Canterbury Water Management Strategy
Waimakariri Zone Committee

Agenda

Monday 5 September 2022

3:30pm

Council Chamber
Rangiora Service Centre
215 High Street

Members:
Michael Blackwell
Martha Jolly
Erin Harvie
Carolyne Latham
Claire Aldhamland
Kirk Blumers
Arapata Reuben (Te Ngai Tūāhuriri Rūnanga)
John Cooke (Te Ngai Tūāhuriri Rūnanga)
Sandra Stewart (WDC Councillor)
Megan Hands (ECan Councillor)

Chairperson and Members
CWMS WAIMAKARIRI ZONE COMMITTEE

AGENDA FOR THE MEETING OF THE CANTERBURY WATER MANAGEMENT STRATEGY WAIMAKARIRI ZONE COMMITTEE TO BE HELD IN THE COUNCIL CHAMBER, 215 HIGH STREET, RANGIORA ON MONDAY 5 SEPTEMBER 2022 COMMENCING AT 3:30PM.

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

BUSINESS

PAGES

KARAKIA

1. BUSINESS

1.1 **Apologies**

1.2 **Welcome and Introductions**

1.3 **Register of Interests**
Advice of any changes or updates. *5-6*

2. OPPORTUNITY FOR THE PUBLIC TO SPEAK

3. REPORTS

3.1 **Watercress in the Cam River Project – Update (for information) – Irai Weepu (Tangata Whenua Facilitator – Kaitaikitanga targets, ECan)**
7-20

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** this update for its information and with consideration to the committee's 2021-2024 Acton Plan priorities.

3.2 **ZIPA Implementation – Fourth Quarterly Update 2021/22 –Murray Griffin (CWMS Facilitator – Waimakariri, ECan) and Kate Steel (Waimakariri District Council Ecologist – Biodiversity Advisor)**
21-29

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** this update for its information and with consideration to the committee's 2021-2024 Acton Plan priorities.

3.3 **Ashley/Rakahuri Braided River Revival Draft Strategy – Update (for information) – Sarah Worthington (Braided River Revival Advisor, ECan) and Andrew Arps (Northern Zone Manager, ECan)**

30-31

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

(a) **Receive** this update for its information and with consideration to the committee's 2021-2024 Acton Plan priorities in the Rakahuri/Ashley River catchment.

4. COMMITTEE UPDATES – M GRIFFIN (CWMS FACILITATOR, ECAN)

4.1 **Waimakariri Water Zone Committee appointments for 2022/23.**

4.2 **Zone Committee Working Groups.**

4.3 **Waimakariri Zone Communications Report (Jul-Aug 2022) by Kim Whitwell**

4.4 **Groundwater Quality Reports Released.**

4.5 **Further Information Links.**

4.6 **Action points from the previous Zone Committee meetings.**

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** these updates for its information, and with consideration to the Committees Working Groups, Action Plan, and Engagement Priorities for 2022.

(b) **Approves** the deferring of the 2022/23 appointments of the Committee Chair and Deputy Chair until the next meeting of the Committee on Monday 5 December 2022.

5. REPORTS FOR INFORMATION

5.1 **July to September 2022 Communications Report for Waimakariri Water Zone Committee – Kim Whitwell (Principal Communications and Engagement Advisor, ECan)**

32-40

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** the report for information.

5.2 **Risk of Nitrate in Drinking Water from Private wells in Waimakariri Zone – Carl Hanson (ECan, Groundwater Science Manager)**

41

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** the staff report on risk of nitrate in drinking water.

5.3 **Overview South Eyre Infiltration Trial 2018-2021 – Helen Shaw (ECan, Surface Water Science Manager)**

RECOMMENDATION *42-61*

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** this report on overview South Eyre infiltration trial 2018-2021.

6. PRORPOROAKI – FARWELL

An opportunity to acknowledge the contributions of community reps Judith Roper-Lindsay and Wendy Main, and ECan Clr Megan Hands, to the committee and community of the Waimakariri Water Zone.

7. CONFIRMATION OF MINUTES

7.1 **Minutes of the Canterbury Water Management Strategy Waimakariri Zone Committee Meeting – 4 July 2022**

62-69

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

a) **Confirms** the Minutes of the Canterbury Water Management Strategy Waimakariri Zone Committee meeting, held on 4 July 2022, as a true and accurate record.

8. GENERAL BUSINESS

KARAKIA

NEXT MEETING

The next meeting of the CWMS Waimakariri Water Zone Committee is scheduled for 5 December 2022 at 3:30pm

WAIMAKARIRI WATER ZONE COMMITTEE

Register of Interests – at 1 August 2022

Name	Committee Member Interests
Michael Blackwell	- Director/ Shareholder – Blackwells Limited, Kaiapoi - 4Ha property, Tuahiwi
John Cooke	- Director/Shareholder – Executive Limousines 2015 Limited - Director/Shareholder – Express Hire Limited - Director/Shareholder – Secure Property Management Limited - Director/Shareholder – Testpro Limited - Director/Shareholder – Acropolis Wedding and Event Hire Limited - Director/Shareholder – Pines Beach Store Limited - Director/Shareholder – Coastal Dream 2005 Limited – 4Ha property, Kaiapoi - Interim Trustee – Section 6 Survey Office Plan 465273 Ahu Whenua Trust
Megan Hands	- Director/Shareholder – Landsavvy Limited - Member – NZ Institute of Primary Industry Management - Member – NZ Young Farmers - Member – Institute of Directors NZ - ECan Councillor
Erin Harvie	- Shareholder – Bowden Consultancy Limited, trading as Bowden Environmental - Trustee – Waimakariri Landcare Trust - Co-ordinator - Waimakariri Landcare Trust - Member – NZ Hydrological Society - Member – NZ Institute of Primary Industry Management - Involvement with Cust River Water User Group
Martha Jolly	- Veterinary surgeon (Companion animal) - Student of Masters in Water Resource Management (2nd year) - Volunteer assistant the Styx Living Laboratory Trust - Volunteer educator Vets for Compassion - Volunteer clinician SPCA NZ - Member – Forest and Bird NZ
Carolyne Latham	- Farmer – Sheep, beef - Director – Latham Ag Ltd Consulting - Shareholder – Silver Fern Farms, Farmlands - Registered Member – New Zealand Institute of Primary Industry Management
Wendy Main	- Dairy Farmer – Trinity Holdings (2001) Ltd - Registered Nurse - Member Federated Farmers - Consent to Farm and related consents for water and effluent with ECan - Shareholder – Silver Fern Farms, Farmlands, LIC

Arapata Reuben	- Trustee – Tuhono Trust - Trustee – Mana Waitaha Charitable Trust - Member – National Kiwi Recovery Group - Rūnanga Rep – Christchurch/West Melton Water Zone Committee - Rūnanga Rep – Ashburton Water Zone Committee
Judith Roper-Lindsay	- Landowner/small-scale sheep farmer, Ashley downs - Fellow – Environment Institute of Australia and New Zealand (EIANZ) - Chair – Waimakariri Biodiversity Trust
Sandra Stewart	- Self-employed journalist - Landowner, 4Ha Springbank – sheep & dogs - WDC Councillor

AGENDA ITEM NO: 3.1	**SUBJECT:** Watercress in the Cam River Project Report – update (for information)
REPORT TO: Waimakariri Water Zone Committee	**MEETING DATE:** 5 September 2022
REPORT BY: Murray Griffin, CWMS Facilitator, ECan	

PURPOSE

This agenda item provides the Zone Committee with an update on the Cam River watercress project developed by the Tuia Team at Environment Canterbury in conjunction with Ngāi Tūāhuriri Rūnanga whanau.

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** these updates for its information and with consideration to the Committee's 2021 to 2024 Action Plan priorities.

BY WHO

This update will be provided by:

- Irai Weepu, Tangata Whenua Facilitator – Kaitiakitanga Targets, ECan
- Arapata Reuben, Ngāi Tūāhuriri Rūnanga representative

BACKGROUND

Whānau of Ngai Tūāhuriri used to be able to gather watercress at the Cam River from Revell's Road bridge right through to Rangiora Woodend Road, and tributaries between the two points. Including Bramleys Rd bridge. Due to poor water quality, many whānau stopped gathering (some still do) and have had to travel to the foothills to source clean watercress. When the Kaiapoi Māori Reserve 873 was set aside for Ngāi Tūāhuriri whānau the Cam River was set aside as a mahinga kai reserve. Members expressed that they shouldn't have to travel far away to collect watercress and that the Cam River.

The project objective is to establish a priority area for watercress within Māori Reserve 873 - Tuahiwi pā, close to whānau.

For more information: please refer to the attached report included as Item 3.–1–1.

Tuia A Partnership Between Environment Canterbury and Ngā Rūnanga

Project report on

Watercress in the Cam River

2022

Background

Whānau of Ngai Tūāhuriri used to be able to gather watercress at the Cam River from Revell's Road bridge right through to Rangiora Woodend Road, and tributaries between the two points. Including Bramleys Rd bridge. Due to poor water quality, many whānau stopped gathering (some still do) and have had to travel to the foothills to source clean watercress. When the Kaiapoi Māori Reserve 873 was set aside for Ngāi Tūāhuriri whānau the Cam River was set aside as a mahinga kai reserve. Members expressed that they shouldn't have to travel far away to collect watercress and that the Cam River.

The project objective is to establish a priority area for watercress within Māori Reserve 873 - Tuahiwi pā, close to whānau.

Further information

Members of Ngāi Tūāhuriri have identified priority sites for restoring and enhancing watercress close to the marae.

Project summary

The overall aim of this project is to increase the abundance, use and access to Watercress in the Cam by minimising or eliminating risks and enhancing watercress habitat, also to propose a long-term management programme for Mahinga kai ki Tuahiwi (food gathering at Tuahiwi) regarding watercress and to seek the support and cooperation of WDC and ECan to help implement the programme.
The desired outcome for Ngai Tūāhuriri whānau is that the Cam River provides a pivotal role in supporting Ngāi Tūāhuriri whānau and the Tuahiwi Marae.

- **Site**

From Bramleys bridge going upstream for approx. 207m

- **Weeding**

Clear weeds instream, have rūnanga members shadow for training. Long term weeding outsourced to rūnanga members.
Training rūnanga members to be able to undertake instream weeding.

- **Access points**

Easy access on both sides. Current access is suitable. Power rd side to have earth works for easy slope access.

- **Watercress**

Habitat cleared of weeds. Translocate watercress from other sites along the river.

- **Mātauranga Monitoring**

Undertake a baseline assessment – all methods, shadow for training. Check in after which methods preferred for long term monitoring outsourced to rūnanga members.

Implementation summary

Type	Description	Paid by	Units	Cost per unit	Total cost
Waders purchased	Waders needed for staff to undertake weeding	ECan	4	100-200	400.00- $800.00
Training – Weeding	Waimakariri rangers to provide training to rūnanga members on how to weed instream (in kind)	WDC	2	Nil	N/A
207 metres instream Weeding	- Clear weeds instream, have rūnanga members shadow for training. Long term weeding outsourced to rūnanga members. - There is Monkey Musk amongst the Watercress – further weeding of the Monkey Musk plants is required. This could be arranged as a working bee between whānau and WDC staff or contracted to a weeding service provider.	ECan	18	50	$900
* All costs exclude GST				Total	$1,700.00

Programme achievements

Targets	*Performance Indicators*	*Achieved*	*Not Achieved*
Site	207m metre stretch of Cam nominated	Achieved	
Watercress	Watercress – enhance the watercress and its habitat within the Cam to service Ngai Tūāhuriri members	Achieved	
Access points	Banks on both sides are adequate	Achieved	
Weeding	• Clear weeds instream, have rūnanga members shadow for training. Long term weeding outsourced to rūnanga members. • 3 rūnanga members trained to be able to undertake instream weeding.	Achieved Achieved	
Mātauranga Monitoring	Undertake a baseline assessment – all methods, shadow for training. Check in after which methods preferred for long term monitoring outsourced to rūnanga members.		Not achieved

Additional information

This project is transitioning to 'stage two' – expanding the watercress patch further along the Cam.
The expansion sites will be identified by Ngai Tūāhuriri ongoingly.

This project will integrate with another KMK project proposal that has been identified and is being developed by Ngai Tūāhuriri. This project focuses on managing the water quality of watercress patches via sediment traps and other potential methods yet to be identified to ensure watercress is safe to eat.

