindells Road Drainage Upgrade and Broadway Ave Drainage Upgrade projects in Waikuku Beach and High Street Drainage Upgrade project in Oxford have been approved for inclusion in the 2022/23 Annual Plan.

(h) **Circulates** this report to the Council and community boards for information.

6 PORTFOLIO UPDATES

6.1 Roading – Councillor Paul Williams

6.2 Drainage and Stockwater – Councillor Sandra Stewart

6.3 Utilities (Water Supplies and Sewer) – Councillor Paul Williams

6.4 Solid Waste– Councillor Robbie Brine

6.5 Transport – Mayor Dan Gordon

7 QUESTIONS UNDER STANDING ORDERS

8 URGENT GENERAL BUSINESS

9 MATTERS TO BE CONSIDERED WITH THE PUBLIC EXCLUDED

Section 48, Local Government Official Information and Meetings Act 1987

RECOMMENDATION

THAT the public be excluded from the following parts of the proceedings of this meeting.

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution, are as follows:

Item No	Minutes/Report of:	General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under section 48(1) for the passing of this resolution
9.1	Report of C Roxburgh (Water Asset Manager) and H Proffit (Water Safety and Compliance Specialist)	Submission of Water Safety	Good reason to withhold exists under Section 7	Section 48(1)(a)
9.2	Report from Management Team meeting	Report for information	Good reason to withhold exists under Section 7	Section 48(1)(a)

This resolution is made in reliance on section 48(1)(a) of the Local Government Official Information and Meetings Act 1987, and the particular interest or interests protected by section 6 or section 7 of that Act which would be prejudiced by the holding of the whole or relevant part of the proceedings of the meeting in public are as follows:

Item Nº	Reason for protection of interests	Ref NZS 9202:2003 Appendix A
9.1 and 9.2	Protection of privacy of natural persons To carry out commercial activities without prejudice	A2(a) A2(b)ii

CLOSED MEETING

See Public Excluded Agenda (separate document)

OPEN MEETING

NEXT MEETING

The next meeting of the Utilities and Roading Committee is scheduled for 4pm, on Tuesday 23 August 2022.

BRIEFING

- *Woodend-Pegasus Water Supply Source Water Quality – Colin Roxburgh (Water Asset Manager) and Gerard Cleary (General Manager Utilities and Roading, CPEng, CMEngNZ)*
- Flooding Debrief – Don Young (Senior Engineering Advisor)

WAIMAKARIRI DISTRICT COUNCIL

MINUTES OF A MEETING OF THE UTILITIES AND ROADING COMMITTEE HELD IN THE COUNCIL CHAMBER, RANGIORA SERVICE CENTRE, 215 HIGH STREET, RANGIORA ON TUESDAY 21 JUNE 2022 COMMENCING AT 3.30PM

PRESENT

Councillor R Brine (Chairperson), Councillors S Stewart (attended via Zoom), J Ward and P Williams (attended via Zoom).

IN ATTENDANCE

Councillors N Mealings, P Redmond and W Doody.
J Millward (Acting Chief Executive), K LaValley (Project Delivery Manager), K Simpson (Three Waters Manager) and A Smith (Governance Coordinator).

1 APOLOGIES

Moved: Councillor Brine Seconded: Councillor Ward

THAT an apology for absence be received and sustained from Councillor Blackie.

CARRIED

2 CONFLICTS OF INTEREST

There were no conflicts of interest recorded.

3 CONFIRMATION OF MINUTES

3.1 Minutes of a meeting of the Utilities and Roading Committee held on Tuesday 17 May 2022

Moved: Councillor Williams Seconded: Councillor Ward

THAT the Utilities and Roading Committee:

(a) **Confirms** the circulated Minutes of a meeting of the Utilities and Roading Committee held on 17 May 2022, as a true and accurate record.

CARRIED

3.2 Matters arising

There were no matters arising.

4 DEPUTATION/PRESENTATIONS

There were no deputations or presentations.

5 REPORTS

5.1 May 2021, December 2021 and February 2022 Flood Events – Service Requests Update – E Klopper (Flood Team Lead), C Fahey (Water Operations Team Leader) and K Simpson (3 Waters Manager)

K Simpson presented this report which provided an update on the work of the Flood Team and the status of the drainage service requests relating to the three recent flood events. At the time the report was written there were 61 drainage investigations, of which 45 had been allocated and eight had been completed. The number of completed investigations now totalled 11, and it was expected that another five investigations would be completed by the end of the week ending 1 July 2022.

Broadway Avenue at Waikuku Beach had now progressed and been integrated with the Three Waters annual programme. There had been agreement with the landowners for a solution and budget allocated in the next financial year to cover construction.

Regarding the testing that had been undertaken at Ranui Mews in Kaiapoi, a vent had recently been installed in one of the units which had since been tested with a positive result. A meeting with the Property Team was planned and it was estimated that there would need to be a vent installed in 19 of the 25 units.

By mid-July it was planned that all of the 61 projects would be progressed and be included in the annual work programme. It was expected that by the end of July 2022 the Flood Team work would be completed.

Councillor Doody if there was a regular maintenance programme in place for the drain on Bay Road. K Simpson advised that there had recently been a report prepared on which drains were requiring maintenance, however was unaware of any drain maintenance work that was scheduled for this drain. K Simpson would follow up on this matter once Councillor Doody provided information on the exact areas of concern.

Councillor Williams asked if preparing the weekly report was putting additional pressure on staff resources and if a monthly timeframe would be more achievable. K Simpson acknowledged that there was significant work involved in preparing the weekly updates, however suggested that these remain in place until the Flood Team role was completed in July 2022. From then it would be appropriate to provide a monthly update on any remaining works.

Moved: Councillor Ward Seconded: Councillor Stewart

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 220609098129.

(b) **Notes** that 598 drainage service requests were received relating to the significant rainfall events in May 2021, December 2021 and February 2022, which had all been responded to although approximately 138 requests required further maintenance or investigation work.

(c) **Notes** that there are currently 61 drainage assessments identified and this was likely to increase as the service requests were worked through. Progress made since the previous Utilities and Roading Committee meeting was set out in Section 4 and was supported by the weekly update memos.

(d) **Notes** that background information in regards to the recent flooding event could be viewed in report No. 220310034384 entitled: "*February 2022 Flood Event - Update on Service Requests*".

(e) **Notes** that a webpage had been set up on the Council's website to provide updates on the status of drainage works underway and targeted information would be sent out to the Waikuku Beach and Kaiapoi communities.

URL:https://www.waimakariri.govt.nz/services/water-services/stormwater/drainage-works

(f) **Notes** that additional budgets for the Swindells Road Drainage Upgrade and Broadway Avenue Drainage Upgrade projects in Waikuku Beach and High Street Drainage Upgrade project in Oxford had been approved for inclusion in the 2022/23 Annual Plan.

(g) **Circulates** this report to the Council and Community Boards for information.

CARRIED

Councillors Ward and Stewart extended thanks to staff for the information provided in these updates. Councillor Stewart also supported the weekly updates remaining in place until the work of the Flood Team was complete in July 2022.

5.2 Avian Botulism Management 2021-22 – S Allen (Water Environment Advisor) and K Simpson (Three Waters Manager)

K Simpson spoke to this report, providing an update on the management of Avian Botulism in the 2021 – 2022 year. The low bird deaths at any of the Council's wastewater treatment plants were noted for this period. The Avian Botulism Management Plan had been reviewed by the SPCA, who had made some recommendations regarding sick bird management and how these should be treated. The Plan had been updated to incorporate some of the SPCA recommendations.

It was pointed out that avian botulism was a naturally occurring bacteria, which propagates in the warm shallow waters of treatment plants. Staff would be monitoring the situation closely heading into the next summer season and following the Management Plan.

Councillor Doody commented on the birdlife in the close vicinity of the Rangiora Wastewater Treatment Plant queried if it would be likely that there would be an outbreak there. K Simpson responded that the significant outbreaks in the past had been concentrated around the Kaiapoi Wastewater Treatment Plant, however also noted that each of the Councils wastewater treatments plants had the same exposure of risk of propagating avian botulism, therefore all sites are monitored. It was noted that there could be an outbreak at any of the Council's wastewater treatment plants, including Rangiora and there could be a risk of the bacteria being transferred to other water bodies in the vicinity.

Councillor Redmond noted that the information provided in the graphs in the report, indicate that the results were better over each of the last three years and enquired if staff were doing anything differently to achieve these results. K Simpson replied that the outbreaks could be weather related and also there was much better management practices in place early in the summer for disposal of carcasses to mitigate any potential outbreaks.

Moved: Councillor Ward Seconded: Councillor Williams

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 220420060318.

(b) **Notes** the low bird death numbers (48 birds) for the 2021-22 season at coastal Waimakariri District Council wastewater treatment plants (WWTPs), as collected by contractors to check for and contain any avian botulism, with no avian botulism outbreak detected.

(c) **Notes** the production of an updated WDC Avian Botulism Management Plan Version 2, which outlines current management practices, and adds changes from an SPCA review.

(d) **Notes** that Christchurch City Council responded to an avian botulism outbreak at the Bromley Wastewater Treatment Plant in the summer of 2021-22.

(e) **Circulates** this report to the Council, the Waimakariri Water Zone Committee, and the Community Boards for information.

CARRIED

5.3 Midge Management and Monitoring at Wastewater Treatment Plants –
S Allen (Water Environment Advisor) and K Simpson (Three Waters Manager)

K Simpson presented this report which provided information on the midge management and monitoring at the Wastewater Treatment Plants. During the 2021-22 financial year there had been dredging works undertaken at the Kaiapoi Plant while at the Woodend Plant vegetable oil had been applied. At both these sites there had been midge tracking and control sites set up to show any comparative effects. Some improvements had been identified for the 2022-23 season which were shown in the report. These were specifically for both sites, with midge tracking during spring.

Nearby residents of the Woodend Wastewater Treatment Plant, were pleased to advise that the application of the vegetable oil had made a difference. It was noted that there was a variety of midges that tend to favour wastewater treatment plants rather than natural bodies of water.

Moved: Councillor Williams Seconded: Councillor Ward

THAT the Utilities and Roading Committee:

(a) **Receives** Report No. 220511075308.

(b) **Notes** the use of the larval disruption dredging and oil surfactant spreading techniques that had been trialled at Kaiapoi and Woodend Wastewater Treatment Plants (WWTPs) for midge management.

(c) **Notes** that midge trap monitoring was not able to demonstrate if trialled management techniques reduced midge densities, however anecdotal evidence from neighbours supports continued use of the practises.

(d) **Notes** the cost of midge management for Kaiapoi and Woodend WWTP was estimated to have been approximately $30,000 for the 2021-2022 season, sourced from existing operational budgets, and was subsidised by avian botulism inspections that means that ecological contractors were already on-site to carry out midge trap monitoring.

(e) **Notes** that native planting and bunding was intended to be installed at the Woodend WWTP on the western boundary to replace pine forest screening that had been removed by logging, however the supply of bund material from construction of a Stormwater Management Area had been delayed.

(f) **Notes** the intended approach of submitting a new insect control management plan for Kaiapoi Wastewater Treatment Plant, focusing on non-insecticide control methods, to Environment Canterbury as a condition of consent CRC041049.

CARRIED

6 REPORTS FOR INFORMATION

6.1 Approval to install two cattle stops on Carleton Road, between Harewood Road and Woodstock Road – (report No. 220526085607 to the Oxford-Ohoka Community Board meeting of 8 June 2022

6.2 Waikuku Beach Drainage Investigations Update – (report No. 220602094304 to the Woodend-Sefton Community Board meeting of 13 June 2022

Moved: Councillor Ward Seconded: Councillor Brine

THAT the Utilities and Roading Committee:receives the information in Items 6.1 and 6.2.

CARRIED

7 PORTFOLIO UPDATES

7.1 Roading – Councillor Paul Williams

Councillor Williams advised that there had been complaints from the community about the state of gravel roads in the district and there would be a briefing to the Rangiora-Ashley Community Board meeting shortly.

7.2 Drainage and Stockwater – Councillor Sandra Stewart

The new Stockwater Race information package had been put together, which would provide comprehensive information to the public on the rules and responsibilities for those who had races on their properties. Councillor Stewart and other members of the Stockwater Race Bylaw Hearing Panel would need to read through this information before it was made available to the public.

Regarding drainage, Councillor Stewart asked if there had been any progress on Ecan's stance on the stormwater basin issue extending into the groundwater.
K LaValley responded that there was a meeting planned in July 2022 with WDC, Ecan and Christchurch City Council (CCC) staff on this matter, which was affecting CCC area as well. WDC staff are aware of a consent that was issued for the Beach Road subdivision pond, and staff are looking at the differences between that pond and the pond planned for Ohoka.

Attended a presentation from Helen Shaw on surface water trends within the Waimakariri. This had been presented to the National Environment Committee, and had implications to the surface water and ground water management.

7.3 Utilities (Water Supplies and Sewer) – Councillor Paul Williams

Timelines had now been released for the new rules for drinking water standards, from July 2022 and would be operative from November 2022.

A trunk main renewal would be commencing in Bay Road Oxford in coming weeks.

Regarding wastewater, all Fernside septic tanks were now pumping into Rangiora. Once the Fernside pumping station was cleared, this property could be sold. Loburn Lea also had a lot of waste pumping into Rangiora and the work to decommission the pump station there would be underway shortly.

7.4 Solid Waste– Councillor Robbie Brine

Councillor Brine advised that facilities would be open usual hours and collections would operate as per usual over the long weekend. There may be delays with some collections with Covid impacting on drivers.

There was a combined inspection at Southbrook Transfer Station on 16 June 2022 with staff to discuss maintenance.

An Audit of recycling bins from schools had been undertaken by Eco-educade, which provided a report to each school.

The Agrecovery rural chemical collection had been delayed a few weeks due to Covid.

Facilities had been operating business as usual, with kerbside collection generally going well. Advice was circulated via social media of possible delays in kerbside collections as a result of driver shortages.

A fire was averted in the recycling shed due to a vacuum cleaner which was operating, however the quick actions by operators saved the situation. There needed to be further discussion on whether there was continued collection of batteries.

7.5 Transport – Mayor Dan Gordon

Mayor Gordon was not present.

8 QUESTIONS UNDER STANDING ORDERS

There were no questions.

9 URGENT GENERAL BUSINESS

There was no urgent general business.

10 MATTERS TO BE CONSIDERED WITH THE PUBLIC EXCLUDED

Section 48, Local Government Official Information and Meetings Act 1987

Moved: Councillor Brine Seconded: Councillor Ward

THAT the public be excluded from the following parts of the proceedings of this meeting.

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution, are as follows:

Item No	Minutes/Report of:	General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under section 48(1) for the passing of this resolution
10.1 – 10.2	Reports from Management Team meetings	Reports for information	Good reason to withhold exists under Section 7	Section 48(1)(a)

This resolution is made in reliance on section 48(1)(a) of the Local Government Official Information and Meetings Act 1987, and the particular interest or interests protected by section 6 or section 7 of that Act which would be prejudiced by the holding of the whole or relevant part of the proceedings of the meeting in public are as follows:

Item Nº	Reason for protection of interests	Ref NZS 9202:2003 Appendix A
10.1 – 10.2	Protection of privacy of natural persons To carry out commercial activities without prejudice	A2(a) A2(b)ii

CARRIED

CLOSED MEETING

Recommendation to resume open meeting

Moved: Councillor Brine Seconded: Councillor Ward

THAT the open meeting resume and the resolution made with the public excluded be made public, but the reports and business discussed remain public excluded.

CARRIED

OPEN MEETING

REPORTS FOR INFORMATION

10.1 **Contract 21/62 Oxford Water Main Renewals 2021/22 Tender Evaluation and Contract Award Report** – Report to Management Team Meeting 30 May 2022 – to be circulated to Utilities and Roading Committee.

10.2 **Contract 21/03 Sustainability Education Delivery Services Tender Evaluation and Contract Award Report** – Report to Management Team Meeting 7 June 2022 – to be circulated to Utilities and Roading Committee.

Moved: Councillor Ward Seconded: Councillor Brine

THAT the Utilities and Roading Committee receives the information in Items 10.1 and 10.2.

CARRIED

NEXT MEETING

The next meeting of the Utilities and Roading Committee is scheduled for 3.30pm, on Tuesday 19 July 2022.

There being no further business, the meeting concluded at 4.06pm.

CONFIRMED

_____
Chairperson
Councillor Robbie Brine

_____
Date

BRIEFING

At the conclusion of the meeting, the following briefings were presented:

- *Finished Floor Level Technical Practice Note – 30 minutes*
- *Wastewater Treatment Consenting and Compliance – 30 minutes*

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR INFORMATION

FILE NO and TRIM NO:	RDG-08-09-01 / 220705114266
REPORT TO:	UTILITIES & ROADING COMMITTEE
DATE OF MEETING:	19 July 2022
AUTHOR(S):	Joanne McBride – Roading and Transport Manager
SUBJECT:	Proposed Roading Capital Works Programme for 2022/23
ENDORSED BY: (for Reports to Council, Committees or Boards)	General Manager / acting Chief Executive

1. SUMMARY

1.1 This report is to seek the Utility & Roading Committee's approval of the Roading Capital Works Programme for the 2022/23 year, and the indicative three year programme for the following years.

1.2 The Roading programmes being considered are the categories where a general allocation is provided for in the Council's Ten Year Plan (LTP), where there is some flexibility and community input is beneficial to achieving the required outcomes.

1.3 Renewal programmes are determined following an assessments of condition of assets which have reached the end of life and are due for replacement, or where infrastructure is failing to provide an adequate level of service. While part of the prioritisation process asset life others factors including road hierarchy, high demand areas (e.g. schools or town centre areas) and condition are also considered.

1.4 The provision of new footpaths in urban areas and also bus shelter infrastructure have also been through a prioritisation process and the highest use or demand areas are addressed first.

1.5 All major improvement projects which are specifically listed in the Long Term Plan (LTP) are not considered within this report, as these are consulted on through the LTP process.

1.6 Due to increasing costs and Covid delays some projects from the 2021/22 have been carried over to the 2022/23 year along with remaining budgets.

1.7 Feedback has been sought from the Community Boards during June and is included within the report.

Attachments:

i. Roading Capital Works Programme for 2022-23 and Indicative Three Year Programme for Approval (TRIM No. 220705114267)

2. RECOMMENDATION

THAT the Utilities & Roading Committee:

(a) **Receives** Report No. 220705114266.

(b) **Approves** the attached 2022/23 Roading Capital Works Programme (TRIM No. 220705114267).

(c) **Authorises** the Roading Manager to make minor changes to this programme as a result of consultation or technical issues that may arise during the detailed planning phase, provided the approved budgets and levels of service are met, and the changes are reported to the Utilities & Roading Committee.

(d) **Endorses** the indicative Roading Programme for the three years following 2022/23.

(e) **Circulates** this report to the Community Boards for information.

3. BACKGROUND

3.1 The Roading programmes being considered are for those categories where a general allocation only is provided in the Council's Ten Year Plan (LTP). These categories have some flexibility and as such community input is beneficial to achieving the required outcomes.

3.2 Major Roading Improvement projects are not included in this report as they are specifically listed in the LTP and consulted on through the LTP.

3.3 Categories considered within this programme are:

- Kerb and Channel Renewal
- Footpath Renewal
- Minor Improvements
- New Footpaths
- Public Transport Infrastructure (New bus shelters & seats)

3.4 Other general categories such as road rehabilitation, road resealing, unsealed road re-metalling, signs renewal and street light renewal are not included as these programmes are developed purely on technical grounds and for asset condition reasons. As these decisions are made on a technical basis they are not subject to Board discretion. However, feedback on road condition and street lighting issues are also welcome and will be taken into account when these programmes are being developed.

3.5 The process for finalising and approving the 2022/23 Roading capital works programme is to obtain feedback from the Community Boards during June and then report the final programme to the Utilities and Roading Committee in July for approval.

3.6 The roading network is managed as a total network across the whole district and as such projects are prioritised district wide. Also as the majority of expenditure on the network is subsidised by Waka Kotahi New Zealand Transport Agency, their requirements must be met to secure co-funding. Asset condition and safety are the key drivers for the programme and the aim is to minimise lifecycle costs.

3.7 Projects are identified in terms of the Roading Activity Management Plan and are being done to ensure the levels of service identified in the LTP are met. Asset renewal projects are identified and programmed based on asset condition to ensure that lifecycle costs, and hence the cost to the community, are minimised.

3.8 In developing the programmes a range of factors are taken into account. Asset condition is the main driver for renewal projects, however other key factors are community feedback, and the coordination of the work with other programmes (such as water main renewal, drainage improvements and Utility Provider undergrounding) especially when deciding which year a particular work should be done. As asset deterioration is gradual there is some flexibility to bring forward or delay specific projects where required.

3.9 Inputs used to develop the programmes are condition rating and inspections, RAMM reports, reports from the maintenance contractor, crash records, network safety inspections, reviews of maintenance costs, feedback from the public via service requests etc. All identified deficiencies are entered into a database, reviewed and then prioritised to fit within budget levels and to ensure they address a defined level of service issue.

3.10 Utility Authorities, the 3 Waters Team and the Greenspaces Teams are consulted to ensure there are no conflicts with their programmes and to identify possible synergies in the programmes.

3.11 **Condition Assessment**

3.12 To better understand the condition of the kerb and channel and footpath assets a condition rating is carried out every three years on these assets. The most recent rating was completed in 2020 to feed into the 2021/31 Roading Asset Management Plan review and the Long Term Plan. The attached programme has been updated following the condition rating. The next condition rating is due to be completed in the latter half of 2022.

3.13 **Kerb and Channel Replacement**

3.14 Kerb and channel replacement is focussed on the replacement of old style dished channels which are in a poor or very poor condition. This is subject to the kerb and channel warranting replacement and meeting NZTA requirements. In many cases the footpath is replaced at the same time as the kerb and channel, however this only occurs where the footpath condition also warrants the renewal Some old kerb and flat channels are in poor condition and these will be included in the programme as required.

3.15 Footpath Renewals

3.16 This category is for the resurfacing and reconstruction of footpaths. The programme is determined by the footpath surface condition, and the purpose is to provide safe and comfortable footpaths and to minimise lifecycle costs. All footpaths were condition rated in 2020. From this rating the worst condition streets were identified and inspected. From that inspection, and taking into account community feedback and other programmes. Including the previous approved programme, the draft renewal programme has been developed.

3.17 Minor Improvements Programme

3.18 For the minor improvement programme, safety is the main factor considered. At this time Waka Kotahi have not agreed to co-fund the Minor Safety Programme however through the Annual Plan process Council resolved to fully funding the shortfall, due to the importance of these safety interventions.

3.19 New Footpath Programme

3.20 Included in the 2021-31 Long Term Plan is budget of $100,000 per year for ten years for new footpaths in Rangiora, Kaiapoi, Woodend and Oxford. Council previously approved a programme which has been updated as part of this report.

3.21 Public Transport Infrastructure

3.22 A prioritisation process has been developed for passenger infrastructure which considers existing infrastructure and boarding numbers to help determine a programme of works.

3.23 The installation of bus shelter infrastructure will support Council's commitment to improved public transport which has been agreed by the Greater Christchurch partners, and endorsed through the endorsement of the Public Transport Futures Business Case.

4. ISSUES AND OPTIONS

4.1. The Roading Capital Works Programme is made up of activities specifically identified in the Long Term Plan and also from condition rating survey and included as general allocation items for asset renewal.

4.2. The programmes being considered in this report are the Kerb and Channel Renewal Programme, Footpath Renewals, New footpath programme, Minor Safety Improvements and Public Transport Infrastructure areas.

4.3. The Kerb & Channel and Footpath renewal programmes have been developed to meet the levels of service in the Activity Management Plan and Long Term Plan, and also to align with budget levels in the Long Term Plan.

4.4. Key inputs used to develop these programmes are condition rating and inspections, RAMM reports, reports from the maintenance contractor, crash records, network safety inspections, reviews of maintenance costs, feedback from the public etc.

4.5. The Minor Safety Improvements programme is developed from the Deficiency Database which is a register of safety issues within the district. The Deficiency Database is also used to capture safety issues which are raised through the service request system which are considered to require further intervention. Minor works and safety initiatives also feed into this programme of works.

4.6. The Roading network is managed as a total network across the whole district and as such projects are prioritised district wide. A large portion of expenditure on the network is co-funded by Waka Kotahi and as such their requirements must be met to obtain the subsidy. Asset condition and safety are the key drivers for the programme and the aim is to minimise lifecycle costs and improve safety.

4.7. To better understand the condition of the kerb and channel and footpath assets, a condition rating is carried out every three years on these assets. The most recent rating was completed in 2020 and the next rating is due at the end of 2022. The attached programmes for kerb & channel renewal and footpath renewals have consideration of this latest condition rating.

4.8. The 2021/22 programme had a number of projects delayed due to the late funding announcement by Waka Kotahi in September 2021 (normally received in July) and also due to the February / March 2022 Covid outbreak and subsequent resourcing issues.

4.9. The indicative three year programme for the following three years is more flexible and as it is reviewed annually to allow consideration of programme delays, any emerging issues and to provide an opportunity to make changes to this programme.

Implications for Community Wellbeing

There are implications on community wellbeing by the issues and options that are the subject matter of this report.

The programmes contribute directly to public transport, safety and meeting levels of service, all of which have an impact of the Community.

4.10. The Management Team has reviewed this report and support the recommendations.

5. COMMUNITY VIEWS

5.1. Mana whenua

Te Ngāi Tūāhuriri hapū are likely to be affected by, or have an interest in the subject matter of this report. Safety, Public transport and renewal of infrastructure supports the whole community.

5.2. Groups and Organisations

There are groups and organisations likely to be affected by, or to have an interest in the subject matter of this report.

The Community Boards have been consulted and requests incorporated into the draft programme as attached. Specific feedback was as follows:

Oxford-Ohoka Community Board – 8th June

- Error noted in the "town" column of the minor safety programme now updated.
- The Board sought clarification on the carry over budget for Main Street Oxford and also Mains Street Oxford Signage. An error in the budgets was identified. This was only to be allocated for one year and has been updated in this report.
- There were also a number of concerns about footpaths in Oxford raised, which will be managed through the footpath maintenance programme which sits outside of this report.

Rangiora-Ashley Community Board – 8th June

- Error noted in the "town" column of the minor safety programme now updated. Concerns were raised about unsealed roads and remetalling. This is not included within this report and will be workshopped separately.
- New footpaths and specifically Ashley Street was raise. This has been to Council as part of the Annual Plan process and Council resolved to consider this as part of the Long term Plan process.
- The Board requested a workshop prior to the report next year to go through the proposed programme.

Woodend-Sefton Community Board – 13th June

- Request for a variable speed limit and signs at Sefton School to be included. This has been requested by the school previously and had been omitted from the programme but has now been added. To allow for this to proceed the roadside hazard removal programme was shifted out one year.
- The Board requested consideration be given to a bus shelter for the school bus service at Woodend Beach. Staff will follow up with the Ministry of Education on this and consider how this could be achieved.
- Request for a Give Way control at Fullers Rd / Sandhill Rd intersection will be considered and a report is to come back to the Board.
- Question about the possibility of the bus deviating into Ravenswood outside of peak hours. This is to be addressed with ECan separately.

Kaiapoi-Tuahiwi Community Board – 20th June

- Feedback was sought on cycle parking infrastructure as part of the Passenger Transport Infrastructure Programme. Also around key areas such as café's in the town centre. This will be considered for bus stops however there is currently nothing included for town centres. This will be given further consideration on how this could be incorporated into a future programme.
- Weed and street sweeping on the Motorway Overbridges was raised and has been an ongoing discussion point with Waka Kotahi staff.

- Clarification that the footpath on Princess Place is to be upgraded and description updated to reflect location. Noted development is occurring on this street.
- Otaki Street works coordinated as much as possible however some works are to remain with the Road Maintenance Contract.

5.3. **Wider Community**

The wider community is likely to benefit from these safety improvements, improved infrastructure and installation of shelters. Improved safety reduces the risk of harm to the public. Renewal of infrastructure results in a good level of service for the community and reduces the risk of failure which could put the Community at risk. Providing shelter at bus stops increases the appeal of catching the bus, and reduces congestion to other road users.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

6.1. **Financial Implications**

There are not financial implications of the decisions sought by this report. Programmes are set to meet budget allocations for each category.

This budget is included in the Long Term Plan. It is also noted that the budgets included in the attached proposed programme exclude inflation and that the Long Term Plan budget figures include inflation.

6.2. **Sustainability and Climate Change Impacts**

The recommendations in this report do have sustainability and/or climate change impacts. Providing good quality assets such as footpaths encourages alternate modes such as walking. Increased Public Transport use has the impact of reducing carbon emissions.

6.3 **Risk Management**

There are risks arising from the adoption/implementation of the recommendations in this report.

There is a risk that the programme may not meet expectations. This is mitigated by ensuring public feedback is taken into consideration when developing the programme.

The programme is also circulated to the Community Boards and feedback is sought.

6.3 **Health and Safety**

There are health and safety risks arising from the adoption/implementation of the recommendations in this report.

Any contractors undertaking condition assessment or physical works contracts will be required to be SiteWise registered and meet minimum score requirements appropriate for the risk of the work being undertaken.

7. CONTEXT

7.1. **Consistency with Policy**

This matter is not a matter of significance in terms of the Council's Significance and Engagement Policy.

7.2. **Authorising Legislation**

The Land Transport Act is relevant to this matter.

7.3. **Consistency with Community Outcomes**

The Council's community outcomes are relevant to the actions arising from recommendations in this report.

There is a safe environment for all

- Harm to people from natural and man-made hazards is minimised.

Transport is accessible, convenient, reliable and sustainable

- The standard of our District's roads is keeping pace with increasing traffic numbers.
- Communities in our District are well linked with each other and Christchurch is readily accessible by a range of transport modes.
- Public transport serves our District effectively

7.4. Authorising Delegations

The Utilities & Roading Committee has the authority to approve work programmes for works that the Council has budgeted a general level of expenditure for.

Roading Capital Works Programme with Feedback to U&R for Approval - 2022/23 and three indicative years

Project Name	Side	Town	22/23 Indicative Programme	23/24 Indicative Programme	24/25 Indicative Programme	25/26 Indicative Programme
Kerb and Channel Replacement						
Professional Fees			$ 75,000	$ 75,000	$ 80,000	$ 80,000
Otaki St (No. 94/98 - Adderley Tce) - Carry Over	East	Kaiapoi	$ 151,000	-	-	-
Keir St (East Belt - End)	South	Rangiora	$ 35,000	-	-	-
Geddis St (Elizabeth St - No. 28)	Both	Rangiora	$ 125,000	-	-	-
Southbrook Rd (Torlesse St - No.44) with traffic signals	East	Rangiora	$ 37,000	-	-	-
Good St (Tyler St - Lovers Ln)	Both	Rangiora	$ 170,000	-	-	-
Ohoka Rd (No. 74 To Shops)	North	Kaiapoi	$ 22,000	-	-	-
Geddis St (No. 26 - White St)	Both	Rangiora	-	$ 150,000	-	-
Douglas St (No. 9 - end)	East	Rangiora	-	$ 40,000	-	-
Palmer St (Douglas St - White St)	North	Rangiora	-	$ 40,000	-	-
White St (Johns Rd - Wiltshire Crt)	East	Rangiora	-	$ 175,000	-	-
Otaki St (Ohoka Rd - Broom St)	Both	Kaiapoi	-	-	$ 130,000	-
Edward St, No. 14/15 - Wales St	East	Rangiora	-	-	$ 130,000	-
Akaroa Street (Ashley Pl / Hodgson Ave - Fuller St)	Both	Kaiapoi	-	-	$ 115,000	$ 115,000
Akaroa Street (Hugh St - Ashley Pl / Hodgson Ave)	Both	Kaiapoi	-	-	-	$ 270,000
To be Allocated			$ 54,290	$ 38,290	$ 63,290	$ 53,290
Value of Work Programmed			$ 615,000	$ 480,000	$ 455,000	$ 465,000
Carry Over Budget			$ 151,000	-	-	-
Approved Annual Budget			**$ 518,290**	**$ 518,290**	**$ 518,290**	**$ 518,290**
Total Availaible Budget			**$ 669,290**	**$ 518,290**	**$ 518,290**	**$ 518,290**

Project Name	Side	Town	22/23 Indicative Programme	23/24 Indicative Programme	24/25 Indicative Programme	25/26 Indicative Programme
Footpath Renewal						
Otaki St (No. 94/98 - Adderley Tce) - with kerb and channel - Shovel Ready Carry Over	East	Kaiapoi	$ 69,000	-	-	-
Chapman Pl (Wesley St to No.2) - Shovel Ready Carry Over	East	Kaiapoi	$ 31,000	-	-	-
Williams St (Courtenay Dr - Vickery St) - Carry Over	East	Kaiapoi	$ 50,000	-	-	-
Keir St (East Belt - End) - with kerb and channel	South	Rangiora	$ 24,000	-	-	-
Southbrook Rd (Torlesse St - No. 44) - with kerb and channel & traffic signals	East	Rangiora	$ 24,000	-	-	-
Good St (Tyler St - Lovers Ln) - with kerb and channel	West	Rangiora	$ 180,000	-	-	-
Geddis St (Elizabeth St - No. 26) - with kerb and channel	Both	Rangiora	$ 60,000	-	-	-
Ohoka Rd (No. 74 To Shops) - with kerb and channel	North	Kaiapoi	$ 18,000	-	-	-
Otaki St (Cressy Ave - No. 129)	West	Kaiapoi	$ 15,000	-	-	-
Otaki St (Broom St - No. 95)	West	Kaiapoi	$ 50,000	-	-	-
Blackett St (Church St - King St)	South	Rangiora	$ 15,000	-	-	-
Eyre Pl (Sneyd St - end)	Both	Kaiapoi	$ 10,000	-	-	-
Church St (Blackett St - High St)	East	Rangiora	$ 25,000	-	-	-
Princess Pl (Smith St - end)	East	Kaiapoi	$ 45,000	-	-	-
Kinley St (Blackett St - Seddon St)	Both	Rangiora	$ 90,000	-	-	-
Ranfurly St (Opposite Dale St)	Both	Rangiora	$ 10,800	-	-	-
Ohoka Overpass Walkway (Risely Reserve)	North	Kaiapoi	$ 18,000	-	-	-
Torlesse St (Southbrook Rd - Marshall St)	North	Rangiora	$ 12,000	-	-	-
Johns Rd (Green St - Bush St)	South	Rangiora	$ 60,000	-	-	-
Geddis St (No. 26 - White St) - with kerb and channel	Both	Rangiora	-	$ 80,000	-	-
Grove Pl (Kingsbury Ave - Rex Pl, including walkway)	East	Rangiora	-	$ 15,000	-	-
Kynnersley St (Snyed St - end)	South	Kaiapoi	-	$ 15,000	-	-
Douglas St (No. 9 - End) - with kerb and channel	East	Rangiora	-	$ 30,000	-	-
Palmer St (Douglas St - White St) - with kerb and channel	North	Rangiora	-	$ 25,000	-	-
White St (Johns Rd - Wiltshire Crt) - with kerb and channel	East	Rangiora	-	$ 70,000	-	-
Otaki St (Ohoka Rd - Broom St) - with kerb and channel	Both	Kaiapoi	-	$ 65,000	-	-
Edward St, No. 14/15 - Wales St - with kerb and channel. Short length only	East	Rangiora	-	$ 10,000	-	-
Fraser Pl (No. 2 - end)	Both	Rangiora	-	$ 30,000	-	-
Wilson Dr (Mill Rd - end)	East	Ohoka	-	$ 60,000	-	-
Whitefield St (Ohoka Rd - Epworth St)	East	Kaiapoi	-	$ 80,000	-	-
Kippenberger Ave (East Belt - end)	North	Kaiapoi	-	$ 100,000	-	-
Akaroa Street (Ashley Pl / Hodgson Ave - Fuller St) - with kerb and channel	Both	Kaiapoi	-	-	$ 90,000	-
Bush St (Waston Pl - Charles St)	East	Rangiora	-	-	$ 18,000	-
Martyn St (Charles St - Luxton Pl)	East	Rangiora	-	-	$ 60,000	-
Thorne Pl (Ivory St - end) - with kerb and channel	South	Rangiora	-	-	$ 25,000	-
Akaroa Street (Hugh St - Ashley Pl / Hodgson Ave) - with kerb and channel	Both	Kaiapoi	-	-	-	$ 115,000
To be Allocated			$ 63,716	$ 30,061	$ 417,061	$ 495,061
Value of Work Programmed			$ 806,800	$ 580,000	$ 193,000	$ 115,000
Carry Over Budget from 2021/22			$ 266,000	-	-	-
Approved Annual Budget			$ 604,516	$ 610,061	$ 610,061	$ 610,061
Total Availaible Budget			**$ 870,516**	**$ 610,061**	**$ 610,061**	**$ 610,061**

Project Name	Side	Town	22/23 Indicative Programme	23/24 Indicative Programme	24/25 Indicative Programme	25/26 Indicative Programme
Minor Improvement Projects						
Lighting						
Minor Lighting Upgrades			-	$ 10,000	$ 10,000	$ 10,000
Tram Rd / North Eyre Rd Intersection (part Carry over)			$ 25,000	-	-	-
Easterbrook / Fernside Rd			$ 15,000	-	-	-
Oxford Lighting Deficiencies			$ 10,000	$ 20,000	$ 20,000	$ 20,000
Intersection Improvements						
Mounseys Rd / Woodside Rd / Mountain Rd Seal Back		Oxford	$ 60,000	-	-	-
Lehmans Rd / Johns Rd Intersection		Rangiora	$ 50,000	-	-	-
Depot Rd / South Eyre Rd		Oxford	$ 50,000	-	-	-
Tram Rd / Browns Rd		Swannanoa	-	$ 20,000	-	-
Cones / Fawcetts		Rangiora	-	$ 100,000	-	-
Harleston Rd / Broad Rd Intersection		Sefton	-	-	$ 40,000	-
South Eyre Rd / Browns Rd		Swannanoa	-	-	$ 20,000	-
Tram Rd / Earlys Rd Splitter Island		West Eyreton	-	-	$ 30,000	-
Easterbrook Rd / Fernside Rd		Fernside	-	-	-	$ 40,000
Budget to be Allocated			-	-	-	-
School Safety Project						
North Kaiapoi School		Kaiapoi	$ 30,000	-	-	-
Kaiapoi High School		Kaiapoi	$ 30,000	-	-	-
Sefton School Variable Speed Signs		Sefton	$ 45,000	-	-	-
Other School Projects (Speed outside Schools)			-	$ 50,000	$ 50,000	$ 50,000
Speed Treatments						
Cust Safety Improvements - Speed (Carry Over)		Cust	$ 85,000	-	-	-
Waikuku Beach Threshold Signs		Waikuku	$ 40,000	-	-	-
Main Street Oxford Signage		Oxford	$ 25,000	-	-	-
Deliniation along SH1 detour routes		Various	$ 20,000	$ 20,000	-	-
Speed Signage & Markings		Various	$ 30,000	$ 25,000	$ 25,000	$ 25,000
South Belt at Park & Ride - Threshold		Rangiora	-	$ 35,000	-	-
Other Speed Projects TBC			-	$ 20,000	$ 75,000	$ 75,000
Minor Works						
Perhams Ford Improvements - (Partial Carry Over)		Oxford	$ 120,000	-	-	-
Charles St / Jollie St Power Kiosk Removal		Kaiapoi	$ 40,000	-	-	-
Speed Indicator Signs		Various	-	$ 25,000	-	-
Mandville Road Improvements at Village		Mandeville	-	$ 40,000	-	-
Railway Road Improvements (near Railway line)		Rangiora	-	$ 45,000	-	-
Millton Ave Entrance to Rangiora - Speed Treatment		Rangiora	-	-	$ 30,000	$ 30,000
Walking and Cycling Projects						
Rangiora Woodend Path Safety Audit Actions		Rangiora	$ 50,000	-	-	-
Main St Oxford Pedestrian Crossing - Carry Over		Oxford	$ 33,000	-	-	-
Tunas Street Footpath		Kaiapoi	$ 35,000	-	-	-
Ivory Street Pedestrian Refuges		Rangiora	-	$ 20,000	-	-
West Belt Ped Cutdowns		Rangiora	-	$ 15,000	-	-
Peraki St / Carew St Ped Cutdowns		Kaiapoi	-	$ 15,000	-	-
East Belt Footpath (Grey View Pl to Kippenberger)		Rangiora	-	-	$ 30,000	-
Tactile Indicator Installation		Various	$ 20,000	$ 10,000	$ 10,000	$ 10,000
Rangiora Roundabouts Pedestrian Improvements		Rangiora	-	-	$ 20,000	$ 20,000
Sneyd / Cosgrove St Ped Cutdowns		Kaiapoi	-	-	$ 20,000	-
South Belt - Ped Refuge (Btwn Southbrook / King St)		Rangiora	-	-	-	$ 20,000

Project Name	Side	Town	22/23 Indicative Programme	23/24 Indicative Programme	24/25 Indicative Programme	25/26 Indicative Programme
Roadside Hazard Removal						
Dixons Rd - Bridge 2802 Widening (RP2540)		Loburn	-	$ 90,000	-	-
Dixons Rd - Bridge Widening (RP1125)		Loburn	-	-	$ 100,000	-
Upper Sefton - Concrete Headwall (RP9490)		Sefton Rural	-	-	-	$ 100,000
Other Roadside Hazard Projects TBC			-	-	-	$ 100,000
Cattle Underpass						
Underpasses to be allocated			-	-	-	-
Budget to be Allocated			$ 35,000	$ 35,000	$ 115,000	$ 95,000
Value of Work Programmed			$ 813,000	$ 560,000	$ 480,000	$ 500,000
Carry Over Budget			$ 273,000	-	-	-
Approved Annual Budget			$ 575,000	$ 595,000	$ 595,000	$ 595,000
Approved Annual Budget			**$ 848,000**	**$ 595,000**	**$ 595,000**	**$ 595,000**

Project Name	Side	Town	22/23 Indicative Programme	23/24 Indicative Programme	24/25 Indicative Programme	25/26 Indicative Programme
New Footpaths						
Totara Drive - east side		Oxford	$ 25,000	-	-	-
Coronation Street (Buckleys Rd to end) – north side		Rangiora	$ 25,000	-	-	-
Ballarat Road (existing path to Hassall Street) – east side		Rangiora	$ 35,000	-	-	-
Edward Street (Wales St to end)		Rangiora	$ 15,000	-	-	-
Ranfurly Street (Dale St to Cridland St) – east side		Kaiapoi	-	$ 55,000	-	-
Knight Street (Start to end)		Oxford	-	$ 45,000	-	-
Redwood Place (Start to end)		Oxford	-	-	$ 30,000	-
Matai Place (Start to end)		Oxford	-	-	$ 35,000	-
Woodfield Place (Start to end)		Woodend	-	-	$ 25,000	-
Chinnerys Road (Reserve east entrance – Woodglen Dr) – west side		Woodend	-	-	-	$ 70,000
Church Street - Past Anglican Church		Rangiora	-	-	-	$ 30,000
To be allocated			-	-	$ 10,000	-
Value of Work Programmed			$ 100,000	$ 100,000	$ 90,000	$ 100,000
Approved Annual Budget			**$ 100,000**	**$ 100,000**	**$ 100,000**	**$ 100,000**
Bus Shelter Programme						
Southbrook Rd (near Denchs Rd)		Rangiora	$ 20,000	-	-	-
Ashley St (Town Centre)		Rangiora	$ 30,000	-	-	-
Kaiapoi (McDonalds)		Kaiapoi	$ 30,000	-	-	-
Ashley St (near Duke St)		Rangiora	$ 5,000	-	-	-
Williams St (near Cass St)		Kaiapoi	$ 20,000	-	-	-
Bush St (near Watson Pl)		Rangiora	-	$ 5,000	-	-
Main North Rd (near Hewitts Rd)		Woodend	-	$ 5,000	-	-
Island Rd (near Barnard St)		Kaiapoi	-	$ 20,000	-	-
Williams St (near Davies St)		Kaiapoi	-	$ 20,000	-	-
Pegasus Blvd (near Waireka St)		Pegasus	-	$ 20,000	-	-
Southbrook Rd (near Coronation St)		Rangiora	-	$ 20,000	-	-
King St (near Seddon St)		Rangiora	-		$ 20,000	-
Pegasus Blvd (near Whakatipu St)		Pegasus	-	-	$ 20,000	-
Williams St (near Police Stn)		Kaiapoi	-	-	$ 20,000	-
Williams St (near Carew St)		Kaiapoi	-	-	$ 20,000	-
Main North Rd (near School Rd)		Woodend	-	-	$ 20,000	-
Main North Rd (near Kaiapoi Golf Club)		Kaiapoi	-	-	$ 20,000	-
To be allocated			$ 20,000	$ 35,000	$ 5,000	$ 125,000
Value of Work Programmed			$ 105,000	$ 90,000	$ 120,000	-
Approved Annual Budget			**$ 125,000**	**$ 125,000**	**$ 125,000**	**$ 125,000**

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR INFORMATION

FILE NO and TRIM NO:	SEW-01-05 / 220707115265
REPORT TO:	UTILITIES & ROADING COMMITTEE
DATE OF MEETING:	19 July 2022
AUTHOR(S):	Caroline Fahey, Water Operations Team Leader Kalley Simpson, 3 Waters Manager
SUBJECT:	Ocean Outfall Benthic Survey
ENDORSED BY: (for Reports to Council, Committees or Boards)	General Manager / acting Chief Executive

1. SUMMARY

1.1. The purpose of this report is to inform the Utilities & Roading Committee of results of the benthic survey undertaken on the Ocean Outfall by NIWA in May 2022.