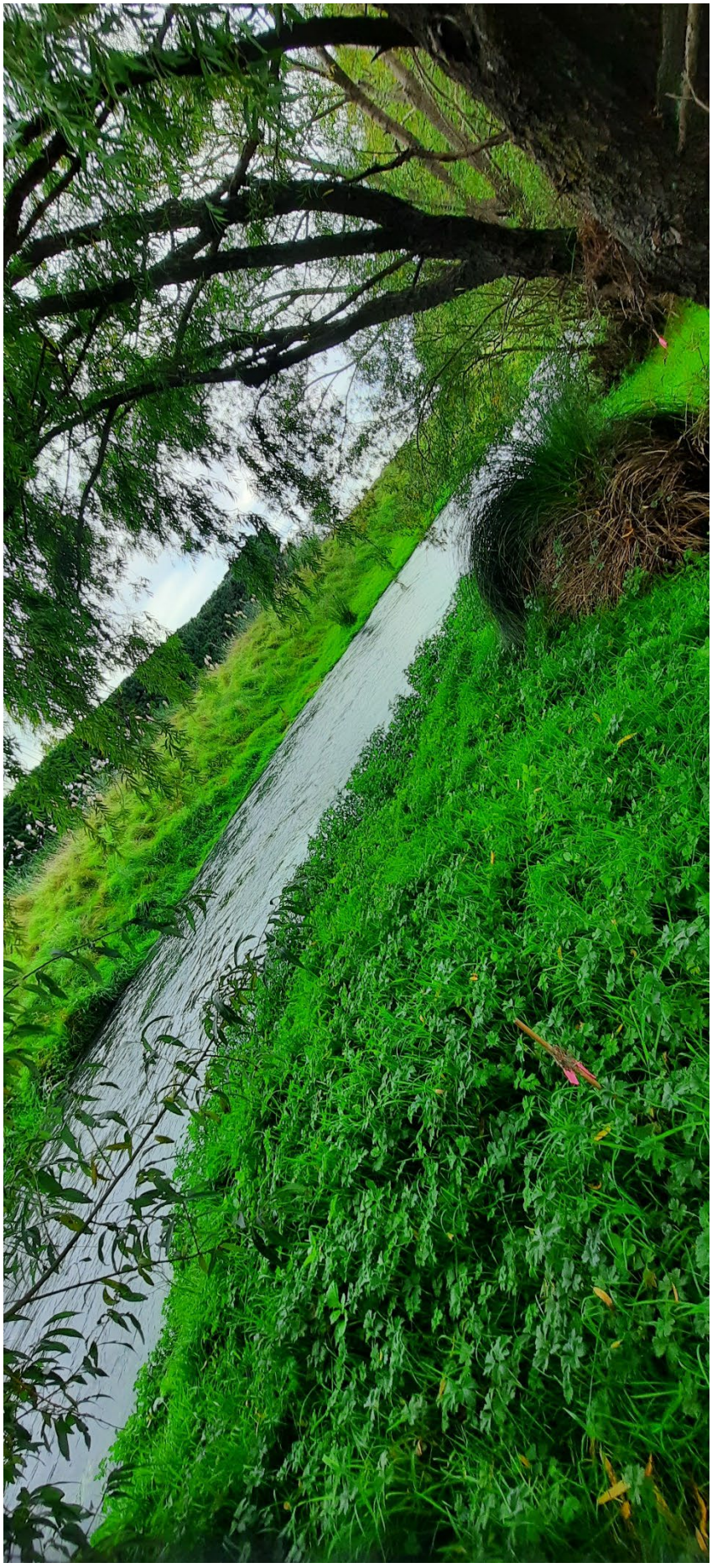
1.1 Appendices

Implementation Schedule				
Milestone Tasks	**Responsibility**	**Month**	**Year**	**Comment**
Weeding training days	ECan, WDC, Rūnanga	Nov	2021	
Mātauranga plans	ECan, Rūnanga	Nov – ongoing	2021/2022	
Communication: inc interviews	ECAN	Nov - ongoing	2021/2022	
Weeding	ECan, WDC, Rūnanga	Nov/Dec	2021	
Indicative month identified as the appropriate time to do the task, subject to seasonal variation or operational constraints. Variations greater that one month must be discussed with the Implementation lead.				
Proposals for protection and maintenance of the site long term				
Long term weeding outsourced to rūnanga members.				
Communication plan				
Monthly or regular updates to Watercress project team (Agencies and rūnanga) **Comms plan - Documentation - Runanga whakaora narrative** - Documentation of rūnanga whakaora narrative. Interviewing and recording kaitiaki to provide at a minimum a print article and 2-minute video clip. - This work is to document the rūnanga restoration story, told and owned by rūnanga. Further practical conversations with rūnanga are required.				
Mātauranga Pūtaiao Plan				
- Initial base to be undertaken asap. All methods used – E.Coli, CHI, SoT, as well as watercress growth monitoring. - Long term monitoring to be reviewed post initial results. - This work needs to be outsourced to the kaitiaki of the awa, who are able to assess the mauri of the awa. This requires further practical conversations.				
Reporting Requirements				
- 3PO, D365, Monthly report to TL & project team - Final report to TL, CWMS principal advisor, ECan operations as well as Tūāhuriri rūnanga - Present final report at rūnanga hui if needed				
Expectations of Engagement				
Empower rūnanga and design a long-term monitoring system.				

1.2 Pictures:

- ***Before:***

- *After:*



AGENDA ITEM NO: 3. 2	**SUBJECT:** ZIPA Implementation – 4th Quarterly Update 2021/22
REPORT TO: Waimakariri Water Zone Committee	**MEETING DATE:** 5 September 2022
REPORT BY: Murray Griffin, CWMS Facilitator – Waimakariri, ECan & Kate Steel, WDC Ecologist - Biodiversity Advisor	

BACKGROUND

The Zone Implementation Programme Addendum (ZIPA) for the Waimakariri Water Zone was adopted by Waimakariri District Council and Environment Canterbury in December 2018. This report outlines progress on implementation of ZIPA recommendations for the second and third quarter of the 2021/22 financial year, from 1 April to 30 June 2022.

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** these updates for its information and with consideration to the Committee's 2021 to 2024 Action Plan priorities.

SUMMARY OF KEY PROGRESS

Joint Agency

- WDC and ECan staff have been supporting the WWZC biodiversity working group to establish a new charitable trust, the 'Waimakariri Biodiversity Trust'. The trust obtained legal entity status in March 2022. It will be able to hold an indigenous biodiversity vision for the District, support restoration projects and provide biodiversity advice for private land owners for example. The Trust are in the process of hiring a coordinator and are planning to run a visioning workshop to help them identify aspirations and priorities for biodiversity in Waimakariri. **(ZIPA Rec 2.8, 2.9, Action Plan 2021-24)**

- A project has been scoped by Environment Canterbury Tuia Team to enable improved watercress mahinga kai gathering for Ngāi Tūāhuriri above Bramleys Road bridge on the Cam River. Ngāi Tūāhuriri members and WDC Jobs for Nature rangers supported Environment Canterbury with a weeding of water plants in November 2021 to reduce competition and support more growth of watercress. Since this weeding in November, ECan Science are investigating options to support ongoing monitoring of this project. **(ZIPA Rec1.27, Action Plan 2021-24)**

- Silverstream village – ECan have been rebattering the riverbanks over the past 3 years and WDC have been doing follow up planting with the rangers and community. 500 plants donated by ECAN were put in by WDC during the 2022 autumn planting season. **(ZIPA Rec 1.26, 1.27)**

- WDC and ECAN staff are supporting the Saltwater Catchment Group to design and undertake community water quality monitoring. **(ZIPA Rec 1.4f)**

Waimakariri District Council

Monitoring and Research

- WDC Stormwater Network Discharge Consent monitoring programmes for Rangiora, Woodend, Kaiapoi and Oxford have all been lodged with Environment Canterbury as part of Stormwater Network Discharge Consents. The Rangiora consent was granted in May 2021. The Kaiapoi and Oxfords consents have been indicated they could be decided by Environment Canterbury soon, with Woodend as the last consent likely to be granted. Monitoring of Rangiora and Kaiapoi Stormwater commenced in the second quarter of 2021/22 with visual discharge inspections, water quality samples for urban impact assessment and general stream health. (**ZIPA Rec. 1.4j)**

Protecting and enhancing aquatic ecosystem health

- A 200m section of waterway maintained by WDC Drainage to the west of Gressons Road was planted this June 2021 with native trees and *Carex secta* to provide future shading. Unfortunately, there was some frost damage, first noticed in spring 2021 that has killed some of the trees planted. Therefore infill planting is planned for spring 2022. (**ZIPA Rec. 1.14)**

Improving Stream Health – Urban Waterways

- A ZIPA budget of $10K is allocated in 2021-22 for local stormwater education resources in the WDC 2021-31 Long Term Plan. This budget is allocated to EnviroSchools Canterbury for work with schools in the District to facilitate stormwater discussions and actions, alongside existing funding for waste minimisation ($25k), and new funding for biodiversity ($5K) and active transport education ($5K). Following discussions with WDC EnviroSchools Canterbury have reallocated coordinator time and now have the capacity to take on more schools in the Waimakariri District. **(ZIPA Rec. 1.25)**

Improving Stream Health – Project Support

- Waimakariri District Council has continue support for the Spark Family and Waimakariri Landcare Trust to scope out a trail along the North Brook from Spark Lane/Northbrook Ponds in Rangiora to Marsh Road via private land. The WDC Land and Water Committee endorsed the project at the 16 November 2021 meeting, and allocated $10k to the Waimakariri Landcare Trust for planning regarding the project. Ecological restoration work, a path and interpretative signage is proposed. **(ZIPA Rec. 1.26)**

- For Arohatia te Awa, there has been six manual releasing sessions with line trimmers to maintain the 2021 plantings along the Cam River. 3000 plants were planted in autumn /May 2022 with 1300 awaiting resolution of some neighbour issues.. **(ZIPA Rec. 1.26)**

- 12,000 seedlings have been planted to date at Honda Forest in Kaiapoi, including 630 in the spring of 2021 at a community planting with 45 volunteers. 515 natives were planted by the WDC Jobs for Nature rangers in a second spring planting. The rangers have also spread 240 m^3 of mulch along the paths and plantings along both street frontages to help with weed control and soil moisture retention as well as improve the aesthetic appeal of the site. **(ZIPA Rec. 1.26)**

- Over summer the WDC Jobs for Nature Rangers undertook weed management at sites such as the Courtenay floodgate inanga spawning habitat, selected plantings along the Kaiapoi River, along the South Brook near the Townsend Fields stormwater management area, and in multiple WDC Stormwater management areas. Riparian planting for the Kaiapoi River (800 plants) and Townsend Fields (400 plants) is planned for spring 2022. **(ZIPA Rec 1.26).**

Protecting and enhancing Indigenous Biodiversity - Cross-outcome Recommendations

- WDC staff are working to map indigenous habitats of priority for protection and enhancement i.e. Significant Natural Areas (SNA). 26 roadside reserve areas owned by WDC have been surveyed and identified as SNAs, with a report presented to Council in early March 2022. Existing SNAs are being surveyed to assess their current state and offer management advice and potential SNAs have been identified which will be surveyed to assess their significance to afford them protection. **(ZIPA Rec. 2.2, Action Plan 2021-24)**

- WDC staff have been working with the Waimakariri Biodiversity Trust to deliver a winter Biodiversity Lecture series with a focus on ways to enhance biodiversity in agricultural and urban landscapes found in the Waimakariri Zone. **(ZIPA Rec. 2.4)**

Protecting and advancing ecosystem health

- Fencing to keep out feral deer has been completed at the WDC-owned Forestdale Wetland in Okuku. The fence will stop deer browse and allow regeneration of native seedlings. This project is partially funded by WDC ($24k), $30k from Environment Canterbury, and a further $39k through the Canterbury Biodiversity Fund. Weed control works in the wetland have not been commenced due to the wet weather but is programmed for when conditions dry out in the spring. (**ZIPA Rec 2.5)**

Protecting and enhancing terrestrial and aquatic indigenous biodiversity

- WDC staff and Jobs for Nature Rangers are working with the Silverstream Reserve volunteer group to fund and carry out indigenous biodiversity protection and enhancement at Silverstream Reserve. There has been on-going predator trapping at the 19.94ha east end of the reserve by the rangers supported by volunteers. In the spring planting season there were 4,900 seedlings planted. From October to December 2021, there were 4 ha of weed control and 450m of walking tracks shingled **(ZIPA Rec 2.8).**

- $20K funding from the ZIPA budget has been approved at the WDC Land and Water Committee meeting of 22 March 2022 to be provided to the newly-established Waimakariri Biodiversity Trust, for organisational support in the remaining part of 2021-22 and 2022-23. The trust will work on indigenous biodiversity projects and provide advice for landowners in the District among other goals. **(ZIPA Rec 2.8)**

Protecting and enhancing Indigenous Biodiversity – Coastal Habitats and Ecosystems

- 800 native plants were put in during the 2022 autumn planting season, and a temporary fence was installed. Installation of a permanent fence is awaiting drier conditions. Co-funding of $5k was secured from the Environment Canterbury Regional Fish Habitat Fund which helped enable the 105m of bank re-grading. Maintenance of previous plantings was undertaken in Taranaki reserve during the autumn, and 2500 seedlings donated by ECAN were planted by the WDC ranger team. **(ZIPA Rec. 2.11).**

Figure 1: Rebattering earthworks on the True Right of the Taranaki Stream at the floodgate, for improved īnanga spawning habitat.

Reducing Nitrates – Nitrate Limits for Private Well Supplies

- WDC allocated $10Kof ZIPA budget in 2021-22 towards the testing of 40 nitrate levels and other drinking water contaminants in private drinking wells in Eyreton and Cust, as well as two new groundwater areas in the district (Carleton and Swannanoa). The two new areas were selected based on a risk of high nitrate level increases from the Environment nitrate assessment groundwater model (Etheridge et al. 2018). 39 wells were able to be sampled, including resampling of all previous wells involved in the study in 2019 and 2020. The sampling was undertaken in Q2 of 2021-22 (i.e. October-December 2021). A report with study results was presented at the 22 March 2022 Land and Water Committee and was circulated to the WWZC in the 4 July WWZC meeting agenda papers. **(ZIPA Rec. 3.16a)**

Environment Canterbury

Science

- Our groundwater and surface water scientists have been heavily involved in Plan Change 7 (PC7) related work. We are now awaiting the decision from the Hearing Panel. The Science Teams have created working programs that align with PC7 proposals, Zone Committee

recommendations and the LTP. **(This commitment from the Science Teams aligns with the 59 ZIPA Recommendations addressed through proposed Plan Change 7)**

Groundwater Science Team

- A review of the State of the Environment monitoring network for groundwater levels and groundwater quality the Waimakariri CWMS zone was completed in June 2022. Recommended actions from the review were added to the work programme of the Groundwater Science field team for implementation. Aside from minor changes to monitoring well sites and filling a few gaps in the network, the main outcome is a sampling investigation in the Lees Valley where we currently do not have any groundwater monitoring sites. The sampling investigation is planned to take place over summer 2022/23. **(ZIPA Recs. 3.19, 3.20)**

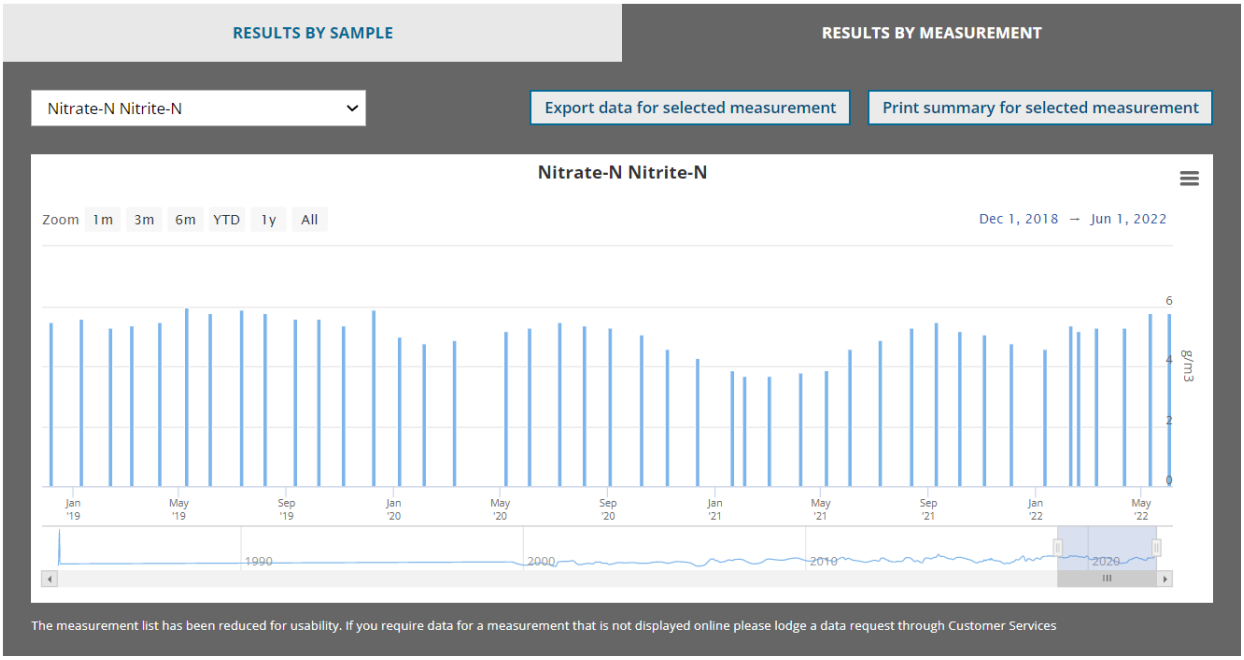
- An investigation in reviewing the boundaries of Private Supply Well Areas is added to our section's work programme. Results of the private well nitrate sampling pilot conducted by WDC will be used in this investigation. No progress yet, due to a lack of available resourcing. **(ZIPA Rec. 3.16)**

- Investigation into nitrate lag times in the Canterbury region. A draft report summarising lag times for nitrate transport in Canterbury has been prepared and is being sent out for external peer review before publication. This investigation indirectly supports nutrient management actions and outcomes for the Waimakariri CWMS Zone. **(ZIPA Rec. 3.19)**

- Baseline Spring sampling – no progress since last update due to lack of resources. Monthly surface water quality data at Silverstream – Island Road and Silverstream – Harpers road still collected by Surface Water Science Team. Data can be viewed online here: Island Road (Site SQ30332) and Harpers Road (Site SQ32943). **(ZIPA Recs. 3.1, 3.8, 3.18, 3.19 – Reducing Nitrates: Direction of travel, nitrate limits for streams and rivers, monitoring)**

- **Island Road (Site SQ30332)**

Site ID	SQ30332
Site name	Kaiapoi River u/s Island Road
Coordinates (NZTM)	1570316 - 5197412



- **Harpers Road (Site SQ32943)**

Site ID	SQ32943
Site name	Kaiapoi River u/s Harpers Road
Coordinates (NZTM)	1564806 - 5191960

Surface Water Team

- In addition to waiting to understand requirements for changes and implementation of proposed Plan Change 7, the following areas have been areas of focus for the Surface Water Team and reporting back to the Zone Committee over the last nine months. *There has been limited / no progress was made across the following [italicised] surface water actions in the last quarter due to limited staff availability and the current priorities of the ECan Science Team.*

- *Salinity monitoring of Kaiapoi River has continued via the logger at the Mandeville Bridge. The logger has been downloaded and data added to the existing record. This data will allow comprehensive modelling of the influence and inter-relationships between tide heights (i.e. King tides), Waimakariri River flows, and Kaiapoi River catchment flows. This work is awaiting availability of external modelling resources. The salinity logger will be replaced by the comprehensive monitoring equipment installed during this quarter.* ***(ZIP Rec. 1.4 i – Improving Stream Health: monitoring and research)***

- *Equipment for continuous water quality monitoring station for Kaiapoi River has been installed in Q2. Equipment powered by solar panel independent of bridge lighting. Monthly water quality monitoring has also been initiated in Q2 to both replicate/calibrate logger data and to provide additional explanatory data. Initial data reporting anticipated in Q4.* ***(ZIPA Rec. 1.4 i – Improving Stream Health: monitoring and research)***

- *Ongoing discussion with WDC on Govt funded "shovel ready" project for Kaiapoi stormwater pumping station projects (Dudley Creek, McIntosh's Drain, and Feldwick Drains.*

- *Advice on subdivision proposals including realignment of tributary of North Brook (Cam), waterway realignments for Beach Grove subdivision (Kaiapoi), and advice on subdivision proposals for Bell grove (Rangiora/upper Cam). Ongoing advice on aquatic park proposals including the operation of the Courtenay Lake activity.* ***(ZIPA Rec. 1.4 i – Improving Stream Health: monitoring and research, Rec 4.20 – Managing surface water quantity)***

- *Little recent progress on fish passage improvement at ECan tide gate infrastructure on Waimakariri and Ashley/Rakahuri tributaries.* ***(ZIPA Rec. 1.21 – Improving stream health: Ngāi Tūāhuriri values and aquatic ecosystems)***

- *Ongoing quarterly water quality sampling of Tutaepatu Lagoon (recent December 2021 and March 2022 helicopter sampling completed).* ***(ZIPA Rec. 1.21 – Improving stream health: Ngāi Tūāhuriri values and aquatic ecosystems***

- *Examination of extent of benthic cyanobacteria growths in Silverstream reaches through Silverstream subdivision. Period of growths exceeding safe limits.* ***(ZIPA Rec. 1.4 i – Improving Stream Health: monitoring and research, Rec 4.20 – Managing surface water quantity)***

- Cultural liaison staff commenced stream walk of reaches of Cam/Ruataniwha to advise on mahinga kai gathering area and a report prepared on the findings which has been made available for this zone committee meeting. **(ZIPA Rec. 1.21 – Improving stream health: Ngāi Tūāhuriri values and aquatic ecosystems**

Zone Delivery

- **Catchment support with a focus on sedimentation and riparian protection and maintaining flood carrying capacity** has included:
    - Continued project support in the Saltwater Creek catchment – working alongside the catchment group and its members on completion of planting projects for the autumn period.
    - Completion and wrap-up of x6 projects that were part of the Fonterra 50 Catchments Lower Rakahuri/Ashley project – with the last project including woody weed control and planting of small wetland area. There will be some on-going maintenance activities for another year.
      (ZIPA Rec. 1.2 c – Improving stream health: Cross Outcomes Recommendation, ZIPA Rec. 1.21 – Improving stream health: Ngāi Tūāhuriri values and aquatic ecosystems)
    - Incident Response and Land Management Officers have worked collaboratively with WDC Roading Engineer and their contractors following localised flooding issues in the Oxford - Deport Road area - providing engagement support with local landowners to undertake an investigation to identify impediments to flood carrying of View Hill Stream in the area. Landowners have been supportive, and staff are now working to identify best way forward to minimise flooding reoccurring in this area **(ZIPA Rec. 1.13 – Improving protecting and enhancing aquatic ecosystem health, maintaining flood carrying capacity)**

- **Improving Stream Health through uptake of GMP on-farm**
    - The first ever Environment Canterbury Intensive Winter Grazing flyover trial was undertaken in the Waimakariri Zone in July. This initiative involved both Regional Implementation and Zone Delivery staff, working closely together with key primary industry partners. An industry representative joined the flight as an observer. The trial has been successful with positive feedback from the approach taken. The trial will help inform what approach may be taken on a wider regional basis next year.
    - A Rural Contractors and Technical Field Rep On-Farm Workshop was held in early August with over 20 attendees - to provide an update on Intensive Winter Grazing and other national regulations. This was a collaboration between ECan, DairyNZ, BLNZ and WLT.
    - Provision of plants and assistance in planting Carex secta along springfed drain/waterway on property in Fernside – that will provide shading and help reduce macrophyte growth and need to cleaning going forward. Assistance provided after land owner sought assistance from Zone Committee
    - Continue to support landowners and community groups with land management advice and education.
      (ZIPA Rec. 1.2 b and c– Cross Outcomes Recommendation – Improving stream health: education and GMP Ngāi Tūāhuriri values and aquatic ecosystems)

- **Protecting and enhancing indigenous biodiversity**
    - Project Support: Work has continued at the following biodiversity projects: Auld Wetland, Springvale Wetland, Burgess Stream, Miles Wetland and Bush and Silverstream Reserve. These projects have progressed as planned. Works are completed at Auld Wetland, Springvale Wetland, Burgess Stream. Silverstream reserve project is in maintenance stage. Works continue at Miles wetland and bush. Meanwhile, as IMS has come to an end, the new funding regime is in development stage and new projects will be considered when the availability of funds is clarified.

- Zone Priority Fund: Stage 1 of the riparian edge planting project along an area of saltmarsh in the Saltwater Creek estuary is nearing completion. Stages 2 and 3 will occur next autumn and spring as plants become available.
- Continue to support landowners and community groups with biodiversity advice and education. **(ZIPA Rec 2.3 – Working with willing landowners to action biodiversity protection and enhancement)**

Fin

AGENDA ITEM NO: 3.3	**SUBJECT:** Ashley/Rakahuri Braided River Revival Draft Strategy – update (for information)
REPORT TO: Waimakariri Water Zone Committee	**MEETING DATE:** 5 September 2022
REPORT BY: Murray Griffin, CWMS Facilitator, ECan	

PURPOSE

This agenda item provides the Zone Committee with an update on the Ashley/Rakahuri Braided River Revival draft strategy being developed by Environment Canterbury.

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** these updates for its information and with consideration to the Committee's 2021 to 2024 Action Plan priorities.

BY WHO

This update will be provided by:

- Andrew Arps, Northern Zone Manager, ECan
- Sarah Worthington, Braided River Revival Advisor, ECan

BACKGROUND

The Braided River Revival programme established by Environment Canterbury has two overarching purposes:

1. To achieve improvements in the health of Canterbury's braided rivers by supporting the development and promotion to external partners, of a proposal for a landscape scale alignment of the agencies involved in braided river management.

2. Environment Canterbury, as a Council, has called for a step change in effort in the regeneration of freshwater, marine and terrestrial biodiversity and has recognised Braided Rivers as one of two priority ecosystems. Council's efforts to achieve the desired change are focused on strategic and work programme alignment, both internally and with external agencies and partners.

Alignment with the Waimakariri Water Zone Committee Action Plan 2021-2024

Action Plan Priority – Promoting the natural braided character and increased flow of the Ashley River/Rakahuri.

To protect the braided river values associated with the Ashley River/Rakahuri, ki uta ki tai, by:

- *Promoting an improved community understanding of land and water use impacts on braided river character and the lower catchment ecosystems,*
- *Working to make the Ashley River/Rakahuri safe for contact recreation, with improved river habitat, fish passage and customary use, and flows that support natural coastal processes.*

We will measure this by:

- *Encouraging the improved understanding of landowners and wider community of climate change impacts on the Ashley River/Rakahuri',*
- *Encouraging landowners and agencies to protect the landscape and indigenous biodiversity values in the upper catchment,*
- *Supporting weed control in the upper and middle sections of the catchment,*
- *Supporting an investigation into existing consents and water use in the Ashley River/Rakahuri catchment,*
- *Encouraging landowner and agency efforts to improve the habitat health of lowland spring-fed tributaries,*
- *Supporting investigations focused on understanding and improving the ecosystem health of Te Aka Aka/Ashley estuary.*

Alignment with the Waimakariri ZIP Addendum (2018)

The Braided River Revival programme aligns with the following ZIP Addendum recommendations focused on the Ashley/Rakahuri

Rec 1.22	That Environment Canterbury and the Waimakariri District Council recognise the Ashley River/Rakahuri for its important natural landscape values, braided river characteristics, and braided river bird (nesting and feeding) habitat.
Rec 1.23	That Environment Canterbury investigate funding for projects to address key environmental issues in consultation with LINZ and Department of Conservation for the Ashley River/Rakahuri, particularly the removal of woody weeds above the confluence with the Okuku River.
Rec 1.24	That Environment Canterbury and the Waimakariri District Council recognise the Upper Ashley River/Rakahuri catchment, including Lees Valley, for its high natural landscape and ecosystem values, and protect its waterways from degradation by: • Avoiding increased contaminant losses to waterways. • Preventing the removal or degradation of any existing wetlands. • Preventing the expansion of wilding pines.
Rec 2.1	The zone committee recommends that Environment Canterbury and the Waimakariri District Council work with Ngāi Tūāhuriri, landowners, agencies and stakeholders to integrate indigenous biodiversity in a whole of waterway, Ki Uta Ki Tai, approach to managing catchments in the Waimakariri Water Zone.

Alignment with other work programmes

- Work programmes developed under the Braided River Revival umbrella will mesh with other programmes particularly in relation to tree planting.
- Work on braided rivers may also deliver river protection functions outside of existing rating districts. For example, the current choked status of the Ashley Rakahuri between Ashley Gorge and the Okuku River may be addressed through Braided River Revival which will also have very beneficial effects for adjacent landowners concerned about lateral erosion.
- **Link** – For more information on the vegetation clearance being undertaken in the catchment:
  - Ashley River/Rakahuri vegetation clearance | Environment Canterbury (ecan.govt.nz)

AGENDA ITEM NO: 4	SUBJECT: Committee Updates
REPORT TO: Waimakariri Water Zone Committee	MEETING DATE: 5 September 2022
REPORT BY: Murray Griffin, CWMS Facilitator – Waimakariri, ECan	

PURPOSE

The purpose of the agenda item is to provide the committee with an overview of updates to be tabled.

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** these updates for its information.

(b) **Approves** deferring the 2022/23 appointments of the Committee Chair and Deputy Chair until the next meeting of the Committee on Monday 5 December.

COMMITTEE UPDATES

The following updates will be addressed with the committee:

1. Waimakariri Water Zone Committee appointments for 2022/23

With the 2022 CWMS Zone Committee Refresh now completed and committee member appointments confirmed by all Councils by the end of August, it is recommended to defer the appointment of the Waimakariri Water Zone Committee's Chair and Deputy until the next zone committee meeting, which follows the upcoming Local Government Elections and is scheduled for Monday 5 December.

2. Zone Committee Working Groups

Biodiversity Working Group

Martha Jolly has provided the following update:

- The Group met on August 1st, prior to The Zone Committee Workshop. Judith Roper-Lindsay updated The Group on the progress of The Waimakariri Biodiversity Trust. Selection of a co-ordinator for the Trust is in its final stages and once this has been achieved the Trust will work towards its Visioning Workshop.
- The group agrees to work closely with the Trust in project provisioning and selection. A Trust member will be invited to each Working Group meeting to facilitate liaison.
- Kate Steel suggests that The Working Group consider another networking session similar to the WDC event last year, but with a biodiversity focus. We agree that this should happen after the Visioning Workshop.
- The winter lecture series has been well attended and will finish up on Tuesday 30th August with a look at "Urban Biodiversity". The Trust with the help of John Cooke hope to get recordings of these lectures available online.

Lifestyle Block Working Group

Carolyne Latham had provided the following update:

- The LBWG has now provided its initial feedback into the Top Ten Tips discussion notes from the first workshop and will re-convene in the next few weeks to finalise a list and decide on the next steps.

Monitoring Working Group

Erin Harvie provided the following update:

- Following indication from Environment Canterbury that no further work is factored for further modelling or monitoring between now and 2024, a request was made to Environment Canterbury Science staff to provide an outline of the existing monitoring network for groundwater and surface water. This has been provided following the July workshop.
- The Waimakariri Zone committee recently helped to coordinate a very successful community nitrate water testing day. We were fortunate to have the help of Dr Tim Chambers from the University of Otago (Public Health) and the Mandeville Residents Association. Dr Chambers was in Selwyn District in mid-August to undertake a community water testing day and was happy to add another testing day to his visit, which was hosted at the Mandeville Sports Centre on Thursday 11 August. The day was successful with more than 300 samples being tested. Waimakariri Zone Committee members assisted the Mandeville Residents Association on the day, and we hope to assist in arranging further community water testing in the Waimakariri District with Dr Chambers.