1.2. The survey found no significant effects from the outfall, based on sampling and analysis of physical, chemical, and bacteriological parameters of surface waters, sediment physicochemical properties and seabed fauna assemblages.

1.3. No significant effects attributable to the outfall discharge were evident from the analysis of the spatial and temporal distribution of benthic biota living in and around the seabed when comparing the results of this survey with previous post-construction surveys.

1.4. This report will be submitted to Environment Canterbury as part of the Ocean Outfall Annual Compliance Report 2021/22 currently being prepared.

Attachments:

i. Waimakariri District Council outfall: sixth post construction survey (TRIM 220513076587)

2. RECOMMENDATION

THAT the Utilities & Roading Committee:

(a) **Receives** report No. 220707115265.

(b) **Notes** that the survey of physical, chemical, and bacteriological parameters of surface waters, sediment physicochemical properties and seabed fauna assemblages undertaken by NIWA in May 2022 found no significant effects from the Ocean Outfall, based on sampling and analysis undertaken.

(c) **Notes** that no significant effects attributable to discharge from the Ocean Outfall were evident from the analysis of the spatial and temporal distribution of benthic biota living in and around the seabed when comparing the results of this survey with previous post-construction surveys.

(d) **Notes** that this report will be submitted to Environment Canterbury and circulated to the Community Boards, Mahi Tahi Committee and the Waimakariri Water Zone Committee as part of the Ocean Outfall Annual Compliance Report 2021/22.

3. BACKGROUND

3.1. Council is required to undertake benthic surveys under resource consent CRC41162.2 in accordance with conditions 15–26 inclusive, which specify the locations, details, and methods of the monitoring required.

3.2. This is the sixth post-construction survey undertaken and eight overall with surveys being undertaken in 2004 & 2005 (prior to construction of the outfall) and then in 2007, 2008, 2009, 2012, 2017 and 2022.

3.3. The objectives of the survey are to classify and sample marine sediments and identify benthic biota at stations located along transects running north and south of the outfall diffuser. Water quality is also surveyed within the discharge plume at predetermined distances away from the outfall diffuser to detect any significant effects resulting from the outfall discharge.

3.4. The report prepared by NIWA presents the analysed survey results and compares the results with previous monitoring surveys.

4. ISSUES AND OPTIONS

4.1. The survey undertaken by NIWA found no significant effects from the outfall, based on sampling and analysis of physical, chemical, and bacteriological parameters of surface waters, sediment physicochemical properties and seabed infaunal and epifaunal assemblages.

4.2. Bacteria levels (enterococci and faecal coliforms) in the surface waters, and trace metal contaminant concentrations in sediments were significantly below trigger levels that if exceeded, prompt further action according to updated and previously accepted guidelines (ANZECC 2000, ANZECC 2022). Comparison of sediment physicochemical results from all post-construction survey years provided no evidence of significant effects from the outfall.

4.3. No significant effects attributable to the outfall discharge were evident from the analysis of the spatial and temporal distribution of benthic biota living in and around the seabed when comparing the results of this survey with previous post-construction surveys.

Implications for Community Wellbeing

There are not implications on community wellbeing by the issues and options that are the subject matter of this report.

4.4. The Management Team has reviewed this report and support the recommendations.

5. COMMUNITY VIEWS

5.1. **Mana whenua**

Te Ngāi Tūāhuriri hapū are likely to have an interest in the subject matter of this report, as wastewater management has important cultural considerations. The Iwi Management Plan sets out that iwi will advocate for a culturally sustainable alternative to the ocean outfall and the discharge of wastewater to the sea, consistent with general policy on opposing the use of water as a receiving environment for waste.

5.2. **Groups and Organisations**

There are not groups and organisations likely to be affected by, or to have an interest in the subject matter of this report.

5.3. **Wider Community**

The wider community are likely to be interested in our overall compliance with our wastewater consents, which will be reported as part of our Annual Report.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

6.1. Financial Implications

There are not financial implications of the decisions sought by this report.

6.2. Sustainability and Climate Change Impacts

The recommendations in this report do not have sustainability and/or climate change impacts.

6.3 Risk Management

There are not risks arising from the adoption/implementation of the recommendations in this report.

6.3 Health and Safety

There are not health and safety risks arising from the adoption/implementation of the recommendations in this report.

7. CONTEXT

7.1. Consistency with Policy

This is not a matter of significance in terms of the Council's Significance and Engagement Policy.

7.2. Authorising Legislation

The Local Government Act 2002 sets out the power and responsibility of local authorities, including the Council's role in providing wastewater services.

7.3. Consistency with Community Outcomes

The following Council's community outcomes are relevant to the actions arising from recommendations in this report:

- There is a safe environment for all.
- Core utility services are sustainable, resilient, affordable; and provided in a timely manner.

7.4. Authorising Delegations

The Utilities and Roading Committee has the delegation to receive this report.

NIWA
Taihoro Nukurangi

Waimakariri District Council outfall: sixth post construction survey

Prepared for Waimakariri District Council

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Executive summary

Monitoring conditions for the Waimakariri District Council marine sub-aqueous ocean outfall diffuser in Pegasus Bay are specified under Environment Canterbury (ECAN) resource consent CRC41162.2, with the locations, details, and methods of the monitoring covered under Resource Consent conditions 15–26 inclusive. These conditions were issued in 2009 and apply through until 2039. Monitoring at this level is required every five years with the last survey being undertaken in 2017 (Brown 2017).

This report presents the results of the sixth post-construction survey after the commissioning of the outfall and follows previous baseline and post-construction reports (Willis et al. 2007, Brown et al. 2008, Cole et al. 2009, Environment Canterbury 2009, Handley et al. 2012, Brown 2017).

The objectives of the survey were to classify and sample marine sediments and identify benthic biota (infauna) at stations located along transects running north and south of the outfall. Epifaunal samples were also undertaken to maintain consistency with previous reports but are not part of consent condition requirements. Surveying water quality within the discharge plume at predetermined distances away from the outfall diffuser to detect any significant effects resulting from the outfall discharge also occurred. Survey results were analysed and compared with previous monitoring surveys.

The survey found no significant effects from the outfall, based on sampling and analysis of physical, chemical, and bacteriological parameters of surface waters, sediment physicochemical properties and seabed infaunal and epifaunal assemblages.

Bacteria levels (enterococci and faecal coliforms) in the surface waters, and trace metal contaminant concentrations in sediments were significantly below trigger levels that if exceeded, prompt further action according to updated and previously accepted guidelines (ANZECC 2000, ANZECC 2022). Comparison of sediment physicochemical results from all post-construction survey years provided no evidence of significant effects from the outfall.

No significant effects attributable to the outfall discharge were evident from our analysis of the spatial and temporal distribution of benthic biota living in and around the seabed when comparing the results of this survey with previous post-construction surveys.

1 Introduction

The Waimakariri District Council is required to monitor the water quality, sediments, and benthic infauna at locations around the marine sub-aqueous ocean outfall diffuser in Pegasus Bay (Figure 1-1Figure 1-1). Monitoring conditions are specified under consent CRC41162.2, with the locations, details, and methods of the monitoring covered under Resource Consent conditions 15–26 inclusive (Environment Canterbury 2009).

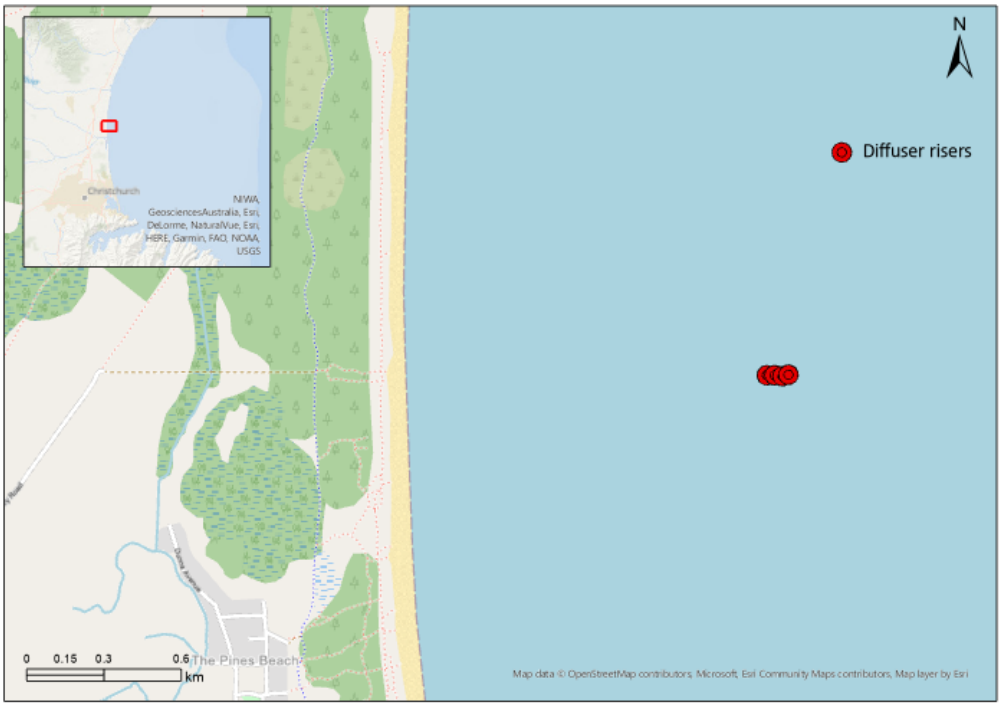

Figure 1-1: Map showing location of the Waimakariri District Council outfall diffuser risers relative to the city of Christchurch and Pines Beach.

2 Method

2.1 Sampling and analysis of samples

2.1.1 Water quality

Water quality sampling, according to methods in the consent conditions, was undertaken on 15 March 2022 following the direction of the discharge plume from the outfall diffuser determined using a trackable drogue. Collection points were immediately adjacent (0–25 m), 100, 200, 500 and 1000 m from the centre point of the diffuser. At each collection point, 1.4 L of seawater was collected manually using sterile polyethylene terephthalate (PET) containers as the drogue passed over those distances from the diffuser. Water quality monitoring commenced on the first third of the rising tide and notes were made of:

- geographical coordinates (latitude, longitude) of each sample
- visual observations for scums, foams, and other floatable material
- dissolved oxygen (% saturation)
- temperature (°C)
- salinity (psu).

Water quality samples were analysed at each site for total suspended solids (g/m^3), total nitrogen (TN mg/m^3), ammoniacal nitrogen (NH4-N, mg/m^3), nitrate (NO3, mg/m^3 N-dry wt), total phosphorus (TP mg/m^3), dissolved reactive phosphorus (DRP mg/m^3), faecal coliforms (1 cfu/100 mL), and enterococci (1 cfu/100 mL). All water quality samples were sent to Hill Laboratories for analysis and they provided all methods and detection limits which can be seen in Appendix A.

2.1.2 Sediment quality

A Van Veen benthic grab was used to sample benthic sediments. The Van Veen benthic grab has a volume of ~23 L and samples an area of seafloor of ~37 cm x 30 cm to a maximum depth of 22 cm (sediment type permitting). Sediment within the grab retains its overall profile structure. The Van Veen benthic grab was used to collect three replicate sediment cores (13 cm diameter and 10 cm deep) at sites immediately adjacent (0–25 m), 100, 250, 500 and 1000 m from the centre point of the diffuser in a northerly direction and at sites 100, 250, 500 and 1000 m from the centre point of the diffuser in a southerly direction (n=27 cores).

Samples were analysed for sediment physicochemical parameters including sediment grain size (% weight using Udden-Wentworth grain size classification (Wentworth 1922)) and total organic carbon (TOC, %-dry wt). Total nutrient content was analysed using total nitrogen (TN, mg/kg N-dry wt) and total phosphorus (TP mg/kg P-dry wt). Sediment cores were also analysed for metal content including arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc (all measured as mg/kg-dry wt). Sediment samples were also sent to Hill Laboratories for analyses, with methods and detections limits provided listed below (Appendix B).

During collection, all cores were examined, and information recorded on their general appearance including texture, colour, occurrence of anthropogenic debris, odour, apparent redox potential discontinuity layer (visual assessment only), and a photographic record taken.

As specified in the consent conditions, only the top 20 mm of any core was processed for physiochemical analyses and each replicate at each site was examined separately. However, three replicate sediment cores from each site were combined for analysis of metal content.

Grain size analysis was performed by NIWA Christchurch. Samples were dried in a 60°C oven until they reached a constant weight and then sieved into five size class fractions:

- > 2 mm gravel
- > 1–2 mm coarse sand
- > 0.5–1 mm medium sand
- > 0.063–0.5 mm fine to very fine sand
- <0.063 mm silt/mud.

The weights of each separate 'sand' size class were combined to give an overall value for comparison with previous surveys.

2.1.3 Benthic infauna

The Van Veen benthic grab was also used to collect five replicate infauna cores (13 cm diameter and 10 cm deep) from the nine sites mentioned previously (n=45 cores). They were collected from each site and sieved through 0.5 mm mesh and preserved in 70% ethanol. In the laboratory, infauna were stained using Rose Bengal which attaches to proteins in organisms and changes their colour to pink, allowing separation of infauna from detritus. Infauna were separated into general phyla, counted, and identified to the lowest practical taxonomic level for each replicate and preserved. Identifications were cross-referenced with previously collected specimens to ensure taxonomic accuracy between surveys. All biological material was retained to enhance the infauna reference collection.

2.1.4 Benthic epifauna

Although not specified in the consent conditions, for consistency between post-construction reports, epibenthic organisms were sampled using an epibenthic sled. A total of 4 x ~100-m tows were undertaken at approximately 100 m and 1000 m to the north and south of the diffuser. Start and end coordinates of the tows were recorded, and all organisms were retained, identified, counted, and compared with previous surveys.

2.2 Data analysis

The analysis of data is consistent with previous reports. Analyses focus on confirming the structure of the sediments, as well as establishing whether there have been any changes in the water quality and sediment parameters from previous monitoring surveys, including baseline data. Faunal analyses focus on species diversity, invertebrate abundance, community composition and any important or indicator species. Various univariate and multivariate statistical procedures were used to assess the significance of variation away from the centre of the diffuser.

Count data of infaunal species were statistically analysed with non-metric multi-dimensional scaling. Non-metric multi-dimensional scaling (nMDS) is an ordination (dimension-reduction method) that is more robust than conventional approaches based on matrix division and is explained in Clarke (1993). Its algorithm attempts to minimise "stress" among samples in a lower number of dimensions than there are (in the present case) species. Thus, instead of attempting to interpret differences

among stations on the basis of 98 taxa, the ordination displays patterns among the stations in 2 (derived) dimensions. In this report, nMDS analyses are presented based on Bray-Curtis distance (a measure based on presence or absence of each species). These nMDS plots are usually presented with a stress value that is a measure of how well the analysis fits the data; stress values > 0.05 provides an excellent representation in reduced dimensions, > 0.1 is very good >0.2 is considered essentially random, and stress > 0.3 provides a poor representation.

3 Results

3.1 Water quality

For the entirety of the sampling the sea was calm, with less than 1 m swell and a maximum northeast wind speed of ~7 kn. No scum, foam, floating material, or plumes were visible at any point during the water quality sampling. In comparison to previous years where the drogue drifted south, firstly, the drogue drifted west, then in a northerly direction, with sampling occurring between the time of 11:00 and 15:00 (Figure 3-1).

Water quality appears to be consistent with previous surveys. Salinity did not vary with distance from the diffuser. Temperature varied by less than a degree over the course of the sampling and dissolved oxygen varied by less than two per cent (Table 3-3). Faecal coliforms were detected at 1/100 mL at 100 m from the diffuser but collections at all other distances provided no detections. Enterococci were detected at 1/100 mL adjacent to the diffuser, but no other detections were recorded. Total nitrogen was consistent across all stations and the variation between all other chemical analyses by stations is negligible (Table 3-2).

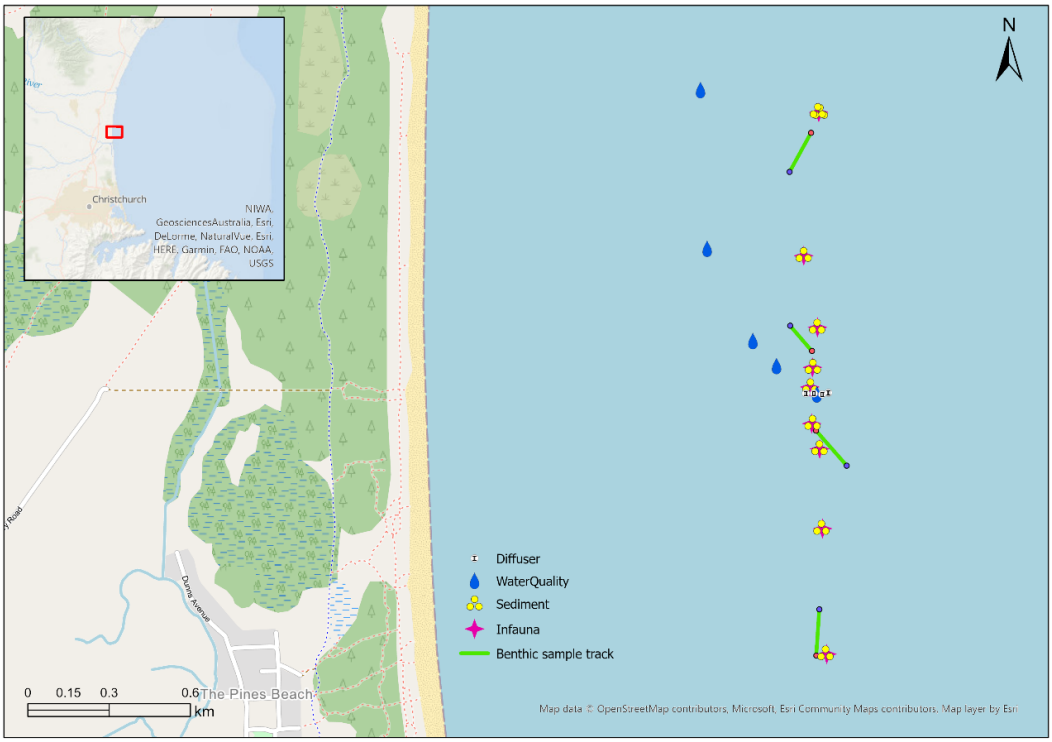

Figure 3-1: Map showing location of the outfall diffuser relative to the city of Christchurch and Pines Beach. Locations of sediment grabs for chemical analysis and infauna counts, water quality samples and benthic sampling tows are also included.

Table 3-1: Faecal coliform and enterococci levels at increasing distances from the Waimakariri District Council outfall diffuser. Methods and detection limits in Appendix A.

			Faecal Coliforms	Enterococci
Distance (m)	Sample	Date received	cfu/100 mL	cfu/100 mL
0	WQ 1 15-Mar-2022	16-Mar-2022	< 1[1]	1[1]
100	WQ 2 15-Mar-2022	16-Mar-2022	1[1]	< 1[1]
200	WQ 3 15-Mar-2022	16-Mar-2022	< [1]1	< 1[1]
500	WQ 4 15-Mar-2022	16-Mar-2022	< 1[1]	< 1[1]
1000	WQ 5 15-Mar-2022	16-Mar-2022	< 1[1]	< 1[1]

[1] Statistically estimated count based on the theoretical countable range for the stated method.

Table 3-2: Water quality data. Chemical analyses of water samples at increasing distances from the outfall diffuser. 'Distance' denotes distance from diffuser, along path of drift of the drogue. Detection limits and methods given in Appendix A

	Distance (m)	0-diffuser	100	200	500	1000
Sample		WQ 1 15-Mar-2022	WQ 2 15-Mar-2022	WQ 3 15-Mar-2022	WQ 4 15-Mar-2022	WQ 5 15-Mar-2022
Date received		16-Mar-2022	16-Mar-2022	16-Mar-2022	16-Mar-2022	16-Mar-2022
Total Suspended Solids	g/m^3	5	4	3	4	4
Total Nitrogen	g/m^3	0.27	0.24	0.21	0.23	0.24
Total Ammoniacal-N	g/m^3	0.049	< 0.005	< 0.005	< 0.005	< 0.005
Nitrite-N	g/m^3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Nitrate-N	g/m^3	0.02	0.0187	0.006	< 0.001	< 0.001
Nitrate-N + Nitrite-N	g/m^3	0.02	0.0187	0.006	< 0.001	< 0.001
Dissolved Reactive Phosphorus	g/m^3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Total Phosphorus	g/m^3	< 0.004	0.006	0.007	0.006	0.004
Total Phosphate	g/m^3	< 0.02	< 0.02	0.02	< 0.02	< 0.02

Table 3-3: Drogue positions, time, dissolved oxygen, temperature, and salinity values. Samples taken as drogue passed over increasing distances from the Waimakariri District Council outfall diffuser.

Distance (m)	Latitude (WGS84)	Longitude (WGS84)	Time	Scum	Foam	Other floatable materials	Dissolved oxygen (DO) (%)	Temp ºC	Salinity
0-diffuser	-43.3653	172.727801	11:20	nil	nil	nil	106.1	17.3	33
100	-43.3644	172.725972	12:13	nil	nil	nil	105.6	17.9	33
200	-43.3636	172.724898	13:07	nil	nil	nil	106.8	17.5	33
500	-43.3605	172.72283	14:26	nil	nil	nil	107.6	17	33
1000	-43.3552	172.722551	14:55	nil	nil	nil	107.7	17	33

Figure 3-2: Deploying the drifting drogue for water quality sample collection.

3.2 Sediment quality

3.2.1 Sediment composition 2022

Sediment composition varied little over 1 km north and south of the Waimakariri District Council outfall diffuser. Silt or mud (<0.063 mm) and coarse sand (>1 mm) was greatest at the southernmost station (S 1000). The northernmost station (N 1000) and the diffuser station consisted of equal percentages of fine to very fine sand (> 0.063 mm, 92 per cent) and the only station with greater than one per cent gravel was the station 100 m south (Figure 3-3).

No material of human origin was detected, and no significant levels of terrestrial material were recorded. Sediments were not odorous, and no obvious redox layers were noted in the sediment cores or overall grabs. Examples of the composition of the sediment cores are provided in Figure 3-4 to help visualise the separation of the size classes of sediments.

To test for data normality, quantile-quantile (QQ) plots were created as they draw correlations between data and the normal distribution between silt and year of sampling. All plots appeared to fall approximately along the reference line for the 2022 samples so we can assume data normality (Appendix C).

Analysis of variance (ANOVA) tests of the significance of mean percentages of silt with distance, direction from the diffuser and sampling year as orthogonal factors showed that there was a significant difference in mean percentages of silt between years as well as significant interactions between year, distance, and direction. However, although analyses show that there was a change through time it was not as a result of proximity to the diffuser (distance) (Table 3-4). Sediment composition data for all stations and replicates are provided in Appendix D.

Table 3-4: ANOVA tests of significance of mean percentage of silt where year, direction (north or south) and distance (from the outfall diffuser) are orthogonal factors. Significant results (at $P < 0.05$) are denoted in bold type.

Source	df	Mean sq.	F-Ratio	P-Value
Between subjects				
Direction	2	259.7	2.939	0.056489
Distance	3	46.6	0.528	0.664152
Direction x Distance	3	585.4	6.626	**0.000339**
Within subjects				
Year	7	326.7	3.698	**0.001127**
Year x Direction	10	743.5	8.416	**2.00E-10**
Year x Distance	21	350.6	3.968	**5.72E-07**
Year x Direction x Distance	21	502.2	5.684	**1.51E-10**

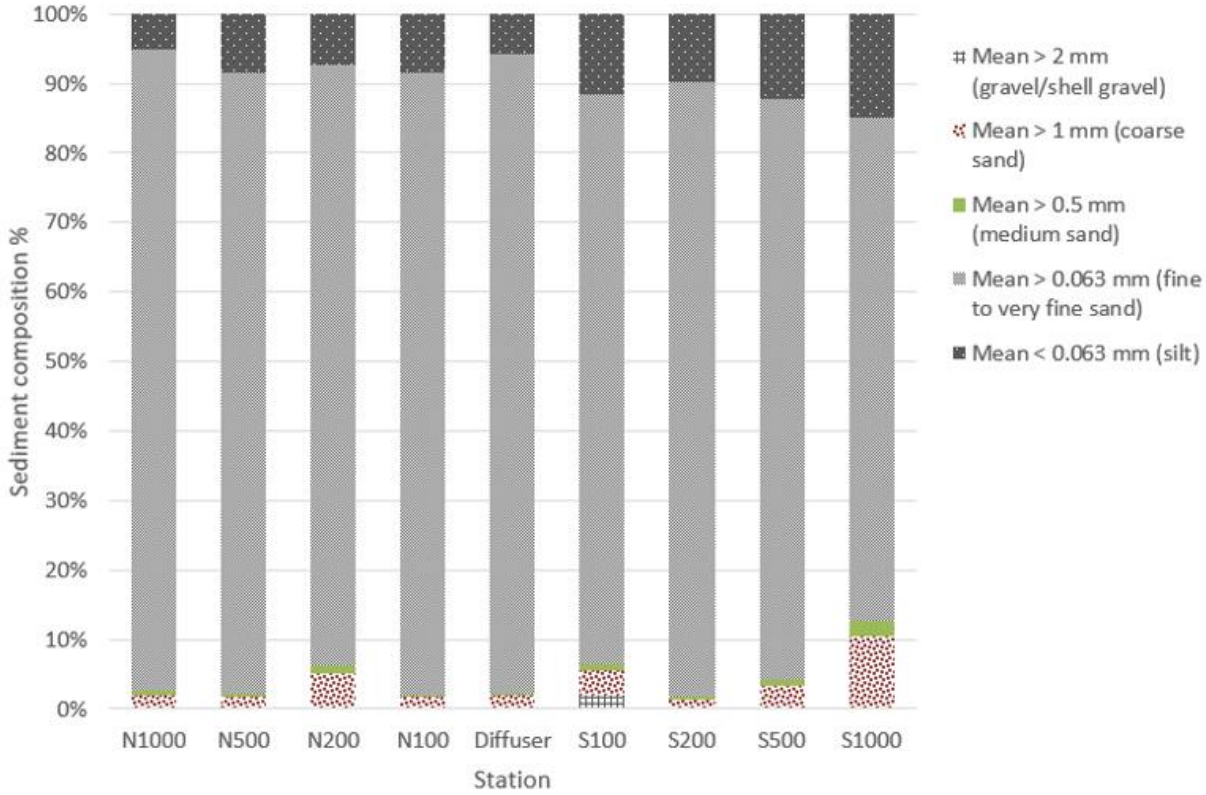

Figure 3-3: Average percentage sediment composition of samples taken at intervals north and south of the Waimakariri District Council outfall diffuser.

Figure 3-4: Photograph of examples of the five Wentworth sediment composition classification levels at three sampling stations.

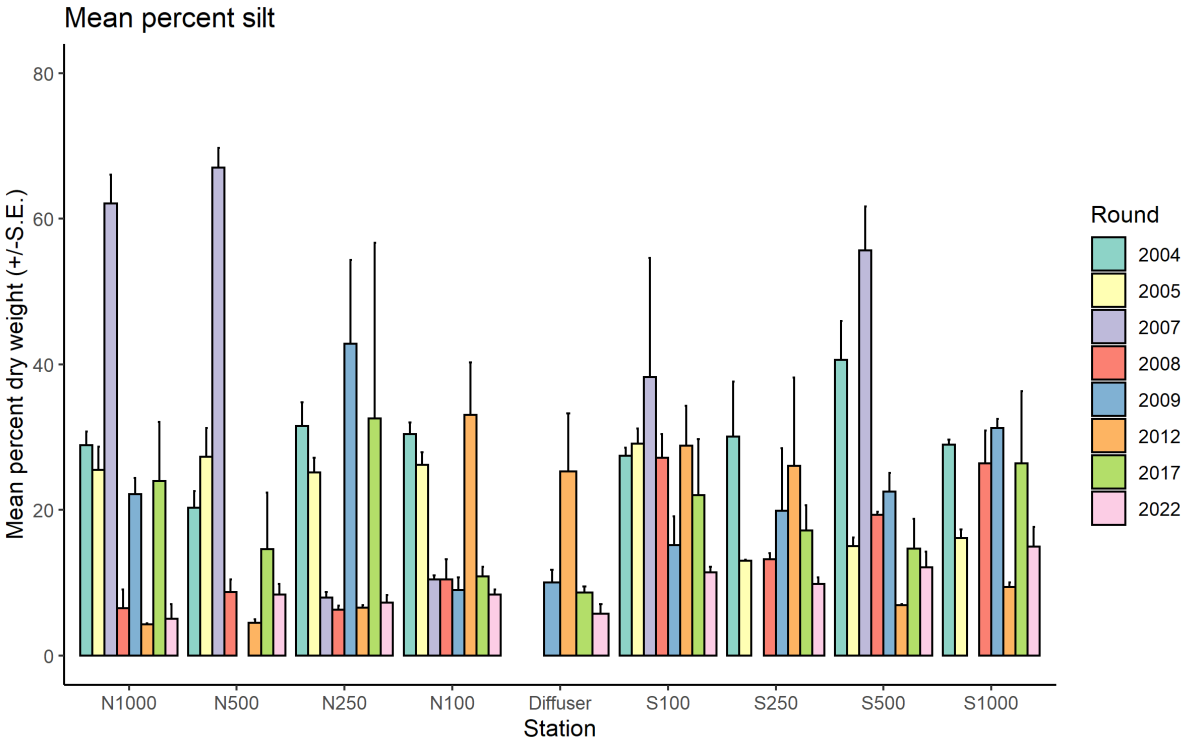

Figure 3-5: Mean percentage dry weight of silt/mud (<0.063 mm) (+/- SE).

3.2.2 Sediment chemistry

Although the collection methods used during baseline surveys in 2004 and 2005 (cores collected by divers, see Kingett-Mitchell (2004), Kingett-Mitchell (2005)) differed from that used from the first post construction survey in 2007 onwards (benthic grab sampling, see Willis et al. (2007)), the core dimensions and the laboratory analytical methods were identical in all years. Thus, samples should be comparable between years (Brown et al. 2008).

To maintain consistency with previous reports, summaries of mean values at each station for physicochemical characteristics are presented for all years (Figure 3-6 to Figure 3-11). Baseline values (Kingett-Mitchell 2004, Kingett-Mitchell 2005) are included for all distances along the transect except at zero metres (location of the outfall diffuser) as these were taken pre-construction.

The most notable differences in sediment physicochemical characteristics from previous years is the overall increase in levels at station S1000. Arsenic (Ar), cadmium (Cd), total organic carbon (TOC), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni), phosphorus (P), and zinc (Zn) were all recorded at higher levels than those recorded in 2017. However, all these increases are smaller than the values recorded for the same chemical compounds in 2007. All levels recorded are below the ISQG-low trigger values for marine water (Table 3-5) (ANZECC 2000, ANZECC 2022).

Table 3-5: Australian and New Zealand trigger levels for sediment contaminants Full trigger level values can be found on the updated website (ANZECC 2022).

Contaminant	ISQG-Low	ISQG-High
METALS (mg/kg dry wt)		
Cadmium	1.5	10
Chromium	80	370
Copper	65	270
Lead	50	220
Mercury	0.15	1
Zinc	200	400
METALLOIDS (mg/kg dry wt)		
Arsenic 20 70	20	70

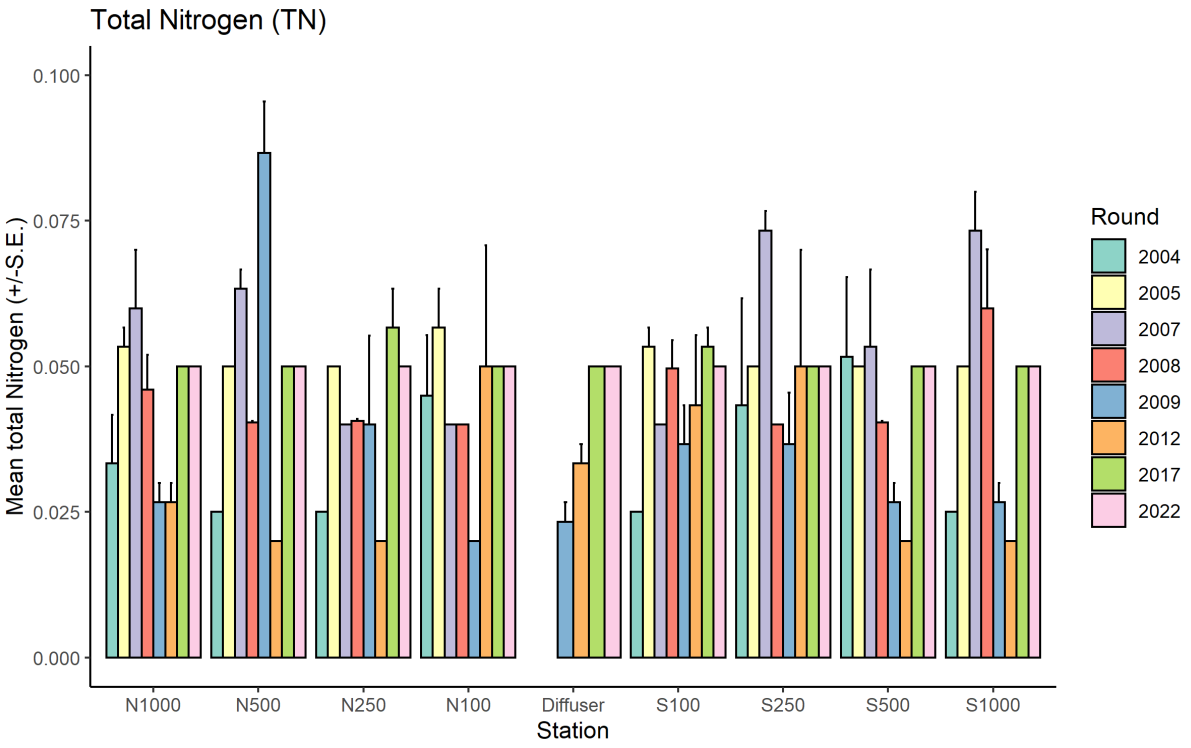

Figure 3-6: Mean total nitrogen (TN) at each station for each sampling year (Round) (+/- SE).

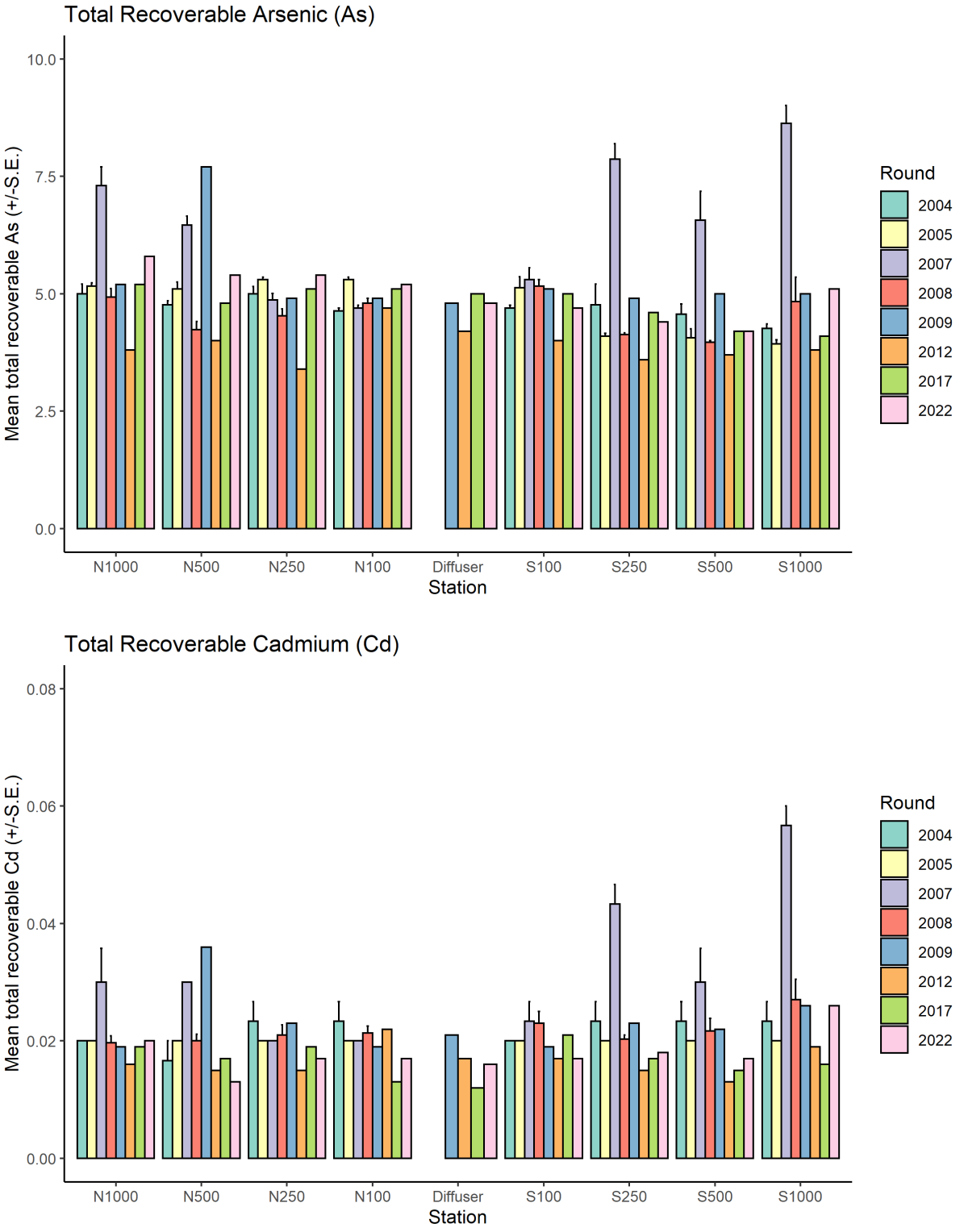

Figure 3-7: Mean total recoverable arsenic (As)(top) and mean total cadmium Cd (bottom) at each station for each sampling year (Round) (+/- SE).

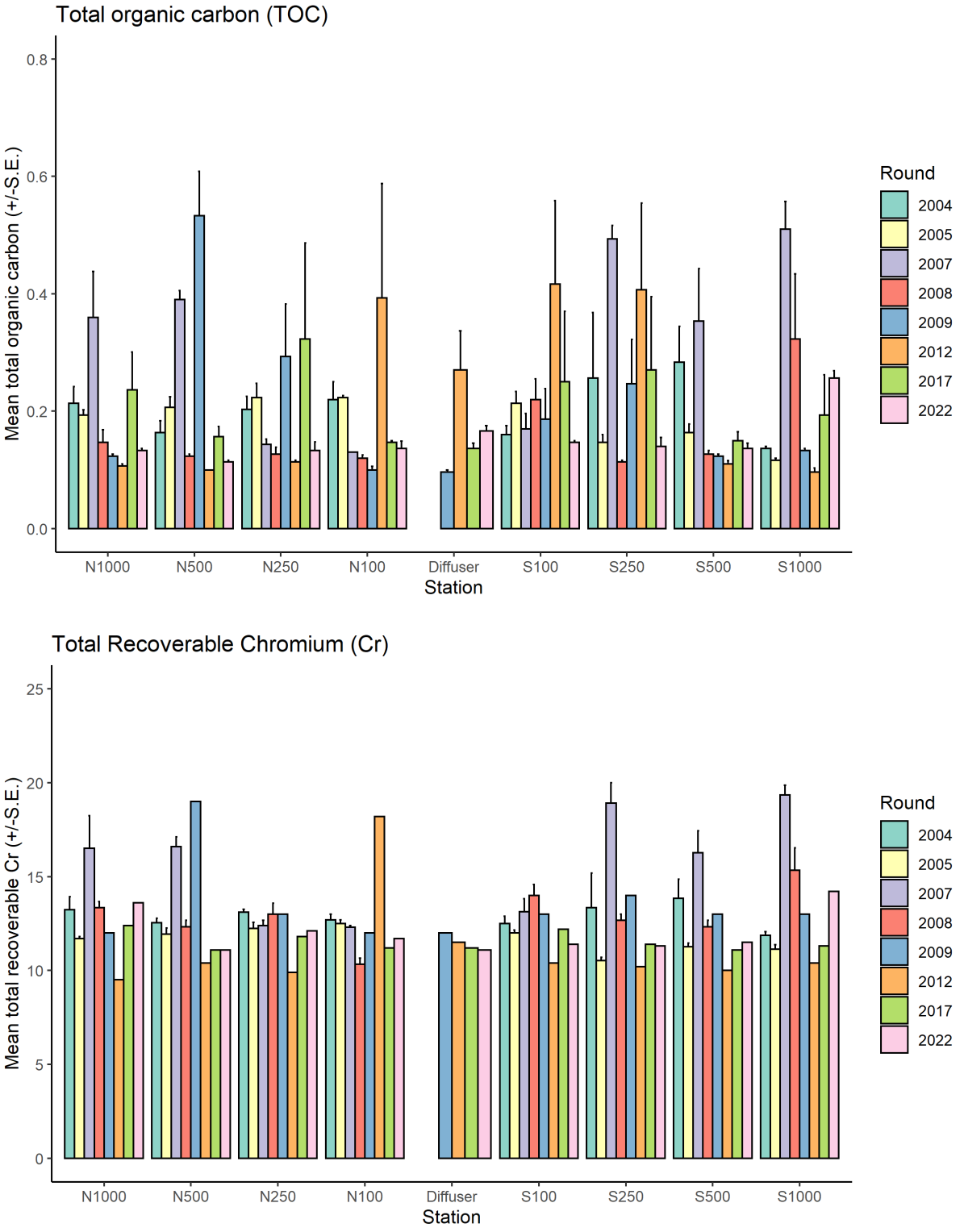

Figure 3-8: Mean total organic carbon (TOC) (top) and mean total chromium (Cr) (bottom) at each station for each sampling year (Round) (+/- SE).

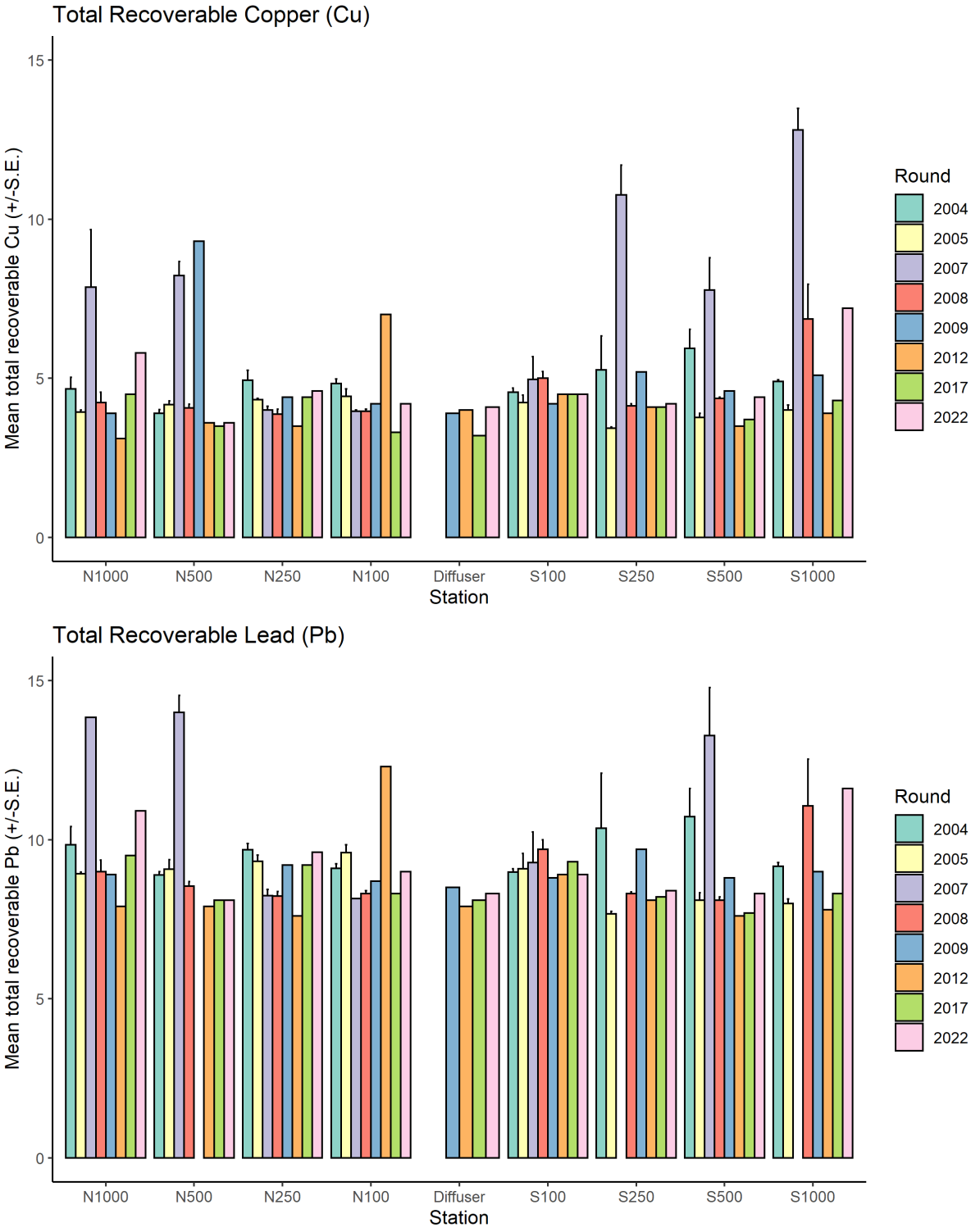

Figure 3-9: Mean total recoverable copper (Cu) (top) and mean total recoverable lead (Pb) (bottom) at each station for each sampling year (Round) (+/- SE).

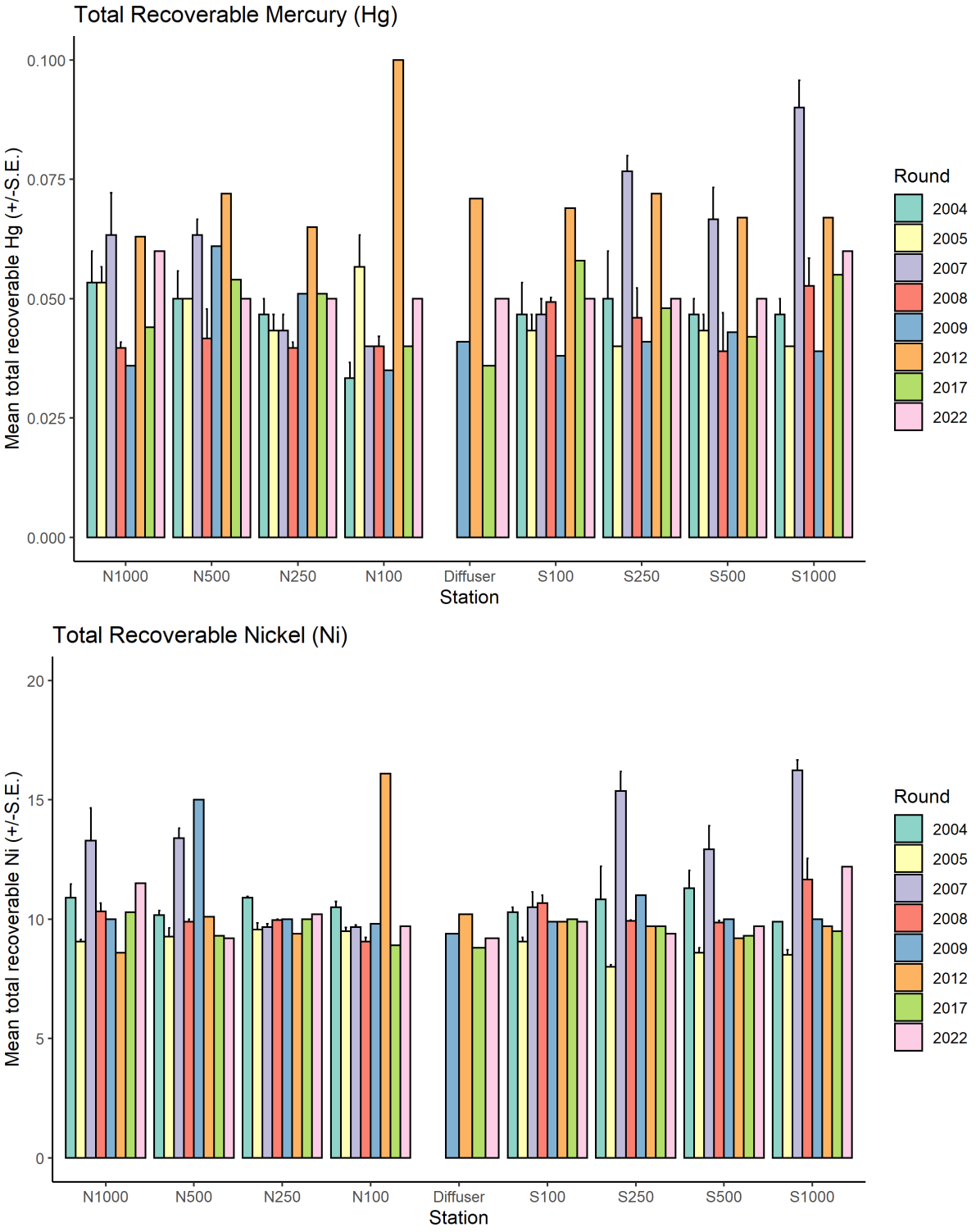

Figure 3-10: Mean total recoverable mercury (Hg) (top) and mean total recoverable nickel (Ni) (bottom) at each station for each sampling year (Round) (+/- SE).

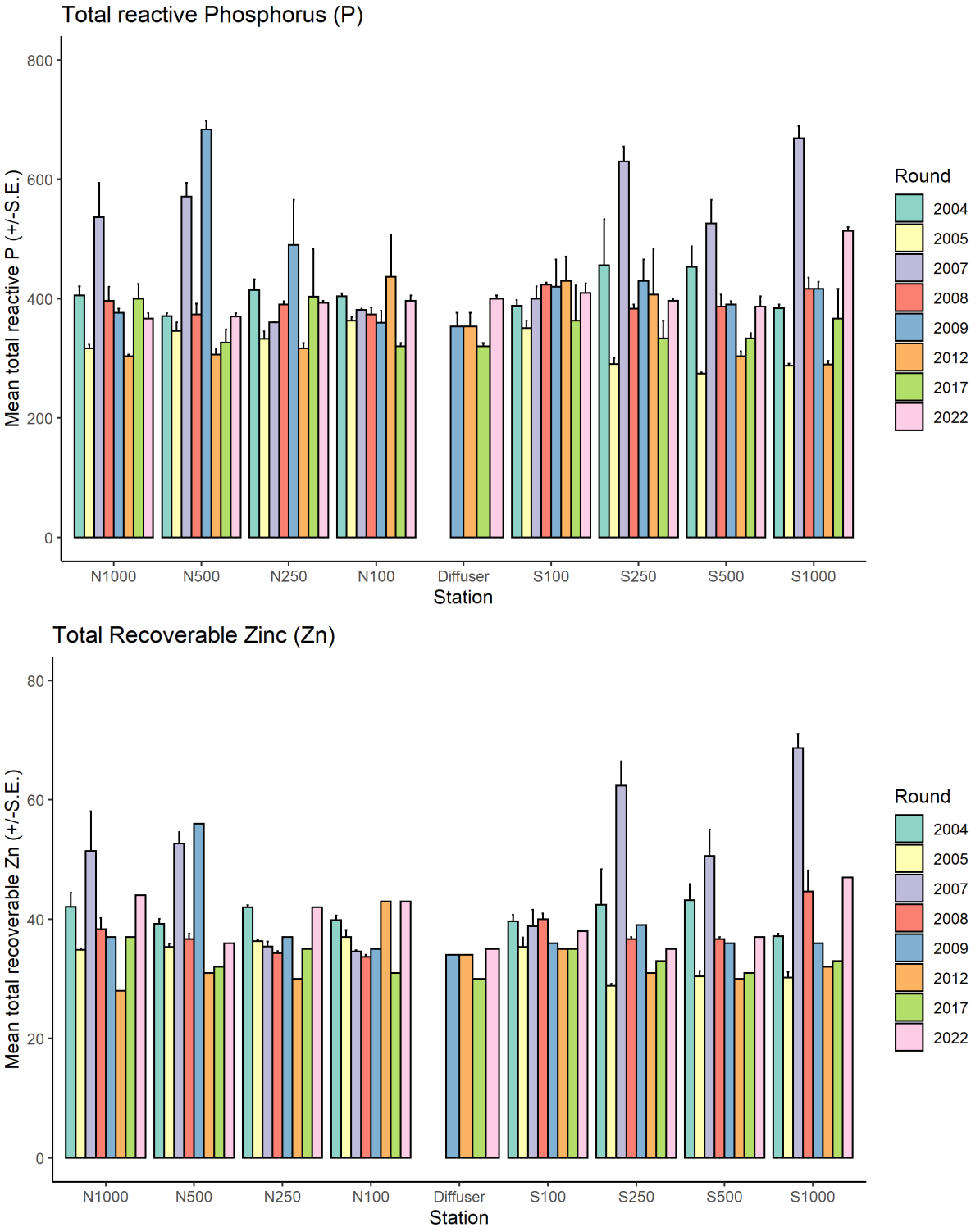

Figure 3-11: Mean total reactive phosphorus (P) (top) and mean total recoverable zinc (Zn) (bottom) at each station for each sampling year (Round) (+/- SE).

A principal coordinate ordination (PCO) analysis based on the sediment chemistry of samples taken from the 2007, 2008, 2009, 2012, 2017 and 2022 surveys was carried out to compare samples between years and distances from the diffuser (Figure 3-12). Data were first normalised, to equalise the scale of the contribution of each sediment variable to the analysis. The greatest amount of variation was along PCO axis 1 (PCO1); it accounted for 75.9 per cent of the variation and shows the values for the most recent 2022 survey clumped together with few outliers (shown in purple). The PCO was overlaid with a Pearson's correlation vector to show the direction of correlation with vector length providing an indication of the strength of the correlation. Most chemical components are clumped together, except for silt, phosphorus (P), mercury (Hg), total nitrogen (TN) and total organic carbon (TOC). In previous analyses (especially from 2012) mercury was shown to be an extreme outlier, however, results from this survey show mercury levels are no longer such a strong predictor of similarity (Handley et al. 2012). Silt and total nitrogen (TN) have also been strongly correlated in the past, however, with the addition of recent data, silt and phosphorus seem to have a greater correlation. These correlations, however, do not extend to significant differences between distances from the outfall diffuser. An analysis of similarities (ANOSIM) of the data collected in the most recent survey round (2022) show a low sample statistic (R) indicating that the diffuser is having little effect on the presence of chemicals within 1 km to the north and south of its location (One-way A, ANOSIM, R = 0.421, significance level = 0.2%).

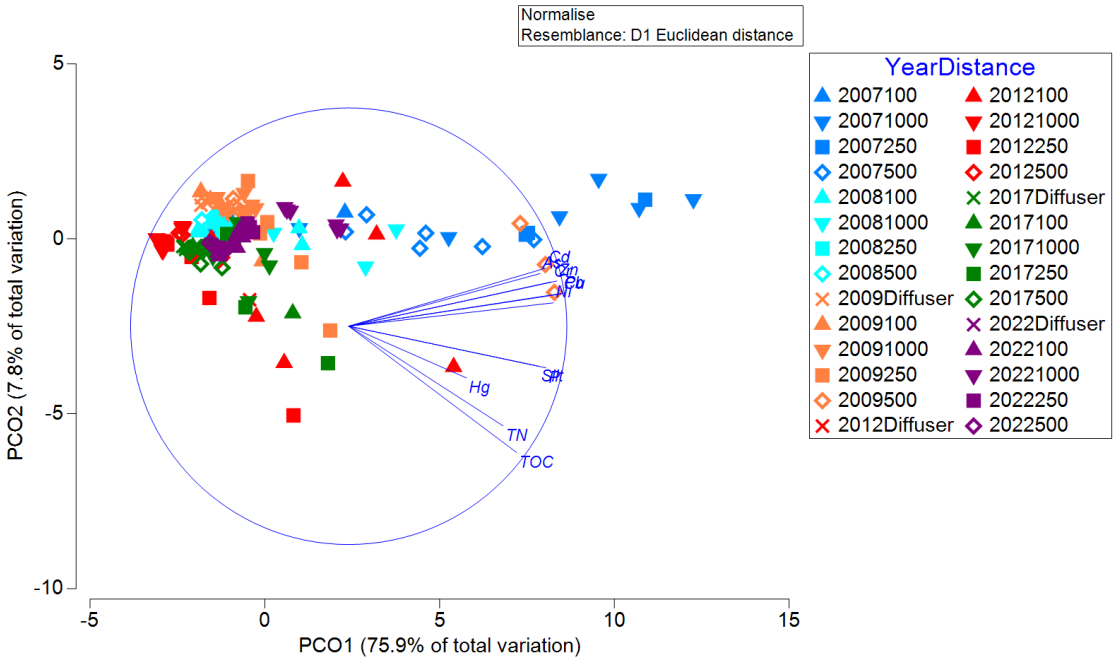

Figure 3-12: Two-dimensional depiction of a principal coordinate ordination (PCO) analysis of sediment physicochemical parameters within samples from the six surveys since, and including 2007. Pearson's correlation vectors are overlaid showing direction of correlation and vector length gives an indication of the strength of the correlation.

3.3 Infauna

There appeared to be no clear patterns in the number of taxa, or the number of individuals collected from infaunal grabs from the sampling undertaken in March 2022. A total of 71 taxa were sampled in infaunal grabs from all stations; these were comprised of mostly polychaetes and arthropods (18 taxa from each phylum). There were 12 species of bivalve, as well as a small number of echinoderms, nemerteans, and cnidarians (all raw data in Appendix E). The highest number of taxa were found at the station 250 m north of the diffuser, at the diffuser (0 m), and at the closest station south of the diffuser at 100 m (Figure 3-13). The lowest number of mean individual taxa were found at 1000 m south of the diffuser, with the highest variation in species found also at site 250 m north (this was due to one sample replicate having almost double the number of *Capitellidae* than other the others) (Figure 3-13).

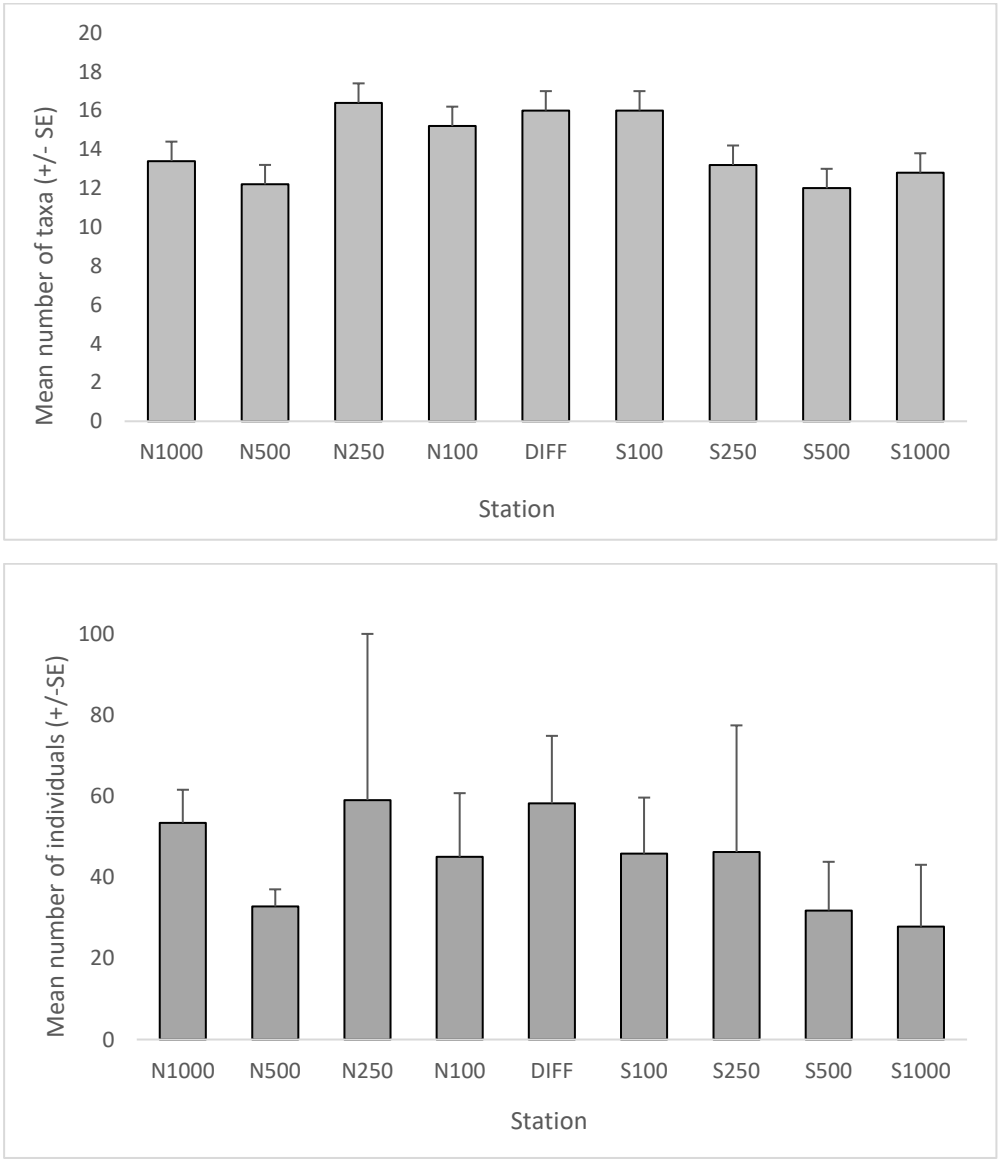

Figure 3-13: Number of infauna taxa (top), and individuals (bottom), found at different distances north and south of the outfall diffuser. (+/-) SE. Stations north (N) to south (S) (left to right) as found along the transect with the diffuser (DIFF) in the centre.

A non-metric multi-dimensional scaling (nMDS) plot was created using similar methods performed in the previous (2017) report (Brown 2017). A fourth root transformation was used to increase the importance of less common taxa, however, with a stress level of 0.2, the results are on the border of reliability for interpretation. Other transformation options also caused high stress levels and unreliability so the nMDS performed on a fourth root transformed Bray-Curtis similarity matrix was retained (Figure 3-14). A Pearson correlation vector plot was overlaid to show the species contributing to similarity between sites. One of the replicates from the diffuser (yellow triangle) is most dissimilar to the other replicates taken, likely due to a slightly increased number of nutshell bivalves *Nucula nitidula.* However, all other replicates show no obvious pattern of dissimilarity of species assemblages with distance from the diffuser.

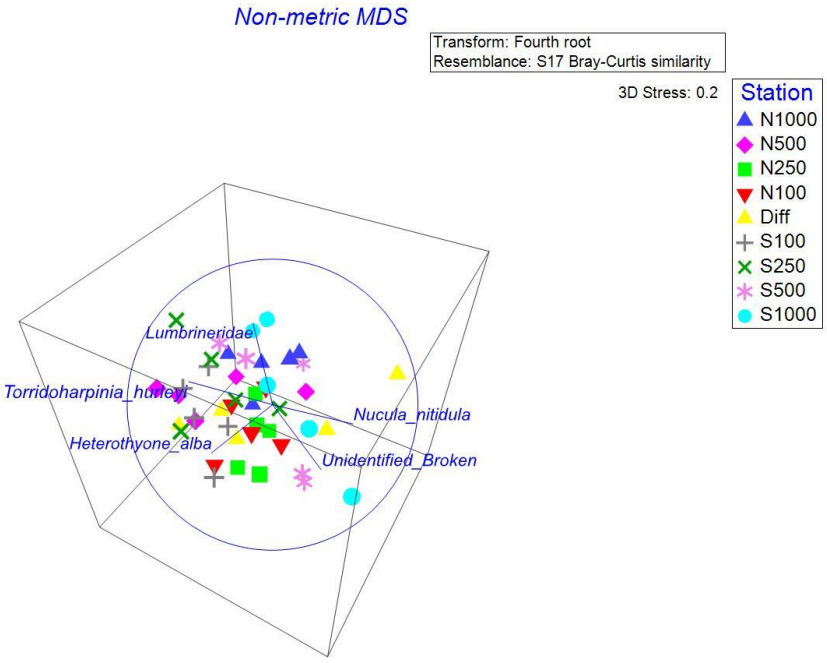

Figure 3-14: Non-metric multidimensional scaling (nMDS) plot depicting similarity among infaunal assemblages. Data from 2022 only, performed on untransformed Bray-Curtis similarity matrix, overlaid with Pearson correlation vectors exhibiting directional correlation values > 0.55.

To examine changes through time, a permutational multivariate analysis of variance (MANOVA) (PERMANOVA) on square root transformed data and Bray-Curtis similarity matrix with year (data from all post-construction surveys) and distance (at sampling stations from the diffuser) as factors, show that along each of the two directions there were significant changes to the infaunal assemblage between years, and also among stations (in terms of distance from the diffuser). However, the year x distance interaction was also significant which indicated that in either direction (north or south), the variation among sites at varying distances from the diffuser was not consistent among years (Table 3-6).

Table 3-6: Results of PERMANOVA analyses of differences to infaunal assemblages among years (2007, 2008, 2009, 2012, 2017 and 2022). Significant results are denoted in bold.

Source	df	SS	MS	Pseudo-F	P(perm)
Year	5	1.92E+05	38429	27.407	**0.001**
Distance	4	12913	3228.2	2.3023	**0.001**
year x distance	18	53574	2976.3	2.1227	**0.001**

3.4 Epifauna

Epifauna benthic tows are not stipulated as a consent requirement, however, to maintain consistency between years they were also performed during the sampling exercise (Brown 2017). Results were similar to previous years with the echinoderm *Fellaster zelandiae* (sand dollar), gastropod *Xymene plebeius* and spider crabs being recorded. However, after more material to examine, it is thought the previously reported spider crab *Halicarcinus whitei* is likely to be the species *Hymenosoma depressum* (Appendix F).

4 Discussion

Results of the survey of water quality, sediment quality and seabed fauna at the Waimakariri District Council outfall diffuser were similar to those reported in previous sampling exercises (Willis et al. 2007, Brown et al. 2008, Cole et al. 2009, Handley et al. 2012, Brown 2017). The survey found no significant effects from the outfall based on sampling and analysis of physical, chemical, and bacteriological parameters of surface waters, sediment physicochemical properties and seabed faunal assemblages.

Bacteria levels (enterococci and faecal coliforms) sampled in the surface waters, and trace metal contaminant concentrations in sediments were below recognised trigger levels that if exceeded, prompt further action according to recently updated as well as previously recognised guidelines. However, it should be noted that marine trigger levels for arsenic (As) are not provided in the guidelines due to insufficient data (ANZECC 2000, ANZECC 2022). Comparison of temporal differences in sediment physicochemical results from all post-construction survey years provided no evidence of significant effects from the outfall.

No significant patterns of change attributable to the outfall discharge were evident from our analyses of the spatial and temporal distribution of animals living at the seabed. Significant differences in the similarities of infauna at varying distances from the outfall diffuser, and among successive surveys, were found; however there was no distinct pattern in relation to the distance of sample stations away from the diffuser. Consequently, effects to the seabed faunal community caused by the outfall (that are detectable by the sampling methods employed) are likely to be minor, and not distinguishable from natural marine processes in the area.

5 References

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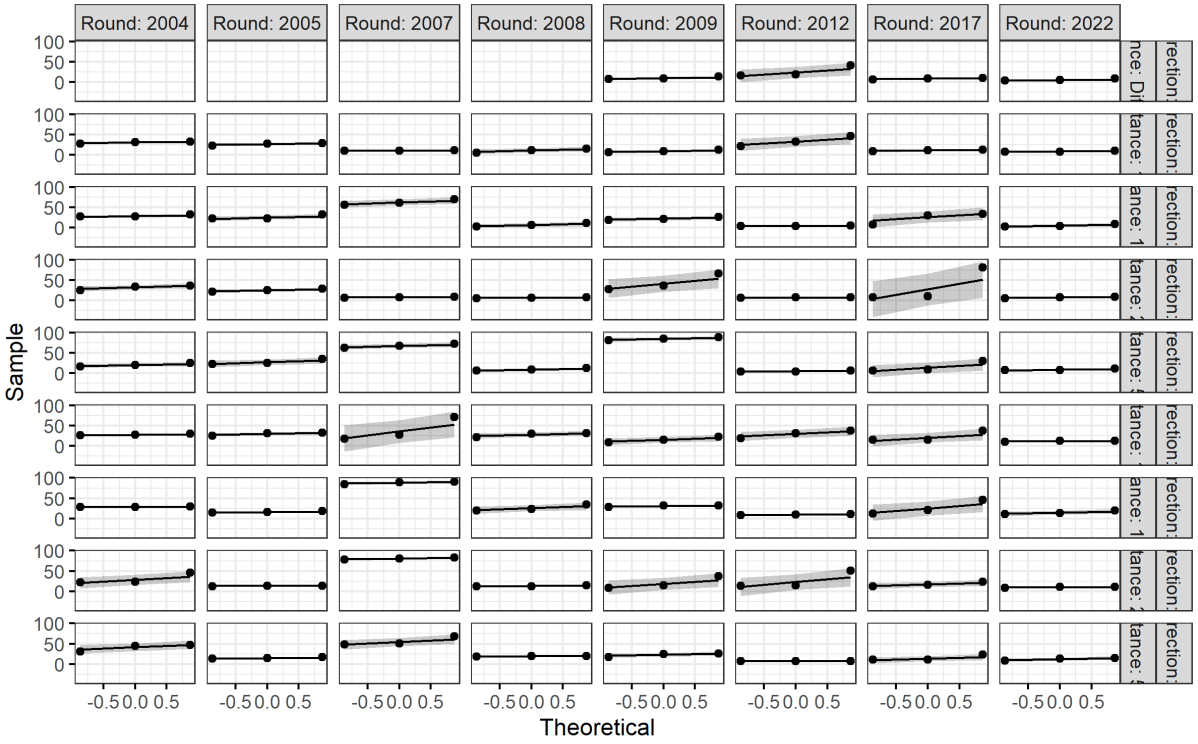
Appendix A Water quality methods and detection limits provided by Hill Laboratories

Sample Type: Saline		
Test	**Method Description**	**Default Detection Limit**
Individual Tests		
Total Nitrogen Digestion	Caustic persulphate digestion. APHA 4500-N C 23rd ed. 2017.	-
Filtration, Unpreserved*	Sample filtration through 0.45µm membrane filter. Performed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch.	-
Total Phosphorus Digestion*	Acid persulphate digestion.	-
Total Suspended Solids*	Saline sample. Filtration using Whatman 934 AH, Advantec GC-50 or equivalent filters (nominal pore size 1.2 - 1.5µm), gravimetric determination. Analysed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch. APHA 2540 D (modified) 23rd ed. 2017.	3 g/m^3
Total Nitrogen	Alkaline persulphate digestion, automated Cd reduction/sulphanilamide colorimetry. APHA 4500-N C & 4500-$NO3^-$ I (modified) 23rd ed. 2017.	0.010 g/m^3
Total Ammoniacal-N	Filtered saline sample from Christchurch. Phenol/hypochlorite colorimetry. Flow injection analyser. (NH4-N = NH4+-N + NH3-N). APHA 4500-NH_3 H 23rd ed. 2017.	0.005 g/m^3
Nitrite-N	Filtered saline sample from Christchurch. Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO_3^- I (modified) 23rd ed. 2017.	0.0010 g/m^3
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - NO2N. In-House	0.0010 g/m^3
Nitrate-N + Nitrite-N*	Filtered saline sample from Christchurch. Total oxidised nitrogen. Automated cadmium reduction, Flow injection analyser.	0.0010 g/m^3
Dissolved Reactive Phosphorus	Filtered saline sample from Christchurch. Molybdenum blue colorimetry. Flow injection analyser. APHA 4500-P G 23rd ed. 2017.	0.0010 g/m^3
Total Phosphorus*	Total phosphorus digestion, ascorbic acid colorimetry. Flow Injection Analyser. APHA 4500-P H 23rd ed. 2017.	0.004 g/m^3
Total Phosphate*	Calculation: from Total Phosphorus (TP) * Molecular weight of Phosphate ion (PO_4^{3-}) / Atomic weight of Phosphorus (P). In-house calculation.	0.02 g/m^3
Faecal Coliforms	Membrane Filtration, Count on mFC agar, Incubated at 44.5°C for 22 hours, Confirmation Analysed at Hill Laboratories - Microbiology; 101c Waterloo Road, Hornby, Christchurch. APHA 9222 D 23rd ed. 2017.	1 cfu / 100mL
Enterococci	Membrane filtration, Count on mE agar, Incubated at 41°C for 48 hours, Confirmation. Analysed at Hill Laboratories - Microbiology; 101c Waterloo Road, Hornby, Christchurch. APHA 9230 C (modified) 23rd ed. 2017.	1 cfu / 100mL

Appendix B Sediment sampling chemical analyses, methods used, and detection limits provided by Hill Laboratories

Sample Type: Sediment		
Test	**Method Description**	**Default Detection Limit**
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation May contain a residual moisture content of 2-5%.	-
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2	-
Total Recoverable Phosphorus	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2	40 mg/kg dry wt
Total Nitrogen*	Catalytic Combustion (900°C, O2), separation, Thermal Conductivity Detector [Elementar Analyser].	0.05 g/100g dry wt
Total Organic Carbon*	Acid pretreatment to remove carbonates present followed by Catalytic Combustion (900°C, O2), separation, Thermal Conductivity Detector [Elementar Analyser].	0.05 g/100g dry wt
Heavy metals, trace As,Cd,Cr,Cu,Ni,Pb,Zn,Hg		
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, trace level. US EPA 200.2	0.2 mg/kg dry wt
Total Recoverable Cadmium	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, trace level. US EPA 200.2	0.010 mg/kg dry wt
Total Recoverable Chromium	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, trace level. US EPA 200.2	0.2 mg/kg dry wt
Total Recoverable Copper	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, trace level. US EPA 200.2	0.2 mg/kg dry wt
Total Recoverable Lead	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, trace level. US EPA 200.2	0.08 mg/kg dry wt
Total Recoverable Mercury	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, trace level. US EPA 200.2	0.02 mg/kg dry wt
Total Recoverable Nickel	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, trace level. US EPA 200.2	0.2 mg/kg dry wt
Total Recoverable Zinc	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, trace level. US EPA 200.2	0.8 mg/kg dry wt

Appendix C Silt QQ plot testing for data normality



Appendix D Sediment composition percentages

Direction	Distance	Rep	Date	> 2 mm (gravel/shell gravel)	> 1 mm (coarse sand)	> 0.5 mm (medium sand)	> 0.063 mm (fine to very fine sand)	< 0.063 mm (silt)
N	1000	1	15/03/22	7.3105E-05	0.004386	0.002486	0.954455735	0.038599
N	1000	2	15/03/22	0	0.04739	0.013334	0.849632866	0.089644
N	1000	3	15/03/22	0	0.00841	0.004099	0.964078942	0.023412
N	500	1	15/03/22	0.00775375	0.010837	0.00724	0.86174039	0.112429
N	500	2	15/03/22	0.00011423	0.020828	0.002627	0.908540532	0.06789
N	500	3	15/03/22	7.4683E-05	0.015459	0.004444	0.907916355	0.072106
N	250	1	15/03/22	0.00503805	0.096259	0.015972	0.803944689	0.078787
N	250	2	15/03/22	0.00038621	0.032007	0.008014	0.872598243	0.086994
N	250	3	15/03/22	0.00128101	0.021835	0.009083	0.91551182	0.052288
N	100	1	15/03/22	0.00044606	0.023892	0.002481	0.894117647	0.079063
N	100	2	15/03/22	0.00028082	0.015258	0.002106	0.885519049	0.096836
N	100	3	15/03/22	0.00069533	0.012077	0.001866	0.908618481	0.076743
Diffuser	0	1	15/03/22	0.00145828	0.036742	0.001363	0.876236368	0.0842
Diffuser	0	2	15/03/22	0.00028902	0.018364	0.004535	0.934636164	0.042175
Diffuser	0	3	15/03/22	5.1098E-05	0.003126	0.001713	0.949091816	0.046018
S	100	1	15/03/22	0.00140386	0.096549	0.007563	0.774431664	0.120053
S	100	2	15/03/22	0.05746805	0.004291	0.006624	0.831700718	0.099916
S	100	3	15/03/22	0.00056483	0.008661	0.009414	0.85816493	0.123196
S	250	1	15/03/22	0.00252447	0.011386	0.006234	0.871458011	0.108398
S	250	2	15/03/22	0.00310468	0.012784	0.001388	0.902622544	0.080101
S	250	3	15/03/22	0.00368221	0.004686	0.00848	0.876478465	0.106673
S	500	1	16/03/22	0.00411106	0.024793	0.004649	0.887483398	0.078964
S	500	2	16/03/22	0.00157818	0.017676	0.005839	0.823117227	0.15179
S	500	3	16/03/22	0.00068184	0.04807	0.016194	0.802778488	0.132276
S	1000	1	16/03/22	0.00054348	0.211831	0.044649	0.608988294	0.133988
S	1000	2	16/03/22	0.00176568	0.024288	0.008397	0.763321039	0.202229
S	1000	3	16/03/22	0.0017843	0.072676	0.011701	0.801358817	0.11248

Appendix E Infauna counts and identifications

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022N10001	2	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N10001	1	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022N10001	25	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N10001	1	414226	*Fellaster zelandiae*	Echinodermata	Echinoidea	Clypeasteroida	Arachnoididae	Fellaster	zelandiae
2022N10001	4	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N10001	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022N10001	1	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022N10001	1	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N10001	1	965	Onuphidae	Annelida	Polychaeta	Eunicida	Onuphidae		
2022N10001	1		Ostracod A						
2022N10001	3	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N10001	5	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N10002	7	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N10002	1	101368	Aoridae	Arthropoda	Malacostraca	Amphipoda	Aoridae		
2022N10002	3	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022N10002	2	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022N10002	1	137700	*Buccinulum* sp.	Mollusca	Gastropoda	Neogastropoda	Buccinidae	Buccinulum	
2022N10002	24	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N10002	1	976	Flabelligeridae	Annelida	Polychaeta	Terebellida	Flabelligeridae		
2022N10002	6	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N10002	1	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022N10002	2	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N10002	4	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N10002	1	975	Oweniidae	Annelida	Polychaeta	Sabellida	Oweniidae		

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022N10002	2	505757	*Scalpomactra scalpellum*	Mollusca	Bivalvia	Veneroida	Mactridae	Scalpomactra	scalpellum
2022N10002	3	182871	*Scleroconcha* sp.	Arthropoda	Ostracoda	Myodocopida	Philomedidae	Scleroconcha	
2022N10002	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N10002	3	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N10002	1	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N10003	3	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022N10003	2	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N10003	1	101368	Aoridae	Arthropoda	Malacostraca	Amphipoda	Aoridae		
2022N10003	5	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022N10003	6	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022N10003	12	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N10003	1	451102	*Diasterope grisea*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Diasterope	grisea
2022N10003	5	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N10003	1	946	Hesionidae	Annelida	Polychaeta	Phyllodocida	Hesionidae		
2022N10003	1	468190	*Limnoporeia* sp.	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Limnoporeia	
2022N10003	2	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022N10003	2	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022N10003	1	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022N10003	6	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N10003	1		Ostracod A						
2022N10003	3	182871	*Scleroconcha* sp.	Arthropoda	Ostracoda	Myodocopida	Philomedidae	Scleroconcha	
2022N10003	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N10003	6	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N10003	2	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022N10004	2	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N10004	28	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N10004	1	976	Flabelligeridae	Annelida	Polychaeta	Terebellida	Flabelligeridae		
2022N10004	2	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N10004	2	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022N10004	2	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022N10004	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N10004	9	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N10004	3	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N10004	1		Unidentified Platyhelminthes						
2022N10005	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N10005	30	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N10005	2	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N10005	1	946	Hesionidae	Annelida	Polychaeta	Phyllodocida	Hesionidae		
2022N10005	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022N10005	1	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N10005	7	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N10005	2	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N10005	1		Unidentified Platyhelminthes						
2022N1001	1	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022N1001	2	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N1001	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N1001	23	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N1001	1	919	Cirratulidae	Annelida	Polychaeta	Terebellida	Cirratulidae		