Waimakariri Landcare Trust

Erin Harvie provided the following update:

- Farmer evening will be held on the 21st of September as a social gathering for members and to provide an update on what the trust has been up to and to ask members for their feedback on what they would like to see going forward.

The Next Generation Farming Project work continues.

- A further six integrated farm plans have been completed within the district, with experts providing support and recommendation to either address risks or take the opportunities identified. Following the completion of these, a workshop will be held mid-September to discuss the process to date, provide further information on integrated farm plans, for those who are interested.

Further news and events information can be found on the Trust's website

https://waimaklandcaretrust.co.nz/

3. Waimakariri Zone Communications Report (Jul – Aug 2022) by Kim Whitwell

Please find the most recent communications report from Kim Whitwell (Northern Principal Communications and Engagement Advisor, ECan) attached as **agenda item 5–1.**

4. Groundwater Quality reports released

Environment Canterbury has released two new reports on groundwater quality in the region. Groundwater Science Manager Carl Hanson said the report on our Annual Groundwater Quality Survey summarises the current state of groundwater quality throughout the region and provides analysis of trends over the past decade.

Link to these reports: New groundwater quality reports released | Environment Canterbury (ecan.govt.nz)

While the Risk Maps of Nitrate in Canterbury Groundwater 2022 report, produced every second year, is for people with private bores drawing water from shallow groundwater aquifers and used by Community and Public Health to help ensure safe drinking water, he said.

“These reports give a general picture of groundwater quality. Bore owners are responsible for their individual supplies. With the heavy rainfall the region has experienced this winter, we strongly recommend that people have their well water tested and make sure it is safe to drink.”

Results in line with expectations
Our annual groundwater quality survey takes place each spring, when groundwater levels are usually highest. We collect samples from wells to help understand the state of the resource and assess changes in water quality over time.

“The results in the latest groundwater report are what we expected,” Hanson said. “They are similar to most years, noting that these are ‘snapshot’ surveys.”

Groundwater is vulnerable to contamination, including *E. coli* and nitrate. For the 2021 survey, 327 wells were sampled region wide. *E. coli* was detected in samples from 29 (9%) of these wells, and samples from 34 (10%) of the wells had nitrate concentrations above the Maximum Acceptable Value (MAV), the national drinking water standard set by Taumata Arowai.

The MAV is 50 milligrams per litre for nitrate, equivalent to 11.3 milligrams per litre of nitrate-nitrogen.

Nitrate concentrations continue to rise
“The 10-year trend analysis shows that nitrate concentrations continue to increase in groundwater across the region,” Hanson said.

“All wells with nitrate and *E. coli* above the MAV are privately owned. The owners of these wells have been notified. Most of the wells are not used for drinking water. Some owners have installed filters if they are drinking the water. Others have replaced the wells, but we still monitor old wells for our long-term trend analyses.”

Read the Annual Groundwater Quality Survey - 2021 report (PDF File, 3.4MB).

The Risk Maps of Nitrate in Canterbury Groundwater 2022 shows the risk of shallow groundwater exceeding the MAV. “The latest maps contain only minor changes from the previous version from two years ago,” Hanson said.

Read the full Risk Maps of Nitrate in Canterbury Groundwater - 2022 report (PDF File, 2.85MB).

The maps, and health advice, will also be available on the Community and Public Health website.

Private drinking water suppliers need to test

Nitrate concentrations in Canterbury groundwater have been increasing for many years, due largely to nutrient losses from agricultural land. “Environment Canterbury takes nitrate very seriously,”

Hanson said. “We have some of the strictest land-use rules in New Zealand to protect the region’s water quality. Over time, these steps will help ensure that less nitrate enters Canterbury’s water.” While Environment Canterbury is responsible for the health of all groundwater and surface water in the region, people with private drinking wells are responsible for ensuring they have a safe supply. Hanson offers this advice: “Make sure your well is secure and test your water periodically. In most cases, samples can be taken from a kitchen tap and sent to a lab for testing at your own expense.”

View groundwater quality reports

- Annual Groundwater Quality Survey - 2021 report (PDF File, 3.4MB).
- View previous Annual Groundwater Quality Survey reports.
- Risk Maps of Nitrate in Canterbury Groundwater - 2022 report (PDF File, 2.85MB).
- View previous Risk Maps of Nitrate in Canterbury Groundwater reports.

    - For the Waimakariri nitrate risk map please refer to **agenda item 5 – 2**.

5. Further Information Links

- Link to the ECan updates on the **Essential Freshwater Package**:

  Essential Freshwater package | Environment Canterbury (ecan.govt.nz)

- Link to the ECan updates on Plan Change 7 & 2 to the Canterbury Land & Water Plan
  Plan Change 7 and Plan Change 2 - What you need to know | Environment Canterbury (ecan.govt.nz)

6. Action points from the previous zone committee meetings

Action points from the previous meetings:

- M Blackwell (Dec 2020) & E Harvie (May 2021) requested that the CWMS Waimakariri Zone Committee be provided with updated water quality and ecological data for the Waimakariri district on a quarterly basis.
    - A story map developed by the ECan Science Team providing a comprehensive overview of all the long-term groundwater and surface water monitoring sites in Canterbury was provided to the zone committee at their July workshop.

- Cr S Stewart requested if a report on the Infiltration Trench Trial project in South Eyre could be submitted to the Committee.
    - This report is provided as **agenda paper 5–3**.

- Cr S Stewart requested information on the definition of private drinking water supply well by Environment Canterbury.

    - The following content is provided as an overview of how dirnking water is defined and managed by respective agencies. It is drawn from the following ECan webpage:
    - Link: https://www.ecan.govt.nz/your-region/your-environment/water/our-drinking-water/

  Who helps ensure our water is safe to drink?

  The environment
  Our role as a regional council is to monitor surface water and groundwater across the region and to regulate activities that might affect water quality. However, specific monitoring of water supply sources is the responsibility of water suppliers.

We report on progress towards the Canterbury drinking water targets on behalf of all partners in the Canterbury Water Management Strategy

The regulator
Drinking water is regulated by Taumata Arowai, a Crown entity created in March 2021. Taumata Arowai has responsibility for setting the drinking-water standards and the rules that water suppliers must follow. The current drinking water standards were set by the Ministry of Health in 2018.

Reticulated water supplies
If your water is provided by someone else, that provider must have drinking water safety plans that identify any risks to their supplies and how those risks will be mitigated.

For most people, that water supplier will be their local council. For more information about your council water supply, visit your council's drinking water webpage:

Link: https://www.waimakariri.govt.nz/services/water-services/water-supply

Many people have their water supplied by a privately-owned scheme. If your water is supplied by a privately-owned scheme, you should contact the scheme's owner directly for more information.

Household water supplies
If you get your water from your own private household supply, such as a well or spring, or use a rooftop rainwater collection system, then it is your own responsibility to make sure your water is safe to drink.

If your water is provided by someone else, that provider must have drinking water safety plans that identify any risks to their supplies and how those risks will be mitigated. For most people, that water supplier will be their local council, but many residents get their water through privately-owned supplies.

Keeping your private water supply safe
If you live in a rural area, you may not have access to a reticulated water supply and need to supply your own water. You may have your own private well, get your water from a spring, or collect rainwater from your roof. If this is the case, then you are responsible for ensuring your own supply of water is safe and you should take the following actions:

- Check the historical use of the land to understand possible groundwater contamination risks.
- Learn where your well is located and ensure it's in good condition.
- Make sure your well head is secure, free from debris, and fenced off from animals.
- Regularly test the water supply by taking a sample and sending it to a lab for analysis.

- Cr S Stewart requested information on the realignment of the North Brook tributary and water quality sampling at Tutaepatu Lagoon.
    - An update on this action point is being facilitated.

Action points from the 4 April & 4 July 2022 meetings:

- An update on ECan management of the PC7 requirement for properties 20-hactares plus to have a Freshwater Farm Plan.
    - The following link provides guidance from ECan on Freshwater Farm Plans.
    - Link: Freshwater Farm Plans | Environment Canterbury (ecan.govt.nz)

- Follow up on WDC drainage maintenance programme procedures for protecting aquatic life.
- Follow up on testing for pesticides in the Kaiapoi River.
- An update on the Kaiapoi River salinity logger data.
    - Updates on the above three action points is being facilitated

- An update on the Cam River watercress project provided to a future Zone Committee meeting. Please refer to the report provided as **agenda item 3–1–1** for this meeting.

Fin.

July - September 2022 communications report for Waimakariri Water Zone Committee

- **Prepared by:** Kim Whitwell, Principal Communications and Engagement Advisor, Environment Canterbury
- **Prepared for:** Waimakariri Water Zone Committee meeting, Monday 5 September 2022

This report provides and overview of communication and engagement activity completed by Environment Canterbury communications and engagement staff (and contracted communications professionals). Normal channels used include:

- Environment Canterbury website and Facebook
- Waimakariri District Council channels
- Local Water Zone email newsletter (through Environment Canterbury)
- North Canterbury News

All Waimakariri-specific content can be found on the Environment Canterbury website at: https://www.ecan.govt.nz/get-involved/news-and-events/?zone=11&category=&subject=&sortOrder=DESC

Date	Content	Overview
July	Waimakariri projects get push forward with funding https://www.ecan.govt.nz/new-news-waimakariri-projects-get-push-forward-with-funding/	• Column from committee chair summarizing projects supported by the committee with action plan funding • Communicating how projects supported meet the committees action plan
August	Winter grazing follow-up – see content below.	• Email newsletter to Waimakariri water zone list as a follow-up to the intensive winter grazing trial flyover • Also sent to the North Canterbury News • Further regional communications planned for winter grazing campaign
	Rangiora Reach consultation findings summary	Following community consultation for the Rangiora Reach masterplan earlier this year, we've now loaded a summary of this feedback to EHQ. You can view it here: https://haveyoursay.ecan.govt.nz/rangiora-reach We also sent an email to those who participated in the survey and online sessions, linking to the EHQ site. You can view the email online here: https://mailchi.mp/ecan.govt.nz/rangiora-reach-survey-summary **Next steps:** • Masterplan drafted - project partners, the advisory group and key stakeholders will be consulted in the development of this plan.

		• Further opportunity for community to provide feedback on the draft plan • All future updates will be communicated to those who took part in the first consultation and via the EHQ website.

Planned communication activity: Water zone committee refresh regional communications campaign, outgoing member columns/stories, Waimakariri Water Zone website updates on the Environment Canterbury website, WZC action plan progress reports

Intensive winter grazing trial flyover follow-up comms:

Bird's-eye view shows good management practices are being followed

A trial flyover that took place last month observed that good management practices are being followed in Canterbury.

In early July, we carried out an intensive winter grazing flyover for the first time.

The single flight was made by a fixed-wing aircraft over the Waimakariri District. Environment Canterbury local and regional staff were on board, as well as an industry representative. No further flyovers were made, nor are any further intensive winter grazing flyovers planned this year.

Environment Canterbury Principal Implementation Advisor Sarah Heddell said that those on the flight were pleased to see that farmers were well prepared by grazing strategically towards waterways, creating buffer zones, placing water troughs and feeders close to new breaks, avoiding paddocks with waterways and wetlands, and grazing with smaller mob sizes.

“Overall, most farms we observed were meeting good management practice. Fences were set back from waterways, stock were on the paddock not in the stream, and waterways were relatively clear,” Heddell said.

“Our Waimakariri land management advisor followed up with a couple of landowners who were identified as needing some extra support and their response has been positive."

The flight took place shortly before some of the wettest winter weeks Canterbury has ever seen, making for tough conditions for intensive winter grazing.

Heddell said that surface flooding and waterlogged soils meant this was a tough time for farmers with calving and lambing season beginning.

“All this rain has made it difficult to farm right now, and that reinforces the need for farmers to have an intensive winter grazing plan in place.”

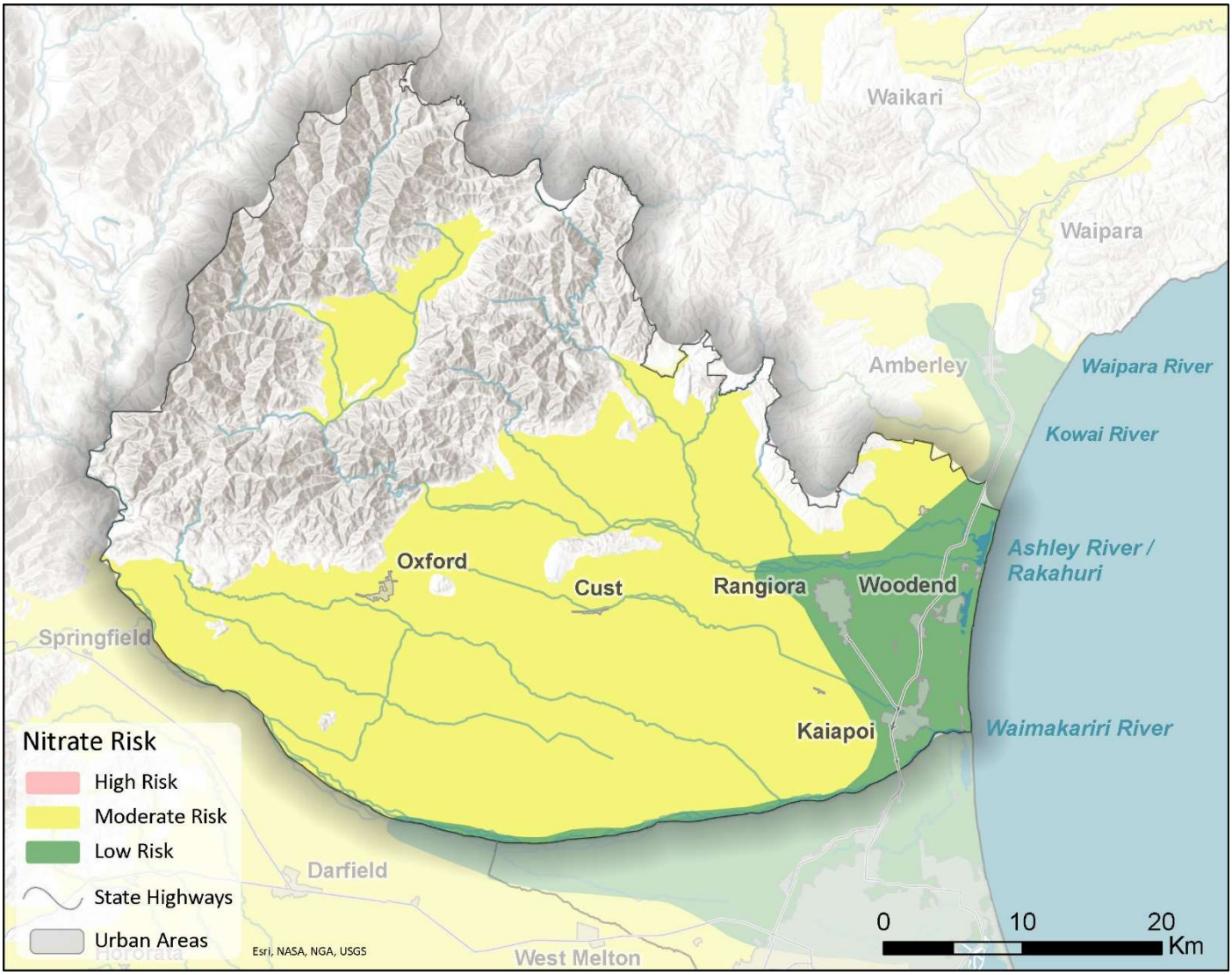
She added that the council appreciated the help industry groups provided with the approach for this trial.