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022N1001	1	919	*Divalucina cumingi*	Mollusca	Bivalvia	Veneroida	Lucinidae	Divalucina	cumingi
2022N1001	1	283535	*Edwardsia neozelanica*	Cnidaria	Anthozoa	Actiniaria	Edwardsiidae	Edwardsia	neozelanica
2022N1001	1	976	Flabelligeridae	Annelida	Polychaeta	Terebellida	Flabelligeridae		
2022N1001	6	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N1001	6	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N1001	1	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N1001	1	451063	*Leuroleberis zealandica*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Leuroleberis	zealandica
2022N1001	1	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022N1001	2	152391	Nemertea	Nemertea					
2022N1001	2	152391	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N1001	3	506638	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022N1001	1	414281	*Rynkatorpa uncinata*	Echinodermata	Holothuroidea	Apodida	Synaptidae	Rynkatorpa	uncinata
2022N1001	1	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N1001	2	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N1002	1	129194	*Aphrodita* sp.	Annelida	Polychaeta	Phyllodocida	Aphroditidae	Aphrodita	
2022N1002	1	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022N1002	4	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N1002	1	919	Cirratulidae	Annelida	Polychaeta	Terebellida	Cirratulidae		
2022N1002	4	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N1002	1	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022N1002	4	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N1002	1	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022N1002	2	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022N1002	4	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N1002	1	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022N1002	2	414281	*Rynkatorpa uncinata*	Echinodermata	Holothuroidea	Apodida	Synaptidae	Rynkatorpa	uncinata
2022N1002	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N1002	2	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N1003	2	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022N1003	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N1003	1	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022N1003	35	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N1003	5	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N1003	1	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022N1003	1	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N1003	1	101610	*Hippomedon* sp.	Arthropoda	Malacostraca	Amphipoda	Tryphosidae	Hippomedon	
2022N1003	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022N1003	1	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022N1003	2	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N1003	2	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022N1003	2	414281	*Rynkatorpa uncinata*	Echinodermata	Holothuroidea	Apodida	Synaptidae	Rynkatorpa	uncinata
2022N1003	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N1003	3	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N1003	3	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N1003	1		Unidentified Bivalve 1						
2022N1003	1	101412	Urothoidae	Arthropoda	Malacostraca	Amphipoda	Urothoidae		
2022N1004	3	137700	*Buccinulum* sp.	Mollusca	Gastropoda	Neogastropoda	Buccinidae	Buccinulum	
2022N1004	3	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N1004	6	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N1004	11	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022N1004	1	451063	*Leuroleberis zealandica*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Leuroleberis	zealandica
2022N1004	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022N1004	1	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022N1004	3	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022N1004	9	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N1004	3	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022N1004	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N1004	2	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N1004	1	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N1005	1	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022N1005	1	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022N1005	3	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N1005	5	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N1005	1	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022N1005	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022N1005	2	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022N1005	3	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N1005	7	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022N1005	3	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N1005	1	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N1005	2	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N2001	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N2001	2	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022N2001	24	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N2001	2	451102	*Diasterope grisea*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Diasterope	grisea

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022N2001	6	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N2001	1	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022N2001	3	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N2001	1	451063	*Leuroleberis zealandica*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Leuroleberis	zealandica
2022N2001	1	147031	*Nebalia* sp.	Arthropoda	Malacostraca	Nebaliacea	Nebaliidae	Nebalia	
2022N2001	1	152391	Nemertea	Nemertea					
2022N2001	1	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N2001	1	515386	*Ogyrides delli*	Arthropoda	Malacostraca	Decapoda	Ogyrididae	Ogyrides	delli
2022N2001	5	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022N2001	1	432533	*Phenatoma* sp.	Mollusca	Gastropoda	Neogastropoda	Borsoniidae	Phenatoma	
2022N2001	2	414281	*Rynkatorpa uncinata*	Echinodermata	Holothuroidea	Apodida	Synaptidae	Rynkatorpa	uncinata
2022N2001	4	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N2001	2	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N2001	1		Unidentified Platyhelminthes						
2022N2002	2	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N2002	1	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022N2002	8	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N2002	3	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N2002	3	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N2002	1	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022N2002	1	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022N2002	1	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N2002	1	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022N2002	1	931	Phyllodocidae	Annelida	Polychaeta	Phyllodocida	Phyllodocidae		

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022N2002	2	174737	Pseudidotheidae	Arthropoda	Malacostraca	Isopoda	Pseudidotheidae		
2022N2002	3	414281	*Rynkatorpa uncinata*	Echinodermata	Holothuroidea	Apodida	Synaptidae	Rynkatorpa	uncinata
2022N2002	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N2002	3	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N2002	2	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N2003	1	919	Cirratulidae	Annelida	Polychaeta	Terebellida	Cirratulidae		
2022N2003	3	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N2003	1	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N2003	2	101610	*Hippomedon* sp.	Arthropoda	Malacostraca	Amphipoda	Tryphosidae	Hippomedon	
2022N2003	6	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022N2003	5	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N2003	1	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022N2003	1	414281	*Rynkatorpa uncinata*	Echinodermata	Holothuroidea	Apodida	Synaptidae	Rynkatorpa	uncinata
2022N2003	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N2003	3	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N2003	4	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N2004	2	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N2004	85	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N2004	1		Decapoda crab juv						
2022N2004	1	507573	*Dosinia anus*	Mollusca	Bivalvia	Veneroida	Veneridae	Dosinia	anus
2022N2004	3	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N2004	4	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022N2004	1	946	Hesionidae	Annelida	Polychaeta	Phyllodocida	Hesionidae		
2022N2004	3	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N2004	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022N2004	2	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022N2004	7	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N2004	1	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022N2004	1	931	Phyllodocidae	Annelida	Polychaeta	Phyllodocida	Phyllodocidae		
2022N2004	1	174737	Pseudidotheidae	Arthropoda	Malacostraca	Isopoda	Pseudidotheidae		
2022N2004	2	414281	*Rynkatorpa uncinata*	Echinodermata	Holothuroidea	Apodida	Synaptidae	Rynkatorpa	uncinata
2022N2004	1	182871	*Scleroconcha* sp.	Arthropoda	Ostracoda	Myodocopida	Philomedidae	Scleroconcha	
2022N2004	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N2004	4	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N2004	1	948	Syllidae	Annelida	Polychaeta	Phyllodocida	Syllidae		
2022N2004	1	1133	Tanaidacea	Arthropoda	Malacostraca	Tanaidacea			
2022N2004	3	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N2004	1		Unidentified Bivalve 1						
2022N2004	2	101412	Urothoidae	Arthropoda	Malacostraca	Amphipoda	Urothoidae		
2022N2005	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N2005	1	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022N2005	16	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N2005	2	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N2005	1	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022N2005	7	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N2005	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022N2005	2	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022N2005	1	914	Magelonidae	Annelida	Polychaeta	Spionida	Magelonidae		
2022N2005	2	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022N2005	3	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022N2005	2	174737	Pseudidotheidae	Arthropoda	Malacostraca	Isopoda	Pseudidotheidae		
2022N2005	2	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N2005	4	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N2005	1	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N5001	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N5001	17	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N5001	1	919	Cirratulidae	Annelida	Polychaeta	Terebellida	Cirratulidae		
2022N5001	5	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N5001	2	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N5001	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022N5001	1	914	Magelonidae	Annelida	Polychaeta	Spionida	Magelonidae		
2022N5001	1	147031	*Nebalia* sp.	Arthropoda	Malacostraca	Nebaliacea	Nebaliidae	Nebalia	
2022N5001	1	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022N5001	1	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N5001	1	948	Syllidae	Annelida	Polychaeta	Phyllodocida	Syllidae		
2022N5001	1	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N5001	1	101412	Urothoidae	Arthropoda	Malacostraca	Amphipoda	Urothoidae		
2022N5002	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N5002	12	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N5002	1	507573	*Dosinia anus*	Mollusca	Bivalvia	Veneroida	Veneridae	Dosinia	anus
2022N5002	1	976	Flabelligeridae	Annelida	Polychaeta	Terebellida	Flabelligeridae		
2022N5002	2	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N5002	4	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022N5002	2	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N5002	1	101610	*Hippomedon* sp.	Arthropoda	Malacostraca	Amphipoda	Tryphosidae	Hippomedon	

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022N5002	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022N5002	3	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022N5002	2	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N5002	1		Unidentified Bivalve 3						
2022N5002	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N5002	5	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N5002	2	399420	*Xymene plebeius*	Mollusca	Gastropoda	Neogastropoda	Muricidae	Xymene	plebeius
2022N5003	1	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022N5003	1	878318	*Bartschicoma edgari*	Mollusca	Bivalvia	Cardiida	Bartschioma	edgari	
2022N5003	1	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N5003	1	976	Flabelligeridae	Annelida	Polychaeta	Terebellida	Flabelligeridae		
2022N5003	2	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N5003	2	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022N5003	1	101610	*Hippomedon* sp.	Arthropoda	Malacostraca	Amphipoda	Tryphosidae	Hippomedon	
2022N5003	1	118454	*Idotea* sp.	Arthropoda	Malacostraca	Isopoda	Idoteidae	Idotea	
2022N5003	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022N5003	3	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022N5003	3	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022N5003	2	414281	*Rynkatorpa uncinata*	Echinodermata	Holothuroidea	Apodida	Synaptidae	Rynkatorpa	uncinata
2022N5003	3	182871	*Scleroconcha* sp.	Arthropoda	Ostracoda	Myodocopida	Philomedidae	Scleroconcha	
2022N5003	4	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N5003	4	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N5003	3	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N5004	2	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022N5004	14	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022N5004	3	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N5004	4	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N5004	1	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022N5004	1	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022N5004	2	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022N5004	3	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N5005	9	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022N5005	5	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022N5005	3	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022N5005	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022N5005	2	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022N5005	1	182871	*Scleroconcha* sp.	Arthropoda	Ostracoda	Myodocopida	Philomedidae	Scleroconcha	
2022N5005	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022N5005	4	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022N5005	2	101412	Urothoidae	Arthropoda	Malacostraca	Amphipoda	Urothoidae		
2022NDIFF1	2	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022NDIFF1	1	137700	*Buccinulum* sp.	Mollusca	Gastropoda	Neogastropoda	Buccinidae	Buccinulum	
2022NDIFF1	30	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022NDIFF1	3	451102	*Diasterope grisea*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Diasterope	grisea
2022NDIFF1	1	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022NDIFF1	2	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022NDIFF1	3	451063	*Leuroleberis zealandica*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Leuroleberis	zealandica
2022NDIFF1	1	468190	*Limnoporeia* sp.	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Limnoporeia	
2022NDIFF1	18	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022NDIFF1	2	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022NDIFF1	9	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022NDIFF1	3	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022NDIFF1	2	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022NDIFF1	2	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022NDIFF1	1	1133	Tanaidacea	Arthropoda	Malacostraca	Tanaidacea			
2022NDIFF2	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022NDIFF2	21	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022NDIFF2	1	118273	Cirolanidae	Arthropoda	Malacostraca	Isopoda	Cirolanidae		
2022NDIFF2	1	976	Flabelligeridae	Annelida	Polychaeta	Terebellida	Flabelligeridae		
2022NDIFF2	4	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022NDIFF2	5	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022NDIFF2	1	101610	*Hippomedon* sp.	Arthropoda	Malacostraca	Amphipoda	Tryphosidae	Hippomedon	
2022NDIFF2	3	975	Oweniidae	Annelida	Polychaeta	Sabellida	Oweniidae		
2022NDIFF2	1	174737	Pseudidotheidae	Arthropoda	Malacostraca	Isopoda	Pseudidotheidae		
2022NDIFF2	1	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022NDIFF2	1		Unidentified Bivalve 1						
2022NDIFF3	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022NDIFF3	1	123613	*Amphiura* sp.	Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	Amphiura	
2022NDIFF3	1	101368	*Aoridae* sp.	Arthropoda	Malacostraca	Amphipoda	Aoridae		
2022NDIFF3	27	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022NDIFF3	1	414226	*Fellaster zelandiae*	Echinodermata	Echinoidea	Clypeasteroida	Arachnoididae	Fellaster	zelandiae
2022NDIFF3	1	976	Flabelligeridae	Annelida	Polychaeta	Terebellida	Flabelligeridae		
2022NDIFF3	7	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022NDIFF3	1	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022NDIFF3	1	101610	*Hippomedon* sp.	Arthropoda	Malacostraca	Amphipoda	Tryphosidae	Hippomedon	

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022NDIFF3	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022NDIFF3	5	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022NDIFF3	1	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022NDIFF3	2	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022NDIFF3	3	975	Oweniidae	Annelida	Polychaeta	Sabellida	Oweniidae		
2022NDIFF3	1	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022NDIFF3	1	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022NDIFF4	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022NDIFF4	2	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022NDIFF4	17	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022NDIFF4	1	118273	Cirolanidae	Arthropoda	Malacostraca	Isopoda	Cirolanidae		
2022NDIFF4	1	451102	*Diasterope grisea*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Diasterope	grisea
2022NDIFF4	6	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022NDIFF4	1	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022NDIFF4	2	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022NDIFF4	1	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022NDIFF4	2	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022NDIFF4	2	975	Oweniidae	Annelida	Polychaeta	Sabellida	Oweniidae		
2022NDIFF4	1	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022NDIFF4	2	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022NDIFF4	3	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022NDIFF4	2		Unidentified Bivalve 3						
2022NDIFF4	1		Unidentified Platyhelminthes						
2022NDIFF4	1	549242	*Waitangi chelatus*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Waitangi	chelatus

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022NDIFF5	2	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022NDIFF5	5	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022NDIFF5	1	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022NDIFF5	3	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022NDIFF5	1	118273	Cirolanidae	Arthropoda	Malacostraca	Isopoda	Cirolanidae		
2022NDIFF5	1	451102	*Diasterope grisea*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Diasterope	grisea
2022NDIFF5	1	507573	*Dosinia anus*	Mollusca	Bivalvia	Veneroida	Veneridae	Dosinia	anus
2022NDIFF5	2	507556	*Dosinia subrosea*	Mollusca	Bivalvia	Veneroida	Veneridae	Dosinia	subrosea
2022NDIFF5	1	946	Hesionidae	Annelida	Polychaeta	Phyllodocida	Hesionidae		
2022NDIFF5	8	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022NDIFF5	5	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022NDIFF5	1	147031	*Nebalia* sp.	Arthropoda	Malacostraca	Nebaliacea	Nebaliidae	Nebalia	
2022NDIFF5	11	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022NDIFF5	13	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022NDIFF5	1	101400	Oedicerotidae	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		
2022NDIFF5	1		Ostracod A						
2022NDIFF5	3	414281	*Rynkatorpa uncinata*	Echinodermata	Holothuroidea	Apodida	Synaptidae	Rynkatorpa	uncinata
2022NDIFF5	3	505757	*Scalpomactra scalpellum*	Mollusca	Bivalvia	Veneroida	Mactridae	Scalpomactra	scalpellum
2022NDIFF5	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022NDIFF5	4	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022NDIFF5	2		Unidentified Bivalve 1						
2022S10001	4	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022S10001	2	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022S10001	3	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022S10001	3	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S10001	1	507159	*Gari stangeri*	Mollusca	Bivalvia	Cardiida	Psammobiidae	Gari	stangeri
2022S10001	2	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S10001	1	101610	*Hippomedon* sp.	Arthropoda	Malacostraca	Amphipoda	Tryphosidae	Hippomedon	
2022S10001	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022S10001	2	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022S10001	1	965	Onuphidae	Annelida	Polychaeta	Eunicida	Onuphidae		
2022S10001	1	975	Oweniidae	Annelida	Polychaeta	Sabellida	Oweniidae		
2022S10001	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022S10001	12	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S10001	1	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S10002	5	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022S10002	5	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022S10002	2	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022S10002	4	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S10002	3	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S10002	1	394946	*Halicarcinus* sp.	Arthropoda	Malacostraca	Brachyura	Hymenosomatidae	Halicarcinus	
2022S10002	1	101388	*Isaeidae* sp.	Arthropoda	Malacostraca	Amphipoda	Isaeidae		
2022S10002	1	451063	*Leuroleberis zealandica*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Leuroleberis	zealandica
2022S10002	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022S10002	4	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022S10002	1	914	Magelonidae	Annelida	Polychaeta	Spionida	Magelonidae		
2022S10002	1	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022S10002	3	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022S10002	2	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022S10002	1	931	Phyllodocidae	Annelida	Polychaeta	Phyllodocida	Phyllodocidae		
2022S10002	1		Polynoidea						
2022S10002	8	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S10002	3	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S10002	3		Unidentified Platyhelminthes						
2022S10003	1	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022S10003	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022S10003	1	123613	*Amphiura* sp.	Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	Amphiura	
2022S10003	2	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022S10003	7	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S10003	1	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S10003	3	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022S10003	2	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022S10003	1	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S10003	1	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S10003	1	399420	*Xymene plebeius*	Mollusca	Gastropoda	Neogastropoda	Muricidae	Xymene	plebeius
2022S10004	2	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S10004	1	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022S10004	3	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022S10004	1	965	Onuphidae	Annelida	Polychaeta	Eunicida	Onuphidae		
2022S10004	1	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S10004	1	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S10004	1		Unidentified Broken						
2022S10005	1	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022S10005	11	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S10005	1	946	Hesionidae	Annelida	Polychaeta	Phyllodocida	Hesionidae		
2022S10005	1	451063	*Leuroleberis zealandica*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Leuroleberis	zealandica
2022S10005	1	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022S10005	1	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022S10005	1	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022S10005	1	515386	*Ogyrides delli*	Arthropoda	Malacostraca	Decapoda	Ogyrididae	Ogyrides	delli
2022S10005	1	965	Onuphidae	Annelida	Polychaeta	Eunicida	Onuphidae		
2022S10005	1	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S10005	1	182871	*Scleroconcha* sp.	Arthropoda	Ostracoda	Myodocopida	Philomedidae	Scleroconcha	
2022S10005	1	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S10005	1	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S1001	1	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022S1001	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022S1001	1	123613	*Amphiura* sp.	Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	Amphiura	
2022S1001	1	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022S1001	1	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S1001	2	976	Flabelligeridae	Annelida	Polychaeta	Terebellida	Flabelligeridae		
2022S1001	3	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S1001	3	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022S1001	2	451063	*Leuroleberis zealandica*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Leuroleberis	zealandica
2022S1001	2	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022S1001	2	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022S1001	1	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S1001	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022S1001	1	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S1001	3	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S1001	1	101412	Urothoidae	Arthropoda	Malacostraca	Amphipoda	Urothoidae		
2022S1002	1	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022S1002	4	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022S1002	9	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S1002	1	118273	Cirolanidae	Arthropoda	Malacostraca	Isopoda	Cirolanidae		
2022S1002	1	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S1002	7	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022S1002	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022S1002	4	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022S1002	1	975	Oweniidae	Annelida	Polychaeta	Sabellida	Oweniidae		
2022S1002	2	225803	*Paracaudina*	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S1002	2	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022S1002	2	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S1002	5	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S1002	1	399420	*Xymene plebeius*	Mollusca	Gastropoda	Neogastropoda	Muricidae	Xymene	plebeius
2022S1003	1	123613	*Amphiura* sp.	Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	Amphiura	
2022S1003	2	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022S1003	3	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022S1003	8	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S1003	2	451102	*Diasterope grisea*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Diasterope	grisea
2022S1003	1	976	Flabelligeridae	Annelida	Polychaeta	Terebellida	Flabelligeridae		
2022S1003	2	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S1003	9	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022S1003	2	101610	*Hippomedon* sp.	Arthropoda	Malacostraca	Amphipoda	Tryphosidae	Hippomedon	
2022S1003	3	451063	*Leuroleberis zealandica*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Leuroleberis	zealandica
2022S1003	1	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022S1003	1	956	Nephtyidae	Annelida	Polychaeta	Phyllodocida	Nephtyidae		
2022S1003	8	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022S1003	2	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S1003	1	174737	Pseudidotheidae	Arthropoda	Malacostraca	Isopoda	Pseudidotheidae		
2022S1003	1	414281	*Rynkatorpa uncinata*	Echinodermata	Holothuroidea	Apodida	Synaptidae	Rynkatorpa	uncinata
2022S1003	1	182871	*Scleroconcha* sp.	Arthropoda	Ostracoda	Myodocopida	Philomedidae	Scleroconcha	
2022S1003	6	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S1003	1	399420	*Xymene plebeius*	Mollusca	Gastropoda	Neogastropoda	Muricidae	Xymene	plebeius
2022S1004	1	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022S1004	1	101368	Aoridae	Arthropoda	Malacostraca	Amphipoda	Aoridae		
2022S1004	1	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022S1004	12	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S1004	5	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S1004	1	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022S1004	4	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022S1004	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022S1004	1	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022S1004	2	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022S1004	1	975	Oweniidae	Annelida	Polychaeta	Sabellida	Oweniidae		
2022S1004	8	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S1004	2	414281	*Rynkatorpa uncinata*	Echinodermata	Holothuroidea	Apodida	Synaptidae	Rynkatorpa	uncinata
2022S1004	4	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022S1004	1	101412	Urothoidae	Arthropoda	Malacostraca	Amphipoda	Urothoidae		
2022S1005	1	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022S1005	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022S1005	1	123613	*Amphiura* sp.	Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	Amphiura	
2022S1005	1	101368	Aoridae	Arthropoda	Malacostraca	Amphipoda	Aoridae		
2022S1005	1	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022S1005	2	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022S1005	34	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S1005	4	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S1005	3	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022S1005	1	138262	*Nucula* sp.	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	
2022S1005	5	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S1005	1	182871	*Scleroconcha* sp.	Arthropoda	Ostracoda	Myodocopida	Philomedidae	Scleroconcha	
2022S1005	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022S1005	1	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S1005	4	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S1005	1	101412	Urothoidae	Arthropoda	Malacostraca	Amphipoda	Urothoidae		
2022S2001	13	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022S2001	1	123613	*Amphiura* sp.	Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	Amphiura	
2022S2001	1	101368	Aoridae	Arthropoda	Malacostraca	Amphipoda	Aoridae		
2022S2001	1	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022S2001	3	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022S2001	1	878318	*Bartschicoma edgari*	Mollusca	Bivalvia	Cardiida	Bartschioma	edgari	
2022S2001	57	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S2001	1	182007	*Diastylopsis thileniusi*	Arthropoda	Malacostraca	Cumacea	Diastylidae	Diastylopsis	thileniusi

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022S2001	1	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S2001	3	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022S2001	1	451063	*Leuroleberis zealandica*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Leuroleberis	zealandica
2022S2001	2	152391	Nemertea	Nemertea					
2022S2001	4	506638	Nucula nitidula	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022S2001	1	975	Oweniidae	Annelida	Polychaeta	Sabellida	Oweniidae		
2022S2001	2	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S2001	1	397169	*Perna canaliculus*	Mollusca	Bivalvia	Mytiloida	Mytilidae	Perna	canaliculus
2022S2001	1	182871	*Scleroconcha* sp.	Arthropoda	Ostracoda	Myodocopida	Philomedidae	Scleroconcha	
2022S2001	1	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S2001	6	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S2002	2	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022S2002	1	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022S2002	1	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022S2002	9	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S2002	1	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S2002	2	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022S2002	1	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022S2002	1	914	Magelonidae	Annelida	Polychaeta	Spionida	Magelonidae		
2022S2002	10	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022S2002	2	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S2002	6	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S2002	1	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S2003	1	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022S2003	2	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022S2003	8	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S2003	1	451102	*Diasterope grisea*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Diasterope	grisea
2022S2003	1	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S2003	1	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022S2003	2	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022S2003	3	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022S2003	8	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022S2003	1	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S2003	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022S2003	1	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S2004	1	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022S2004	1	878315	*Ardeamya spenceri*	Mollusca	Bivalvia	Cardiida	Tellinidae	Ardeamya	spenceri
2022S2004	8	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S2004	1	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S2004	4	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022S2004	1	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022S2004	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022S2004	1	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S2004	3	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022S2004	9	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S2004	8	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S2004	1		Unidentified Platyhelminthes						
2022S2005	1	101368	Aoridae	Arthropoda	Malacostraca	Amphipoda	Aoridae		
2022S2005	3	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022S2005	1		Decapoda crab juv						
2022S2005	1	414226	*Fellaster zelandiae*	Echinodermata	Echinoidea	Clypeasteroida	Arachnoididae	Fellaster	zelandiae
2022S2005	2	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S2005	1	441795	Hymenosoma depressum	Arthropoda	Malacostraca	Decapoda	Hymenosomatidae	Hymenosoma	depressum
2022S2005	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022S2005	2	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S2005	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022S2005	1	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S2005	10	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S5001	1	123613	*Amphiura* sp.	Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	Amphiura	
2022S5001	5	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S5001	1	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S5001	1	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022S5001	1	451063	*Leuroleberis zealandica*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Leuroleberis	zealandica
2022S5001	1	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria
2022S5001	2	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022S5001	3	414281	*Rynkatorpa uncinata*	Echinodermata	Holothuroidea	Apodida	Synaptidae	Rynkatorpa	uncinata
2022S5001	5	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S5001	3	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S5001	1		Unidentified Broken						
2022S5001	1		Unidentified Platyhelminthes						
2022S5002	2	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022S5002	1	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022S5002	1	878318	*Bartschicoma edgari*	Mollusca	Bivalvia	Cardiida	Bartschioma	edgari	

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022S5002	22	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S5002	1	101610	*Hippomedon* sp.	Arthropoda	Malacostraca	Amphipoda	Tryphosidae	Hippomedon	
2022S5002	2	914	Magelonidae	Annelida	Polychaeta	Spionida	Magelonidae		
2022S5002	2	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022S5002	1	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022S5002	2	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S5003	2	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022S5003	1	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S5003	1	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S5003	1	118454	*Idotea* sp.	Arthropoda	Malacostraca	Isopoda	Idoteidae	Idotea	
2022S5003	2	451063	*Leuroleberis zealandica*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Leuroleberis	zealandica
2022S5003	3	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022S5003	1	414281	*Rynkatorpa uncinata*	Echinodermata	Holothuroidea	Apodida	Synaptidae	Rynkatorpa	uncinata
2022S5003	2	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S5003	1	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S5003	1		Unidentified Broken						
2022S5004	1	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022S5004	2	123613	*Amphiura* sp.	Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	Amphiura	
2022S5004	2	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022S5004	2	878318	*Bartschicoma edgari*	Mollusca	Bivalvia	Cardiida	Bartschioma	edgari	
2022S5004	10	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S5004	2	953	Goniadidae	Annelida	Polychaeta	Phyllodocida	Goniadidae		
2022S5004	1	101610	*Hippomedon* sp.	Arthropoda	Malacostraca	Amphipoda	Tryphosidae	Hippomedon	
2022S5004	2	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022S5004	2	724054	*Maorimactra ordinaria*	Mollusca	Bivalvia	Venerida	Mactidae	Maorimactra	ordinaria

Station	Count	AphiaID	Scientific Name	Phylum	Class	Order	Family	Genus	Species
2022S5004	1	914	Magelonidae	Annelida	Polychaeta	Spionida	Magelonidae		
2022S5004	1	152391	Nemertea	Nemertea					
2022S5004	2	506638	*Nucula nitidula*	Mollusca	Bivalvia	Nuculoida	Nuculidae	Nucula	nitidula
2022S5004	2	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S5004	10	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S5004	3	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S5004	2	399420	*Xymene plebeius*	Mollusca	Gastropoda	Neogastropoda	Muricidae	Xymene	plebeius
2022S5005	1	980	Pectinariidae	Annelida	Polychaeta	Terebellida	Pectinariidae		
2022S5005	2	981	Ampharetidae	Annelida	Polychaeta	Terebellida	Ampharetidae		
2022S5005	3	394153	*Arthritica* sp.	Mollusca	Bivalvia	Galeommatida	Lasaeidae	Arthritica	
2022S5005	12	921	Capitellidae	Annelida	Polychaeta	Scolecida	Capitellidae		
2022S5005	1	451102	*Diasterope grisea*	Arthropoda	Ostracoda	Myodocopida	Cylindroleberididae	Diasterope	grisea
2022S5005	1	489274	*Litogynodiastylis laevis*	Arthropoda	Malacostraca	Cumacea	Gynodiastylidae	Litogynodiastylis	laevis
2022S5005	1	414267	*Heterothyone alba*	Echinodermata	Holothuroidea	Dendrochirotida	Heterothyonidae	Heterothyone	alba
2022S5005	1	967	Lumbrineridae	Annelida	Polychaeta	Eunicida	Lumbrineridae		
2022S5005	1	225803	*Paracaudina* sp.	Echinodermata	Holothuroidea	Molpadiida	Caudinidae	Paracaudina	
2022S5005	2	943	Sigalionidae	Annelida	Polychaeta	Phyllodocida	Sigalionidae		
2022S5005	10	913	Spionidae	Annelida	Polychaeta	Spionida	Spionidae		
2022S5005	4	237055	*Torridoharpinia hurleyi*	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Torridoharpinia	hurleyi
2022S5005	1	399420	*Xymene plebeius*	Mollusca	Gastropoda	Neogastropoda	Muricidae	Xymene	plebeius

Appendix F Epifauna benthic sled tow raw data

Station	1	2	3	4
Direction	N	N	S	S
Distance	1000	100	100	1000
Start Latitude (WGS84)	-43.356648	-43.36389	-43.366529	-43.374002
Start Longitude	172.727576	172.727585	172.727758	172.727737
End Latitude (WGS84)	-43.357938	-43.36305	-43.367703	-43.372464
End Longitude	172.726597	172.726599	172.729161	20/06/1900
Fellaster zelandiae	1	1	1	nil sample
Hymenosoma depressum			2	
Aphrodita sp.			1	
Xymene plebeius			1	

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR INFORMATION

FILE NO and TRIM NO:	SEW-01-05 / 220707115263
REPORT TO:	UTILITIES & ROADING COMMITTEE
DATE OF MEETING:	19 July 2022
AUTHOR(S):	Caroline Fahey, Water Operations Team Leader Kalley Simpson, 3 Waters Manager
SUBJECT:	Wastewater Treatment Plant Compliance Reporting
ENDORSED BY: (for Reports to Council, Committees or Boards)	General Manager / acting Chief Executive

1. SUMMARY

1.1. The purpose of this report is to inform the Utilities & Roading Committee of recent compliance monitoring reports received from Environment Canterbury for our wastewater treatment plants and to set out our proposed approach to respond to the non-compliances received.

1.2. Council has recently received 13 compliance monitoring reports from Environment Canterbury for various consents held for the Woodend, Rangiora, Oxford, Waikuku Beach and Kaiapoi wastewater treatment plants (refer attachments i-xiii). Six of these reports were graded as non-compliant with further action required against 9 consent conditions.

1.3. These non-compliances have been grouped into one of the following three classifications:

1. Administrative non-compliances (4 conditions)
2. Technical non-compliances (4 conditions)
3. Process non-compliance (1 condition)

1.4. Council staff have formally responded to Environment Canterbury (refer attachment xiv) and requested that they regrade the administrative and technical non-compliances, to be consistent with their compliance grading criteria and also the previously agreed approach for the supply of results. Additionally we have provided Environment Canterbury with an update on measures we are implementing to address the process non-compliance, relating to the wind damaged irrigator at the Oxford WWTP.

1.5. Based on the current compliance grading assigned by Environment Canterbury, we will achieve 96.2% compliance with 262 consent conditions contained in our 19 wastewater consents for the 2021/22 financial year. Additionally, the 10 non-compliances received[1] in total for the 2021/22 financial year are related to operational issues that have no environment effects as a result of the non-compliance and no effects on the Ocean Outfall discharge which is compliant with the consent conditions.

Attachments:

i. Rangiora WWTP (CRC030917) – Compliance monitoring report (TRIM 220713119317).
ii. Rangiora WWTP (CRC145027) – Compliance monitoring report (TRIM 220713119271).
iii. Rangiora WWTP (CRC173124) – Compliance monitoring report (TRIM 220713119301).
iv. Woodend WWTP (CRC168388) – Compliance monitoring report (TRIM 220713119253).
v. Woodend WWTP (CRC168390) – Compliance monitoring report (TRIM 220713119266).

[1] Note one earlier non-compliance was received for condition 5 of CRC168391 on 9 December 2021.

vi. Woodend WWTP (CRC168391) – Compliance monitoring report (TRIM 220713119267).
vii. Kaiapoi WWTP (CRC950610) – Compliance monitoring report (TRIM 220713119237).
viii. Kaiapoi WWTP (CRC031724) – Compliance monitoring report (TRIM 220713119229).
ix. Kaiapoi WWTP (CRC041049) – Compliance monitoring report (TRIM 220713119234).
x. Kaiapoi WWTP (CRC154176) – Compliance monitoring report (TRIM 220713119235).
xi. Waikuku WWTP (CRC962560) – Compliance monitoring report (TRIM 220713119269).
xii. Oxford WWTP (CRC144561) – Compliance monitoring report (TRIM 220713119239).
xiii. Oxford WWTP (CRC184787) – Compliance monitoring report (TRIM 220713119241).
xiv. Response letter to Environment Canterbury (TRIM 220622106293).
xv. Letter from Environment Canterbury on Three Water Compliance Approach (TRIM 220707115262).

2. RECOMMENDATION

THAT the Utilities & Roading Committee:

(a) **Receives** report No. 220707115263.

(b) **Notes** that based on the current compliance grading we expect to achieve 96.2% compliance with our wastewater consents conditions for the 2021/22 financial year.

(c) **Notes** that of the 13 compliance monitoring reports recently received from Environment Canterbury for various consents held for the Woodend, Rangiora, Oxford, Waikuku Beach and Kaiapoi wastewater treatment plants, six of these reports were graded as non-compliant with further action required against 9 consent conditions.

(d) **Notes** that Council staff have formally responded to Environment Canterbury requesting that they regrade the administrative and technical non-compliances, and also to provide an update on measures we are implementing to address the process non-compliances.

(e) **Circulates** this report to the Community Boards, Mahi Tahi Committee and the Waimakariri Water Zone Committee for their information.

3. BACKGROUND

3.1. Council holds a total of 19 active consents for its wastewater treatment plants. 13 of these consents have recently been monitored and graded by Environment Canterbury as set out in Table 1 below.

Table 1 – Compliance Monitoring Reports recently received

Site (Consent)	Consent Type	Compliance grading
Rangiora WWTP (CRC030917)	Discharge to Land	Non-compliant – Action Required
Rangiora WWTP (CRC145027)	Discharge to Land	Complies
Rangiora WWTP (CRC173124)	Discharge to Air	Non-compliant – Action Required
Woodend WWTP (CRC168388)	Discharge to Air	Complies
Woodend WWTP (CRC168390)	Discharge to Land	Non-compliant – Action Required
Woodend WWTP (CRC168391)	Discharge to Land	Non-compliant – Action Required
Kaiapoi WWTP (CRC950610)	Discharge to Air	Complies
Kaiapoi WWTP (CRC031724)	Discharge to Water	Unable to determine
Kaiapoi WWTP (CRC041049)	Discharge to Land	Non-compliant – Action Required
Kaiapoi WWTP (CRC154176)	Discharge to Land	Complies
Waikuku WWTP (CRC962560)	Discharge to Air	Complies
Oxford WWTP (CRC144561)	Land use consent	Complies
Oxford WWTP (CRC184787)	Discharge to Land	Non-compliant – Action Required

3.2. The six consents not assessed as part of this recent work and their most recent compliance status are:

- EDSS (CRC041162.2) – Graded fully compliant 6 September 2021
- EDSS (CRC041163) – Graded minor non-compliant 7 October 2005
- Oxford (CRC961013) – Graded fully compliant 20 October 2016
- Fernside (CRC971542.1)* – Graded fully compliant 17 October 2019
- Loburn Lea (CRC950161.1)* – Graded fully compliant 21 September 2016
- Loburn Lea (CRC940617.2)* – Graded fully compliant 30 June 2020

3.3. In the past Environment Canterbury has only assessed our main wastewater consents. The recent work is the most comprehensive review undertaken by Environment Canterbury of our wastewater consents. Some of the consents have not been reviewed in the past or have not been reviewed for more than 5 years.

3.4. This is an indication of the additional scrutiny Environment Canterbury are putting over our consents as from mid-2023 Taumata Arowai will be taking an overview role of wastewater and stormwater consent compliance and will likely be asking regional councils to demonstrate they have been appropriately enforcing wastewater and stormwater consents.

3.5. Environment Canterbury signalled a refreshed approach to compliance monitoring and enforcements in a letter to Council dated 5 October 2021 (refer attachment xv).

4. ISSUES AND OPTIONS

4.1. On the 31 May 2022 and 26 June 2022, Council received 13 compliance monitoring reports from Environment Canterbury for various consents held for the Woodend, Rangiora, Oxford, Waikuku Beach and Kaiapoi wastewater treatment plants (refer attachments i-xiii). Six of these reports were graded as non-compliant with further action required against 9 consent conditions.

4.2. These non-compliances are considered to be either administrative, technical or process non-compliances as set out below. Administrative and technical non-compliances are where there are no actual or potential environment effects as a result of the non-compliance. Process non-compliances are where the treatment process is not operating as intended and there is actual or potential environment effects as a result of the non-compliance.

Administrative non-compliances

4.3. The following consents have been graded 'Non-compliant – action required' as records have not been provided within the timeframe set out in the consent conditions.

Table 2 – Administrative non-compliances

Site (Consent)	Non-compliant condition	Reason for non-compliance
Rangiora WWTP (CRC030917)	Condition 10	Results not supplied within 10 working days.
Woodend WWTP (CRC168391)	Condition 14	Results not supplied within 20 working days.
Kaiapoi WWTP (CRC041049)	Condition 5	Results not supplied within one month.
Oxford WWTP (CRC184787)	Condition 5	Results not supplied within 5 working days.

* The consents for Fernside and Loburn Lea will be surrendered once the Stimulus upgrades are complete.

4.4. Previously we have been advised in writing by Environment Canterbury that supplying records annually, at the end of the financial year, would be acceptable. This approach has also been indicated in previous compliance monitoring reports provided by Environment Canterbury, which advised us to provide results as part of the 2020/21 Annual Report.

4.5. We have therefore request that Environment Canterbury regrade these non-compliances as either 'not monitored', similar to other compliance monitoring reports, or 'complies' as we have provided the records in accordance with the previously agreed approach. We consider that grading administrative non-compliances as 'Non-compliant – action required' is not consistent with the Environment Canterbury compliance grading criteria (as set out in attachment xiv).

Technical non-compliances

4.6. The following consents have been graded 'Non-compliant – action required' due to technical non-compliances.

Table 3 – Technical non-compliances

Site (Consent)	Non-compliant condition	Reason for non-compliance
Rangiora WWTP (CRC173124)	Condition 3	Dissolved oxygen samples not taken within the required time period.
Woodend WWTP (CRC168390)	Condition 6	Desludging material placed without a 100mm clean fill base layer.
Oxford WWTP (CRC184787)	Condition 1	Use of chlorine considered to be non-compliant.
Oxford WWTP (CRC184787)	Condition 16	Location of discharge (i.e.: which irrigator is being used) is not currently recorded.

4.1. Dissolved oxygen sampling at the Rangiora WWTP has not all been undertaken within the required timeframe of 11am to 2pm as required by CRC173124 condition 3. Our wastewater operators have been instructed to undertaken the sampling within the required timeframes to ensure we comply in the future. Assessing the samples taken within the required timeframe we are compliant with the required dissolved oxygen levels, which indicates the plant is operating as intended. We have also requested advice from Beca on our dissolved oxygen testing method.

4.2. The desludging works undertaken back in 2018 at the Woodend WWTP were not strictly undertake in accordance with the consent condition. While these works were undertaken to a much higher standard than allowed for under the existing consent, the location of disposal and underlying material was different to that specific in the existing consent. We have therefore engaged Beca to prepare an application for a consent variation to CRC168390 in order to ensure we are graded complaint in the future.

4.3. Chlorine dosing at the Oxford WWTP has always been used as part of the operational process to control algae growth in summer months. While its use was included in the original Operations and Maintenance Manual, it was not specifically included in the consent conditions. We have engaged Beca to prepare information to demonstrate that chlorine dosing at the Oxford WWTP is being appropriately managed to ensure there is no residual disinfection in the discharge, in other words that chlorine is effectively being used as an operational control to suppress algae growth rather than a treatment measure to kill bacteria.

4.4. At the Oxford WWTP we currently record flow information from the treatment plant site and also irrigator positioning at the irrigation fields. We are currently collating this information from SCADA records and correlating the data in order to provide daily flow volumes and

land application areas as required by the consent condition. This data will be submitted through to Environment Canterbury by the 15 July 2022.

4.5. As these conditions are technical non-compliances, where there is no environmental effects as a result of the non-compliances, we have requested that Environment Canterbury regrade these non-compliances as either 'not monitored' or 'unable to determine compliance', until this further work is undertaken.

Process non-compliances

4.6. The following consent has been graded 'Non-compliant – action required' due to process non-compliances.

Table 4 – Process non-compliances

Site (Consent)	Non-compliant condition	Reason for non-compliance
Oxford WWTP (CRC184787)	Condition 14	Ponding observed at irrigation field.

4.7. The western irrigator at the Oxford Irrigation Disposal Fields suffered wind damage in September 2021. As we are currently only using one irrigator there are a few localised areas of ponding at the irrigation field.

4.8. We have a replacement irrigator on order for the Oxford WWTP, however this is not expected to be operational until the end of August 2022 depending on shipping. We are currently implementing interim measures in the form of surface laid irrigation piping on the western irrigation field, which will be in place by 15 July 2022.

Implications for Community Wellbeing

There are not implications on community wellbeing by the issues and options that are the subject matter of this report. The non-compliances are predominantly administrative and technical non-compliances in nature where there are no actual or potential environment effects. The only process non-compliance where there is actual or potential environment effects as the treatment process is not operating as intended is at the Oxford Irrigation Disposal Fields which is unlikely to have an impact on the wider community.

4.9. The Management Team has reviewed this report and support the recommendations.

5. COMMUNITY VIEWS

5.1. Mana whenua

Te Ngāi Tūāhuriri hapū are likely to have an interest in the subject matter of this report, as wastewater management has important cultural considerations. This report will be circulated to the Mahi Tahi Committee for information so they are aware of the steps we are taking to achieve full compliance with our wastewater consents.

5.2. Groups and Organisations

There are not groups and organisations likely to be affected by, or to have an interest in the subject matter of this report.

5.3. Wider Community

The wider community is not likely to be affected by the subject matter of this report. However it is likely they will be interested in our overall compliance with our wastewater consents, which will be reported as part of our Annual Report.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

6.1. Financial Implications

There are not financial implications of the decisions sought by this report. The work to seek further advice or obtain consent variations will be funded from existing asset management budgets. The work to replace the damaged irrigator is covered by an insurance claim.

6.2. **Sustainability and Climate Change Impacts**

The recommendations in this report do not have sustainability and/or climate change impacts.

6.3 **Risk Management**

There are not risks arising from the adoption/implementation of the recommendations in this report. Risk around the potential time delays associated with the delivery of a replacement irrigator to the Oxford WWTP are being managed by the installation of a temporary surface laid irrigation system at the Oxford Irrigation Disposal Fields.

6.3 **Health and Safety**

There are not health and safety risks arising from the adoption/implementation of the recommendations in this report.

7. CONTEXT

7.1. **Consistency with Policy**

This is not a matter of significance in terms of the Council's Significance and Engagement Policy.

7.2. **Authorising Legislation**

The Local Government Act 2002 sets out the power and responsibility of local authorities, including the Council's role in providing wastewater services.

7.3. **Consistency with Community Outcomes**

The following Council's community outcomes are relevant to the actions arising from recommendations in this report:

- There is a safe environment for all.
- Core utility services are sustainable, resilient, affordable; and provided in a timely manner.

7.4. **Authorising Delegations**

The Utilities and Roading Committee has the delegation to receive this report.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636
200 Tuam Street
PO Box 345
Christchurch 8140
E. ecinfo@ecan.govt.nz
www.ecan.govt.nz

23 June 2022

Waimakariri District Council
Private Bag 1005
Rangiora 7440

Dear Sir/Madam

Compliance Monitoring Report

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number: CRC030917
Location: Marsh Road, RANGIORA
Description: to discharge contaminants, via seepage, from Rangiora STP to land.

Overall Inspection Compliance: **Non-compliance Action required**

This matter needs your immediate attention.

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

Reason(s) for non-compliance:

Action Required: Submit all sample results within 10 working days of the receipt of results.

Please contact me on 0800 324 636 to discuss the actions needed to achieve compliance.

Yours sincerely

Shania Vanags
Resource Managemet Officer

Doc No: *C22C/129980*
Your Customer No: *EC116063*
File No(s): *CO6C/14094*

Consent No: ***CRC030917***

Description of consent	**Date Consent Number Issued**
to discharge contaminants, via seepage, from Rangiora STP to land.	26 Aug 2003
Location	**Expiry Date**
Marsh Road, RANGIORA	26 Aug 2038

Conditions & compliance

1 This consent is granted for a term of 35 years from the date of commencement.

Compliance Report:
Complies

Pease be advised that the expiry for this consent is August 2038

2 The discharge shall be seepage from ponds 1A, 1B, 1C, 2, 3, 4, 5 and 6 shown on Plan CRC030917 attached to this consent. The maximum combined pond surface area shall be 18 hectares.

Compliance Report:
Complies

Discharge is only from the areas identified in this consent

3 Proposed pond 1C shall be lined such that the discharge through the base and sides of the pond shall be less than five litres per square metre per day.

Compliance Report:
Not operational

In the additional information received Waimakariri District Council Provided the following comments:

'Pond 1C will not be constructed as specified in the consent and is not required. This third large settling pond (Pond 1C) was anticipated back when the EDSS was consented. However the Council has now changed strategy and is implementing aeration basins before the settling ponds. There is no longer a need for the Council to construct Pond1C and instead a new aeration basin has been constructed to the west and south of existing ponds 1A and 1B.'

4 After a pond is emptied, and prior to refilling of that pond the pond liner shall be inspected, and maintenance works undertaken where necessary, to ensure that the discharge

through the base and sides of the pond shall be less than five litres per square metre per day.

Compliance Report:
Not operational

Waimakariri District council have provided the following comments on the inspection and maintenance of the pond liners when emptying and refilling:

The ponds have not been emptied during the previous year. For instance, from the 2021 Rangiora wastewater AMP "Desludging of Pond 1A and Pond 2 was undertaken in 2014, with Pond 1B and Pond 3 programmed for 2028".

If any pond is fully emptied during desludging and refilled in future years the pond liner will be inspected and maintenance undertaken whilst the pond is empty as required to meet this consent condition. However during desludging the ponds are not usually fully emptied and the liners will not be visible for inspection.

The use of the desludging bags method means the ponds can remain operating during desludging which provides a better service for connected properties; whilst simultaneously containing all contaminants within the treatment system during the desludging process.

Please ensure that if a pond is emptied the appropriate inspections and maintenance is conducted.

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5 From the date of commencement of this consent representative samples of groundwater shall be taken from the following bores, as marked on the Plan attached hereto marked "Figure 4" and forming part of this consent:

a. Monitoring bore holes BH1, BH3, BH7, BH8; and

b. Domestic supply bores M36/3250, M35/4910, M35/6248 and M35/8333, provided that the bore owner has given permission for sampling to take place. In addition, once future pond 1C is operational, samples will also be collected from bore M35/6281, provided that the bore owner gives permission.

Compliance Report:
Unable to determine compliance

The last monitoring round conducted in accordance with this consent was in August 2021. The results did not show any exceedances of contaminants.

However in this monitoring round only BH 1,3,7 and 8 were monitored. The domestic supply bores were not monitored as the properties which historically took from these bores for house hold water have now been connected to the Rangiora township water supply.

These properties and bores with connections to the Rangiora potable water supply are:
M35/6248 – 580 Lineside Road, Rangiora (Franklyn)
M35/3250 – 582 Lineside Road, Rangiora (Stallard)

M35/4910 - 582 Lineside Road, Rangiora (Stallard)
M35/8333 – 137 Marsh Road, Rangiora (Pearson)

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6 All samples specified in condition 5 shall be taken:

a) At least once every month for the first 12 months following commencement of this consent; and
b) At least once every second month for the first 12 months following refilling of the ponds after emptying and/or desludging; and
c) At least once every year at times other than those specified in 6a) and b) above.

Compliance Report:
Complies

The site is currently undergoing annual sampling consistent with 6.C of this consent condition. The last sampling was conducted in August of 2021

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7 All samples shall be taken by a suitably qualified and experienced person using methods approved by the American Public Health Association (APHA) or the American Society for the Testing of Materials (ASTM) or equivalent, for such sampling.

Compliance Report:
Complies

Waimakariri District Council uses acredited Labrotories to analyise samples taken.

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8 All samples taken in accordance with conditions 5 and 6 shall be analysed to determine concentrations of Escherichia coli and nitrate nitrogen.

Compliance Report:
Complies

Samples taken have been analyisied for the applicable contamiants

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9 All samples required under this consent shall be analysed using the most appropriate scientifically recognised and current method by a laboratory that is certified for that method of analysis by an accreditation authority such as International Accreditation New Zealand (IANZ)

Compliance Report:
Complies

Samples are analyisied by an accredited lab

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10 The results of these analyses, the name of the person taking the samples and the date and time of sampling shall be recorded and provided to the Canterbury Regional Council within 10 working days of the receipt of the analytical results by the consent holder, unless stated otherwise in this consent.

Compliance Report:
Non-compliance Action required

Environment Canterbury have not received any monitoring results since 2020. All samples taken in accordance with this condition must have the results submitted to the Canterbury Regional Council within 10 working days of the receipt of the results. This has not occurred therefore the Non-Compliance Action required Grading has been given.

As the sampling required under condition 5 of this consent is no longer conducted please ensure that if sampling recommences the appropriate measures are taken to submit the sample results to Environment Canterbury

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11 If any results of analysis of groundwater in domestic supply down-gradient bores sampled in accordance with conditions 5 and 6 and analysed in accordance with conditions 8 and 9 show that the concentration of Escherichia coli is greater than one colony forming unit per 100 millilitres, and/or the nitrate nitrogen concentration is greater than five milligrams per litre, the consent holder shall immediately:

a) Notify the Canterbury Regional Council; and
b) Notify the occupiers of the sampled properties; and
c) Implement all necessary measures to mitigate the contaminant/s in any groundwater supply well. Such measures may include, but are not limited to:
i) cessation of activities that my have caused the excessive concentrations; or
ii) treatment of the affected water supply to potable standards; or
iii) provision of an alternative clean water supply

Compliance Report:
Not operational

Domestic Supply bores have not been Monitored. The following conditions have been graded accordingly.

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12 Following the implementation of any measures undertaken in accordance with condition 11, a validation sample shall be taken from the same bore as the previous sample was taken. The validation sample shall be analysed as per conditions 8 and 9. Results of this analysis shall be reported to Canterbury Regional Council within two working days of receipt of the results by the consent holder.

Compliance Report:
Unable to determine compliance

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13 Should any sample exceed the trigger level specified in condition 11 above, further samples from that bore shall be taken thereafter at least once every month for the next 12 months, and thereafter at the intervals specified in condition 6.

Compliance Report:
Unable to determine compliance

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14 Any future pond construction shall be sited so that the outer toe of the pond embankment shall be no less than 50 metres from the boundary of any road reserve or designation for roading purposes.

Compliance Report:
Complies

Since the issuing of this consent in 2003 only one more pond has been installed at the Rangiora Wastewater Treatment Plant. The added pond does not breach the buffer identified in this consent condition

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15 The consent holder shall meet half the costs for analysing up to six water samples for Escheridia Coli and nitrate nitrogen in any domestic water supply bore that is lawfully established during the term of this consent in the area 400 metres down gradient of the Sewage Treatment Plant. Samples shall be collected and analysed in accordance with conditions 7 to 10 inclusive. For the purposes of this condition “down gradient” is defined as being north of the South Brook and south of Marsh Road.

Note: No mitigation is required by the consent holder under this condition should such samples show elevated levels of Escheridia Coli or nitrate nitrogen.

Compliance Report:
Unable to determine compliance

Please ensure that compliance is met with this consent condition where applicable

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16 Charges, set in accordance with Section 36 of the Resource Management Act 1991, shall be paid to the Canterbury Regional Council for the carrying out of is functions in relation to the administration, monitoring and supervision of resource consents and for the carrying out of the functions of Section 35 of the Act.

Compliance Report:
Not monitored

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17 The Canterbury Regional Council may, once in any year, on any of the last five working days of April or October, serve notice of its intention to review the conditions of this consent for the purposes of:

a) dealing with any adverse effect on the environment which may arise from the exercise

of this consent and which it is appropriate to deal with at a later stage, and in particular to:
i) change the sampling regime; or
ii) require additional groundwater wells to be monitored; or
iii) require provision of drinking water to property owners whose groundwater does not meet drinking water standards due to the activities of the consent holder.
b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment

Compliance Report:
Not monitored

The Canterbury Regional council currently has no intentions in reviewing consent conditions

General comments

On Wednesday the 2nd of March 2022 I conducted a site inspection to the Rangiora Wastewater treatment plant Located at 141 Marsh Road Rangiora.

The purpose of my inspection was to ensure compliance with consent conditions. The active consents for the Rangiora Wastewater treatment and discharge System are CRC145027, CRC173124 and CRC030917.

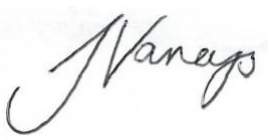
On site I met with Robert Frizzell Wastewater engineer for Waimakariri District Council. On Site Rob took me through the day-to-day site on goings including the storage, treatment and discharge processes.

This consent relates directly to the discharge of contaminants via seepage. A follow up inspection has been scheduled for November 2022 to ensure compliance with consent conditions.

Thankyou for assisting me with my inspection. An invoice will be sent in due course. If you have any queries regarding compliance monitoring, please contact me on 027 217 0286 or email me at shania.vanags@ecan.govt.nz. For any other inquiries please contact Customer Services on 0800 324 636.

Date Inspected: 09 Mar 2022

Monitored By: Shania Vanags

Signature: 

Resource Managemet Officer

General information

Canterbury Regional Council Obligations

Under Section 35 of the Resource Management Act 1991, the Canterbury Regional Council has a duty to monitor all resource consent exercised within its region, to make sure all the conditions are being complied with.

Monitoring Frequency

The frequency with which your consent is monitored will vary according to the type of activity your consent authorises, the conditions imposed and the extent to which you have complied with these conditions on previous visits. **If you fully comply with all conditions then frequency will reduce to the minimum set for the activity.**

Costs

It is the Council's policy to recover all actual and reasonable costs of compliance monitoring of resource consents.

Environment Canterbury
Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636
200 Tuam Street
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Christchurch 8140
E. ecinfo@ecan.govt.nz
www.ecan.govt.nz

31 May 2022

Waimakariri District Council
Private Bag 1005
Rangiora 7440

Dear Sir/Madam

Compliance Monitoring Report
Waimakariri Water Management Zone

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number: CRC145027
Location: 141 Marsh Road, Rangiora
Description: to discharge dewatered sludge removed from a wastewater pond to land

Overall Inspection Compliance: **Complies**

Thank you for complying with the resource consent conditions that have been monitored.

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

Reminder(s)

If you would like any further information regarding this report please do not hesitate to contact me.

Yours sincerely

Shania Vanags
Resource Management Officer I - Compliance Monitoring

Doc No: *C22C/114128*
Your Customer No: *EC116063*
File No(s): *CRC145027*

Consent No: ***CRC145027***

Description of consent	**Date Consent Number Issued**
to discharge dewatered sludge removed from a wastewater pond to land	22 Oct 2014
Location	**Expiry Date**
141 Marsh Road, Rangiora	22 Oct 2049

Conditions & compliance

1 The discharge to ground shall occur only on the property located at 141 Marsh Road, Rangiora, at or about map reference Topo50 BW24:6829-0290 as shown on Plan CRC145027A, which forms part of this consent.

Compliance Report:
Complies

Discharge has occurred within the consented location

2 The discharge shall be only from:

a. buried sludge removed from wastewater treatment pond 1A; and

b. drainage water from the dewatering of the sludge.

Compliance Report:
Complies

Discharge consists only of wastewater from sludge removal and the drainage water from the sludge

3 Sludge shall be suction dredged from wastewater pond 1A, flocculated, then piped to geotextile bags, via a closed system, for storage and dewatering.

Compliance Report:
Complies

At the time of inspection no desludging was occurring the last time this site de-slugged was in 2015. The sludge removed in 2015 is now stored within Geotextile bags which act as a one way valve allowing for the sludge drainage. The bags are located within a sealed pond which allows for dewatering of any wastewater back into the treatment plant process.

4 The geotextile bags shall be stored in a lined, bunded area located as shown on Plan CRC145027B, which forms part of this consent.

Compliance Report:
Complies

As mentioned above bags are stored in a lined bunded area within the consented location as identified in CRC145027B

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5 The lining shall be 1.5 millimetre HPDE lining or equivalent.

Compliance Report:
Complies

At the time of inspection Rob advised that the ponds are adequately lined according to this condition

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6 When dewatering is complete the geotextile bags shall be buried on site and covered with a minimum of 200 millimetres of topsoil.

Compliance Report:
Complies

At the time of my inspection it was advised that Waimakariri District Council didn't have intentions to bury the Geo-Textile bas as required by the consent conditions.

Waimakariri District Council has provided the following comments in the additional information request response:

'The sludge within the dewatering basins is continuing to digest over time and is continuously reducing in height, volume and area within the bunds. There is now no practical reason to bury the sludge at this stage. Future contamination testing may be required if an alternative on or off-site final disposal location for the sludge is determined in future.

As the sludge continues to reduce in size, an increasing area within the dewatering basin is now becoming available to use to contain any future sludge for dewatering, during future desludging.'

As the geotextile bags are within a sealed bunded area and there is currently no odour or adverse effects arising from them not being buried the current management method is deemed acceptable

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7 The consent holder shall ensure that the liner and sludge storage area is installed in accordance with the specifications and standards outlined in Waimakariri District Council Contract CON201363. An engineer shall certify that the liner is sealed and passes leak testing. This certification shall be submitted to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within one month of dewatering commencing.

Compliance Report:
Complies

The certificate of liner testing was submitted on 9th February 2015. C15C/15759

---

8 The geotextile bag and sludge storage area shall be formed, contoured and lined to ensure water within the storage area drains to a collection point or collection points from where it can be discharged back to the treatment pond.

Compliance Report:
Complies

At the time of inspection Rob advised that water within the bunded area drains to a collection point to be redistributed via a pump into the wastewater treatment system

---

9 The consent holder shall ensure that if water does pool within the lined area, it shall not overtop the bund. Should pooled water overtop the bund the consent holder shall inform the Canterbury Regional Council: Attention: RMA Compliance and Enforcement Manager, within 48 hours of any leak or spill and shall provide the following information:

a. The date, time, location and estimated volume of the spill;

b. Details of steps undertaken to control and remediate the effects of the spill on the receiving environment;

c. An assessment of any potential effects arising from the spill; and

d. Measures to be undertaken to prevent a recurrence.

Compliance Report:
Complies

At the time of inspection Rob advised that there had been no overflows from the lined and bunded area. Please ensure that the appropriate measures are taken if this ocurrs.

---

10 All drainage water from within the lined area shall be returned to the wastewater treatment system until such time as monitoring of the drainage water shows that the level of contaminants have reduced to the trigger levels listed in Appendix 1, which forms part of this consent, and have remained at that level for two consecutive monitoring rounds undertaken six months apart.

Compliance Report:
Complies

In the additional information provided by Waimakariri District Council it has been indicated that all drainage water from within the lined bunds is discharged back into the oxidation pond for further treatment.

---

11 Drainage water shall be discharged to land via a soakage trench that extends the full width of the bunded dewatering area to avoid point source discharge to groundwater.

Compliance Report:
Not operational

As indicated in the condition 10 comments the consent holder has identified that all discharge from the bunded and lined area is discharged back into the Oxidation pond for treatment.

---

12 One month prior to commencing land discharge of the drainage water the consent holder shall notify the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, in writing.

Compliance Report:
Not monitored

At the time of my inspection there was no discharge to land from the sludge bunded area. Therefore this condition has not been monitored

---

13 Should subsequent monitoring of the drainage water, described in condition (16) below, show an exceedance of the trigger levels listed in Appendix 1, the discharge to land shall cease and drainage water shall be returned to the treatment plant until such time as the levels fall below the trigger levels in Appendix 1.

Compliance Report:
Not monitored

Discharge to land was not occurring at the time of my inspection

14 Should subsequent monitoring of groundwater under condition (17) below show an upward trend extending over four consecutive sampling events or a trigger level reaches 80 percent of the New Zealand Drinking Water Standards (NZDWS) Maximum Allowable Value (MAV) for the parameter measured, the discharge shall cease and drainage water shall be returned to the treatment pond.

Compliance Report:
Not monitored

There had been no discharge of wastewater to land from the bunded sludge area

15 In the event of the discharge ceasing under condition (14) the consent holder shall review the operation and discharge quality of the drainage water to determine if such increase is associated with the discharge. The findings of such review, plus any proposed further action, shall be reported to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within two months.

Compliance Report:
Not monitored

There had been no discharge of wastewater to land from the bunded sludge area

16 On completion of the pond dredging operation and commencement of the dewatering phase, the consent holder shall either:

a. Sample the drainage water from the dewatering/dewatered sludge at six monthly intervals for the following parameters:

Arsenic
Copper
Cadmium
Chromium
Lead
Mercury
Nickel
Zinc, with all metals in the soluble form; and
Total Nitrogen
Ammoniacal Nitrogen
Dissolved Reactive Phosphorus; or

b. A subsequent sampling regime and timeframe that has received written approval form the Chief Executive of the Canterbury Regional Council or delegate shall be

undertaken.

Compliance Report:
Not monitored

This condition will be monitored under the 2021-2022 annual report required by condition 20 of this consent

---

17 The consent holder shall either:

a. Monitor the downstream monitoring bore M35/9177 at six monthly intervals (generally September and April) for the following parameters:

pH
Ammoniacal Nitrogen
Total Nitrogen
Metals (Zinc, Copper and Arsenic in the soluble form); or

b. A subsequent sampling regime and timeframe that has received written approval from the Chief Executive of the Canterbury Regional Council or delegate shall be undertaken.

Compliance Report:
Not monitored

This condition will be monitored under the 2021-2022 annual report required by condition 20 of this consent

---

18 All sampling required under this consent shall be:

a. Undertaken by a qualified and experienced person using the most appropriate scientifically recognised and current methods; and

b. Analysed using the most appropriate scientifically and current method by a laboratory that is accredited for that method of analysis. Accreditation must be by International Accreditation New Zealand (IANZ) or equivalent.

Compliance Report:
Not monitored

This condition will be monitored under the 2021-2022 annual report required by condition 20 of this consent

---

19 The consent holder shall inspect the sludge dewatering area at least once every three months to ensure that there are no leaks or damage to the liner or overtopping of the bunded and lined area.

Compliance Report:
Complies

Rob advised at the time of the inspection that regular inspections are conducted to ensure that the bunded area is within consent parameters

---

20 The consent holder shall submit an annual report to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, by the end of August each year detailing:

a. The discharge point of drainage water;

b. Findings of the three monthly inspections of the liner, bund and drainage;

c. Results of laboratory analyses undertaken in the previous 12 month period; and

d. Details of any spills.

Compliance Report:
Not monitored

This condition will be monitored under the 2021-2022 annual report required this condition

---

21 The Canterbury Regional Council may, once per year, on any of the last five days of October each year, serve notice of its intention to review the conditions of this consent for the purposes of:

a. Dealing with any adverse effects on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or

b. Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or

c. Monitoring instead of or in addition to that specified by this consent; or

d. Modifying the consent in light of findings from conditions (14) and (15) above.

Compliance Report:
Not monitored

The Canterbury Regional Council Currently has no intentions in reviewing consent conditions

---

22 The lapsing date for the purposes of Section 125 of the Resource Management Act shall be 31 December 2019.

Appendix 1: Trigger Levels

Parameter	**Value**
Total Nitrogen (g/m^3)	224
Ammoniacal Nitrogen (g/m^3)	30*
Arsenic (soluble) (g/m^3)	0.2
Nickel (soluble) (g/m^3)	1.6
Zinc (soluble) (g/m^3)	30

* only applies if groundwater in M35/9177 exceeds pH 8.

Compliance Report:
Complies

This consent was exercised before the lapsing date described in this condition

---

General comments

On Wednesday the 2nd of March 2022 I conducted a site inspection to the Rangiora Wastewater treatment plant Located at 141 Marsh Road Rangiora.

The purpose of my inspection was to ensure compliance with consent conditions. The active consents for the Oxford Wastewater treatment and discharge System are CRC145027, CRC173124 and CRC030917.

On site I met with Robert Frizzell Wastewater engineer for Waimakariri District Council. On Site Rob took me through the day-to-day site on goings including the storage, treatment and discharge processes.

This consent relates directly to the discharge of contaminants from the storage sludge.

Thankyou for assisting me with my inspection. An invoice will be sent in due course. If you have any queries regarding compliance monitoring, please contact me on 027 217 0286 or email me at shania.vanags@ecan.govt.nz. For any other inquiries please contact Customer Services on 0800 324 636.

Date Inspected: 09 Mar 2022

Monitored By: Shania Vanags

Signature: 

Resource Management Officer I - Compliance Monitoring

General information

Canterbury Regional Council Obligations

Under Section 35 of the Resource Management Act 1991, the Canterbury Regional Council has a duty to monitor all resource consent exercised within its region, to make sure all the conditions are being complied with.

Monitoring Frequency

The frequency with which your consent is monitored will vary according to the type of activity your consent authorises, the conditions imposed and the extent to which you have complied with these conditions on previous visits. **If you fully comply with all conditions then frequency will reduce to the minimum set for the activity.**

Costs

It is the Council's policy to recover all actual and reasonable costs of compliance monitoring of resource consents.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636
200 Tuam Street
PO Box 345
Christchurch 8140
E. ecinfo@ecan.govt.nz
www.ecan.govt.nz

23 June 2022

Waimakariri District Council
Private Bag 1005
Rangiora 7440

Dear Sir/Madam

Compliance Monitoring Report

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number: CRC173124
Location: Marsh Road, RANGIORA
Description: To discharge contaminants (odour) to air

Overall Inspection Compliance: **Non-compliance Action required**

This matter needs your immediate attention.

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

Reason(s) for non-compliance:

Action Required: Continue to investigate the reasoning for the low DO levels and provide comment about the investigation to Environment Canterbury.

Please contact me on 0800 324 636 to discuss the actions needed to achieve compliance.

Yours sincerely

Shania Vanags
Resource Management Officer

Doc No: *C22C/129717*
Your Customer No: *EC116063*
File No(s): *CRC173124*

Consent No: ***CRC173124***

Description of consent	**Date Consent Number Issued**
To discharge contaminants (odour) to air	16 Feb 2017
Location	**Expiry Date**
Marsh Road, RANGIORA	26 Aug 2038

Conditions & compliance

1 The consent holder shall take all practicable measures to prevent an odour which is offensive or objectionable beyond the boundary of the property on which this consent is exercised as shown on Plan CRC173124 “Site Boundary Location”, attached to and forming part of this consent.

Compliance Report:
Complies

At the time of my inspection I did not identify any offensive or objectionable odours exceeding the properties boundary

2 The wastewater treatment ponds and aeration basin shall be operated so that the dissolved oxygen concentrations of the wastewater in the ponds are maintained at levels of no less than two grams per cubic metre, based on the ten percentile of annual results during the hours of measurement as stated in Condition 3.

Compliance Report:
Unable to determine compliance

This condition has been graded as Unable to determine compliance as data for an entire 12 month period is required to monitor this condition.

Please note that the wording of this consent condition indicates that only the Dissolved Oxygen from within the ponds are considered in regards to the requirements of this condition.

3 Dissolved oxygen levels shall be measured in each pond between the hours of 11am and 2pm on one day in every seven day period.

Compliance Report:
Non-compliance Action required

Waimakariri District Council has provided the DO sample results from July 2021 - March 2022. These results indicated on multiple occasions throughout the monitoring period that samples have not been taken in accordance with this consent condition. Therefore the grading of non-compliance action required has been given.

Action Required:
Sample DO at the Rangiora WWTP within the specified timeframe indicated in this consent

---

4 The consent holder shall maintain a record of dissolved oxygen measurements which shall include the following information:

a. The date and time the measurements were taken; and

b. Water temperature at the time the measurements were taken; and

c. Dissolved oxygen concentrations; and

d. Identification of the pond in which the measurements were taken.

Compliance Report:
Complies

The council has maintained the appropriate records consistent with this consent condition.

---

5 A copy of the record referred to in condition 4 shall be retained and provided to the Canterbury Regional Council on request or annually by 31 May each year.

Compliance Report:
Not operational

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6 The consent holder shall maintain a record of all odour complaints relating to the Rangiora Sewage Treatment Plant. The record shall include, but not be limited to, the following information:

a. Location of the complainant when the odour was detected.

b. Date, time and duration of odour incident.

c. Summary details of climatic conditions at the time of the incident (including estimates of wind speed and direction, and ambient temperature).

d. The most likely cause of the odour detected.

e. Any corrective action taken by the consent holder to avoid, remedy or mitigate the odour detected by the complainant.

f. Any steps to be taken in the future to prevent a recurrence of similar events.

Compliance Report:
Complies

At the time of inspection it was advised that no complaints had been received within the last 6 months. Waimakariri District Council have a detailed complaints register that meets the requirements of this consent condition.

---

7 A copy of the record referred to in condition 6 shall be retained and made available to the Canterbury Regional Council on request.

Compliance Report:
Complies

Waimakariri District Council have made record readily available upon request.

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8 The consent holder shall plant and maintain appropriate screen vegetation for a length of at least 250 metres along the southern bank of Ponds 1B and 4 to reduce the visual impact of the treatment ponds. Should Pond 1C be constructed during the term of this consent, screen planting shall be planted and maintained along the length of the southern bank of Pond 1C, and the screen planting may be removed from the southern bank of Pond 1B.

Compliance Report:
Complies

At the time of inspection there appeared to be appropriate vegetation around the WWTP

---

9 The consent holder shall take all practicable measures to prevent the drift of aerosols beyond the boundary of the property on which this consent is exercised.

Compliance Report:
Complies

At the time of inspection the plant was not discharging any aerosols beyond the properties boundary. There is limited activities on site that could generate aerosols.

---

10 The sprays shall be set up and operated so that the spray covers the rock filters, but does not spray onto the water.

Compliance Report:
Not monitored

All wastewater from this site is treated via an aerations pond where 4 aerators and 6 mixers operate wastewater then discharges into oxidation ponds which have approximately a 30 day retention time in the larger ponds and 10-15 day retention time within the smaller ponds wastewater is then discharged to the Kaiapoi WWTP to discharge via the ocean outfall. Discharge does not occur over rock filters.

---

11 The sprays shall not be switched on unless effluent ammonia concentrations exceed three grams per cubic metre. In that event, they may be operated whilst climatic conditions justify their continuing use, even if ammonia levels fall below that trigger level.

Compliance Report:
Not monitored

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12 The consent holder shall prepare a Management Plan relating to the operation of the sprays within one month of the commencement of this consent. The Plan shall include provision for the activation levels of the wind speed and direction triggers to be reviewed by agreement between the consent holder, the Canterbury Regional Council and Mr & Mrs Johnston for the purpose of ensuring that spray drift does not reach beyond the boundary of the site. The Management Plan shall be reviewed if there is any significant change proposed to the operation of the sprays, and/or upon the request of the Canterbury Regional Council, and/or at least once every five years for the duration of this consent.

Compliance Report:
Not monitored

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13 Charges, set in accordance with Section 36 of the Resource Management Act 1991, shall be paid to the Canterbury Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of resource consents and for the carrying out of the functions of Section 35 of the Act.

Compliance Report:
Not monitored

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14 The Canterbury Regional Council may once in any one year, on any of the last five working days of April or October, serve notice of its intention to review the conditions of this consent for the purposes of:

a. dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage, and in particular to:

    i. Increase the level of sampling required in Condition 3; or

    ii. Impose additional conditions to address complaints gathered under condition 6.

b. requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

Compliance Report:
Not monitored

Environment Canterbury Has no intentions in reviewing consent conditions at this time

General comments

On Wednesday the 2nd of March 2022 i conducted a site inspection to the Rangiora Wastewater treatment plant Located at 141 Marsh Road Rangiora.

The purpose of my inspection was to ensure compliance with consent conditions. The active consents for the Oxford Wastewater treatment and discharge System are CRC145027, CRC173124 and CRC030917.

On site I met with Robert Frizzell Wastewater engineer for Waimakariri District Council. On Site Rob took me through the day-to-day site on goings including the storage, treatment and discharge processes.

At the time of my inspection Rob advised that the Wastewater at the plant is treated solely through aeration and oxidation. The sprayers referred to in the consent are no longer operational. At the time of inspection I did not identify any offensive or objectionable odour on the property or beyond the boundary.

Condition 3 of this consent has been graded as Non-Compliance action Required. A follow up inspection has been scheduled for July 20th 2022 to ensure compliance has been met with consent conditions

Please refer to specific condition comments for further information.

Thankyou for assisting me with my inspection. An invoice will be sent in due course. If you have any queries regarding compliance monitoring, please contact me on 027 217 0286 or email me at shania.vanags@ecan.govt.nz. For any other inquiries please contact Customer Services on 0800 324 636.

Date Inspected: 09 Mar 2022

Monitored By: Shania Vanags

Signature: 

Resource Management Officer

General information

Canterbury Regional Council Obligations

Under Section 35 of the Resource Management Act 1991, the Canterbury Regional Council has a duty to monitor all resource consent exercised within its region, to make sure all the conditions are being complied with.

Monitoring Frequency

The frequency with which your consent is monitored will vary according to the type of activity your consent authorises, the conditions imposed and the extent to which you have complied with these conditions on previous visits. **If you fully comply with all conditions then frequency will reduce to the minimum set for the activity.**

Costs

It is the Council's policy to recover all actual and reasonable costs of compliance monitoring of resource consents.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636
200 Tuam Street
PO Box 345
Christchurch 8140
E. ecinfo@ecan.govt.nz
www.ecan.govt.nz

1 April 2022

Waimakariri District Council
Private Bag 1005
Rangiora 7440

Dear Sir/Madam

Compliance Monitoring Report

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number: CRC168388
Location: Gladstone Road, WOODEND
Description: To discharge odour and aerosols into air.

Overall Inspection Compliance: **Complies**

Thank you for complying with the resource consent conditions that have been monitored.

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

Reminder(s)

If you would like any further information regarding this report please do not hesitate to contact me.

Yours sincerely

Shania Vanags
Resource Management Officer I - Compliance Monitoring

Doc No: *C22C/71476*
Your Customer No: *EC116063*
File No(s): *CRC168388*

Consent No: ***CRC168388***

Description of consent	**Date Consent Number Issued**
To discharge odour and aerosols into air.	26 Aug 2016
Location	**Expiry Date**
Gladstone Road, WOODEND	28 Oct 2040

Conditions & compliance

1 The discharge shall be only from the Woodend Sewage Treatment Plant site located on Pt RS 39895 and RS 39878 at or about map reference NZMS 260 M35: 851-646.

Compliance Report:
Complies

The discharge of contaminants to air originate from the Woodend Wastewater Treatment plant located at the the map reference identified in this condition

2 The discharge shall only be odour and aerosols arising from the operation of the Woodend Sewage Treatment Plant including screening, aeration ponds (1A, 1B and 1C), settling ponds (2A and 2B), wetlands (1A, 1B, 2A and 2B) and desludging of aeration ponds (1A, 1B and 1C) and settling ponds (2A and 2B), as shown in Plan CRC168388A attached to and forming part of this consent.

Compliance Report:
Complies

Odour consists only of aerosols arising from the operation of the Woodend Wastewater treatment plant as identified in plan CRC168388A forming part of this consent

3 Prior to any desludging process the consent holder shall circulate a newsletter to the Liaison Group of residents specified in Consent CRC060424 or any variations thereof informing them of the timing, expected effects of the desludging process and odour mitigation measures to be implemented.

Compliance Report:
Unable to determine compliance

At the time of my inspection no desludging was occurring please ensure that this condition is adhered to when desludging is proposed to commence. Robert advised that no desludging is planed for this site within the foreseeable future.

4 The discharge shall not cause any offensive or objectionable odour beyond the odour boundary as shown in Plan CRC168388B attached to this consent, being 150 m from the Woodend Sewage Treatment Plant ponds.

Compliance Report:
Complies

At the time of my inspection I did not identify any offensive or objectionable odour exceeding the properties boundary. The properties boundary has significant shrubbery which will assist in the mitigation of aerosols exceeding the properties boundary

---

5 The dissolved oxygen concentration of effluent in the aeration ponds (1A, 1B and 1C) and settling ponds (2A and 2B) as shown in Plan CRC168388A attached to this consent shall:

a. Be measured in each pond on one day in every seven day period;

b. Be maintained at levels of no less than two grams per cubic metre, based on the ten percentile of annual results, between the hours of 11am and 2pm; and

c. Not have a concentration of less than two grams per cubic metre for more than three consecutive measurements in accordance with condition (5)(a).

Compliance Report:
Complies

The Woodend Wastewater Treatment Plant monitoring plan indicates that DO is monitored every 15 minutes and if DO is identified to be low aerators will automatically switch on

---

6 The consent holder shall maintain a record of dissolved oxygen measurements in accordance with condition (5)(a)which shall include the following information:
a) The date and time the measurements were taken; and
b) Water temperature at the time the measurements were taken; and
c) Dissolved oxygen concentrations; and
d) Identification of the pond in which the measurements were taken.

Compliance Report:
Unable to determine compliance

On site Robert Advised that DO probes also measure the ponds DO at regular intervals however it has been found that manual DO probes are more accurate. Please ensure that records of the sampling is maintained

---

7 A copy of the record referred to in condition (6) shall be retained and provided to the Canterbury Regional Council annually by 31 August each year.

Compliance Report:
Complies

The results have been supplied in the 2020-2021 annual report however the 2021-2022 annual report had not yet been submitted at the time of my inspection.

---

8 This consent shall not be exercised concurrently with consent CRC961345 beyond 30 June 2009.

Compliance Report:
Complies

Consent CRC961345 has been surrendered.

---

9 A record of odour complaints relating to the sewage treatment and disposal operations shall be maintained, and shall include:

a. Location where the odour was detected by the complainant;

b. Date and time when the odour was detected;

c. A description of the wind speed and wind direction when the odour was detected by the complainant;

d. The most likely cause of the odour detected;

e. The corrective action taken by the consent holder to avoid, remedy or mitigate the odour detected by the complainant.

Compliance Report:
Complies

At the time of inspection I was advised that there had been no recent complaints submitted to Waimakariri District Council. When a complaint is received the council takes corrective measures to help mitigate the issue

---

10 The consent holder shall notify the Canterbury Regional Council of all complaints received within seven days of the complaint being lodged.

Compliance Report:
Unable to determine compliance

There have been no recent complaint submitted to the Canterbury Regional Council. Please ensure that all complaints are submitted to the Canterbury Regional Council within the parameters identified in this condition

---

11 The consent holder shall take all reasonable measures to minimise the discharge of odour from the sewage treatment plant. Such measures shall include, but not be limited to:

a. maintaining the plant in good working order at all times;

b. investigating the cause of offensive odour and remedying any problem identified with the sewage treatment plant operation within 24 hours

c. Monitoring odour generated from the inlet screen and if objectionable odour is detected at Gladstone Road or the 150 metre odour boundary, whichever is the lesser, then an odour reduction system shall be installed.

Compliance Report:

Complies

In the additional information request Waimakariri District Council Provided the following comments:

The inlet screen is monitored weekly. This involves the following weekly checks:
-Observe screen for correct operation
-Check in front and behind of screen for build-up of silt/grit
-Check screw press is conveying screenings to skip

This is also reiterated within the Woodend Wastewater treatment Plant Monitoring Plan

---

12 The Canterbury Regional Council may, once per year, on any of the last five working days of March or September serve notice of its intention to review the conditions of this consent for the purposes of:

a. dealing with any adverse effect on the environment which may arise from the exercise of the consent not foreseen at the time of granting the consent and is therefore appropriate to deal with later; or

b. requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or

c. complying with the requirements of a relevant rule in an operative regional plan.

Compliance Report:

Complies

The Canterbury Regional Council currently has not intentions in reviewing consent conditions.

General comments

On Wednesday the 16th of February 2022 I conducted a routine site inspection to the Woodend Wastewater treatment plant, located at Gladstone Road Woodend. The site has four active resource consents;

CRC168388 - To discharge odour and aerosols into air.
CRC168391 - To discharge treated sewage effluent via seepage onto land.
CRC168390 - To use land for storing treating and discharging human effluent

The purpose of my inspection was to ensure compliance with consent conditions. On site I met with Robert Frizzell Wastewater Engineer for Waimakariri District Council.

This consent relates directly to the; discharge of odour and aerosols into air.

At the time of my inspection i did not note any offensive or objectionable odours onsite or beyond the property's boundary. The site appeared to be well maintained. DO is measured frequently onsite as identified in the monitoring plan please ensure that the applicable records are maintained to indicate this.

Thankyou for assisting me with my inspection and providing the additional requested information. An invoice will be sent in due course. If you have any queries regarding compliance monitoring, please contact me on 027 217 0286 or email me at shania.vanags@ecan.govt.nz. For any other inquiries please contact Customer Services on 0800 324 636.

Date Inspected: 01 Apr 2022

Monitored By: Shania Vanags

Signature: 

Resource Management Officer I - Compliance Monitoring

General information

Canterbury Regional Council Obligations

Under Section 35 of the Resource Management Act 1991, the Canterbury Regional Council has a duty to monitor all resource consent exercised within its region, to make sure all the conditions are being complied with.

Monitoring Frequency

The frequency with which your consent is monitored will vary according to the type of activity your consent authorises, the conditions imposed and the extent to which you have complied with these conditions on previous visits. **If you fully comply with all conditions then frequency will reduce to the minimum set for the activity.**

Costs

It is the Council's policy to recover all actual and reasonable costs of compliance monitoring of resource consents.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
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200 Tuam Street
PO Box 345
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www.ecan.govt.nz

31 May 2022

Waimakariri District Council
Private Bag 1005
Rangiora 7440

Dear Sir/Madam

Compliance Monitoring Report

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number: CRC168390
Location: Gladstone Road, WOODEND
Description: To use land for storing, treating and discharging human effluent.

Overall Inspection Compliance: **Non-compliance Action required**

This matter needs your immediate attention.

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

Reason(s) for non-compliance:

Remediate the bunded areas to meet consent conditions or seek a consent variation

Please contact me on 0800 324 636 to discuss the actions needed to achieve compliance.