"While we know these kinds of things can feel invasive, we believe that flyovers can be a useful way to understand how farmers are approaching intensive winter grazing and where we can focus help, support and advice," Heddell said.

We're confident that if what we saw over Waimakariri is the case throughout Canterbury, farmers are on the right track to meeting current GMP.

Staff will continue working with industry throughout the region over the next year to help farmers plan for winter grazing, good wintering practices, and to refine the approach for possible future flyovers.

Risk of nitrate in drinking water from private wells in the Waimakariri zone



Low risk	Areas where nitrate concentrations in groundwater are always below the Maximum Acceptable Value (MAV)
Moderate risk	Areas where nitrate concentrations could be above or below the MAV or we are unsure of the current concentrations
High risk	Areas where nitrate concentrations in shallow groundwater are above the MAV most or all of the time

A report “Risk maps of nitrate in Canterbury groundwater 2022” explains this map in more detail and can be found on the Environment Canterbury website (www.ecan.govt.nz)

For further information on nitrate in drinking-water, health risks, how to get your wells tested and further actions you can take, please see information provided by Community and Public Health (www.cph.co.nz)

Map last reviewed August 2022

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Memo

Date	26/07/2021
To	Brent Walton (Waimakariri Irrigation Ltd)
From	Amber Kreleger (Senior Groundwater Scientist) and Hamish Carrad (Senior Surface Water Field Scientist)
Reviewed by	Maureen Whalen (Team Leader Groundwater Science)
Approved by	Carl Hanson (Section Manager Groundwater Science)

Overview South Eyre Infiltration Trial 2018-2021

In this memo we present an overview of the history, installation, management and effectiveness of the infiltration trench trial at 426 Two Chain Road, Swannanoa / South Eyre. The three-year trial period ended on 16 July 2021 with the expiration of the related resource consents.

Background

Nitrate concentrations in groundwater and surface water in the South Eyre region and Silverstream are high. Groundwater samples with nitrate concentrations between 5.65-11.3 mg/L (between half the Maximum Acceptable Value (MAV) and MAV for nitrate) are common. Nitrate concentrations in Silverstream at Harpers Road generally sit around 9 mg/L, which exceeds the National Bottom Line for ecologically healthy waterways. Silverstream is a spring-fed stream, so the hypothesis is that high nitrate concentrations in groundwater contribute to high nitrate concentrations in the stream.

Waimakariri Irrigation Limited (WIL) provides farmers in their command area with irrigation water from the Waimakariri River via their irrigation scheme. WIL is interested in introducing on the ground actions like Managed Aquifer Recharge[1] (MAR) and Targeted Stream Augmentation[2] (TSA) to reduce nitrate concentrations in groundwater and springs in the Silverstream area. The approach[3] of the Canterbury Regional Council (CRC) is that on the ground actions require to be proven to a certain extent first before they can be adopted as a viable solution. Therefore, together with WIL, we undertook a low-cost farmer-lead infiltration test trial to assess if infiltration rates are favourable for MAR.

[1] Managed aquifer recharge means an activity that is for the express purpose of improving the quality and/or quantity of water in a receiving groundwater aquifer or a hydraulically connected surface water body.

[2] Targeted Stream Augmentation means the controlled and targeted addition of freshwater to a surface water body for the express purpose of increasing flows or improving the quality of fresh water in the receiving waterbody.

[3] As described in the supporting documentation for Plan Change 7 of the Land and Water Regional Plan

Scope

The aim of the infiltration test was to install an infiltration trench on a farm in the Waimakariri zone and investigate infiltration rates, the cost involved around the design, installation and maintenance of the infiltration trench site and any related management. CRC, as the consent holder, supported the projected with design and monitoring infrastructure while WIL was responsible for the installation of the trench, operational management and rehabilitation.

Location

The infiltration trench site is located at the western boundary of privately-owned farmland of Oscar Farm at 1061 South Eyre Road, Swannanoa (entry via 426 Two Chain Road), see Figure 1. The area surrounding the farm is predominantly rural land and lifestyle blocks.

Silverstream (Harpers Road) is located approximately 7 km downgradient of the trial site.

Figure 1 Location of the trench for the infiltration trial in South Eyre

Characteristics and Design

Trench

The infiltration trench is circa 150 m long, 2 m deep and has a width of circa 1.5 m at the bottom and 7.5-10 m at the top (see Figure 2). As can be seen from Figure 3, the trench has been dug perpendicular to the groundwater flow (the piezometric contours are based on measured groundwater level data in our CRC GIS Database).

Figure 2 Overview of the empty trench

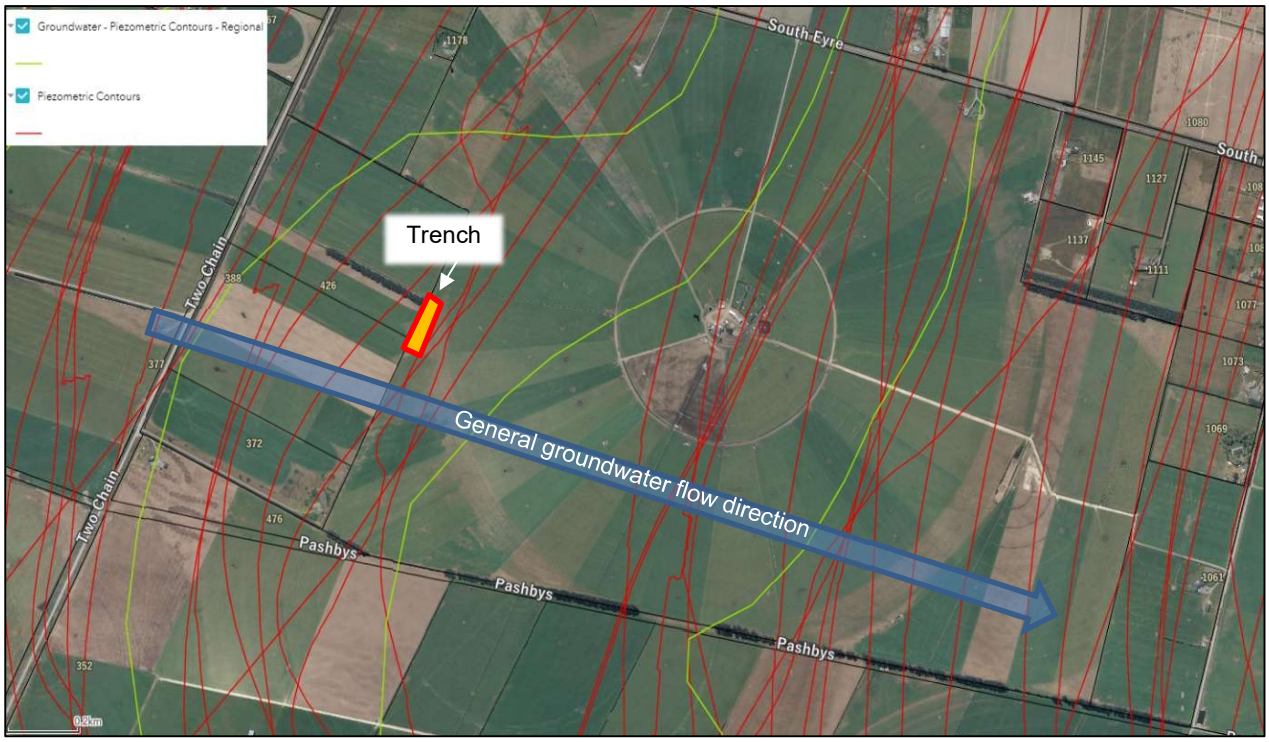


Figure 3 The infiltration trench is positioned perpendicular to the general groundwater flow direction

Soil

Photos of the soil profile are presented in Figure 4. Below a circa 400 mm thick brown topsoil, the subsurface consists of a mix of coarse-grained gravels and fine sand, from brown to light grey in colour. Borelogs in the area indicate that this lithology exists down to a depth of at least 23 m below ground level (bgl). Our S-Map data indicates that the area consists of Lismore soils (stony silty loam). The soil permeability for the site is 'moderate over rapid', which means a moderate draining soil sitting on top of a rapid-draining soil. The combined soil information indicates that this site is a suitable location for infiltration testing.

Figure 4 Photos of the soil profile in the trench

Depth to groundwater

There are two shallow bores located nearby that are part of our CRC groundwater Level Monitoring Network. Just south of the infiltration trench site is M35/4873, with a depth of 25.6 m and north of the site M35/11913, with a depth of 17.7 m. Figure 5 presents the location of these two shallow bores. BW23/0133 is a nearby deep bore.

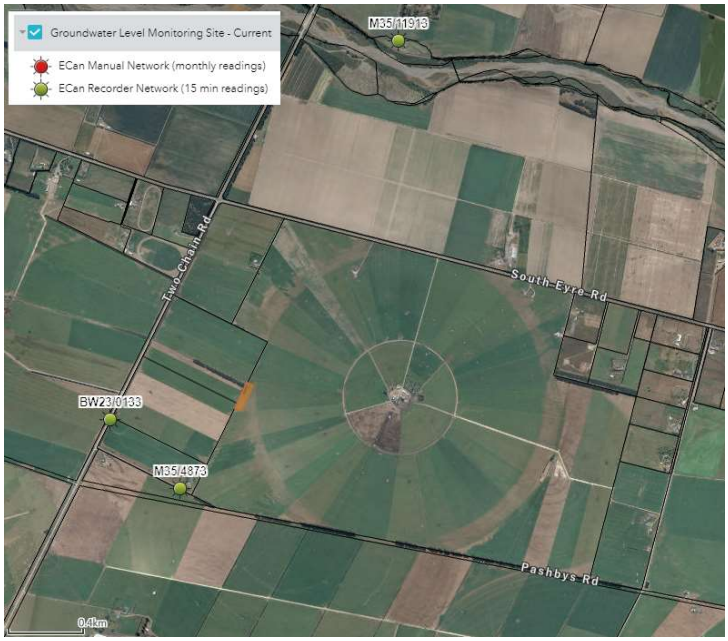


Figure 5 Location of nearby bores that are part of our Groundwater Level Recorder Network

Water Level Plots from the CRC Website for the two shallow wells are included in Figure 6 (M35/4873) and Figure 7 (M35/11913). These plots show that depth to groundwater increases in south-easterly direction towards the Waimakariri River. Based on this information we expect that average groundwater levels in the area of the infiltration trench are approximately 9-10 m bgl. 2018 was a relatively wet year in which maximum groundwater levels reached 4m bgl.

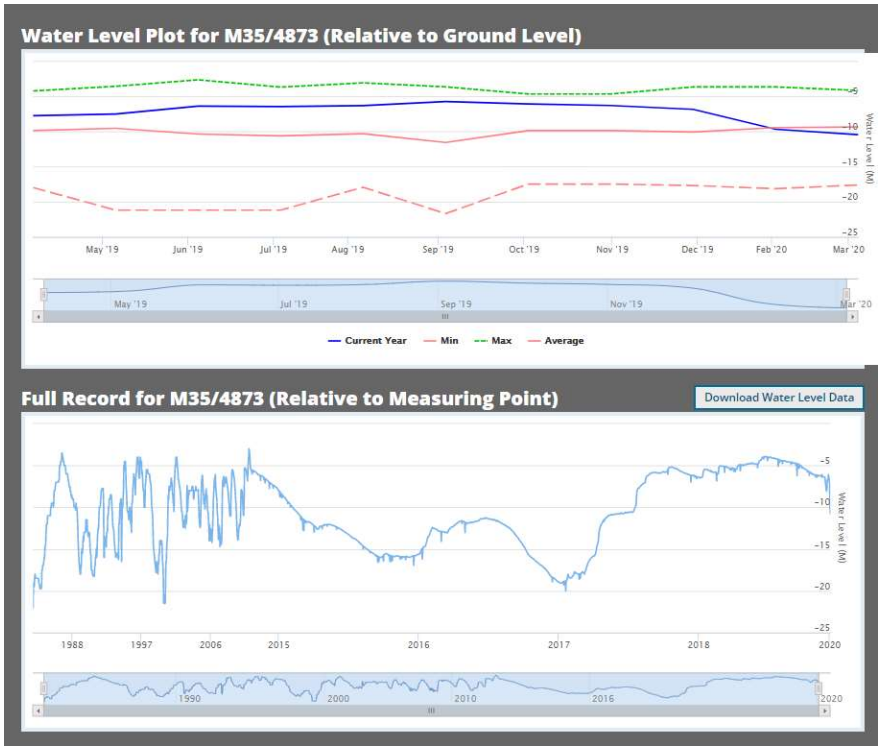


Figure 6 Water level graphs for M35/4873. The top graph displays measured water levels for March 2019-March 2020 and the minimum, maximum and average water levels based on the whole dataset.

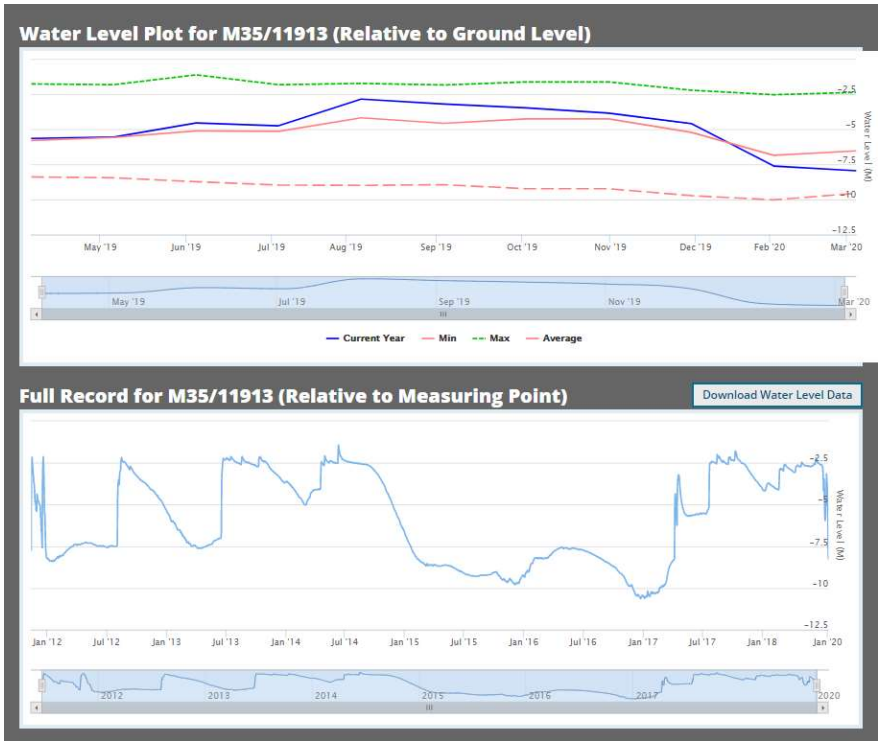


Figure 7 Water level graphs for M35/11913. The top graph displays measured water levels for January 2019-January 2020 and the minimum, maximum and average water levels based on the whole dataset.