Yours sincerely

Shania Vanags
Resource Management Officer I - Compliance Monitoring

Doc No: *C22C/114212*
Your Customer No: *EC116063*
File No(s): *CRC168390*

Consent No: ***CRC168390***

Description of consent	**Date Consent Number Issued**
To use land for storing, treating and discharging human effluent.	26 Aug 2016
Location	**Expiry Date**
Gladstone Road, WOODEND	28 Oct 2040

Conditions & compliance

1 General

The location of the sewage treatment plant shall be at the Woodend Sewage Treatment Plant site, Gladstone Road, Woodend, on Pt RS 39895 and RS39878 at or about map reference NZMS 260 M35:851-646.

Compliance Report:
Complies

The Woodend Wastewater Treatment Plant is at the location identified in this condition

2 The Woodend Sewage Treatment Plant shall contain aeration ponds (1A, 1B and 1C), settling ponds (2A and 2B), and wetlands (1A, 1B, 2A and 2B) as shown in plan CRC168390A attached to and forming part of this consent.

Compliance Report:
Complies

The Woodend wastewater treatment plant system consists of the above described aeration ponds (1A, 1B and 1C), settling ponds (2A and 2B), and wetlands (1A, 1B, 2A and 2B)

3 The Woodend Sewage Treatment Plant shall treat not more than 9,180 cubic metres of domestic sewage per day.

Compliance Report:
Non-compliance No action required

In the return of the additional information requested Waimakariri District Council has provided the flow data for the last 6 months as well as the following comments:

- The "inflow" data is combined from separate data logger readings from the Pegasus (Mary Ellen + Main Street), Woodend town (Gladstone Road, Petries Road) and Woodend Beach reticulation and from the Waikuku wastewater treatment plant and Kesteven (Ravenswood reticulation) which all discharge into the Woodend wastewater treatment plant, then into the Ocean Outfall. Each of these data loggers have the flow recorded separately and this is likely to

reduce the accuracy of the total inflow recorded. Total accuracy may vary by around 2-3% per day as the total data is the sum of data from each separate meter.

- The data shows on one occasion (13 February 2022) the inflow from these sources combined exceeded the consent limit of 9,180m3 per day, reaching a peak of 10,353m3 per day during a significant rainfall event on that date. However we note 'Inflow' doesn't necessarily equate to the volume that was treated in a given day. The plant has some storage and retention so inflow on that day was actually released from the plant over a longer period than 24 hrs.

- On all other days during the previous year the inflow was within the consent limit. The inflow was less than 4,000m3 per day on most days within the past year.

- In context, the peak daily flow in the period from the 2009/10 year until the 2019/20 year into the Woodend WWTP was in the highest volume year (July 2013/Jun3 2014), 5,402m3/day. Otherwise during the balance of that decade the peak daily flow was less than 4,000m3/day, on the peak flow day each year (similar to the above result). This implies the WWTP is usually operating far below its peak capacity and did not reach the peak consented treatment volume at any time over the previous decade other than on 13 February 2022.

The information provided by Waimakariri District Council indicates that on the 13th of February 2022 the inflow was 10,353m3 it is important to note that this was during a significant rainfall event on that date.

As identified by the council this consent condition relates directly to the volume of wastewater treated on one given day. Therefore this condition has been graded as non-compliant no action required as the information only indicates the inflow not the treated wastewater and the plant has storage and retention. The plant usually never exceeds this limit and there will have been storm water infiltration on this day.

---

4 Earthworks and Vegetation

By 31 March 2006 the consent holder shall plant the northern boundary of the Woodend Sewage Treatment Plant site on the southern side of Gladstone Road with a combination of low lying shrubs and taller tree species that shall be evergreen to a density of two rows, as shown on Plan CRC168390B attached to this consent.

Compliance Report:
Complies

At the time of my inspection there was adequate shrub and vegetation cover lining the total boundary.

---

5 The consent holder shall maintain two strips of pine trees in the reserve land on the western boundary of the Woodend Sewage Treatment Plant, each at least 30 metres wide with one strip always being maintained with trees at least 8 metres tall, as shown on Plan CRC168390B attached to this consent.

Compliance Report:

Complies

At the time of my inspection the pine trees appeared to be well maintained consistent with consent conditions

---

6 Dried solid material generated from desludging of the aeration ponds (1A,1B and 1C) and settling ponds (2A and 2B), as shown on plan CRC168390A attached to this consent, and from the oxidation ponds at Waikuku Beach, may be disposed of on site within bunds as shown on Plan CRC168390C attached to this consent. These bunds shall be constructed using a 100 millimetre base layer of clean fill, followed by a core of dried sludge, followed by a cover of at least 300 millimetres of clean fill. The bunds shall be constructed at ground level and shall be no higher than two metres.

Compliance Report:
Non-compliance Action required

Waimakariri District Council has provided the following comments in regard to this consent condition

Woodend Oxidation Pond 1A was desludged in mid-2018 to return the pond area to its original volume.

The bunds around the "dredged" material were formed from the natural ground being raised around the sides of the dredging basin invert. This was not undertaken in accordance with the consent condition however the construction used the suitable available soils on the site which were of sufficient quality to confine the dredged material.

The comments above indicate that the District Council have not have not met their obligations under this consent condition. The condition requires that cleanfill is placed below the dried solids. However the council has indicated that soils from onsite have been used - This is not consistent with the consent requirements therefore the grading of Non-Compliance Action Required has been given.

Action Required:
Remediate the bunded areas to meet consent conditions or seek a consent variation

---

7 Site Security

The ponds shall be surrounded by fencing to deter public access to the Woodend Sewage Treatment Plant as shown in Plan CRC168390A attached to this consent.

Compliance Report:
Complies

The site was surrounded with the applicable fencing at the time of my inspection

---

8 The consent holder shall ensure that the accessway (gateway) is locked at all times when the plant is not occupied by a staff member or contractor.

Compliance Report:
Complies

At the time of my inspection the access way appeared to be locked before and after entering

---

9 Community

The consent holder shall set up a Liaison Group as follows:

a. The owners of the properties at 199, 205, 207 and 209 Gladstone Road, and a representative of Pegasus Town Ltd, shall be invited to participate in the group.

b. The participants listed in (a) shall be advised in writing of any significant operational changes at the treatment plant and given a copy of the annual monitoring report required under Condition 17 of Consent CRC054470 or any variations thereof.

c. The participants shall be invited to meet Waimakariri District Council representatives to discuss the report.

d. Should any of the participants request a meeting, the consent holder shall arrange it and consult with the residents on setting the meeting up, to establish a time and place.

e. Written notice of any meetings shall then be given to the Liaison Group members and the Canterbury Regional Council.

Compliance Report:
Complies

In the additional information received from Waimakariri District Council the following comments were provided:

- The Liaison Group was consulted both prior to the commissioning of the new Woodend WWTP infrastructure in 2007, and then again prior to the desludging of Oxidation Pond 1A in 2018. Detail as follows:

- From a tender evaluation report incorporating the Pond 1A desludging at the Woodend WWTP, the following was reported to Management Team on 23 April 2018 (TRIM 180412039603): "Three Waters staff have a meeting planned with a Woodend residents group in mid-May to discuss issues related to the Woodend WWTP.

- This desludging contract will be discussed with them during that meeting so that they are aware of the planned works". Earlier consultation was undertaken in 2007 shortly after the commissioning of the new plant.

- Minutes of the meeting with the Liaison Group consulted at that time regarding some commissioning decisions regarding the plant are attached as APPENDIX 6 (TRIM

070227005263). Consultation with the Liaison Group is undertaken on an "as required" basis, particularly in advance of any operational changes to the plant.

- Council staff regularly meet (at least twice a year) with the adjacent residents to discuss proposed works, compliance reports and any operational issues.

The provided comments indicate that Waimakariri District council fufill their obligations under this consent condition

---

10 Review

The Canterbury Regional Council may, once per year, on any of the last five working days of March or September serve notice of its intention to review the conditions of this consent for the purposes of:

a. dealing with any adverse effect on the environment which may arise from the exercise of the consent not foreseen at the time of granting the consent and is therefore appropriate to deal with later; or

b. requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or

c. complying with the requirements of a relevant rule in an operative regional plan.

Compliance Report:

Complies

The Canterbury Regional Council currently has no intentions in reviewing this consent

---

General comments

On Wednesday the 16th of February 2022 I conducted a routine site inspection to the Woodend Wastewater treatment plant, located at Gladstone Road Woodend. The site has four active resource consents;

CRC168388 - To discharge odour and aerosols into air.
CRC168391 - To discharge treated sewage effluent via seepage onto land.
CRC168390 - To use land for storing treating and discharging human effluent
The purpose of my inspection was to ensure compliance with consent conditions.

On site I met with Robert Frizzell Wastewater Engineer for Waimakariri District Council. This consent relates directly to the; use of land for storing treating and discharging human effluent

Condition 6 of this consent has been graded as Non-Compliant Action Required. This is due to the dried sludge bunds not being constructed in accordance with consent conditions. Please refer to condition 6 for further information.

A follow up inspection has been scheduled for August 22nd 2022. At this time please have prepared a plan and timeline for remediation.

Thankyou for assisting me with my inspection and providing the additional requested information. An invoice will be sent in due course. If you have any queries regarding compliance monitoring, please contact me on 027 217 0286 or email me at shania.vanags@ecan.govt.nz. For any other inquiries please contact Customer Services on 0800 324 636.

Date Inspected: 08 Apr 2022

Monitored By: Shania Vanags

Signature: 

Resource Management Officer I - Compliance Monitoring

General information

Canterbury Regional Council Obligations

Under Section 35 of the Resource Management Act 1991, the Canterbury Regional Council has a duty to monitor all resource consent exercised within its region, to make sure all the conditions are being complied with.

Monitoring Frequency

The frequency with which your consent is monitored will vary according to the type of activity your consent authorises, the conditions imposed and the extent to which you have complied with these conditions on previous visits. **If you fully comply with all conditions then frequency will reduce to the minimum set for the activity.**

Costs

It is the Council's policy to recover all actual and reasonable costs of compliance monitoring of resource consents.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636
200 Tuam Street
PO Box 345
Christchurch 8140
E. ecinfo@ecan.govt.nz
www.ecan.govt.nz

31 May 2022

Waimakariri District Council
Private Bag 1005
Rangiora 7440

Dear Sir/Madam

Compliance Monitoring Report

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number: CRC168391
Location: Gladstone Road, WOODEND
Description: To discharge treated sewage effluent via seepage onto land.

Overall Inspection Compliance: **Non-compliance Action required**

This matter needs your immediate attention.

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

Reason(s) for non-compliance:

Submit sample results to the Canterbury Regional Council within the allocated timeframe identified in condition 14 of this consent.

Please contact me on 0800 324 636 to discuss the actions needed to achieve compliance.

Yours sincerely

Shania Vanags
Resource Management Officer I - Compliance Monitoring

Doc No: *C22C/114242*
Your Customer No: *EC116063*
File No(s): *CRC168391*

Consent No: ***CRC168391***

Description of consent	**Date Consent Number Issued**
To discharge treated sewage effluent via seepage onto land.	26 Aug 2016
Location	**Expiry Date**
Gladstone Road, WOODEND	28 Oct 2040

Conditions & compliance

1 General

The discharge shall be only treated domestic sewage effluent from the Woodend Sewage Treatment Plant site on Pt RS 39895 and RS 39878 located at or about map reference NZMS 260 M35:851-646.

Compliance Report:
Complies

The discharge at the Woodend Wastewater treatment plant occurs within the consented location identified in this condition

2 The discharge shall be only via seepage from the settling ponds (2A and 2B) and wetlands (1A, 1B, 2A and 2B) as shown in Plan CRC168391A attached to this consent.

Compliance Report:
Complies

At the time of my inspection I was advised by Rob that discharge consists only of seepage from settling ponds (2A and 2B) and wetlands (1A, 1B, 2A and 2B) as shown in Plan CRC168391A a

3 At least one month prior to the construction of any component of the Woodend Sewage Treatment Plant, final design plans for that component shall be submitted to the Canterbury Regional Council, attention to RMA Compliance and Enforcement Manager.

Compliance Report:
Complies

Final Design Drawings have been received

4 A certificate signed by a chartered engineer to certify that each component of the Woodend Sewage Treatment and disposal system is constructed in accordance with the design plans shall be provided to the Canterbury Regional Council attention to RMA Compliance and Enforcement Manager, within one month of construction of that component.

Compliance Report:
Complies

Sufficient information has been provided to the Canterbury Regional Council meeting the requirements of this condition

---

5 The volume of treated effluent discharged to land via seepage shall not exceed 1000 cubic metres per day.

Compliance Report:
Non-compliance No action required

Records Supplied to the Canterbury Regional Council by the consent holder indicate that seepage exceeded the consented limit of 1000m3/day of seepage. This exceedance occurred on the 19th November 2020. The consent holder describes the exceedance as a high inflow day (>1,500m3/day) with low outflow (<900m3/day), this was a result of high rainfall over the preceding days. Rainfall is recorded on figure 29 and 30 of the annual report. The consent holder noted that the likely reason for exceedance was due to an increase of storage level. Due to the exceedance this consent condition has been graded non-compliant action-required. The action required is to provide details on what measures have been put in place to ensure there are no further breaches during high rainfall events.

The data shows that on the majority of days the discharge from the plant (outflow) was greater than the inflow, meaning no seepage to groundwater occurred (e.g. the seepage calculation was "negative" for that day). On days when the seepage was positive it exceeded the limit of 1,000m3 per day on only two days in the preceding year (13 February 2022, and 26 February 2022).

There is a clear "lag" between inflow and outflow into and from the plant, during which time the water is conveyed through the ponds towards the point of discharge into the outfall. This is demonstrated by the data to usually occur at around a 24 hour (or greater) period as evident in the "Inflow/Outflow" tab within the spreadsheet.

Evaporation rates have not been added as there are only two exceedances of the condition over the past year that could be otherwise explained via evaporation rather than seepage. However the most likely reason for the two exceedances is neither seepage nor evaporation, but rather is the storage within the ponds and wetlands creating effectively a "lag time" between the flow entering and being discharged from the plant (see Inflow/Outflow tab). We are currently undertaking some work to demonstrate that the reason for the exceedances is due to the storage in the system.

The above explanation provided by Waimakariri District Council is considered sufficient in in identifying why exceedances have occurred. It is deemed that there is minimal environmental impact from the exceedances. Please note that any breach of consent condition is taken seriously if there is an increasing trend of exceedances the council will need to consider reviewing management processes of the site. Therefore the grading given is Non-Compliance No Action Required.

---

6 The consent holder shall:

a. Record the volume of wastewater received at Woodend Sewage Treatment Plant in cubic metres per day;

b. Record the volume of wastewater discharged from Woodend Sewage Treatment Plant to the ocean outfall in cubic metres per day;

c. For the purpose of demonstrating compliance with Condition 5 the volume of wastewater discharged via seepage shall be calculated as the volume recorded under 6(a) less the volume recorded under 6(b), and less the volume of evaporation if required.

Compliance Report:

Complies

Waimakariri District Council has provided Data from the 1st of June 2021 till the 28th of February 2022. The records indicate Daily flow, Outflows, and the calculated seepage. Seepage is calculated via deducting the outflow from the inflow.

---

7 This consent shall not be exercised concurrently with consent CRC961344 beyond 30 June 2009.

Compliance Report:

Complies

Consent CRC961344 has been surrendered

---

8 Groundwater Monitoring Conditions

Within three months of the granting of this consent, two monitoring bores of minimum diameter 50 millimetres shall be installed at the site for environmental monitoring purposes. One bore shall be installed on the up-gradient side of the Woodend Sewage Treatment Plant site in relation to the direction of the groundwater flow within 20 metres of Gladstone Road and within five metres of the boundary between the RS 39895 and RS 4539, and one bore installed on the down gradient side of the Woodend Sewage Treatment Plant site to meet the following requirements.

a. The bores shall be screened over the interval of 0.5m above the highest recorded groundwater level and 0.5m below the lowest recorded groundwater level at the site.

b. A plan detailing the location of these monitoring bores and GPS coordinates shall be submitted to Canterbury Regional Council within three months of the commencement of the consent.

c. The bores shall be made accessible to Canterbury Regional Council at all times for the purpose of groundwater sampling.

Compliance Report:
Complies

Waimakariri District Council have installed two monitoring bores for the site. The Two monitoring bores are each 100mm diameter. One bore has been installed upgradient of the site this bore has been established in relation to groundwater flow. The second bore has ben established downgradient of the plant.

The management plan provided notes the bores will be screened over the interval of 0.5m above the highest recorded groundwater level and 0.5m below the lowest recorded groundwater level

---

9

a. From the date of commencement of this consent, representative samples of groundwater shall be taken in the months of January, February, March, June, September and December from monitoring bores specified in Condition 8 for the first twelve months.

b. Samples will thereafter be collected at three monthly intervals, including sampling to coincide with the winter groundwater level maximum and the summer groundwater minimum.

Compliance Report:
Complies

In the additional information requested the last 4 sampling rounds of data in accordance with this condition was requested. The last four sampling rounds were conducted in January 2022, October 2021, July 2021 and April 2021. These sampling rounds coincide with Seasonal groundwater levels

---

10 The depth to groundwater in all the bores shall be determined to the nearest centimetre from a surveyed datum point, whenever samples are taken.

Compliance Report:
Complies

Depth to groundwater has been measured at the commencement of each sampling round

---

11 All samples taken in accordance with Condition 9 shall be analysed to determine concentrations of the following contaminants and parameters:
Nitrate nitrogen (milligrams per litre)
Ammoniacal nitrogen (milligrams per litre)
Faecal coliform count (number per 100 millilitres)

Compliance Report:
Complies

Samples taken in accordance with condition 9 have been sampled for the correct contaminants identified in this condition

---

12 The consent holder shall collect, preserve and handle all samples of wastewater, water and sediment required under any condition of this resource consent in accordance with the relevant Australian/New Zealand Standards.

Compliance Report:
Complies

Samples are maintained in accordance with consent conditions

---

13 The laboratory carrying out analyses required under this consent shall be accredited for those analyses to a standard equivalent to NZS/ISO/IEC/17025.

Compliance Report:
Complies

Hills Laboratories conducts all analysis of samples taken

---

14 The results of all analyses, the name of the person taking the samples, and the date and times of sampling shall be provided to the Canterbury Regional Council within 20 working days of being requested.

Compliance Report:
Non-compliance Action required

This consent condition has been graded as Non-Compliance Action Required this is due to Samples taken in accordance with consent conditions not being supplied within 20 working days of the receipt of the samples. The last samples received in accordance with consent conditions was 7th of September 2020.

Action Required:
Submit sample results to the Canterbury Regional Council within the allocated timeframe identified in condition 14 of this consent.

---

15 The consent holder shall within three months of granting of this consent supply a Groundwater Monitoring Plan for domestic bores likely to be affected by the Woodend Sewage Treatment Plant to the Canterbury Regional Council that shall set out how monitoring shall be undertaken. This plan shall include but not necessarily be limited to:

a. Identifying measurement points;

b. Identifying the measurement programme;

c. Consultation with potentially affected property owners

d. Seek approval to monitor identified domestic bores;

e. Reporting of information to the Liaison Group; and

f. Review.

Compliance Report:
Complies

The Groundwater monitoring plan is included within the Woodend Wastewater treatment plant monitoring document. The plan covers the applicable points of this condition

---

16 Operations and Management
The information provided to Canterbury Regional Council in accordance with Condition 14 shall include any recommendations for further action to be taken. This shall include consideration of, but is not limited to, the following options:

a. That no further action is required

b. Determining that elevated concentrations are originating from an off-site source

c. Identifying and notifying affected parties

d. Implementing all necessary measures to reduce the concentration of contamination in groundwater.

Such measures may include: cessation of activities that may have caused the excessive concentrations; repairs to pond or wetland linings.

Compliance Report:
Complies

Recommendations within the Groundwater monitoring plan indicate that within the annual report a review and further recommendations will be made for any amendments to the groundwater monitoring plan

---

17 The consent holder shall provide the Canterbury Regional Council with an annual monitoring report by 31 August each year for the duration of this permit. The monitoring report shall include a summary of the analyses and records collected in accordance with the conditions of this consent and as a minimum shall include:

a. Raw data from all monitoring activities;

b. Summary of all the data collected as required under the conditions of this consent (including graphical presentation and statistical summations of monitoring data) and analysis of the information in terms of compliance of this consent.

c. Highlight and discuss any important environmental trends in the results.

d. Compare results obtained over the reporting period with the results obtained from previous reporting periods.

e. Report and discuss any operational difficulties, changes or improvements undertaken to the sewage treatment plant or process, which would result in a notable variation of water quality.

f. List any maintenance works needed, proposed or undertaken to ensure compliance with the conditions of the consent.

g. A report on the activities carried out under the Groundwater Monitoring Plan for domestic bores.

Compliance Report:
Complies

The 2020-2021 annual monitoring report was received on time however the 2021-2022 annual monitoring report is yet to be received please ensure that the report is received before the 31st of August

---

18

a. The consent holder shall submit to Canterbury Regional Council by 31 July 2006 an Operation and Management Plan that shall set out how the sewage treatment plant, treatment and wetland operations shall perform and function in meeting all conditions of consent.

b. The Operation and Management Plan shall be reviewed annually and if updated shall be submitted to Canterbury Regional Council by 31 August each year.

c. The consent holder shall operate the Woodend Sewage Treatment Plant in accordance with the most current version of the Operation and Management Plan.

Compliance Report:
Complies

Environment Canterbury has received the applicable monitoring plan. Please ensure that if any amendments are made that an updated version is submitted to the Canterbury Regional Council

---

19

a. The consent holder shall make a restricted potable water supply available to the properties on the southern side of Gladstone Road within 300m of the Woodend Sewage Treatment Plant boundary.

b. The water supply shall be available to the properties by 30 September 2006 or within three months of completion of the Woodend Sewage Treatment Plant upgrade works, whichever is sooner.

c. The water supply shall be restricted to 2000 litres per day for potable water supply purposes.

Compliance Report:
Complies

Waimakariri District Council has provided the addition comments in regards to this condition

All dwellings up-gradient of and within 300m of the Woodend WWTP have a connection to the Woodend /Tuahiwi /Pegasus potable water supply as at 2021 (Tech 1 rate system checked on 7 March 2022), confirming compliance with this condition. These properties with dwellings along Gladstone Road, serviced with a potable water supply connection provided by the Council are:

- *221 Gladstone Road*
- *219 Gladstone Road*
- *207 Gladstone Road*
- *205 Gladstone Road*
- *199 Gladstone Road*

These properties each pay the standard $331.76 rate for Woodend/Tuahiwi/Pegasus restricted water supply in 2021; or a larger water rate if additional water units have been purchased.

---

20 The Canterbury Regional Council may, once per year, on any of the last five working days of September or March serve notice of its intention to review the conditions of this consent for the purposes of:

a. dealing with any adverse effect on the environment which may arise from the exercise of the consent not foreseen at the time of granting the consent and is therefore appropriate to deal with later; or

b. requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or

c. complying with the requirements of a relevant rule in an operative regional plan.

Compliance Report:
Complies

The Canterbury Regional Council has no intention in reviewing consent conditions at this time

---

General comments

On Wednesday the 16th of February 2022 I conducted a routine site inspection to the Woodend Wastewater treatment plant, located at Gladstone Road Woodend. The site has four active resource consents;

CRC168388 - To discharge odour and aerosols into air.
CRC168391 - To discharge treated sewage effluent via seepage onto land.
CRC168390 - To use land for storing treating and discharging human effluent

The purpose of my inspection was to ensure compliance with consent conditions. On site I met with Robert Frizzell Wastewater Engineer for Waimakariri District Council.

This consent relates directly to the; discharge of treated sewage effluent via seepage onto land.

Treated wastewater discharges to land via seepage within settling ponds (2A and 2B) and wetlands (1A, 1B, 2A and 2B) as shown in Plan CRC168391A. At the time of my inspection the site appeared to be well maintained and discharge was occurring within the consented area.

Condition 5 of this consent had previously been graded as Non-Compliant Action required. However upon review of the information provided it has now been graded as Non-Compliance No Action required this is due to the exceedances being minor and only occurring during high rainfall events. Please refer to the condition comments for more information.

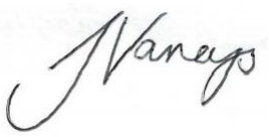
Condition 14 of this consent has been graded as Non-Compliance Action Required. This is due to sample results not being submitted within 20 working days of the receipt of results. The action required is to submit sample results within the timeframes indicated within consent conditions.

A follow up inspection has been scheduled for November 2022 to ensure compliance has been met

Thankyou for assisting me with my inspection and providing the additional requested information. An invoice will be sent in due course. If you have any queries regarding compliance monitoring, please contact me on 027 217 0286 or email me at shania.vanags@ecan.govt.nz. For any other inquiries please contact Customer Services on 0800 324 636.

Date Inspected: 02 May 2022

Monitored By: Shania Vanags

Signature: 

Resource Management Officer I - Compliance Monitoring

General information

Canterbury Regional Council Obligations

Under Section 35 of the Resource Management Act 1991, the Canterbury Regional Council has a duty to monitor all resource consent exercised within its region, to make sure all the conditions are being complied with.

Monitoring Frequency

The frequency with which your consent is monitored will vary according to the type of activity your consent authorises, the conditions imposed and the extent to which you have complied with these conditions on previous visits. **If you fully comply with all conditions then frequency will reduce to the minimum set for the activity.**

Costs

It is the Council's policy to recover all actual and reasonable costs of compliance monitoring of resource consents.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636
200 Tuam Street
PO Box 345
Christchurch 8140
E. ecinfo@ecan.govt.nz
www.ecan.govt.nz

1 April 2022

Waimakariri District Council
Private Bag 1005
Rangiora 7440

Dear Sir/Madam

Compliance Monitoring Report

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number:	CRC950610
Location:	Between Ferry Road And Clifford Road, KAIAPOI
Description:	to discharge contaminants (including odours) to air from the Kaiapoi sewage treatment and disposal system at or about map reference M35:848-576.

Overall Inspection Compliance: **Complies**

Thank you for complying with the resource consent conditions that have been monitored.

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

Reminder(s)

If you would like any further information regarding this report please do not hesitate to contact me.

Yours sincerely

Shania Vanags
Resource Management Officer I - Compliance Monitoring

Doc No: *C22C/71449*
Your Customer No: *EC116063*
File No(s): *CO6C/05439*

Consent No: ***CRC950610***

Description of consent	**Date Consent Number Issued**
to discharge contaminants (including odours) to air from the Kaiapoi sewage treatment and disposal system at or about map reference M35:848-576.	02 Jun 1995
Location	**Expiry Date**
Between Ferry Road And Clifford Road, KAIAPOI	25 May 2030

Conditions & compliance

1 The sewage treatment and disposal system, including oxidation ponds, wetland, rock/sand filter and UV disinfection system shall be operated by the consent holder such that there shall be no odour causing nuisance at neighbouring dwellings that is considered offensive or objectionable by an enforcement officer of the Canterbury Regional Council and that is attributable by that officer to the operation of the sewage effluent treatment system.

Compliance Report:
Complies

At the time of my inspection I did not note any offensive or objectionable odour exceeding the properties boundary. The site has significant buffers to assist in the containment of odour. While conducting the inspection I did not note any odour on site.

2 Records shall be maintained of any odour complaints, in which the complainant considers the odours result from the sewage treatment and disposal operations at this site.These records shall include(a) Location of complainant when odour detected;(b) Date and time of odour detection;(c) Wind speed and direction when odour detected;(d) Any possible cause of odour complained of; and(e) Any corrective action taken.These records shall be made available to the Canterbury Regional Council, upon request.

Compliance Report:
Complies

Waimakariri District Council maintains records of odour complaint with the applicable details identified in this condition. Corrective measures are taken where required.

3 The Canterbury Regional Council may annually, on the last working day of May each year, serve notice of its intention to review the conditions of this consent for the purposes of:(i) dealing with any adverse effect on the environment which may arise from the exercise of the consent;(ii) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or(iii) complying with the requirements of a regional plan.

Compliance Report:
Complies

The Canterbury Regional Council currently has no intentions in reviewing the conditions of this consent.

---

4 Charges, set in accordance with section 36(2) of the Resource Management Act 1991, shall be paid to the Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of resource consents and for the carrying out of its functions under section 35 of the Act.

Compliance Report:
Complies

General comments

On Wednesday the 16th of February 2022 I conducted a routine site inspection to the Kaiapoi Wastewater treatment plant, located at Ferry Road Kaiapoi. The site has four active resource consents;

CRC950610 - Discharge of odour to air
CRC031724 - Discharge to subsoil toe drain
CRC041049 - Discharge of treated sewage via infiltration wetland
CRC154176 - Discharge of contaminants to land - De Sludging

The purpose of my inspection was to ensure compliance with consent conditions. On site I met with Robert Frizzell - Wastewater Engineer for Waimakariri District Council.

This consent relates directly to the; discharge contaminants (including odours) to air from the Kaiapoi sewage treatment and disposal system at or about map reference M35:848-576

At the time of my inspection I did not note any offensive or objectionable odours exceeding the properties boundary. Please ensure that ia any complaints are received the appropriate actions are taken

Thankyou for assisting me with my inspection and providing the additional requested information. An invoice will be sent in due course. If you have any queries regarding compliance monitoring, please contact me on 027 217 0286 or email me at shania.vanags@ecan.govt.nz. For any other inquiries please contact Customer Services on 0800 324 636.

Date Inspected: 17 Feb 2022

Monitored By: Shania Vanags

Signature: 

Resource Management Officer I - Compliance Monitoring

General information

Canterbury Regional Council Obligations

Under Section 35 of the Resource Management Act 1991, the Canterbury Regional Council has a duty to monitor all resource consent exercised within its region, to make sure all the conditions are being complied with.

Monitoring Frequency

The frequency with which your consent is monitored will vary according to the type of activity your consent authorises, the conditions imposed and the extent to which you have complied with these conditions on previous visits. **If you fully comply with all conditions then frequency will reduce to the minimum set for the activity.**

Costs

It is the Council's policy to recover all actual and reasonable costs of compliance monitoring of resource consents.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636
200 Tuam Street
PO Box 345
Christchurch 8140
E. ecinfo@ecan.govt.nz
www.ecan.govt.nz

31 March 2022

Waimakariri District Council
Private Bag 1005
Rangiora 7440

Dear Sir/Madam

Compliance Monitoring Report
Waimakariri Water Management Zone

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number:	CRC031724
Location:	Ferry Road, KAIAPOI
Description:	To discharge groundwater from subsoil drains and toe drains around infiltration wetland into the coastal marine area of Jockey Baker Creek, a tributary of the Waimakariri River.

Overall Inspection Compliance: **Unable to determine compliance**

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

Reminder(s)

If you would like any further information regarding this report please do not hesitate to contact me.

Yours sincerely

Shania Vanags
Resource Management Officer I - Compliance Monitoring

Doc No: *C22C/69496*
Your Customer No: *EC116063*
File No(s): *CO6C/04832*

Consent No: ***CRC031724***

Description of consent	**Date Consent Number Issued**
To discharge groundwater from subsoil drains and toe drains around infiltration wetland into the coastal marine area of Jockey Baker Creek, a tributary of the Waimakariri River.	13 Jul 2004
Location	**Expiry Date**
Ferry Road, KAIAPOI	12 Jul 2039

Conditions & compliance

1 The discharge will be at or about map reference NZMS 260 M35: 8465-5763.

Compliance Report:
Unable to determine compliance

As this consent is rarely exercised i was unable to determine compliance with this condition as there was no discharge at the time of my inspection.

General comments

On Wednesday the 16th of February 2022 I conducted a routine site inspection to the Kaiapoi Wastewater treatment plant, located at Ferry Road Kaiapoi. The site has four active resource consents;

CRC950610 - Discharge of odour to air
CRC031724 - Discharge to subsoil toe drain
CRC041049 - Discharge of treated sewage via infiltration wetland
CRC154176 - Discharge of contaminants to land - De Sludging

The purpose of my inspection was to ensure compliance with consent conditions. On site I met with Robert Frizzell - Wastewater Engineer for Waimakariri District Council.

This consent relates directly to the; To discharge groundwater from subsoil drains and toe drains around infiltration wetland into the coastal marine area of Jockey Baker Creek, a tributary of the Waimakariri River.

At the time of my inspection Robert Frizzell advised that this consent is rarely exercised. In the additional information request returned by Waimakariri District Council the following comments have been made (C22C/69441).

The consent CRC031724 has been rarely exercised since the commissioning of the Ocean Outfall. During high rain events, the discharge via sub-surface drains to the Jockey Baker Creek has become effectively obsolete since the commissioning of the ocean outfall in 2006.

The consent CRC031724 has however been retained by the Council because it allows a discharge of any surplus storm water from a 'toe' drain that surrounds the wetlands. This discharge occurs only during high rainfall events, when the toe drain flow exceeds 5 litres a second. This is expected to be a rare event and the discharge will be almost entirely storm run-off, not effluent.

Retention of the consent ensures the Council can continue to divert any surplus runoff away from the plant's effluent treatment system so as to not overwhelm it and assist it to avoid an reduction in effectiveness of the wastewater treatment.

At the time of my inspection there was no discharge to Jockey Baker creek occurring therefore I was unable to determine compliance with consent conditions. Please ensure that the applicable testing is conducted when discharge occurs.

Thankyou for assisting me with my inspection and providing the additional requested information. An invoice will be sent in due course. If you have any queries regarding compliance monitoring, please contact me on 027 217 0286 or email me at shania.vanags@ecan.govt.nz. For any other inquiries please contact Customer Services on 0800 324 636.

Date Inspected: 31 Mar 2022

Monitored By: Shania Vanags

Signature: 

Resource Management Officer I - Compliance Monitoring

General information

Canterbury Regional Council Obligations

Under Section 35 of the Resource Management Act 1991, the Canterbury Regional Council has a duty to monitor all resource consent exercised within its region, to make sure all the conditions are being complied with.

Monitoring Frequency

The frequency with which your consent is monitored will vary according to the type of activity your consent authorises, the conditions imposed and the extent to which you have complied with these conditions on previous visits. **If you fully comply with all conditions then frequency will reduce to the minimum set for the activity.**

Costs

It is the Council's policy to recover all actual and reasonable costs of compliance monitoring of resource consents.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

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E. ecinfo@ecan.govt.nz
www.ecan.govt.nz

31 May 2022

Waimakariri District Council
Private Bag 1005
Rangiora 7440

Dear Sir/Madam

Compliance Monitoring Report
Waimakariri Water Management Zone

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number:	CRC041049
Location:	Ferry Road, KAIAPOI
Description:	To discharge treated sewage effluent from the Kaiapoi Sewage Treatment Plant and the Rangiora Sewage Treatment Plant to the infiltration wetland at the Kaiapoi Sewage Treatment Plant; and to discharge treated sewage effluent to groundwater via seepage from the base of the oxidation ponds, infiltration wetlands, and sand filters at the Kaiapoi Sewage Treatment Plant.

Overall Inspection Compliance: **Non-compliance Action required**

This matter needs your immediate attention.

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

Reason(s) for non-compliance:

The Action required is to submit sampling results within 20 working days of the receipt of the results.

Please contact me on 0800 324 636 to discuss the actions needed to achieve compliance.

Yours sincerely

Shania Vanags
Resource Management Officer I - Compliance Monitoring

Doc No: *C22C/114055*
Your Customer No: *EC116063*
File No(s): *CO6C/18113*

Consent No: ***CRC041049***

Description of consent	**Date Consent Number Issued**
To discharge treated sewage effluent from the Kaiapoi Sewage Treatment Plant and the Rangiora Sewage Treatment Plant to the infiltration wetland at the Kaiapoi Sewage Treatment Plant; and to discharge treated sewage effluent to groundwater via seepage from the base of the oxidation ponds, infiltration wetlands, and sand filters at the Kaiapoi Sewage Treatment Plant.	13 Jul 2004
Location	**Expiry Date**
Ferry Road, KAIAPOI	25 May 2030

Conditions & compliance

1 The area of discharge for the infiltration wetland will be approximately 32 hectares, and the area of discharge for the oxidation ponds, infiltration wetland and sand filters will be approximately 60 hectares. located between Ferry and Clifford Road, at or about map reference, NZMS 260 M35: 847-579.

Compliance Report:
Complies

At the time of my inspection Rob advised that the discharge/infiltration area is approximately 30-32 hectares. During the inspection Rob also mentioned that the sand filters on site have been decommissioned and the only form of discharge is either via the ocean outfall or through infiltration via the wetlands.

2 The consent holder shall monitor on-site bores 1, 2, and 3 (Figure 4 of Mr Callander's evidence) and two new monitoring bores within 200 metres of the site, on a monthly basis for a period of up to two years after the introduction of Rangiora effluent into the wetland, thereafter at three monthly intervals. Samples from the monitoring shall be analysed for faecal coliforms, E.coli, nitrate-nitrogen and ammoniacal-nitrogen.

Compliance Report:
Complies

Four bores have been installed for the site two upgradient bores and two down gradient. The site now conducts quarterly sampling aligning with this consent condition. In the additional information provided it has been indicated that the last four sampling rounds were:

- 8 February 2022
- 29 October 2021
- 5 August 2021
- 27 April 2021

The sample results indicate that the applicable contaminants have been sampled for

3 The consent holder shall collect and analyse water and wastewater samples required under these consent conditions in accordance with "Standard Methods for the Examination of Water and Wastewater" prepared and published by the American Public Health Association, the American Waterworks Association and the Water Environment Federation - the current edition – or any other suitable methodology acceptable to the Canterbury Regional Council. Micro-organisms shall be tested and analysed using methods acceptable to the Canterbury Regional Council.

Compliance Report:
Complies

Analysis of samples is conducted by Hills laboratories. Best practicable methods are used for analysis

4 The laboratory carrying out analyses required under this consent shall be accredited for those analyses to a standard equivalent to NZS/ISO/IEC/ 17025.

Compliance Report:
Complies

Hill Laboratories conducts analysis on all WWTP sampling for the Kaiapoi Site

5 A copy of the results of the analyses shall be forwarded to Canterbury Regional Council within one month of receipt of them by the Consent Holder.

Compliance Report:
Non-compliance Action required

At the time of inspection Environment Canterbury had not received any sampling results since the 19th of January 2021. Therefore compliance with this condition has not been met as sample results have not been submitted within the 20 working day period as indicated by this condition.

This condition has subsequently been graded as Non-Compliant Action -Required.

Action Required:
The Action required is to submit sampling results within 20 working days of the receipt of the results.

6 The consent holder shall provide the Canterbury Regional Council with an annual monitoring report within two months of the 30th June in each year during the term of this consent. The monitoring report shall include a summary of the analyses and records collected in accordance with the conditions of this consent and as a minimum shall include:

a. Summarise all the data collected as required under the conditions of this consent (including graphical presentation and statistical summations of monitoring data) and analyse the information in terms of compliance of this consent.

b. Highlight and discuss any important environmental trends in the results.

c. Compare results obtained over the reporting period with the results obtained from previous reporting periods.

d. Report and discuss any operational difficulties, changes or improvements undertaken to the sewage treatment plants or process, which would result in a notable variation of water quality or volume discharged.

e. List any maintenance works needed, proposed or undertaken to ensure compliance with the conditions of the consent.

f. A report on the activities undertaken under the insect control management plan.

g. A report on the activities undertaken under the groundwater monitoring plan.

Compliance Report:
Not monitored

The 2021-2021 monitoring repot is yet to be submitted to the Canterbury Regional Council. Please ensure that this is submitted within the given time frame identified in this condition

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7 The Canterbury Regional Council may once per year, on any of the last five working days of May or November in each year, serve notice of its intention to review the conditions of the consent for the purpose of:

a. dealing with any adverse effect on the environment which may arise from the exercise of this consent, which was not foreseen at the time of its grant and which is therefore more appropriate to deal with at a later stage; or

b. requiring the consent holder to adopt the best practicable option to remove or reduce any adverse effect on the environment resulting from the activity.

Compliance Report:
Complies

The Canterbury Regional Council Currently has no intentions in reviewing consent conditions at this time

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8 Within six months of the granting of the consent, the Council is to make available to all dwelling units within 400 metres of the Kaiapoi sewage treatment plant boundary a standard rural water supply connection of potable water.

Compliance Report:
Unable to determine compliance

It has been requested in a previous CMR sent that there be confirmation of this included in the 2021-2022 annual report

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9 The consent holder shall supply to the Canterbury Regional Council within three months of granting of this consent an Insect Control Management Plan. This plan shall include but not necessarily be limited to:

a. Surveillance methodology;

b. Control methodology;

c. Trigger levels;

d. Consultation with community;

e. Reporting;

f. Review.

Compliance Report:
Unable to determine compliance

It has been requested in a previous CMR sent that there be confirmation of this included in the 2021-2022 annual report

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10 The consent holder shall supply to the Canterbury Regional Council within two months of granting of this consent a Groundwater Monitoring Plan. This plan shall include but not necessarily be limited to:

a. Identifying measurement points;

b. Identifying measurement programme;

c. Consultation with adjacent property owners;

d. Reporting;

e. Review.

Compliance Report:
Unable to determine compliance

It has been requested in a previous CMR sent that there be confirmation of this included in the 2021-2022 annual report

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11 Within two months from the date of the grant of this consent the Council shall install groundwater monitoring bores in accordance with the Groundwater Monitoring Plan.

Compliance Report:
Unable to determine compliance

It has been requested in a previous CMR sent that there be confirmation of this included in the 2021-2022 annual report

General comments

On Wednesday the 16th of February 2022 I conducted a routine site inspection to the Kaiapoi Wastewater treatment plant, located at Ferry Road Kaiapoi. The site has four active resource consents;

CRC950610 - Discharge of odour to air
CRC031724 - Discharge to subsoil toe drain
CRC041049 - Discharge of treated sewage via infiltration wetland
CRC154176 - Discharge of contaminants to land - De Sludging

The purpose of my inspection was to ensure compliance with consent conditions. On site I met with Robert Frizzell - Wastewater Engineer for Waimakariri District Council.

This consent relates directly to the; Discharge of treated sewage via infiltration wetland

Condition 5 of this consent has been graded as Non-Compliant Action Required. This grading has been given due to Sample results not being submitted within the allocated time frames. No sample results had been received at the time of my inspection. Please refer to consent comments for further information.

A follow up inspection has been scheduled for November 2022 to ensure compliance has been met

Thankyou for assisting me with my inspection and providing the additional requested information. An invoice will be sent in due course. If you have any queries regarding compliance monitoring, please contact me on 027 217 0286 or email me at shania.vanags@ecan.govt.nz. For any other inquiries please contact Customer Services on 0800 324 636.

Date Inspected: 20 Apr 2022

Monitored By: Shania Vanags

Signature: 

Resource Management Officer I - Compliance Monitoring

General information

Canterbury Regional Council Obligations

Under Section 35 of the Resource Management Act 1991, the Canterbury Regional Council has a duty to monitor all resource consent exercised within its region, to make sure all the conditions are being complied with.

Monitoring Frequency

The frequency with which your consent is monitored will vary according to the type of activity your consent authorises, the conditions imposed and the extent to which you have complied with these conditions on previous visits. **If you fully comply with all conditions then frequency will reduce to the minimum set for the activity.**

Costs

It is the Council's policy to recover all actual and reasonable costs of compliance monitoring of resource consents.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

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www.ecan.govt.nz

1 April 2022

Waimakariri District Council
Private Bag 1005
Rangiora 7440

Dear Sir/Madam

Compliance Monitoring Report
Waimakariri Water Management Zone

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number: CRC154176
Location: 2 Ferry Road, Kaiapoi
Description: To discharge contaminants to land.

Overall Inspection Compliance: **Complies**

Thank you for complying with the resource consent conditions that have been monitored.

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

Reminder(s)

If you would like any further information regarding this report please do not hesitate to contact me.

Yours sincerely

Shania Vanags
Resource Management Officer I - Compliance Monitoring

Doc No: *C22C/71309*
Your Customer No: *EC116063*
File No(s): *CRC154176*

Consent No: ***CRC154176***

Description of consent	**Date Consent Number Issued**
To discharge contaminants to land.	30 Jan 2015
Location	**Expiry Date**
2 Ferry Road, Kaiapoi	30 Jan 2050

Conditions & compliance

1 The activity shall only occur on the Kaiapoi Wastewater Treatment Plant Property located at 2 Ferry Road, Kaiapoi, on the lots legally described as Pt RES 270 Block XVI Rangiora Survey District, Lot 1 DP 8874, RES 48 and RS 40148, at or about map reference NZTopo50 BW24:7473-9642, as shown on Plan CRC154176A, attached to and forming part of this consent.

Compliance Report:
Complies

At the time of my inspection no desludging was occurring however in 2016 desludging of pond 2B occurred and the sludge is stored in geotextile bags in an lined basin

2 The discharge of sludge and associated leachate shall only be from the burial of the dewatered sludge from pond 2B of the Kaiapoi Wastewater Treatment Plant.

Compliance Report:
Unable to determine compliance

At the time of my inspection Robert Frizzel advised that WDC had no intentions in burying the Sludge. While onsite I observed that sludge had been stored in geotextile bags within a lined and bunded area. Leachate is pumped back into the Wastewater treatment plant for treatment.

3 Sludge shall be suction dredged from wastewater pond 2B, flocculated, then piped to geotextile bags, via a closed system, for storage and dewatering.

Compliance Report:
Complies

As mentioned above no desludging was occurring at the time of my inspection however sludge was stored in geo textile bags it was apparent that sludge has been piped in via a closed system

4 The geotextile bags shall be stored in a lined, bunded dewatering pond on site, located as shown on plan CRC154176B, which forms part of this consent.

Compliance Report:
Complies

The Geotextile bags used for desludging material are located and stored consistently with this condition

5 The lining of the dewatering pond shall be 1.5 mm HPDE lining or equivalent.

Compliance Report:
Complies

The additional information provided by Waimakariri District Council indicates that the lining of the dewatering pond is 1.5mm HDPE lining as required by this consent condition.

6 Once dewatering is complete the geotextile bags shall be buried within the dewatering pond, and covered with a minimum of 200mm of topsoil.

Compliance Report:
Unable to determine compliance

At the time of inspection Robert Frizzell advised that the bags had not been covered with topsoil. I was able to confirm this.

In the additional information provided by Waimakariri District Council the following comments have been made to why the bags have not yet been covered after the 2016 desludging of pond 2B.

The dewatering is still continuing. The leachate from rain draining through the sludge is still continuously being diverted by pumping into the treatment plant.

The sludge is continuing to digest over time and is continuously reducing in height, volume and area within the bunds. There is now no practical reason to bury the sludge at this stage.

Future contamination testing may be required if an alternative on or off-site final disposal location for the sludge is determined in future. As the sludge continues to reduce in size, an increasing area within the dewatering basin is now becoming available to use to contain any future sludge for dewatering, during future desludging.

As dewatering is still occurring I cannot determine compliance with this condition. However the above comments clearly identify the Districts Councils intent to not bury the geotextile bags.

7 The consent holder shall ensure the liner and sludge storage area is installed in accordance with the specifications and standards outlined in Waimakariri District Council

Kaiapoi Oxidation Pond 2B De-sludging Contract. An engineer shall certify that the liner is sealed and passes leak testing. This certification shall be submitted to the Canterbury Regional Council, Attention: RMA compliance and Enforcement Manger, within one month of dewatering commencing.

Compliance Report:

Complies

At the time of inspection Robert Frizzell advised that the applicable plastic welding and inspections were conducted to ensure that the basin was sealed and would not leak.

In the additional information provided, the validation report from Agruline was supplied. This report clearly indicates that in 2014 the basin was inspected, and the applicable welding had taken place and was sufficient in ensuring that no seepage or leaking would occur.

---

8 The geotextile bag and sludge storage area shall be formed, contoured and lined to ensure water within the storage area drains to a collection point from where it can be pumped back to the oxidation pond.

Compliance Report:

Complies

At the time of my inspection Rob advised that the collection zone had a natural fall to allow for dewatering to occur

---

9 The consent holder shall ensure that if water does pool within the lined area, it shall not overtop the bund. Should pooled water overtop the bund the consent holder shall inform the Canterbury Regional Council: Attention: RMA Compliance and Enforcement manager, within 48 hours of any leak or spill and shall provide the following information:

a. The date, time, location and estimated volume of the spill;

b. Details of steps undertaken to control and remediate the effects of the spill on the receiving environment;

c. An assessment of any potential effects arising from the spill; and

d. Measures to be undertaken to prevent a recurrence.

Compliance Report:

Not monitored

Significant amounts of storm water would have to accumulate for this to occur the the geotextile bags are no longer discharging high volumes of liquid.

---

10 The discharge of drainage water from within the lined pool shall be returned to the adjacent oxidation pond 2B until such time as a minimum of 12 month period since the sludge was placed in the dewatering pond has occurred. Following this minimum period, the sludge will be buried within the lined pool.

Compliance Report:

Complies

Discharge within the lined basin is pumped back into the wastewater treatment plant for treatment and disposal.

11 The consent holder shall inspect the sludge dewatering area at least once every three months prior to burial to ensure there are no leaks or damage to the liner or overtopping of the bunded and lined area.

Compliance Report:
Complies

At the time of inspection Robert Frizzell advised that regular visual inspections of the area are conducted. Please ensure that these inspections are comprehensive.

12 The Canterbury Regional Council may, on any of the last five days of May or November each year, serve notice of its intention to review the conditions of this consent for the purposes of:

a. Dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or

b. Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or

c. Requiring the consent holder to carry out monitoring and reporting instead of, or in addition to, that required by the consent; or

d. Complying with the requirements of a relevant rule in an operative regional plan.

Compliance Report:
Complies

The Canterbury Regional Council has no intention in reviewing consent conditions at this time

13 The lapsing date for the purposes of section 125 of the Resource Management Act 1991 shall be 31 March 2020.

Compliance Report:
Complies

This consent was exercised before the lapsing date described in this decision

General comments

On Wednesday the 16th of February 2022 I conducted a routine site inspection to the Kaiapoi Wastewater treatment plant, located at Ferry Road Kaiapoi. The site has four active resource consents;

CRC950610 - Discharge of odour to air
CRC031724 - Discharge to subsoil toe drain
CRC041049 - Discharge of treated sewage via infiltration wetland
CRC154176 - Discharge of contaminants to land - De Sludging

The purpose of my inspection was to ensure compliance with consent conditions. On site I met with Robert Frizzell - Wastewater Engineer for Waimakariri District Council.

This consent relates directly to the; To discharge contaminants to land

On site Robert Advised that desludging of pond 2B occurred in 2016, and that dewatering from the lined basin was still occurring. He advised that the dewatered leachate is likely from storm water as the bags over the years have decreased in volume as the sludge has dried. The geotextile bags act as a one way valve allowing for liquids to be expresses however not infiltrate back into the bags. The basin lining appeared to be well maintained with Robert advising that regular inspections are conducted to ensure no deterioration or damage has occurred.

Thankyou for assisting me with my inspection and providing the additional requested information. An invoice will be sent in due course. If you have any queries regarding compliance monitoring, please contact me on 027 217 0286 or email me at shania.vanags@ecan.govt.nz. For any other inquiries please contact Customer Services on 0800 324 636.

Date Inspected: 01 Apr 2022

Monitored By: Shania Vanags

Signature: 

Resource Management Officer I - Compliance Monitoring

General information

Canterbury Regional Council Obligations

Under Section 35 of the Resource Management Act 1991, the Canterbury Regional Council has a duty to monitor all resource consent exercised within its region, to make sure all the conditions are being complied with.

Monitoring Frequency

The frequency with which your consent is monitored will vary according to the type of activity your consent authorises, the conditions imposed and the extent to which you have complied with these conditions on previous visits. **If you fully comply with all conditions then frequency will reduce to the minimum set for the activity.**

Costs

It is the Council's policy to recover all actual and reasonable costs of compliance monitoring of resource consents.

Environment Canterbury Regional Council
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25 March 2022

Waimakariri District Council
Private Bag 1005
Rangiora 7440

Dear Sir/Madam

Compliance Monitoring Report

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number:	CRC962560
Location:	Waikuku Beach, WAIKUKU
Description:	to discharge contaminants into air at or about map reference M35:868-678 from two oxidation ponds and a wetland.

Overall Inspection Compliance: **Complies**

Thank you for complying with the resource consent conditions that have been monitored.

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

Reminder(s)

If you would like any further information regarding this report please do not hesitate to contact me.

Yours sincerely

Shania Vanags
Resource Management Officer I - Compliance Monitoring

Doc No: *C22C/65765*
Your Customer No: *EC116063*
File No(s): *CO6C/11811*

Consent No: ***CRC962560***

Description of consent	**Date Consent Number Issued**
to discharge contaminants into air at or about map reference M35:868-678 from two oxidation ponds and a wetland.	20 Nov 1996
Location	**Expiry Date**
Waikuku Beach, WAIKUKU	14 Nov 2031

Conditions & compliance

1 The discharge shall not cause an odour, which is determined to be objectionable or offensive by an enforcement officer of the Canterbury Regional Council, beyond the property boundary of the consent holder.

Compliance Report:
Complies

At the time of my inspection I could not identify any offensive or objectionable odours exceeding the properties boundary.

2 A record of complaints relating to odour from the site shall be maintained, and shall include:(a) location of where odour detected by complainant;(b) date and time when odour detected ;(c) a description of wind speed and wind direction when odour detected by complainant;(d) the most likely cause of odour detected; and(e) any corrective action undertaken by the consent holder to avoid, remedy or mitigate the odour detected by complainant. This record shall be provided to the Canterbury Regional Council on request.

Compliance Report:
Complies

At the time of inspection Robert Frizzell - WDC Wastewater Engineer identified that there had been no recent complaints received regarding the discharge of objective or offensive odour from this site.

Waimakariri District Council maintain records of all odour complaints consistent with consent conditions.

3 The Canterbury Regional Council may annually, on the last working day of October, serve notice of its intention to review the conditions of this consent for the purposes of:(a) dealing with any adverse effect on the environment which may arise from the exercise of the consent and which is appropriate to deal with at a later stage; or(b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or(c) complying with the requirements of a relevant rule in an operative regional plan.

Compliance Report:
Complies

The Canterbury Regional Council has no intentions in reviewing consent conditions at this time

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4 Charges, set in accordance with section 36 of the Resource Management Act 1991, shall be paid to the Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of resource consents and for the carrying out of its functions under section 35 of the Act.

Compliance Report:
Complies

Please ensure all charges are paid accordingly

General comments

On Thursday the 24th March 2022 I conducted a site inspection at the Waikuku Wastewater Treatment Plant located at 2 Kiwi Avenue Waikuku Beach.

On site I met with Robert Frizzell - Waimakariri District Council Wastewater Engineer and Monese Ball - Waimakariri District Council Solid Waste.

The purpose of my inspection was to ensure compliance with consent conditions. On Site Rob Frizzell walked me through the day-to-day functioning's of the site. The site only receives wastewater from Waikuku beach - the population here fluctuates due to many of the properties being holiday houses. At the time of my inspection the site appeared to be well maintained with appropriate fencing and signage

Wastewater flows into the site and through a screen from which the liquids flow into an oxidation pond which has a retention time of approximately 30 days. The pond has two aerators. From this pond wastewater then enters a secondary oxidation pond which has the retention time of approximately 20 days. The treated wastewater then flows via an outlet and piped system to Woodend for which it undergoes treatment at the Woodend wastewater treatment plant.

At the time of my inspection there was adequate freeboard available. Robert Frizzell advised that desludging at the site occurred approximately 15 years ago. This was done manually - allowing the ponds to dry out and then the dried material was removed.

At the time of inspection Robert Frizzell advised that the site rarely receives any odour complaints and hasn't received any recent complaints. The site is located within a clearing surrounded by vegetation, this will act as a barrier to avoid the discharge of offensive or objectionable odour exceeding the properties boundary.

Thankyou for assisting me with my inspection. An invoice will be sent in due course. If you have any queries regarding compliance monitoring, please contact me on 027 217 0286 or email me at shania.vanags@ecan.govt.nz. For any other inquiries please contact Customer Services on 0800 324 636.

Date Inspected: 24 Mar 2022

Monitored By: Shania Vanags

Signature: 

Resource Management Officer I - Compliance Monitoring

General information

Canterbury Regional Council Obligations

Under Section 35 of the Resource Management Act 1991, the Canterbury Regional Council has a duty to monitor all resource consent exercised within its region, to make sure all the conditions are being complied with.

Monitoring Frequency

The frequency with which your consent is monitored will vary according to the type of activity your consent authorises, the conditions imposed and the extent to which you have complied with these conditions on previous visits. **If you fully comply with all conditions then frequency will reduce to the minimum set for the activity.**

Costs

It is the Council's policy to recover all actual and reasonable costs of compliance monitoring of resource consents.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636
200 Tuam Street
PO Box 345
Christchurch 8140
E. ecinfo@ecan.govt.nz
www.ecan.govt.nz

20 May 2022

Waimakariri District Council
Private Bag 1005
Rangiora 7440

Dear Sir/Madam

Compliance Monitoring Report
Waimakariri Water Management Zone

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number:	CRC144561
Location:	46 High Street, OXFORD
Description:	land use consent for the establishment of a storage basin to store sewage and for associated earthworks

Overall Inspection Compliance: **Complies**

Thank you for complying with the resource consent conditions that have been monitored.

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

Reminder(s)

If you would like any further information regarding this report please do not hesitate to contact me.

Yours sincerely

Shania Vanags
Resource Management Officer I - Compliance Monitoring

Doc No: *C22C/107780*
Your Customer No: *EC116063*
File No(s): *CRC144561*

Consent No: ***CRC144561***

Description of consent	**Date Consent Number Issued**
land use consent for the establishment of a storage basin to store sewage and for associated earthworks	31 Mar 2014
Location	**Expiry Date**
46 High Street, OXFORD	08 Aug 2031

Conditions & compliance

1 The use of land shall be only for:

a. excavation associated with the construction of a Wet Weather Holding Pond; and

b. the collection, storage and treatment of municipal domestic wastewater and stormwater ('wastewater').

Compliance Report:
Complies

St the time of my inspection no excavation was occurring as the Wet weather holding pond had been installed. The land use at the site is for the collection storage and treatment of municipal domestic wastewater and stormwater

2 The Wet Weather Holding Pond shall be located as shown on Plan CRC144561A, which forms part of this consent.

Compliance Report:
Complies

The wet weather holding pond is located within the consented area as identified in CRC144561A

3 The Wet Weather Holding Pond shall be sealed with a material of low permeability such that any seepage from these structures onto or into land does not exceed an average rate of one millimetre per day.

Compliance Report:
Complies

The holding pond is lined with a durable plastic. The material is a 1.5 mm thick High-Density Polyethylene (DEPE) Membrane Liner.

4 The consent holder shall provide to the Canterbury Regional Council a report on the method of construction of the Wet Weather Holding Pond that demonstrates compliance with the seepage rate referred to in condition (3). The report shall be supplied to Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, prior to the first use of the wastewater storage facility.

Compliance Report:
Complies

The previous seepage test was carried out in 2014 to demonstrate compliance with condition 3. The seepage test report has been provided to Environment Canterbury the report includes the methodology of construction.

---

5 At any time as requested by the Canterbury Regional Council, the consent holder shall have the average seepage rate of the Wet Weather Holding Pond tested and certified by a Chartered Professional Engineer (CPEng). The certificate shall be supplied to Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within one month of the completion of the testing.

Compliance Report:
Not monitored

The Canterbury Regional Council does not request a seepage test at this time

---

6 The Wet Weather Holding Pond and all associated tanks, pipes and channels shall be sealed and maintained to prevent the leakage or overflowing of wastewater onto or into land.

Compliance Report:
Complies

At the time of inspection there did not appear to be any leaking or overflows of the wet weather holding pond. Effluent had recently been held in the pond and discharged back into the treatment system.

---

7 The Wet Weather Holding Pond shall not be located within:

a. 20 metres of any wetland, surface water body or artificial watercourse; or

b. 50 metres up gradient in relation to groundwater flow and 30 metres in any other direction of a bore.

Compliance Report:

Complies

The Weather Holding Pond is not located within 20 meters of a wetland surface water body or artificial watercourse. The nearest bore is located 70 meters away

---

8 Construction works authorised by this consent shall:

a. be limited to the area defined on Plan CRC144561A; and

b. not be carried out on Sundays or public holidays; and

c. from Monday through to Friday only occur between the hours of 7.30am and 5.30pm inclusive; and

d. on Saturdays only occur between the hours of 9am and 5pm inclusive.

Compliance Report:
Not monitored

Construction Works under this consent have been completed

---

9 Within one month of the installation of the Wet Weather Holding Pond, the consent holder shall provide to the Canterbury Regional Council, Attention: RMA Compliance and Monitoring, a copy of the Odour Management Plan. The Odour Management Plan shall be incorporated into the Oxford Wastewater Treatment Plant's Operations Manual and shall include the specifications detailed in Appendix A.

Compliance Report:
Complies

An Odour Management Plan has been submitted to Environment Canterbury as part of the Oxford WWTP Operations Manual (C15C/2057).

---

10 The Wet Weather Holding Pond shall:

a. be used for storage of excess flows relating to extreme weather events only when wastewater flows to the treatment facility exceed the rate of 16 litres per second; and

b. be constructed in accordance with the specifications on Plan CRC144561B.

Compliance Report:
Complies

The Oxford WWTP Operations Manual identifies that the Wet Weather Holding Pond will capture wet weather flow in excess of 16 L/s and store the captured volume until the inflow to the plant subsides. From there the holding pond wastewater will be pumped back through the site for treatment when conditions permit to do so

---

11 All stored wastewater contained within the Wet Weather Holding Pond labelled on Plan CRC144561A shall be pumped back through the secondary treatment processes at the plant following temporary storage.

Compliance Report:
Complies

All stored wastewater is pumped through the plant for treatment before discharge to land

---

12 The spillway incorporated into the design for the Wet Weather Holding Pond shall:

a. be constructed in accordance with the design specifications on Plan CRC144561B page 2 of 2; and

b. be used only in the event of a catastrophic 1 in 100 year rainfall event.

Compliance Report:
Complies

The spill way appeared to be constructed in accordance with the Plan CRC144561B

---

13 The Wet Weather Holding Pond labelled on Plan CRC144561A shall be used for storing diluted municipal wastewater and operated in accordance with the Site Management Plan (Appendix A) including, but not restricted to, the following requirements:

a. Wastewater held within the Wet Weather Holding Pond shall be drained back to the plant for secondary treatment as soon as practicable once influent flows recede to below 16 litres per second to the plant.

b. The consent holder shall ensure that hydraulic retention times for wastewater stored within the Wet Weather Holding Pond shall not exceed 10 days as far as practicable. (Hydraulic retention times will vary with season, groundwater levels, precipitation events, and plant operational conditions).

c. The Wet Weather Holding Pond shall be cleaned after each use to remove any accumulated solids.

Compliance Report:

Complies

Cleaning of the wet weather holding pond was to commence the day after my inspection. Please ensure that this is done in accordance with the submitted Oxford WWTP Operations Manual until such a time that the manual is replaced with an updated version

---

14 The Wet Weather Holding pond shall be:

a. inspected at least annually and maintained in sound structural condition;

b. maintained in accordance with the specifications in the Site Management Plan (Appendix A); and

c. monitored to ensure compliance with conditions (10) and (11).

Records of any complaints relating to odour effects shall be logged and submitted to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, on an annual basis.

---

15 On the completion of works:

a. All disturbed areas shall be stabilised and/or revegetated; and

b. All spoil and other waste material from the works shall be removed from site.

Compliance Report:

Not monitored

The site appeared to be maintained upon completion in accordance with this condition.

---

16 In the event of any discovery of archaeological material:

a. the consent holder shall immediately:

i. Cease earthmoving operations in the affected area and mark off the affected area; and

ii. Advise the Canterbury Regional Council of the disturbance; and

iii. Advise the New Zealand Historic Places Trust of the disturbance.

b. If the archaeological material is determined to be Koiwi Tangata (human bones) or taonga (treasured artefacts) by the New Zealand Historic Places Trust, the consent holder shall immediately advise the office of the appropriate runanga

(office contact information can be obtained from the Canterbury Regional Council) of the discovery.

c. If the archaeological material is determined to be Koiwi Tangata (human bones) by the New Zealand Historic Places Trust, the consent holder shall immediately advise the New Zealand Police of the disturbance.

d. Work may recommence if the New Zealand Historic Places Trust (following consultation with runanga if the site is of Maori origin) provides a statement in writing to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager that appropriate action has been undertaken in relation to the archaeological material discovered. The Canterbury Regional Council shall advise the consent holder on written receipt from the New Zealand Historic Places Trust that work can recommence.

Advice Note: This may be in addition to any agreements that are in place between the consent holder and the Papatipu Runanga. (Cultural Site Accidental Discovery Protocol).

Advice Note: Under the Historic Places Act 1993 an archaeological site is defined as any place associated with pre-1900 human activity, where there is material evidence relating to the history of New Zealand. For sites solely of Maori origin, this evidence may be in the form of accumulations of shell, bone, charcoal, burnt stones, etc. In later sites, artefacts such as bottles or broken glass, ceramics, metals, etc, may be found or evidence of old foundations, wells, drains, tailings, races or other structures. Human remains/koiwi may date to any historic period.

It is unlawful for any person to destroy, damage, or modify the whole or any part of an archaeological site without the prior authority of the New Zealand Historic Places Trust. This is the case regardless of the legal status of the land on which the site is located, whether the activity is permitted under the District or Regional Plan or whether a resource or building consent has been granted. The Historic Places Act provides for substantial penalties for unauthorised damage or destruction.

Compliance Report:
Not monitored

---

17 The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.

Compliance Report:
Complies

The Canterbury Regional Council Currently has no intention in reviewing consent conditions

---

18 If this consent is not exercised before 31 March 2019, it shall lapse in accordance with Section 125 of the Resource Management Act 1991.

Compliance Report:

Complies

This consent was exercised before the lapsing date described in this condition

---

General comments

On Wednesday the 2nd of March 2022 i conducted a site inspection to the Oxford Wastewater treatment plant Located at 46 High Street and the Treated Wastewater discharge area located at 470 Woodstock Road.

The purpose of my inspection was to ensure compliance with consent conditions. The active consents for the Oxford Wastewater treatment and discharge System are CRC184787 and CRC144561.

On site I met with Robert Frizzell Wastewater engineer for Waimakariri District Council. On Site Rob took me through the day-to-day site on goings including the storage, treatment and discharge processes.

The treatment plant appeared to be well maintained, Rob advised that there is a WDC member of staff on site every working day to monitor the site.

Construction of the Wet Weather Basin had occurred in the years prior to my inspection therefore the basin was fully operative at the time of my inspection. The pond was due to be cleaned the next day as it had been in use in the weeks leading up to my inspection due to high rainfall events.

Thankyou for assisting me with my inspection. An invoice will be sent in due course. If you have any queries regarding compliance monitoring, please contact me on 027 217 0286 or email me at shania.vanags@ecan.govt.nz. For any other inquiries please contact Customer Services on 0800 324 636.

Date Inspected: 09 Mar 2022

Monitored By: Shania Vanags

Signature: 

Resource Management Officer I - Compliance Monitoring

General information

Canterbury Regional Council Obligations

Under Section 35 of the Resource Management Act 1991, the Canterbury Regional Council has a duty to monitor all resource consent exercised within its region, to make sure all the conditions are being complied with.

Monitoring Frequency

The frequency with which your consent is monitored will vary according to the type of activity your consent authorises, the conditions imposed and the extent to which you have complied with these conditions on previous visits. **If you fully comply with all conditions then frequency will reduce to the minimum set for the activity.**

Costs

It is the Council's policy to recover all actual and reasonable costs of compliance monitoring of resource consents.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

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Christchurch 8140
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www.ecan.govt.nz

31 May 2022

Waimakariri District Council
Private Bag 1005
Rangiora 7440

Dear Sir/Madam

Compliance Monitoring Report

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number: CRC184787
Location: 470 Woodstock Road, Oxford
Description: To discharge contaminants into land.

Overall Inspection Compliance: **Non-compliance Action required**

This matter needs your immediate attention.

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

Reason(s) for non-compliance:

- To cease the use of hypochlorite as a dosing agent, determine if there has an impact from the dosing of the treated wastewater on the receiving environment and seek a consent variation or an appropriate solution aligning with consent parameters.
- Comment on the capacity of the treatment plant with the increasing population of the Oxford township and properties connected tot he wastewater system.
- Submit sample results within the timeframes indicated in consent conditions
- Provide digital copies of the WWTP design
- Provide digital copies of the Engineer design certification
- Provide the updated management plan when completed. Advise of the proposed timeline for this
- Provide comment to how compliance is maintained with the Nitrogen loading of the discharge area.
- Provide a time line for the installation of the new pivot and when it will be fully operational
- Cease discharge resulting in ponding of treated effluent on the ground.
- Record the location of discharge
- Comment on what type of meter is used to record the volume of discharge

Please contact me on 0800 324 636 to discuss the actions needed to achieve compliance.

Yours sincerely

Shania Vanags
Resource Management Officer I - Compliance Monitoring

Consent No: ***CRC184787***

Description of consent	**Date Consent Number Issued**
To discharge contaminants into land.	27 Aug 2019
Location	**Expiry Date**
470 Woodstock Road, Oxford	08 Aug 2031

Conditions & compliance

1 The discharge shall be domestic sewage effluent treated in an aerated activated sludge plant and disinfected by ultraviolet light, as described in the Royds Consulting Report entitled "Waimakariri District Council Oxford Sewage Treatment and Disposal System: Assessment of Effects on the Environment and Technical Support Document, September 1995" submitted with the application for this consent.

Compliance Report:

Non-compliance Action required

Discharge consists only of domestic sewage effluent treated in an aerated activated sludge plant and disinfected by ultraviolet light

At the time of my inspection Rob Frizzel indicated that wastewater Chlorine is used to inhibit algae growth in the storage and discharge system. In the additional information request I asked if the Waimakariri Council could elaborate on this. The following comments were provided:

'The chlorine is dosed into the end of the system to inhibit algae growth in the Irrigation pond. This is necessary as otherwise the algae is pumped to the Pivot Irrigator site where it rapidly blocks the distribution nozzle's on the Irrigators. That adds a huge work load to Water Unit staff to repeatedly clean these nozzles.

The dosing is targeted: at the peak of summer the Water Unit could dose up to 4 litres a day of sodium hypochlorite 15%.

In the winter the dosing is usually turned off. The Council Water Unit monitors the algae and adjusts chlorine dosing to suit.

While chlorine dosing is not specifically covered in the consent conditions it is evident from the original operation and maintenance manual that chlorine dosing was always part of the treatment process.'

Section 4.3 of Volume One of the 'Oxford Sewage Treatment Plant Operations Manual: Volume 1 Process and Hydraulic Operation' indicates that the District Council will dose 'with hypochlorite to control bulking organisms'.

However this is not explicitly allowed by consent conditions.

In July 2021 a site inspection was conducted by Environment Canterbury Staff and the following comments were made;
- '*Dosing of chlorine is not permitted under this consent or the effects were not anticipated in the*

application this is in breach of the consent condition as the adverse effects have not been considered.'
- 'The current design parameters are based on a population of 2,200 people. The population of Oxford is currently 2,214 (Stats NZ). This raise concerns around the ability for the Oxford WWTP to treat wastewater to appropriate levels as Oxfords population grows. This is further exacerbated by the wet weather inflow.'
- 'Trade Waste is also accepted as part of the Wastewater treatment plant operation. While reviewing the Waimakariri District Council Oxford Sewage Treatment and Disposal System: Assessment of Effects on the Environment and Technical Support Document, September 1995. In the Assessment of effects, it did not take in the consideration the effects of accepting trade waste'

The following actions were also required as a result of the July 2021 site inspection:

- To cease dosing chlorine until either a consent variation is sought, or another permitted solution is implemented.
- WDC is required to make a comment on the treatment plant and the future to treat Wastewater to an appropriate level if the population increases

Therefore as the use of hypochlorite is not allowed by the consent conditions the grading of Non-Compliance Action Required has been given.

Action Required:
- To cease the use of hypochlorite as a dosing agent, determine if there has an impact from the dosing of the treated wastewater on the receiving environment and seek a consent variation or an appropriate solution aligning with consent parameters.
- Comment on the capacity of the treatment plant with the increasing population of the Oxford township and properties connected to the wastewater system.

---

2 The treatment plant shall include an effluent storage facility that provides for the storage of wet weather flows as authorised by resource consent CRC144561. Effluent stored in the effluent storage facility shall receive secondary treatment via the aerated activated sludge plant and ultraviolet disinfection described in condition (1) post storage and prior to discharge.

Compliance Report:
Complies

The Oxford Wastewater treatment Plant has a wet weather flows pond which is plastic lined. The pond takes/stores flows from high rainfall events assisting in the avoidance overflows at the plant. The sewage is screened before entering the storage pond. After the weather events **caseation** the pond effluent is pumped through the treatment plant.

---

3 The volume of effluent discharged shall not exceed 1,382 cubic metres per day, and a maximum annual volume of 228,125 cubic metres between 1 July and the following 30 June.

Compliance Report:
Non-compliance No action required

Upon request Waimakariri District Council have provided the previous years discharge records and have provided the following comments:

During the previous 2021/22 year, there was one exceedance of the daily effluent discharge limit of 1,382m3/day. This occurred on 14 February 2022. During the 1 July 2020 to 30 June 2021 year, there was also one exceedance on 31 May 2021. As can be seen from the "Chart 1" tab, these peaks coincided with high rainfall events occurring on the same day of each exceedance.

The 31 May 2021 rain event was in excess of a 1 in 100 year event over a 48 hour period for Oxford which overloaded the capacity of the wastewater system.

The 14 February 2022 rain event was approximately a 1 in 2 year event over a 24 hour period (see APPENDIX 10B for rain event analysis), but followed a series of prolonged and high rainfall through early February 2022 as seen in the rainfall tab in APPENDIX 1.

The WWTP tab shows no exceedance of the maximum annual volume limit of 228,125 cubic metres in either the 1 July 2020 to 30 June 2021 year, or during the current year to date.

In context, during the previous 10 years (2009 to 2020), the total annual volume has not exceeded 228,125 cubic metres at any time period between July 2009 to June 2020, in any year.

However the peak daily flow in m3/day exceeded the limit in most years prior to 2014 (other than the 2011/12 year). During 2014 a wet weather holding pond was constructed to mitigate effects of peak flows on the treatment plant.

As indicated above in the previous year there have been two occurrences where the daily volume of effluent discharge has exceeded 1,3 82m3/day. These exceedances have been attributed to high rainfall events. Therefore the grading of non-compliance no action required has been given for this consent condition.

Although no action is directly required under this condition comment. It is important to ensure that storm water infiltration to a wastewater site is minimal and any sources of infiltration are identified and mitigated. If this issue begins to arise more frequently due to the capacity of the facility and infiltration of storm water action will need to be taken to ensure that consent conditions are met.

4 The faecal coliform bacteria concentration in a representative sample of the effluent taken following ultra-violet light disinfection and before discharge to the irrigation system shall not exceed 500 per 100 millilitre sample.

Compliance Report:
Complies

At the time of my inspection grab samples were taken from the end of the treatment system post UV treatment. The analysis found there to be <1 MPN / 100mL of Escherichia coli in the samples taken.

Please ensure that the samples taken in accordance with consent conditions are consistent with consent conditions

---

5 A representative sample of the discharge shall be taken at the sampling location specified in condition (4) within one month of the commencement of discharge and at least every six months thereafter. Each sample shall be analysed for faecal coliform bacteria (number per 100 millilitres) and total nitrogen concentration (grams per cubic metre). The laboratory carrying out the analyses shall be accredited to ISO Guide 25, for those analyses, either by TELARC or by an organisation with a mutual recognition agreement with TELARC established in accordance with ISO Guide 58. The results shall be provided to the Canterbury Regional Council within five working days of receipt of the results by the consent holder.

Compliance Report:
Non-compliance Action required

In the additional information request sent to Waimakariri District Council it was requested that the last four monitoring rounds results be submitted to the Canterbury Regional Council. The comments from Waimakariri District Council are as follows:

'Most Recent Results:
16 March 2022
24 February 2022
31 January 2022
29 December 2021

Condition 4 states: "The faecal coliform bacteria concentration in a representative sample of the effluent taken following ultra-violet light disinfection and before discharge to the irrigation system shall not exceed 500 per 100 millilitre sample".

The faecal coliform bacteria concentration limit of 500 cfu per 100millilitre sample was only exceeded during the February 2022 sample round.

The Council is investigating replacement or repair of one of its two Oxford Wastewater Treatment Plant UV treatment units which has had recent operational issues.

Staff consider that the failure of this Unit may have contributed to the non-compliances in faecal coliform counts and total nitrogen in the discharge post UV treatment in the February 2022 sample. This Unit repair or replacement may assist to resolve these compliance issues moving forward.'

This condition has been graded as non-compliant action required due to monitoring results taken in accordance with this condition not being received by the Canterbury Regional Council within 5 working days of the receipt of results of the consent holder. The action required is to submit sample results within the timeframes indicated in consent conditions.

Action Required:
- Submit sample results within the timeframes indicated in consent conditions

---

6 The effluent holding pond shall be lined with an impermeable material such that there is no discharge of effluent into land through the base or walls of the pond.

Compliance Report:
Complies

The activated sludge pong pre UV treatment is concrete lined - At the time of inspection there did not appear to be any signs of cracking or erosion. The Post UV treatment pond (irrigation holding pond) is also concrete lined with no evidence of cracking or erosion.

---

7 Design plans for the sewage effluent treatment and disposal system shall be forwarded to the Canterbury Regional Council, prior to construction of the system. The design shall allow for samples of the effluent to be taken after treatment in the ultra-violet light disinfection unit and before discharge to the irrigation system.

Compliance Report:
Complies

Previous Environment Canterbury Monitoring reports indicate that design plans for the plant were received in 1998 (C10C/79829).

It appears that Environment Canterbury does not have a digital copy of the plans. Can you please provide one.

---

8 A certificate signed by a registered civil engineer or environmental engineer to certify that the sewage treatment and disposal system is constructed in accordance with the design plans specified in condition (7) shall be provided to the Canterbury Regional Council within one month of the construction of the treatment and disposal system.

Compliance Report:
Complies

Previous Environment Canterbury Monitoring reports indicate that design certification for the plant was received in 2005 Signed by Allen Hulley of MWH NZ Ltd (C10C/79829).

It appears that Environment Canterbury does not have a digital copy of the plans. Can you please provide one.

9 A management plan for the operation and maintenance of the sewage treatment and disposal system shall be provided to the Canterbury Regional Council prior to commencement of effluent discharge. The management plan shall specifically address the operational requirements for:

a. The aerated treatment plant;

b. The ultra-violet light disinfection unit;

c. Screening, storage and disposal of solids removed from the effluent;

d. Drying and disposal of sludge;

e. Irrigation of effluent onto land; and

f. An emergency power source to be used during loss of electricity.

Compliance Report:
Unable to determine compliance

At the time of inspection Rob advised that the District council had engaged with a consultant to review and update the Oxford Sewage Treatment Plant Operations Manual Volume 1 – Process and Hydraulic Operations December 2004 as it was considered to be outdated.

He advised that the updated management plan will be derived from this manual and a draft will be submitted to the Canterbury Regional Council upon completion

10 There shall be no discharge of effluent onto land within 20 metres of any surface water.

Compliance Report:
Complies

At the time of my inspection I did not note any sensitive areas within the discharge area. There appeared to be no surface water bodies within 20meters of the discharge area. The Eyre River is the closest surface waterbody which is approximately 215 meters from the discharge area

11 Effluent shall not be spray irrigated directly onto land within the drainage channel depression identified on Plan CRC184787A attached to this consent.

Compliance Report:
Unable to determine compliance

At the time of inspection I could not identify any drainage channels/ depressions in the discharge area. It has also been identified in previous reports where complete walkovers have been conducted that there is no evidence of significant professional flow paths in the discharge field

12 The rate at which effluent is applied onto land shall not exceed 200 kilograms of nitrogen per hectare per year.

Compliance Report:
Unable to determine compliance

In the additional information request response Waimakariri District Council has indicated the following:

This average annual nitrogen concentration of 10.9gm3 equates to 154.6 kg/N/ha applied to land over the previous year. This is less than the consent limit of 200 kg N/ha/year and less than the consent limit discharge nitrogen concentration (application rate) of 14.1mg/L.

Calculation method used: The consent application for CRC184787, Environment Canterbury S42A officers report, page 7 notes "…the currently consented nitrogen loss limit of 200 kg N/ha/year, which equates to a total nitrogen concentration of 14.1mg/L. Monitoring results show that the current average total nitrogen in the wastewater is 10.3mg/L.

Ms. Kreleger has calculated that for the currently consented discharge volume of 625 cubic metres this is the equivalent of 146 kg N/ha/year".

The average assumed "consented" discharge rate for the plant is 625m3/day. The average "actual" daily discharge rate over the previous year was 522m3/day, less than the limit assumed in the consent.

Over the previous year the nitrogen concentration rate sampled each month was less than the consent limit of 14.1mg/L in every month other than in the February 2022 sample.

One irrigator has been offline from 22 September 2021 until the present time. This will have resulted in a potential higher concentration of nitrogen applied to the eastern field from last September until the present.

A new irrigator is on order and once operating will enable the nitrogen load to once again be more widely applied across both irrigation fields. The field currently being irrigated (eastern) could be rested later this year, to reduce the nitrogen concentration applied to land, if required. It is anticipated the new irrigator will be online from spring 2022 if not earlier, however is anticipated to be supplied within the next 2 months.

As the average nitrogen lading has been calculated on the basis that two pivots are operating can you please indicate how compliance is being maintained with this consent condition since the second pivot went offline in September 2021

Action Required:
Provide comment to how compliance is maintained with the Nitrogen loading of the discharge area.

13 The depth of effluent application on the primary block identified on Plan CRC184787B, attached to this consent shall not exceed 22 millimetres per day. The depth of effluent irrigation on the secondary and tertiary blocks identified on plan CRC184787B shall not exceed 10 millimetres per day.

Compliance Report:
Complies

A bucket test of the Eastern irrigator was conducted in November 2021. this found that the approximate application rate is 17.93mm in any 24 hour period

---

14 There shall be no ponding of effluent.

Compliance Report:
Non-compliance Action required

At the time of inspection discharge was not occurring however I did identify ponding of effluent on the ground. The effluent appeared to have been sitting for some time.

The image below identifies the ponding noted at the time of inspection:

The site is very limited at this time as they only have one pivot available for discharge as the Western pivot is offline due to being damaged in high winds - A contract has just been allocated for its repairs.

The grading of Non-Compliance action required has been given due to the breach of this condition as ponding was observed at the time of inspection.

Action required:
- Provide a time line for the installation of the new pivot and when it will be fully operational
- Cease discharge resulting in ponding of treated effluent on the ground

15 There shall be no grazing of land by stock within 48 hours of irrigation of that land with effluent.

Compliance Report:
Complies

At the time of inspection Rob advised that there is no grazing of the discharge area.

16 The hours and rate (in cubic metres per hour) of effluent discharged and the area of land to which effluent is applied shall be measured to within an accuracy of 10 percent and recorded daily in a log kept for that purpose. These records shall be provided to the Canterbury Regional Council, on request.

Compliance Report:
Non-compliance Action required

As indicated by Waimakariri District Council in the response to the additional information request. The location of effluent discharge is not recorded when discharge is occurring. Therefore this condition has been graded as Non-Compliance Action required as this condition clearly requires the discharge area is recorded when discharge is occurring.