Water source

Nearby water races provided the water source for the infiltration trench. These water races are part of the infrastructure of WIL, by which the scheme provides shareholders with irrigation water taken from the Waimakariri River. Water for the infiltration trench was mostly available outside irrigation season, approximately from April to September.

Design

The design of the trench needed to provide for

- Health and safety
- Inflow infrastructure
- Monitoring

Figure 8 gives an overview of the design layout.

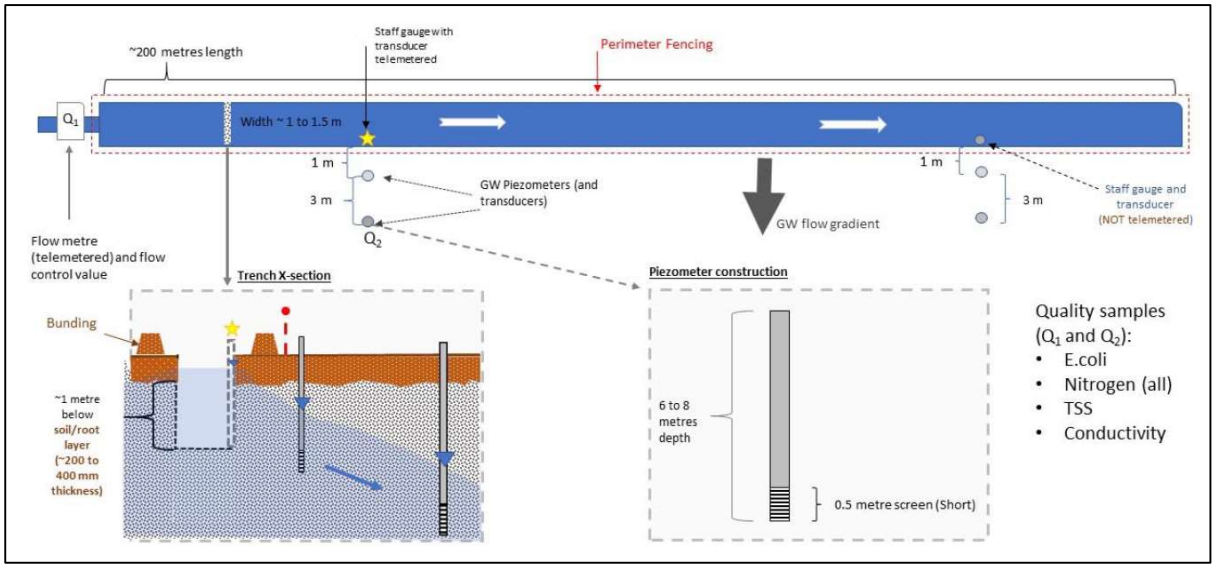


Figure 8 Design infiltration trench (WGA, 2018)

For health and safety reasons the trench was fenced off. Soil material excavated from the trench has been used to provide a safety bund around the trench. Site access was limited to project staff and all equipment and staff shoes entering the site were to be cleaned to help protect the spread of *M.Bovis*.

The trench was connected to the nearby water race via a bypass (culvert).

Monitoring

NIWA has installed flow meters in the water race, before and after the bypass, so the flow into the trench could be calculated.

The water depth was continuously logged with telemetered transducers on the north side of the trench, although at the start of the test it was also measured on the south side. The flow

in the water race was also continuously logged upstream of the trench inlet and downstream. The difference in flow between these two locations should correspond with the trench inflow. The telemetered transducers provided for live data access via the NIWA Neon-website. The Neon Applications software is a suite of software and documentation which allows clients to monitor and acquire data remotely. The flow was periodically manually gauged to calibrate the automatically logged flows.

We installed 4 monitoring wells next to the trench using our piezo driver. Two were placed along the north side and two along the south side. The maximum depth of these wells was 5m bgl as the soil material prevented the piezo driver from going deeper.

Groundwater levels were continuously monitored via data loggers. Water quality samples from the trench and the two monitoring wells on the northside of the trench were taken monthly. These samples were analysed for basic suite of parameters, including nitrate-nitrogen and *E.coli*.

Operation

The Waimakariri River often contains suspended sediment, which affects infiltration rates of water into the trench. Therefore, to prevent the bottom of the trench from clogging up with silt, WIL would shut off the inflow to the trench for around 5 days when high turbidity was visible in the Waimakariri River.

WIL contracted a digger to clean the bottom and sides of the trench, when the infiltration rates were affected too much by silt clogging up the trench.

The inflow of the trench was also shut off if water levels in the trench created a risk of overflowing. Operators from WIL received a text message on their phone if trench levels were at risk of flooding.

Consenting process

Consents

The infiltration trench required resource consents to take, use and discharge water from the Waimakariri River, as they are discretionary activities. The excavation of the trench was a permitted activity. Resource consents were obtained on 16 July 2018 with an expiry date of 16 July 2021.

The take and use of water were authorised under CRC184025 and the consent allowed water only to be taken from the Waimakariri Irrigation Limited water race scheme under their resource consent CRC166677.

The discharge of water (the infiltration) was authorised under CRC184026.

Pre-application process

We engaged an external consultant (Tonkin+Taylor) to prepare the application for the resource consents. The contract scope included:

- Liaise with WIL personnel to reach agreement on use of infrastructure & consent conditions as applicable
- Attend pre-application meetings as required
- Work with ECan staff to address any requests for further information.

The use of water for infiltration testing is considered a non-consumptive use. Most of the water would infiltrate through ground into the underlying aquifer and therefore, there is no significant loss to the resource.

Application process

We lodged two applications. The application for the water take and use was supported by the report *Infiltration testing, Water take and use* (Tonkin+Taylor, March 2018) and the application for the discharge was supported by the report *Resource Consent Application and Assessment of Effects on the Environment Waimakariri Water Allocation Zone - Infiltration Testing Trial* (Tonkin+Taylor, March 2018).

We identified the landowner of the discharge site (Oscar Farming Co Limited) and WIL as adversely affected parties and we obtained written approval from both parties. Other parties (Tūāhuriri Rūnanga Waimakariri District Council and others) were advised of the application but did not respond.

During the application audit process, the Consent Planner identified some extra questions around groundwater mounding in the area due to the infiltration. We approached an external consultant (WGA) to provide a more in-depth assessment of the mounding risks and the monitoring efforts involved: *Supplementary Assessment of effects - Infiltration Testing Site (MAR) in Waimakariri Allocation Zone* (WGA, June 2018). The Consent Planner agreed with this assessment and proposed to grant the resource consents.

Installation and project management

We hired an external consultant (WGA) with extensive experience in setting up MAR projects to design the installation of the infiltration trench site. They designed the trench plan and related monitoring sites. WIL mostly organised the planning around the contracted digging work and the installation of inflow work and pipes and, together with the landowner, the health and safety measurements around fencing and the bunding of the trench. WGA engaged with NIWA for the flow gauging sites.

We installed the monitoring wells and set up the transducers for automated water level measurements. We had regular meetings with WIL during and after the installation of the trench.

Costs

Aside from cash contributions (payments for external advice, consents and labour, we supported the project with material, equipment, time and advice (so called 'in kind' resources). We were responsible for the costs for the consenting process, the external MAR consultant, the installation of the flow gauges by NIWA and the installation of the groundwater monitoring programme. WIL were responsible for the costs for the trench construction / future deconstruction and operational matters.

Table 1 gives an overview of the associated costs.

Table 1 Overview of the associated costs

Consent	Application* (ECan)	$3,500	
	Consultant (ECan)	$19,000	
Trench construction	Digger (WIL)	$3,055	
	Materials (WIL)	$5,233	
	Labour (WIL)	$225	
Installation Flow Monitoring	Equipment (NIWA)*	$6,800	
	Labour by NIWA (ECan)	$3,000	
Installation Groundwater Monitoring	Equipment (ECan)*	$3,800	
	Labour (ECan)*	$3,000	
Health & Safety	Fencing (landowner)*	$300	
Project management	WIL	$1,820	
	ECan	$3,000	
	Consultant (ECan)	$8,500	
Associated costs	Legal (WIL)	$2,300	
	CEO (WIL)	$1,140	
	Administration (WIL)*	$1,000	+
	Total	$65,673	
	In kind	$24,818	-
	Cash cost	$40,855	

* = Estimated costs. All the other costs have been confirmed

The costs do not include monthly monitoring costs (water levels and water quality) related to the consent conditions and the Baseline Monitoring. These costs are estimated at $310 for sample and laboratory costs and $500 for labour. We, as the consent holder, were carrying these costs.

Start infiltration trial winter 2018

The start of the trial kicked off on 6 August 2018 with a 5-day step test. The purpose of the step test was to assess the water levels in the trench and the groundwater monitoring wells while filling up the trench at different flow rates.

The recorded water levels during the step test are presented in the graph in Figure 9. During the step test flows were manually logged, see

Table 2.

As can be seen from the graph, the first two days of the test, all the water released into the trench infiltrated immediately without raising water levels in the trench, but groundwater levels along the north side of the trench were raised by 25-30 cm.

Table 2 Manually logged inflow rates for the trench during the step test

date	time	flow (L/s)
6/08/2018	9:30:00	5
6/08/2018	12:30:00	5
7/08/2018	12:30:00	17
8/08/2018	12:30:00	35
9/08/2018	12:30:00	55
10/08/2018	12:30:00	75

Increasing inflow rates to more than 30 L/s meant that water levels on the north side in the trench slowly equilibrated and groundwater levels next to the trench were raised by another 10-15 cm. After four days, when the inflow rate was set at 75 L/s, water levels on the south side of the trench increased to a depth of 65 cm, with a maximum increase in groundwater levels of 60 cm on the north side.

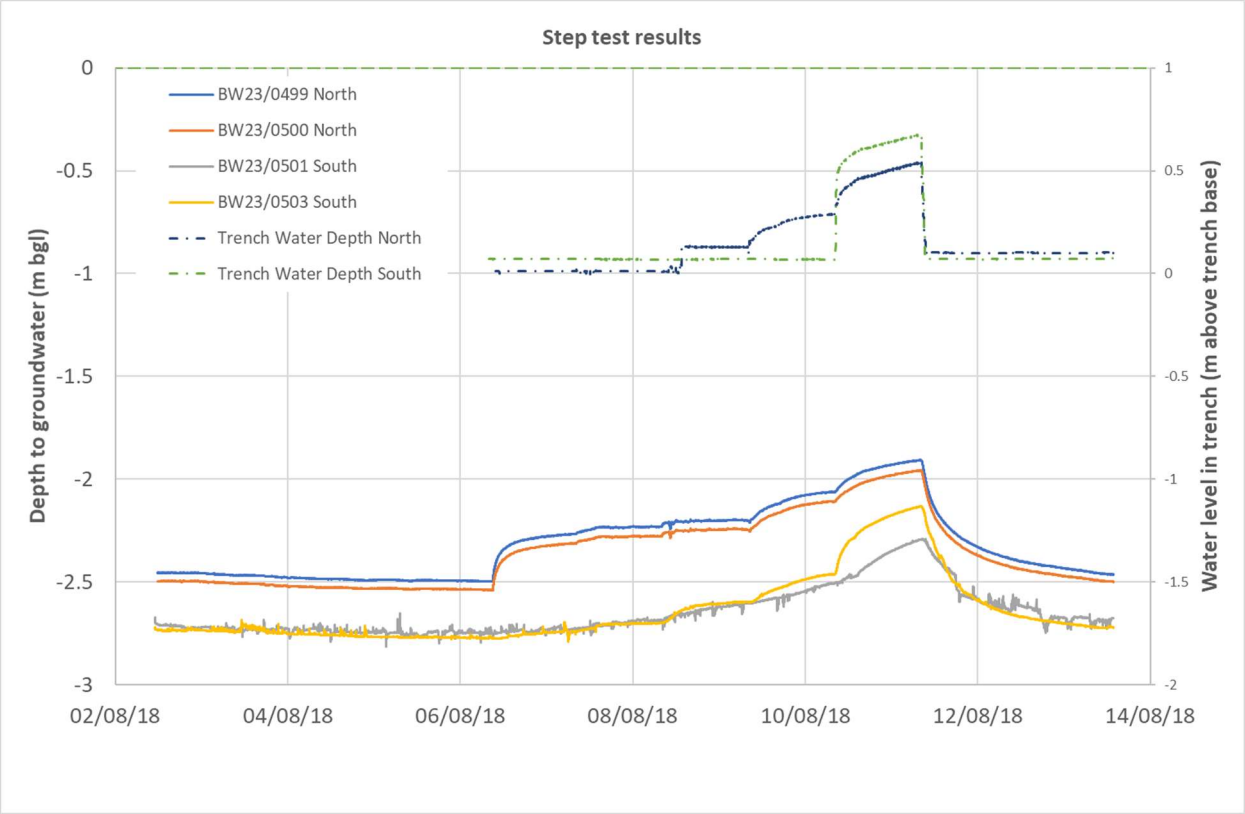


Figure 9 Recorded water levels during step test

The step test indicated that infiltration rates would be a lot higher than first estimated, as we initially thought the maximum infiltration rates would be around 30 L/s.

After the 5-day step test we decided to continuously fill the trench to 1 metre above the bottom, while monitoring the inflow and groundwater levels on the site, until the irrigation season started and water for the test site would no longer be available. The extended test period lasted from 17 August to 19 September 2018 (33 days). The recorded water levels and inflow rates during this extended test are presented in the graph in Figure 10.

As can be seen from Figure 10, the flow meters registered flows more than 100 L/s. Unfortunately, any flows higher than 100 L/s can be considered inaccurate due to material in the water race interfering with the flow meter readings. Therefore, any flows higher than 100 L/s should be disregarded in the graph. The average inflow rate of about 90 L/s equates to roughly 7,700 m³ per day or 1,170,000 m^3 total volume infiltrated to groundwater outside the irrigation season over a period of 5 months.