Action Required:
- Record the location of discharge
- Comment on what type of meter is used to record the volume of discharge

17 The Canterbury Regional Council may annually, on the last working day of May, serve notice of its intention to review the conditions of this consent for the purposes of:

a. Dealing with any adverse effect on the environment which may arise from the exercise of the consent not foreseen at the time of granting the consent and is therefore appropriate to deal with later; or

b. Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or

c. Complying with the requirements of a relevant rule in an operative regional plan; or

d. Altering the frequency of sampling required by condition (5).

Compliance Report:
Complies

The Canterbury Regional Council has no intention in reviewing consent conditions at the time

18 Charges, set in accordance with section 36 of the Resource Management Act 1991, shall be paid to the Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of resource consents and for the carrying out of its functions under section 35 of the Act.

Compliance Report:
Complies

General comments

On Wednesday the 2nd of March 2022 I conducted a site inspection to the Oxford Wastewater treatment plant Located at 46 High Street and the Treated Wastewater discharge area located at 470 Woodstock Road.

The purpose of my inspection was to ensure compliance with consent conditions. The active consents for the Oxford Wastewater treatment and discharge System are CRC184787 and CRC144561.

On site I met with Robert Frizzell Wastewater engineer for Waimakariri District Council. On Site Rob took me through the day-to-day site on goings including the storage, treatment and discharge processes.

The discharge area appeared to be well vegetated. However it is vital to note that the discharge location usually has 2 operating pivots for which discharge is alternated between. The pivots cover an approximate footprint of 9 ha each an approximate total of 18 hectares. At the time of inspection only one pivot was operative due to high winds significantly damaging the Western pivot. The council has currently is in the process of awarding a contract for a new replacement pivot to be built. Therefore wastewater currently is solely discharging via the Eastern pivot.

Condition 1, 5, 14 and 6 have been graded as non-compliant action Required

Please refer to specific condition comments for further information a follow up site inspection has been scheduled for September 15th 2022.

A follow up inspection has been scheduled for August first 2022. By this date please provide an action plan of the District Councils intentions for addressing the raised issues and any actions taken.

Thankyou for assisting me with my inspection. An invoice will be sent in due course. If you have any queries regarding compliance monitoring, please contact me on 027 217 0286 or email me at shania.vanags@ecan.govt.nz. For any other inquiries please contact Customer Services on 0800 324 636.

Date Inspected: 09 Mar 2022

Monitored By: Shania Vanags

Signature: 

Resource Management Officer I - Compliance Monitoring

General information

Canterbury Regional Council Obligations

Under Section 35 of the Resource Management Act 1991, the Canterbury Regional Council has a duty to monitor all resource consent exercised within its region, to make sure all the conditions are being complied with.

Monitoring Frequency

The frequency with which your consent is monitored will vary according to the type of activity your consent authorises, the conditions imposed and the extent to which you have complied with these conditions on previous visits. **If you fully comply with all conditions then frequency will reduce to the minimum set for the activity.**

Costs

It is the Council's policy to recover all actual and reasonable costs of compliance monitoring of resource consents.

Waimakariri District Council
215 High Street
Private Bag 1005
Rangiora 7440, New Zealand
Phone 0800 965 468

SEW-09 / 220622106293

8 July 2022

Waimakariri District Council Wastewater Treatment Plant "Non–Compliance" Responses

Attention: Shania Vanags, Resource Management Officer

Dear Shania

Further to your emails dated 31 May 2022 and 26 June 2022, containing compliance monitoring reports for 13 of our 19 wastewater related consents, we provide the following response to the non-compliances assigned against 6 consents (CRC041049, CRC030917, CRC173124, CRC168391, CRC168390 and CRC184787).

We have grouped these the non-compliances into one of the following three classifications:

1. Administrative non-compliances
2. Technical non-compliances
3. Process non-compliances

Our response to the grading of these non-compliances is set out below and our further actions are set out in the attached summary (refer attachment 1).

Administrative non-compliances
The following consents have been graded 'Non-compliant – action required' as records have not been provided within the timeframe set out in the consent conditions.

Site (Consent)	Non-compliant condition	Reason for non-compliance
Woodend WWTP (CRC168391)	Condition 14	Results not supplied within 20 working days.
Kaiapoi WWTP (CRC041049)	Condition 5	Results not supplied within one month.
Oxford WWTP (CRC184787)	Condition 5	Results not supplied within 5 working days.
Rangiora WWTP (CRC030917)	Condition 10	Results not supplied within 10 working days.

Previously we have been advised in writing by Environment Canterbury that supplying records annually, at the end of the financial year, would be acceptable (refer attachment 2). This approach has also been indicated in previous compliance monitoring reports, including your report for CRC041049 dated 21 September 2021 (refer attachment 3) which advised us to provide results as part of the 2020/21 Annual Report.

We therefore request that Environment Canterbury regrade these non-compliances as either 'not monitored', similar to other compliance monitoring reports, or 'complies' as we have provided the records in accordance with the previously agreed approach. We also note that grading administrative non-compliances as 'Non-compliant – action required' is not consistent with the Environment Canterbury compliance grading criteria (refer attachment 4 - *A guide to resource consent compliance monitoring*).

Technical non-compliances

The following consents have been graded 'Non-compliant – action required' due to technical non-compliances.

Site (Consent)	Non-compliant condition	Reason for non-compliance
Rangiora WWTP (CRC173124)	Condition 3	Dissolved oxygen samples not taken within the required time period.
Woodend WWTP (CRC168390)	Condition 6	Desludging material placed without a 100mm clean fill base layer.
Oxford WWTP (CRC184787)	Condition 1	Use of chlorine considered to be non-compliant.
Oxford WWTP (CRC184787)	Condition 16	Location of discharge (i.e.: which irrigator is being used) is not currently recorded.

We have implemented the following steps to address these non-compliances:

- Our wastewater operators have been instructed to undertaken dissolved oxygen sampling within the required timeframe of 11am to 2pm to ensure we comply with CRC173124 condition 3 in the future. We have also requested advice from Beca on our dissolved oxygen testing method.
- We have engaged Beca to prepare an application for a consent variation to CRC168390 as the desludging works undertaken back in 2018 were not strictly undertake in accordance with the consent condition. These works were undertaken to a much higher standard than allowed for under the existing consent however, the location of disposal and underlying material was different to that specific in the existing consent.
- We have also engaged Beca to prepare information to demonstrate that chlorine dosing at the Oxford WWTP is being appropriately managed to ensure there is no residual disinfection in the discharge – effectively that it is being used as an operational control to suppress algae rather than a treatment measure to kill bacteria. We maintain that chlorine dosing was always intended to be used as part of the operational process, as it was included in the original Operations and Maintenance Manual, however was not specifically included in the consent conditions.
- We have collated information from SCADA records for flow and irrigator positioning information and are currently correlating this data in order to provide daily flow volumes and land application areas. We will have this data available for submission to Environment Canterbury by 15 July 2022.

As these conditions are technical non-compliances, we request that Environment Canterbury regrade these non-compliances as either 'not monitored' or 'unable to determine compliance', until this further work is undertaken. We also note that grading technical non-compliances as 'Non-compliant – action required' is not consistent with the Environment Canterbury compliance grading criteria (refer attachment 4 - *A guide to resource consent compliance monitoring*).

Process non-compliances
The following consent has been graded 'Non-compliant – action required' due to process non-compliances.

Site (Consent)	Non-compliant condition	Reason for non-compliance
Oxford WWTP (CRC184787)	Condition 14	Ponding observed at irrigation field.

We have implemented the following steps to address these non-compliances:

- We have a replacement irrigator on order for the Oxford WWTP, however this is not expected to be operational until the end of August 2022 depending on shipping. We are currently implementing interim measures in the form of surface laid irrigation piping on the western irrigation field, which will be in place by 15 July 2022.

Attached to this letter is a summary of responses to address issues raised for each wastewater treatment plant, with reference to the consent number and consent condition/s. Where more information is requested and readily available it is included in this letter. In some instances further expert advice is being sought and a further response will be provided in due course.

We would like to take this opportunity to stress that we take consent compliance seriously and are always looking to improve systems and processes to achieve full compliance. We request that Environment Canterbury grade our consent compliance in a consistent manner and if there is a change to the approach that will impact the compliance of a specific consent condition that we are advised in advance such that we can implement improvements.

Yours sincerely

Kalley Simpson
3 Waters Manager

CC:

Martin King – Resource Management Technical Lead, Environment Canterbury
Marco Cataloni – Zone Delivery Lead – Waimakariri, Environment Canterbury

Attachment 1: Summary of response to non-compliances

Rangiora Wastewater Treatment Plant

CRC173124 – To discharge contaminants (odour) to air, Condition 2.

Condition 2: The wastewater treatment ponds and aeration basin shall be operated so that the dissolved oxygen concentrations of the wastewater in the ponds are maintained at levels of no less than two grams per cubic metre, based on the ten percentile of annual results during the hours of measurement as stated in Condition 3.

Condition 3: Dissolved oxygen levels shall be measured in each pond between the hours of 11am and 2pm on one day in every seven day period.

Environment Canterbury comment: Condition 2 was graded non-compliant, action required. The reasoning provided for this is that compliance of achieving a minimum of 2 grams of Dissolved Oxygen per cubic meter has not been maintained. As indicated in the Councils comments actions are taking place to identify the source of the issue. The action required is to continue to investigate the reasoning for the low DO levels and provide comment about the investigation to Environment Canterbury.

Waimakariri District Council response:

The Council has reviewed the wording of Condition 2 and agreed with Environment Canterbury compliance staff on Friday 17 June that only dissolved oxygen levels in the ponds (and not the aeration basin) needs to be assessed to determine the ten percentile of annual results.

The Council understands that given this consent condition is based on the ten percentile of **annual** results, Environment Canterbury will now consider whether this should be re-graded as "Unable to determine compliance", rather than "Non-compliant action required". This is because complete annual results of DO monitoring in the ponds is not yet available within the current financial year.

The Council acknowledges that it has not been sampling Dissolved Oxygen in the ponds in accordance with the timeframes specified in Condition 3. The Council has arranged for its Water Unit to reschedule sampling rounds to meet the required timeframes. It is also seeking external advice from Beca on dissolved oxygen level management to put in place measures to ensure compliance with dissolved oxygen sampling requirements and minimum levels in the future.

Advice is being sought from Beca on the following items:

- Dissolved oxygen testing method
- Dissolved oxygen consent condition review
- Dissolved oxygen improvements in the Aeration Basin

Kaiapoi Wastewater Treatment Plant

CRC041049 – To discharge treated sewage effluent….to the infiltration wetland…and to groundwater…

Condition 5: A copy of the results of the analyses shall be forwarded to Canterbury Regional Council within one month of receipt of them by the Consent Holder.

Environment Canterbury position: As discussed with Environment Canterbury compliance staff on 17 May, no discretion can be applied in varying the timing for receipt of laboratory results. Compliance will be enforced by Environment Canterbury to the "letter of the law".

Waimakariri District Council response: The Council requests that Environment Canterbury reconsiders the compliance grading for supply of laboratory results to "non-compliant – no action required". This is sought as there is a written agreement in place for annual supply of laboratory results, made between a previous Environment Canterbury compliance officer and Council staff in 2019 (see email train copied below as Attachment 2).

The Council advises that systems will now be put in place to ensure results are provided within the required timeframes, moving forward.

Oxford Wastewater Treatment Plant

CRC184787 – To discharge contaminants into land

Condition 1: The discharge shall be domestic sewage effluent treated in an aerated activated sludge plant and disinfected by ultraviolet light, as described in the Royds Consulting Report entitled "Waimakariri District Council Oxford Sewage Treatment and Disposal System: Assessment of Effects on the Environment and Technical Support Document, September 1995" submitted with the application for this consent.

Condition 5:
A representative sample of the discharge shall be taken at the sampling location specified in condition (4) within one month of the commencement of discharge and at least every six months thereafter. Each sample shall be analysed for faecal coliform bacteria (number per 100 millilitres) and total nitrogen concentration (grams per cubic metre). The laboratory carrying out the analyses shall be accredited to ISO Guide 25, for those analyses, either by TELARC or by an organisation with a mutual recognition agreement with TELARC established in accordance with ISO Guide 58. ***The results shall be provided to the Canterbury Regional Council within five working days of receipt of the results by the consent holder.***

Condition 14: There shall be no ponding of effluent.

Condition 16: The hours and rate (in cubic metres per hour) of effluent discharged and the area of land to which effluent is applied shall be measured to within an accuracy of 10 percent and recorded daily in a log kept for that purpose. These records shall be provided to the Canterbury Regional Council, on request.

Condition 1 - Chlorine Dosing: Environment Canterbury comments:

1) To cease the use of hypochlorite as a dosing agent, determine if there has an impact from the dosing of the treated wastewater on the receiving environment and seek a consent variation or an appropriate solution aligning with consent parameters.

2) Comment on the capacity of the treatment plant with the increasing population of the Oxford township and properties connected to the wastewater system.

Waimakariri District Council response:

1)The Council notes the chlorine use in the Oxford Wastewater Treatment Plant was not specifically included in the consent conditions, but is included in the original Operations & Maintenance Manual that was submitted as part of the original consent.

The Council will develop an approach to demonstrate that the chlorine dosing is being appropriately managed to ensure there is no residual disinfection in the discharge – effectively that it is being used as an operational control to suppress algae rather than a treatment measure to kill bacteria. This needs to be developed and submitted to Environment Canterbury prior to commencing the use of chlorine dosing next summer.

The Council also understands that Environment Canterbury will consider whether this should be re-graded as "complies" as the wastewater is treated in an aerated activated sludge plant and disinfected by ultraviolet light as per the consent condition. Alternatively the condition could be re-graded as "Unable to Determine Compliance", recognising that the above actions are required to provide evidence that there is no chlorine residual in the discharge and/or no environmental effect on or beyond the site.

2) There are no capital works currently programmed for the Oxford Wastewater Treatment Plant as a result of projected growth on the scheme. The number of new residential connections in Oxford is predicted to increase by 21 per year through the terms of the current LTP (2021 – 2031); however there is no predicted growth in commercial connections through this time period. For residential connections this is a 26% projected increase in connections over the LTP period. Beyond this, from 2031 to 2041, growth is predicted to reduce to a slower rate at an average of 15 new residential connections per year.

The Council acknowledges the potential growth on the scheme although actual growth remains uncertain. The actual growth will impact the future treatment plant capacity and performance. This will be monitored and further upgrades programmed once the scheme performance data demonstrates that the capacity of the plant is being exceeded and /or consent limits for treatment and capacity are unable to be met.

For instance, the non-compliance with the plant consent discharge limit of 1,382m3/day is currently infrequent and occurs only during large storm events or unseasonal high monthly rainfall. If a trend of increasing frequency of these exceedances becomes evident then this will be a trigger to programme capacity upgrades to the plant.

Condition 5 – Lab results: Environment Canterbury position: As discussed with Environment Canterbury compliance staff on 17 May, no discretion can be applied in varying the timing for receipt of laboratory results. Compliance will be enforced by Environment Canterbury to the "letter of the law".

Waimakariri District Council response: The Council requests that Environment Canterbury reconsiders the compliance grading for supply of laboratory results to "non-compliant – no action required". This is sought as there is a written agreement in place for annual supply of laboratory results, made between a previous Environment Canterbury compliance officer and Council staff in 2019 (see email train copied below as Attachment 1).

The Council advises that systems will now be put in place to ensure results are provided within the required timeframes, moving forward.

Condition 14 - Ponding of Effluent: Environment Canterbury comment: Environment Canterbury staff have photographed some ponding of effluent within the eastern field. WDC needs to provide a timeline for the installation of the new pivot and when it will be fully operational and cease the discharge resulting in the ponding of treated effluent.

Waimakariri District Council response: The Council will replace the damaged irrigator as soon as possible. This is currently anticipated to be installed and operational from mid-September 2022.

The Council will investigate and implement interim measures to reduce areas of ponding. This will include not irrigating on the lower land area of the eastern irrigation field that is prone to ponding and installation of temporary irrigators on the western irrigation field.

Condition 16 – Record location of discharge: Environment Canterbury comment: WDC needs to record the location of the discharge and comment on the type of meter that is used to record the volume of the discharge.

Waimakariri District Council response: The Council will align its flow and irrigator positioning information and supply this to Environment Canterbury as requested.

Woodend Wastewater Treatment Plant:

CRC168391 – Discharge treated sewage effluent via seepage onto land; Seepage from settling ponds and wetlands to ground.

Condition 14: *The results of all analyses, the name of the person taking the samples, and the date and times of sampling shall be provided to the Canterbury Regional Council within 20 working days of being requested.*

Environment Canterbury comments: As discussed with Environment Canterbury compliance staff on 17 May, no discretion can be applied in varying the timing for receipt of laboratory results. Compliance will be enforced by Environment Canterbury to the "letter of the law".

Waimakariri District Council response: The Council requests that Environment Canterbury reconsiders the compliance grading for supply of laboratory results to "non-compliant – no action required". This is sought as there is a written agreement in place for annual supply of laboratory results, made between a previous Environment Canterbury compliance officer and Council staff in 2019 (see email train copied below as Attachment 1).

The Council advises that systems will now be put in place to ensure results are provided within the required timeframes, moving forward.

CRC168390 – To use land for storing, treating and discharging human effluent.

Condition 6 - Dried solid material generated from desludging of the aeration ponds (1A,1B and 1C) and settling ponds (2A and 2B), as shown on plan CRC168390A attached to this consent, and from the oxidation ponds at Waikuku Beach, may be disposed of on site within bunds as shown on Plan CRC168390C attached to this consent. ***These bunds shall be constructed using a 100 millimetre base layer of clean fill****, followed by a core of dried sludge, followed by a cover of at least 300 millimetres of clean fill. The bunds shall be constructed at ground level and shall be no higher than two metres.*

Environment Canterbury comments: The District Council have not have not met their obligations under this consent condition. The condition requires that cleanfill is placed below the dried solids.

Waimakariri District Council response: The Council will review the approach taken in 2018 when the most recent desludging was undertaken. Environment Canterbury is also asked to review any information it holds on file from 2017/18 related to desludging at this site. The Council acknowledges that retrospective consenting is likely to be required either as a variation to the existing consent or a new consent, similarly to the consents obtained for works undertaken at the Rangiora and Kaiapoi Wastewater Treatment Plants.

In response to the concerns raised about a base layer of cleanfill not being provided, the Council notes there is a sealed HDPE liner under the geofabric bags containing the dredged material, sitting above the natural soils on the site. The liner prevents leaching of water and contaminants into the underlying soils. This is more effective and provides a higher standard of environmental protection for the underlying land and groundwater than would a 100mm base layer of cleanfill.

The Council will be in contact in coming months with results of further investigations about matters raised in the compliance reports.

In the meantime please do not hesitate to contact me if you require further information.

Attachment 2: Previous agreement to supply records annually

Email date 12 August 2019:

Hi Gavin,

Following on from the below and in anticipation of the annual report, can you confirm condition 2 will comply by:

- including data in the annual report from now on
- All bores being fit for successful water data gathering (if improvements are needed) so results give the required full information. I see you included a fuller data set on 16th April – thank-you.

To your email dated 16th April 2019:

"Hi Joe,

One of the data points did not export from the data base. Attached is the full data set. Can I suggest in future if a data set is missing a parameter, and we have not identified this to you in advance a simple email (communication) would be a more constructive use of time.

It is a requirement of the Consent to send you the specific data below when the sample results are received. Note if we don't send you this data we would not be complying. If you can confirm that we only need to provide data once a year for all of our wastewater consents. We will discuss internally the option of adjusting the consent to remove the need for quarterly reporting. I note that the compliance report suggests a meeting with the ECAN consent planners, please select a date suitable for this meeting. "

I confirm you only need to provide data once per year for all wastewater consents

A follow-up compliant report depends on the above two items being sorted with data represented in the annual report

Regards

Joe

From: Joe Jagusch
Sent: Tuesday, 16 April 2019 1:58 PM
To: Gavin Hutchison <Gavin.Hutchison@wmk.govt.nz>
Cc: Kalley Simpson <kalley.simpson@wmk.govt.nz>
Subject: RE: CRC041049 On site Monitoring data Condition 5

Hi Gavin.

Can WDC's testing be scheduled to fit with the annual report for the WWTP consents?

WDC sending bits of information through for individual consents means monitoring may occur more than necessary.

I have asked Kalley that raw data/spreadsheets be summarised and collated in a multi-consent/greater report. Hence I have CC'd him in.

Regards

Joe

From: Gavin Hutchison <Gavin.Hutchison@wmk.govt.nz>
Sent: Tuesday, 26 March 2019 2:16 PM
To: Joe Jagusch <Joe.Jagusch@ecan.govt.nz>
Subject: CRC041049 On site Monitoring data Condition 5

Hi Joe,

Please find attached the quarterly monitoring data for CRC041049. This is to meet condition 5 of the consent.

Regards,

Gavin Hutchison | **Wastewater Asset Manager**
3 Waters
Gavin.Hutchison@wmk.govt.nz
Customer Service: 0800 965 468 (0800WMKGOV)

Attachment 3: Previous agreement to supply records annually

Key information extracted from the letter dated 21 September 2021.

Environment Canterbury
Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636
200 Tuam Street
PO Box 345
Christchurch 8140
E. ecinfo@ecan.govt.nz
www.ecan.govt.nz

21 September 2021

Dear Sir/Madam

Compliance Monitoring Report
Waimakariri Water Management Zone

Please find enclosed your compliance monitoring report for the following activity. It contains important information which needs to be read carefully.

Consent number:	CRC041049
Location:	Ferry Road, KAIAPOI
Description:	To discharge treated sewage effluent from the Kaiapoi Sewage Treatment Plant and the Rangiora Sewage Treatment Plant to the infiltration wetland at the Kaiapoi Sewage Treatment Plant; and to discharge treated sewage effluent to groundwater via seepage from the base of the oxidation ponds, infiltration wetlands, and sand filters at the Kaiapoi Sewage Treatment Plant.

Overall Inspection Compliance: Complies

Thank you for complying with the resource consent conditions that have been monitored.

Important: *The Overall Inspection Compliance grade above relates only to the conditions monitored as part of this inspection. It does not change the status of previous grades received for other consent conditions. If you have received a non-compliance grade for other conditions, please continue to take appropriate action to achieve or maintain compliance.*

5 A copy of the results of the analyses shall be forwarded to Canterbury Regional Council within one month of receipt of them by the Consent Holder.

Compliance Report:
Complies

Results have been received by the Canterbury Regional Council.

Please include the Hill Laboratory analysis forms for all sampling undertaken under this consent in the appendix to the 2020/2021 Annual report.

Attachment 4: Compliance grading criteria

Extracted from Environment Canterbury guide to resource consent compliance monitoring dated September 2017.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636
200 Tuam Street
PO Box 345
Christchurch 8140
www.ecan.govt.nz/contact

5 October 2021

3 Waters Manager
Waimakariri District Council
215 High Street
Rangiora 7400

Dear Kalley,

Three waters compliance approach

The Government's 3 waters reform package has identified deficiencies in the performance and environmental impacts of wastewater and storm water systems. Taumata Arowai will have oversight of environmental performance of wastewater and stormwater networks and promote public understanding of the environmental performance of wastewater and storm-water networks. Regional Councils will retain regulatory functions for consenting and compliance of these systems and discharges.

To ensure our compliance approach is robust and consistent, Environment Canterbury is reviewing and strengthening our compliance monitoring and enforcement capability for wastewater and stormwater networks. This will ensure compliance gradings are accurate and consistent across the region, and that the environmental outcomes anticipated are achieved.

In some cases, this will require improvements to the information required to demonstrate compliance with consent conditions, for example more detailed information on wastewater discharge rates and volumes. Our compliance and Zone Team staff will work with you to confirm expectations from the refreshed approach and ECan staff will continue to work with Territorial Authorities through the Mayoral Forum on 3 Waters reform.

We look forward to continuing to work with you to achieve environmental and community outcomes for Canterbury.

Yours sincerely

Marco Cataloni
Zone Delivery Lead Waimakariri

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR INFORMATION

FILE NO and TRIM NO:	DRA-16-03 / 220707115264
REPORT TO:	UTILITIES AND ROADING
DATE OF MEETING:	19 July 2022
AUTHOR(S):	Emile Klopper, Flood Team Lead Caroline Fahey, Water Operations Team Leader Kalley Simpson, 3 Waters Manager
SUBJECT:	May 2021, December 2021 & February 2022 Flood Events – Service Requests Update

ENDORSED BY:
(for Reports to Council, Committees or Boards)

General Manager

acting Chief Executive

1. SUMMARY

1.1 The purpose of this report is to update the Utilities & Roading Committee on the status of the drainage service requests received related to the significant rainfall events that occurred over the 29th to 31st May 2021, 15th December 2021 and 12th February 2022.

1.2 A total of 598 drainage service requests were received related to these rainfall events and total of 61 areas have been identified for further assessment.

1.3 The focus of this report is to provide feedback on the 61 areas identified and progress made on their investigation since the previous Utilities and Roading Committee meeting held on 21 June 2022.

Attachments

i. Progress and status of the 61 Focus Areas

2. RECOMMENDATION

THAT the Utilities & Roading Committee:

(a) **Receives** report No. 220707115264.

(b) **Notes** that 598 drainage service requests were received related to the significant rainfall events in May 2021, December 2021 and February 2022, which have all been responded to although approximately 138 requests require further maintenance or investigation work.

(c) **Notes** that there are currently 61 drainage assessments identified and this is likely to increase as the service requests are worked through. Progress made since the previous Utilities & Roading Committee meeting is set out in Section 4 and is supported by the weekly update memos.

(d) **Notes** that 17 of these investigations are either complete, and the issue resolved, or incorporated into the Business as Usual (BAU) work, and is being tracked as part of a maintenance or capital works programme.

(e) **Notes** that background information in regards to the recent flooding event can be viewed in report No. 220310034384 entitled: "*February 2022 Flood Event - Update on Service Requests*".

(f) **Notes** that a webpage has been set up on the Council's website to provide updates on the status of drainage works underway and targeted information will be sent out to the Waikuku Beach and Kaiapoi communities.

URL:https://www.waimakariri.govt.nz/services/water-services/stormwater/drainage-works

(g) **Notes** that additional budgets for the Swindells Road Drainage Upgrade and Broadway Ave Drainage Upgrade projects in Waikuku Beach and High Street Drainage Upgrade project in Oxford have been approved for inclusion in the 2022/23 Annual Plan.

(h) **Circulates** this report to the Council and community boards for information.

3. PROGRESS SINCE PREVIOUS REPORT

3.1. Attachment I provides a snapshot of each of the 61 Focus Areas' status and whether CCTV, Maintenance and/or Survey is required.

3.2. In addition to Attachment I, three separate projects were compiled to consolidate the remaining focus areas' works into separate packages of maintenance, CCTV and survey works.

3.3. Since the previous U&R Committee update meeting, the Flood Team have continued to focus their attention on investigating the below 5 key focus areas, with the addition of the aforementioned "consolidation projects". These key Focus Areas and their progress will be briefly discussed in Section 4 of this report.

- Broadway Avenue, Waikuku Beach
- Swindells Road, Waikuku Beach
- Fuller Street, Kaiapoi
- Cust Road, Cust
- Ranui Mews, Kaiapoi
- Consolidation Projects
  - Maintenance
  - CCTV & Jetting
  - Surveying

3.4. Table 1 below provides a breakdown/summary of all the focus areas per drainage scheme.

Table 1: 61 Focus Areas Breakdown

Scheme	Total	Status			Planned		
		Allocated	Started	Complete /BAU	Maintenance	CCTV & Jet	Survey
Rangiora	3	3	3	0	1	1	0
Kaiapoi	17	17	11	6	2	8	0
Woodend	3	3	3	0	0	1	0
Waikuku Beach	3	3	2	1	2	1	0
Pines Kairaki	3	3	2	1	1	0	1

Pegasus	1	1	1	0	1	0	0
Oxford Urban	7	7	4	3	4	0	0
Ohoka Rural	4	4	2	2	1	1	0
Oxford Rural	1	1	0	1	0	0	0
Coastal Rural	4	4	3	1	1	0	2
Rural Central	1	1	1	0	1	1	0
Cust Rural	3	3	3	0	3	1	0
District Drainage	9	9	8	1	1	0	0
Other	2	2	1	1	1	0	0
Total	**61**	**61**	**44**	**17**	**19**	**14**	**3**

3.5. Of the 61 areas identified for further investigation, all 61 projects have been allocated and started while 7 have been completed or are considered to be Business as Usual (BAU) (up from 5 last month). The remaining 41 focus areas have been allocated and investigations are underway.

3.5.1. For the purposes of this report, BAU is defined as no further action and/or input is required from the Flood Team whilst "Completed" is defined as the project has been completed and can be closed off.

3.5.2. Appendix I provides a breakdown of all projects' progress.

4. KEY FOCUS AREAS

4.1. Progress on the key focus areas is summarised below:

4.1.1. Broadway Avenue, Waikuku Beach

- The Flood Team have progressed the 31 Broadway Avenue project to a point that the 3 Waters team can take it over to manage, procure and construct as part of their ongoing business as usual projects.

4.1.2. Swindells Road, Waikuku Beach

- The driveway culverts and swales along both sides of Swindells Road are partially silted up and is programmed to be cleaned out by CORDE.
- In addition to the aforementioned maintenance works, further cleaning of swales within Park Terrace will also be undertaken by CORDE.
- The works by CORDE will be completed by end of July.
- Optioneering workshop was held to discuss potential solutions.
- Options memo is currently being progressed covering the following potential options:
    - Localised upgrades of driveway culverts, pipes and swale to provide a functional improvement to the existing system (expected 2 year capacity).
    - System wide upgrades and extension to provide a 5 year level of service capacity in the primary system.
    - Provision of pump chamber to enable efficient and effective deployment of a temporary pump.
    - Installation of a permanent pump station.
    - Use of the adjacent reserve to provide a stormwater retention basin.
- Draft options memo to be completed by mid-July and sent through for review.
- An additional budget of $450,000, comprising of $50,000 in 2022/23 for design and $400,000 in 2023/24 for construction, has been approved as part of Drainage Staff Submission to 2022/23 Annual Plan.
- This budget will enable the system to be upgrade and extended along the toe of the stopbank, and also for a pump chamber to be installed for a temporary pump. The

next steps are to finalise the options memo before seeking feedback on the proposed solution.

4.1.3. Fuller Street, Kaiapoi

- Topographical survey was done by PDU and survey results were sent through to the Flood Team for assessment.
- Onsite CCTV connectivity surveys were requested from Clyne and Bennie and completed. Some delays were experienced in receiving the results from the CCTV surveys due to sickness within the Clyne and Bennie team but was issued recently.
- A memo will be prepared with advice to the landowners in terms of onsite improvements and concept design and cost estimate for a bund/barrier along the rear boundary. Draft memo to be issued mid-July for review.
- Potential solution is a bund/barrier along the rear boundary and flapgates on the stormwater outlets to prevent water from the drain entering the property and onsite improvements to drain rainwater from the property to the drain.
- The works to implement the proposed solution will be undertaken from the existing Kaiapoi Minor Stormwater Improvements budget in 2022/23.

4.1.4. Cust Road, Cust

- Desktop and onsite investigations were carried out to determine the extent of the problems and their root cause.
- Various options were developed as part of a preliminary design.
- Preliminary design report was resubmitted following comments received from the Utilities and Roading teams.
- A workshop is scheduled between 3 Waters, Roading and the Flood Team to discuss the preliminary designs' finding. Following on from the workshop the project is assumed to be BAU and will be closed off from a Flood Team perspective.
- Maintenance tasks have been scoped up and programmed to be undertaken by the maintenance Contractors within the stock race. These maintenance tasks include:
    - Cleaning and removing overgrown vegetation within the stockwater race from 1689 Cust Road through to and including the crossing under Earlys Road.
        - Delayed due to inclement weather and staff sickness
    - Jetting and cleaning the relevant culverts within the above route.
        - Completed

4.1.1. Ranui Mews, Kaiapoi

- The venting investigation work undertaken in May has confirmed that the onsite sewer system is prone to experiencing venting issues even if the public system has minor surcharging.
- A vent has been installed on Unit 20 and subsequent testing undertaken on 21 June confirmed that the issue with the toilet in Unit 20 was resolved, while the adjacent units still experienced issues.
- The approach to install additional venting on the other units is currently being developed. PDU engaged to undertake design and tendering of works. A report to will be taken to the Council meeting in August to seek budget for the additional vents required.
- Loggers have been installed in a manhole at Ranui Mews and also in a manhole in Ohoka Road. The loggers will provide valuable information on any remaining issues with the public sewer system.
- The loggers have been programmed to send out email/text alerts if the manhole surcharges. This will give an early warning that there may be an issue with the sewer system for staff to respond to. If necessary sucker trucks will be deployed to the Ohoka Road area and the Property team have portable toilets that can be supplied for use within the bathrooms.

- It is intended that the loggers will remain in place for a period of time to confirm that the maintenance works on the public system (to remove the fat build up) and works on the onsite sewer system to improve the venting has resolved the issue.

4.1.2. CCTV Consolidation Projects

- Table 2 below contains a breakdown of all the Focus Areas with CCTV works planned and their current status.
- Hydrotech has been engaged to provide WDC with CCTV investigations for multiple projects. Hydrotech is currently facing some delays due to staff unavailability and will start with the investigations mid-July. Current forecasts show CCTV works to be completed by mid- August depending on resourcing.

Table 2: CCTV Consolidation Focus Areas' Status

Project	Scoped	Priced	Agreed	Complete
Newnham Street	N	N	N	N
Strachan Place	Y	Y	Y	Y
310 Beach Road	Y	Y	N	N
34 Mansfield Drive	Y	Y	Y	N
44 Bracebridge Street	Y	Y	Y	N
46 A Fuller Street	Y	Y	Y	Y
Dale Street	Y	Y	Y	N
1 Wesley Street	Y	N	N	N
14 Kalmia Place	Y	Y	Y	N
15 Cridland Street	Y	N	N	N
169 Williams Street	Y	Y	Y	N
39 Woodglen Drive	Y	N	N	N
5 B Norton Place	Y	Y	Y	Y
31 Broadway Avenue	Y	Y	Y	Y
12 Reserve Road	Y	Y	Y	Y
14 Kiwi Avenue	Y	Y	Y	Y
4 Swindells Road	Y	Y	Y	N
6 Weka Street	Y	Y	Y	N
Wilson Drive	Y	N	N	N
494 Mill Road	Y	Y	Y	Y
Skewbridge Road	Y	Y	Y	N
467 Earlys Road	Y	Y	Y	Y
1649 Cust Road	Y	N	N	N
Ranui Mews	Y	Y	Y	Y
Kairaki PS	Y	Y	Y	Y

4.2. Further programme and progress updates will be reported to the Utilities and Roading Committee at future meetings as this work progresses.

Implications for Community Wellbeing

Some of the locations of flooding have had flooding in the past and some residents have had to make insurance claims for flood related damage. This has a potential implication on community wellbeing for these residents.

4.3. The Management Team has reviewed this report and support the recommendations.

5. COMMUNITY VIEWS

5.1. Mana whenua

Te Ngāi Tūāhuriri hapū are not likely to be directly affected by this work. However they will have an interest in any future proposed works that may have an impact on waterways and rivers. Staff will update the Runanga at the executive meetings and where relevant on specific projects engage with MKT.

5.2. Groups and Organisations

Directly affected property owners will be consulted with on the proposed upgrades.

Community boards and drainage advisory groups will be updated on the investigation works and any specific future proposed works that come out of the assessment.

5.3. Wider Community

The wider community will be kept informed via the Council's website. A dedicated webpage has been set up for the recent flood events across the wider district, refer:

https://www.waimakariri.govt.nz/services/water-services/stormwater/drainage-works

A community meeting was held for Waikuku Beach residents on 6 July 2021, however not all investigation work has been completed in this area. If necessary, a targeted update to the Waikuku Beach community, either via a local newsletter flyer or dedicated flyer will be delivered to all addresses in the village.

Target consultation has been undertaken for the Kaiapoi Community via the Shovel Ready programme of works which will address most of the issues experienced in the Dudley Drain, Feldwick Drain and McIntosh Drain catchments.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

6.1. Financial Implications

The costs associated with this investigation work will be charged to existing Drainage asset management and operations budgets. Any physical inspection work such as pipe maintenance and CCTV inspection work will be charged to the maintenance budget for the relevant Drainage scheme.

The following budgets were recently approved by Council for inclusion in the final 2022-23 Annual Plan (refer TRIM 220505071056):

- Broadway Ave Drainage Upgrade – $120,000 (in 2022/23).
- Swindells Road Drainage Upgrade – $450,000 (comprising of $50,000 in 2022/23 for design and $400,000 in 2023/24 for construction).
- High Street Drainage Upgrade - $200,000 (in 2022/23).

All other investigation and maintenance works is being undertaken from existing operational budgets.

6.2. Sustainability and Climate Change Impacts

The recommendations in this report do not have sustainability and/or climate change impacts.

Any proposed upgrading works will consider the potential impacts of climate change in terms of higher rainfall intensities and sea level rise. The procurement of any physical works will use sustainable procurement practices.

6.3 Risk Management

There are no additional risks arising from the adoption/implementation of the recommendations in this report. The improvements implemented as a result of the

drainage assessment identified will reduce the overall risk profile to Council and the community.

Health and Safety

The health and safety risks associated with undertaking this investigation work will be managed by standard Council processes.

7. CONTEXT

7.1. Consistency with Policy

This matter is not a matter of significance in terms of the Council's Significance and Engagement Policy.

7.2. Authorising Legislation

The Local Government Act 2002 sets out the power and responsibility of local authorities, including the Council's role in providing drainage services.

7.3. Consistency with Community Outcomes

The Council's community outcomes listed below are relevant to the actions arising from recommendations in this report.

- *There is a safe environment for all*
- *Core utility services are provided in a timely and sustainable manner*

7.4. Authorising Delegations

The Utilities and Roading Committee is responsible for activities related to stormwater drainage.

Appendix I – Progress and status of the 61 Focus Areas

Location	Allocated	Progress	Maintenance	CCTV & Jet	Survey
Newnham Street	Flood Team - Consolidation Projects	Underway		Planned	
Ivory Street	Roading	Underway			
Strachan Place	3 Waters	Underway	Planned	Complete	
310 Beach Road	3 Waters	BAU	Complete	Planned	
34 Mansfield Drive	Flood Team - Consolidation Projects	Underway		Planned	
364B Williams Street	Roading	Underway	Planned		
44 Bracebridge Street	Flood Team - Consolidation Projects	Underway		Planned	
46 A Fuller Street	Flood Team	Underway	Complete	Complete	Complete
52 Feldwick Drive	Roading	Underway			
59 Main North Road	3 Waters	BAU	Complete		
68 Sovereign Boulevard	3 Waters	Underway	Planned		
69 Old North Road	3 Waters	BAU			
Dale Street	Roading	Underway		Planned	
1 Wesley Street	Flood Team - Consolidation Projects	Underway		Planned	
Porter Place	3 Waters	Complete	Complete		
14 Kalmia Place	Flood Team - Consolidation Projects	Underway		Planned	
15 Cridland Street West	Flood Team	Underway		Planned	
169 Williams Street	Flood Team - Consolidation Projects	Underway		Planned	
26 Hamel Lane	3 Waters	Complete			
30 Williams Street	Roading	Complete			
39 Woodglen Drive	Flood Team - Consolidation Projects	Underway		Planned	
5 B Norton Place	PDU	Underway		Complete	Complete
189 Rangiora Woodend Road	Roading	Underway			
31 Broadway Avenue	Flood Team	BAU	Complete	Complete	Complete
12 Reserve Road, 14 Kiwi Avenue & 19 Cross Street	Flood Team	Underway	Complete	Complete	Complete
4 Swindells Road	PDU	Underway	Planned	Planned	Complete
Beach Road	PDU	Underway			
Batten Grove	Flood Team - Consolidation Projects	Underway	Planned		TBD
56 Featherstone Avenue	3 Waters	BAU			Complete
31 Pegasus Main Street	Flood Team - Consolidation Projects	Underway	Planned		

12 - 16 Kowhai Street	Flood Team - Consolidation Projects	Underway	Planned		
6 Weka Street	PDU	Underway		Complete	
Bay Road	3 Waters	Underway	Planned		
13 Queen Street	3 Waters	Complete	Complete		
23 Burnett Street	PDU	Underway	Planned		
189 High Street	PDU	Complete			
Pearson Drain	3 Waters	BAU	Planned		
494 Mill Road	3 Waters	Complete		Complete	
175 Mill Road	3 Waters	BAU	Planned		
181 McHughs Road	PDU	Underway			
Wilson Drive	3 Waters	Underway		Planned	
31 Victoria Street	3 Waters	BAU			
SH1	Roading	Underway			TBD
4 Macdonalds Lane	Flood Team	Underway	Planned		
11 Stalkers Road	Flood Team	Underway			TBD
820 Main North Road	3 Waters	Complete			
Skewbridge	Roading	Underway	Planned	Planned	
1649 Cust Road	Flood Team	Underway	Planned	Planned	
467 Earlys Road & 1689 Cust Road	Flood Team	Underway	Planned	Complete	
1838, 1840 & 1842 Cust Road	Flood Team	Underway	Planned		
105 Taaffes Glen Road	PDU	Complete			
217 Toppings Road	3 Waters	Underway			
51 Smarts Road	PDU	Underway			
556 Steffens Road	Roading	Underway			
730 Depot Road	Roading	Underway			
951 Upper Sefton	Roading	Underway	Planned		
Dixons Road	Roading	Underway			
Hodgsons Road	Roading	Underway			
Mt Thomas Road	3 Waters	Underway			
Ranui Mews	3 Waters	Underway	Planned	Complete	
Kairaki PS	3 Waters	Complete		Complete	