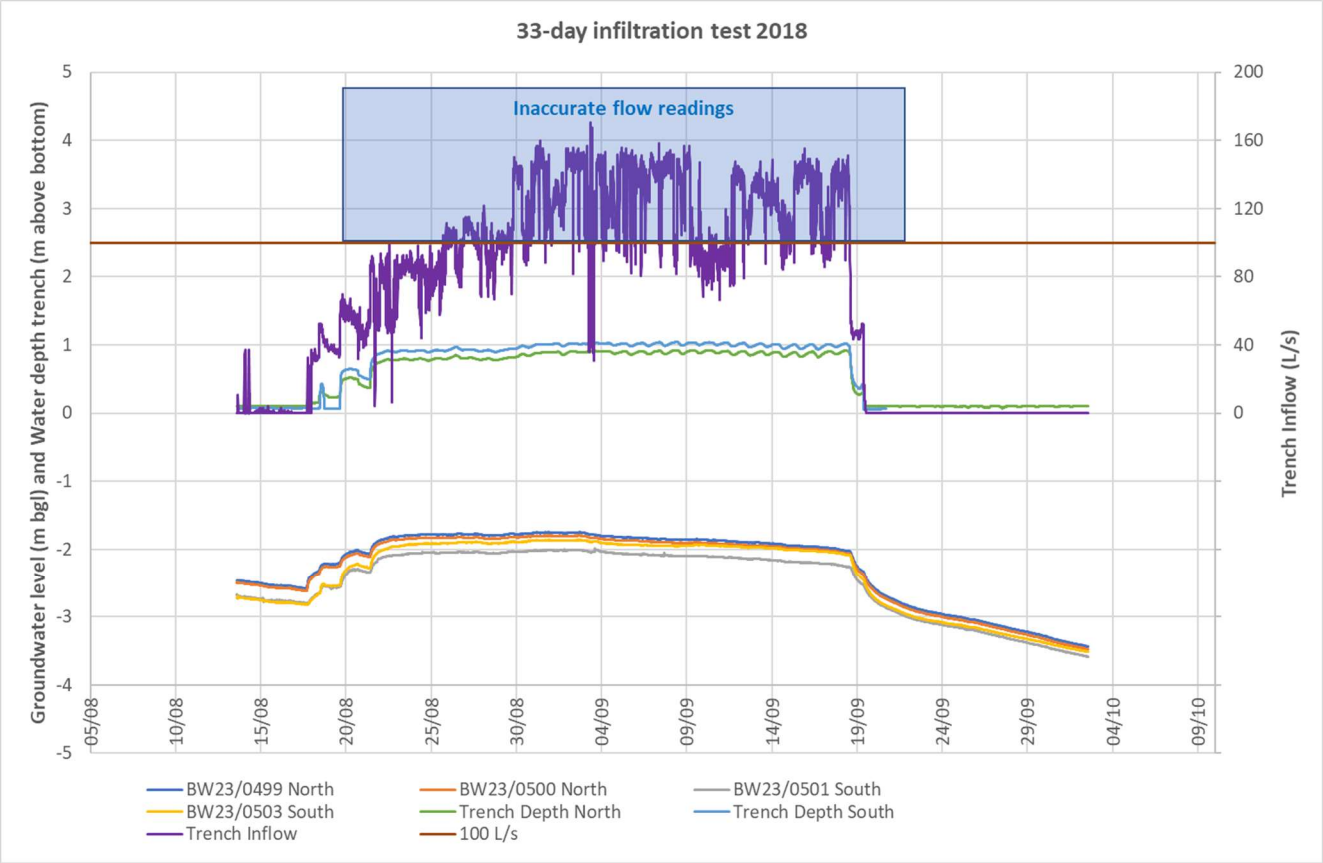


Figure 10 Water depth in trench, groundwater levels and inflow during the 33-day extension of the test in 2018. Measured flows have been reduced by 18% based on manual gauging results.

Full season infiltration trial 2019

During irrigation season no water was directed to the trench. On 30 March 2019 water was let in again until 15 October 2019, a total of six and a half months.
One of the issues affecting the infiltration capacity of the trench is high sediment in the water coming from the water races.

Table 3 gives an overview of the times that the inflow to the trench had to be shut off due to high sediment loads or related maintenance. Adding up all these periods gives us a total of 63 days within the 6.5 months that the infiltration trench was shut down due to high sediment loads and maintenance, which is around 30% of the time.

Table 3 Overview of periods when the inflow to the infiltration trench was shut off

Inflow shut off	Restart	Notes
31/05/2019 0:00	03/06/2019 13:00	Due to high sediment loads
27/06/2019 15:00	3/07/2019 6:00	Trench given quick clean out while with water still present in trench
3/07/2019 6:00	26/07/2019 13:30	Maintenance on water race and to clean trench while empty
31/07/2019 13:00	6/08/2019 14:00	Due to high sediment loads
10/08/2019 10:30	13/08/2019 9:30	Due to high sediment loads
17/09/2019 15:00	24/09/2019 19:00	Due to high sediment loads
30/09/2019 12:30	15/10/2019 8:00	Due to high sediment loads

On 15 July the bottom and the sides of the trench were cleaned with a digger, as the quick clean out two weeks before had not resulted in increased infiltration rates. Photos of the clean out are presented in Figure 11 and an overview of the water levels and inflow rates in Figure 12.

Figure 11 Photo A – Water in the trench has high turbidity. Photo B – The bottom of the trench after a quick clean with a digger while water was still standing in the trench. Photo C – the bottom of the trench after being thoroughly cleared by a digger during dry conditions

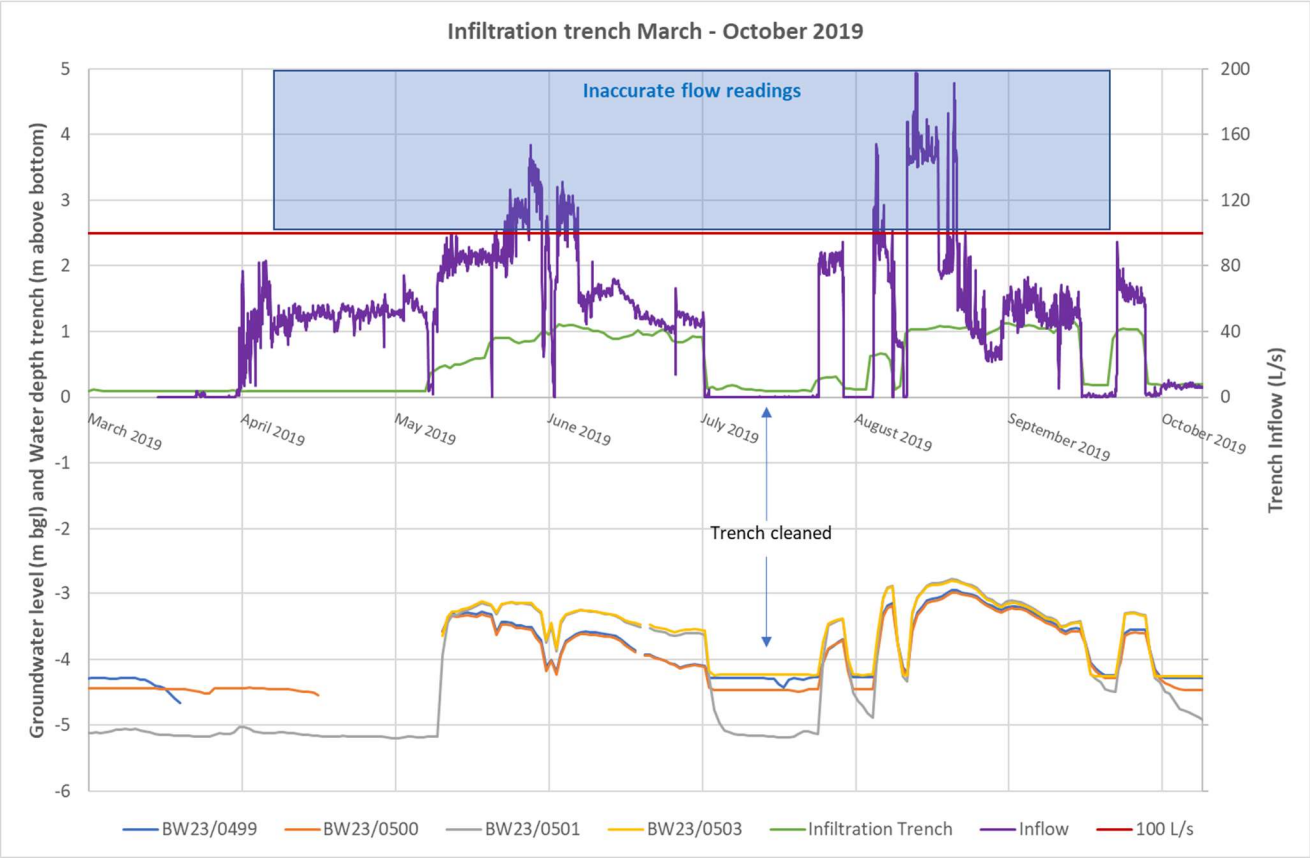


Figure 12 Water depth in trench, groundwater levels and inflow during 2019. Measured flows have been reduced by 18% based on manual gauging results.

The water levels and inflow presented in Figure 12 show that, initially, water levels didn't follow the increase of the inflow rates. This is probably due to failures with the water level measuring equipment. From the 11th of May groundwater levels went up as the water depth in the trench increased. Flow rates reached 100 L/s. During June the inflow rates had to be decreased to 50-70 L/s to prevent the trench from overflowing. This is an indication that infiltration rates decreased due to clogging of the trench with sediment. The thorough cleaning of the bottom and the sides of the trench on 15 July increased the infiltration / inflow rates up to 100 L/s again in August. By the end of August, they had to be dropped again to around 60 L/s to prevent the trench from overflowing. The reduction in infiltration rates is also reflected in the decline in groundwater levels in the monitoring wells.

Infiltration trial 2020 and 2021

The trench was not used for infiltration testing in 2020 and 2021. The consents for the trial expired on 16 July 2021 and the CRC Groundwater Field Scientists have since removed the monitoring infrastructure.

Nitrate concentrations near the trench

Nitrate concentrations in and near the trench have been regularly monitored during the trial periods. See Figure 13 for results for the period September 2018 – March 2021. Aside from monitoring at the infiltration trench trial site, we also monitored nitrate concentrations in two nearby bores: M35/7065 and M35/9028 as an indication of general nitrate concentrations in groundwater in the area. As the trench has not been in use during 2020 and 2021 no data has been collected at the trench site during these periods.

Before the start of the trial nitrate concentrations in groundwater near the trench were between 3.5-12 mg/L (bores BW23/0499 and BW23/0500). As the infiltration trial started fully in May 2019, nitrate concentrations in groundwater next to the trench declined to less than 0.2 mg/L, which is similar to nitrate concentrations in Waimakariri River water taken from the water race.

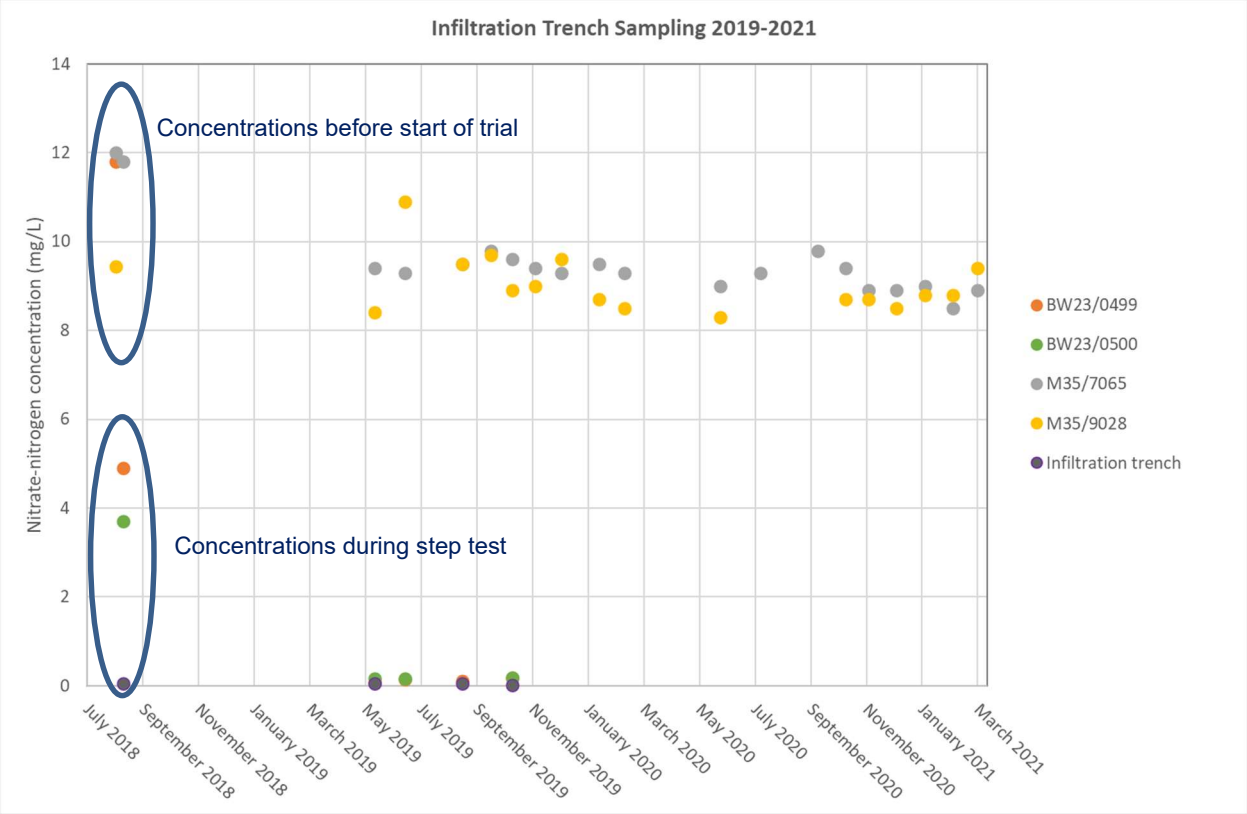


Figure 13 Nitrate concentrations of the trench water, groundwater in two monitoring bores on the northside of the trench (BW23/0499 and BW23/0500) and groundwater in a 24m deep irrigation bore 2,250 m east of the trench (M35/7065) and a 34 m deep irrigation bore 1,090 m north of the trench (M35/9028)

Aside from monitoring efforts directly related to the infiltration capacity of the trench, we also started a monitoring programme for nitrate concentrations in spring-fed streams in the Silverstream area. With the Silverstream area being more than 7 km downgradient of the trial site, we did not expect to see reducing nitrate concentrations as a result of the infiltration trial. The downgradient monitoring mostly serves as a *baseline* monitoring effort in anticipation of future land use changes upgradient of the spring-fed streams. Results of this monitoring program are presented in the Appendix.

Conclusion

The infiltration trench trial has been a collaborative success and, aside from the consenting process, was set up in a relatively short time. Due to WIL and CRC investing financial support ‘in kind’ the total costs of $65,600 were reduced to $40,800, of which the consenting process totalled $19,000. Based on our experience obtained with the trial we expect consenting costs should be able to be reduced to $5,000-$10,000.

The infiltration trench trial has showed that high infiltration rates up to 100 L/s can be achieved, provided that the trench will be regularly cleaned. Rates of 60 L/s are more realistic, and these are higher than the initially expected maximum rates of 30 L/s.

Maintenance is the main challenge for a successful infiltration trench, including shutting down the trench due to high sediment loads in the Waimakariri River. This could reduce the total infiltration period and volume by as much as 30%.

Locally, nitrate concentrations in groundwater close to the trench dropped significantly during infiltration periods, but it is unclear how far the effect of the infiltration trench trial has reached.

Appendix – Baseline monitoring

Aside from monitoring efforts directly related to the infiltration capacity of the trench, we also started a monitoring programme for nitrate concentrations in spring-fed streams in the Silverstream area. With the Silverstream area being more than 7 km downgradient of the trial site, we did not expect to see reducing nitrate concentrations as a result of the infiltration trial. The downgradient monitoring mostly serves as a *baseline* monitoring effort in anticipation of future land use changes upgradient of the spring-fed streams.

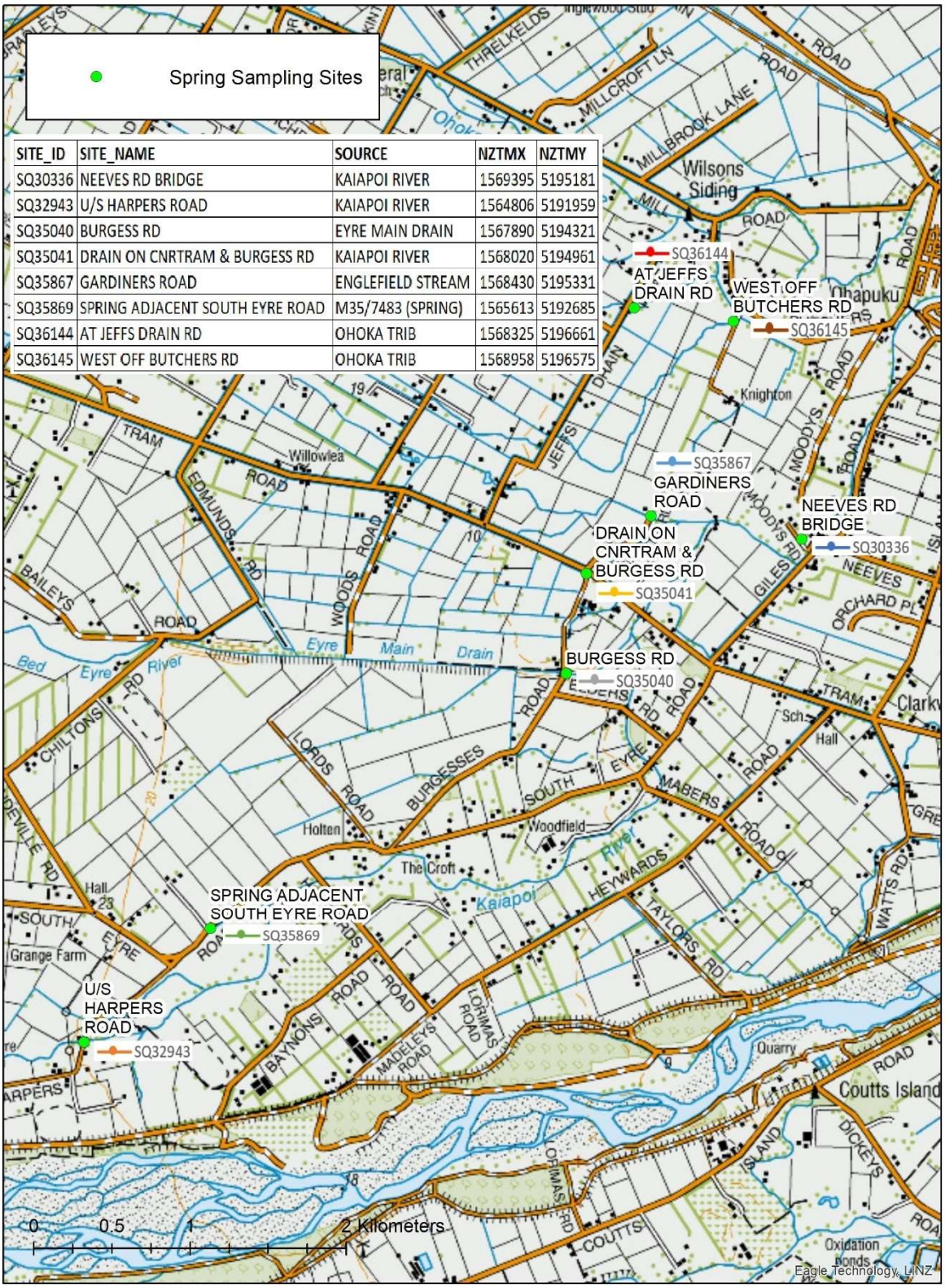
Figure 14 displays the monitoring sites (springs or spring-fed streams) downgradient of the infiltration trench site.

The monthly Baseline Sampling of springs started on 17 April 2019, two weeks after restart of the trial on 30 March 2019. Our Groundwater Science Field team carried out the sampling. Results are presented in the graph in Figure 15. For comparison, the graph also includes Silverstream at Harpers Road (upstream of the springs) and Island Road (downstream of the springs, which are sampled monthly by our Surface Water Field Team).

Data interpretation shows that the nitrate concentrations in the springs that feed into Silverstream are all below the nitrate concentrations measured upstream at Harpers Road.

The monthly data does not show large seasonal variation except perhaps at Jeffs Drain Rd (SQ36144), but the time series is too short to draw any conclusions yet.

Some sites show relatively low nitrate concentrations after October/November 2020, which could be connected to the above average dry weather conditions and below average groundwater levels we have been experiencing in Canterbury. Wetter conditions since June 2021 have likely caused the nitrate concentrations to increase again. This interaction needs further exploring for an interpretation with higher confidence.



SITE_ID	SITE_NAME	SOURCE	NZTMX	NZTMY
SQ30336	NEEVES RD BRIDGE	KAIAPOI RIVER	1569395	5195181
SQ32943	U/S HARPERS ROAD	KAIAPOI RIVER	1564806	5191959
SQ35040	BURGESS RD	EYRE MAIN DRAIN	1567890	5194321
SQ35041	DRAIN ON CNRTRAM & BURGESS RD	KAIAPOI RIVER	1568020	5194961
SQ35867	GARDINERS ROAD	ENGLEFIELD STREAM	1568430	5195331
SQ35869	SPRING ADJACENT SOUTH EYRE ROAD	M35/7483 (SPRING)	1565613	5192685
SQ36144	AT JEFFS DRAIN RD	OHOKA TRIB	1568325	5196661
SQ36145	WEST OFF BUTCHERS RD	OHOKA TRIB	1568958	5196575

Spring sampling locations Silverstream / Kaiapoi River

Figure 14 Spring sampling locations Silverstream / Kaipoi River

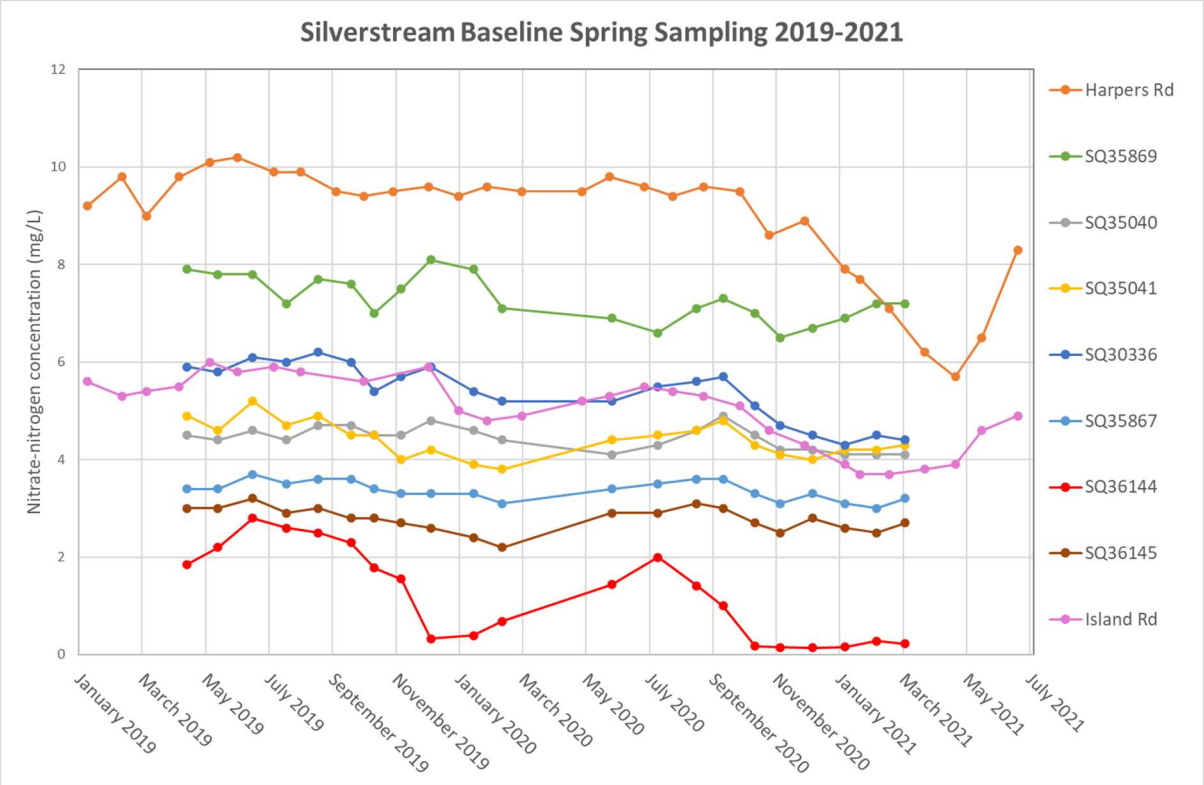


Figure 15 Baseline sampling results of springs near Silverstream, about 7 km downgradient of the infiltration trench trial site

MINUTES OF THE MEETING OF THE CANTERBURY WATER MANAGEMENT STRATEGY WAIMAKARIRI ZONE COMMITTEE HELD IN THE COUNCIL CHAMBER AT THE RANGIORA SERVICE CENTRE, 215 HIGH STREET, RANGIORA ON MONDAY 4 JULY 2022 AT 3.30PM.

PRESENT

M Blackwell (Chairperson), E Harvie, M Jolly, C Latham, W Main, John Cooke (Te Ngāi Tūāhuriri Rūnanga representative) and Councillor S Stewart (WDC Councillor).

IN ATTENDANCE

M Bate (Kaiapoi Resident), J Ensor (Mandeville Resident), R Johnston (Oxford Farmer), J Benn (Department of Conservation) and D Hill (North Canterbury News).

H Proffit (WDC Water Safety and Compliance Specialist), T Davie (ECan Director: Science), A Arps (ECan Zone Manager), S Worthington ECan Rivers Advisor), A Veltman (ECan Land Management Advisor), K Whitwell (ECan Principal Communications and Engagement Advisor), A Bower (ECan Community Partnerships Co-ordinator) (Virtually), M Griffin (ECan CWMS Facilitation Team Leader) and T Kunkel (WDC Governance Team Leader).

KARAKIA

M Griffin provided the karakia to open the meeting.

1 BUSINESS

1.1 Apologies

Moved: M Blackwell Seconded: C Latham

Apologies were received and sustained from J Roper- Lindsay, A Reuben and Councillor Megan Hands (ECan Councillor) for absence.

CARRIED

1.2 Welcome and Introductions

The Chairperson welcomed all the members present and requested all the members present to introduce themselves.

1.3 Register of Interests

Nil

2. OPPORTUNITY FOR THE PUBLIC TO SPEAK

2.1 M Bate – Kaiapoi Resident

M Bate raised a concern about the sediment in the Kaiapoi River, which was being dispersed by the boats being launched at the Askeaton Boat Ramp and mudding the water. He showed photos of the Christchurch Wastewater Treatment Plant and questioned the involvement of Christchurch City Council, ECan, and the Ministry of Health in resolving the problems experienced. M Bate also noted that there were no signs of birds during his four visits to the Wastewater Treatment Plant. He believed that the issues should have been fixed within three months, and the residents of Christchurch should not be expected to live

with the consequences of the Council's inability to act.

In response to a question from C Latham, M Bate stated that he did not believe the fire at the Wastewater Treatment Plant could be blamed for the lack of birds on the ponds. He also showed photos of Bromley and Brighton Beach, which were similar to Kaiapoi, in they lacked bird and aquatic life due. He suggested, to the sewer outflow being released nearby.

M Bate commented on various newspaper articles clamming that water quality was reaching dangerous levels due to climate change. However, in his opinion, the algae and nitrates in the water were already at a toxic level, hence there was no aquatic life in the rivers, and the Government still seemed afraid to take action.

W Main commended M Bate for his passion for the health of waterways. She suggested that he submit a proposal to the CWMS Waimakariri Zone Committee on the waterways he would like to be tested and the outcomes he would like to achieve as the Committee could not deal with all the waterways in the Waimakariri District at once. M Bate noted that he had written to the Waimakariri District Council and ECan on numerous occasions regarding various issues, however, he had not received any replies. He highlighted the problems he raised with the Council and ECan, including the Lineside Drain, contamination of the Kaiapoi River and the dirty sea foam at Kaiapoi beach.

M Blackwell noted that he shared M Bate's concern about the lack of aquatic and bird life in our waterways. He thanked M Bate for the work that he was doing in campaigning for waterways.

2.2 **R Johnston – Farmer**

R Johnston advised that the CWMS Waimakariri Zone Committee was established as a collaborative structure to engage the public. Although he acknowledged the restrictions brought on by Covid, he was concerned that there had not been public meetings held for a long time. He believed the Committee should hold regular public meetings to allow the community to ask questions and inform the public about its projects.

R Johnston expressed his concern about the lack of a rating district in the Waimakariri District to support the extension of the lower Ashley Rating District up to the Ashley Gorge Bridge. Despite submission to the Council and ECan, he remained unsatisfied with the responses on this matter. He also believed that the Central Government should fund the conservation and maintenance of waterways, such as the Ashley/Rakahuri River.

R Johnston appreciated the work being done as part of the Braided River Revival Programme, which the Government had funded, noting that the aim of the programme seemed to be the removal of vegetation from the Ashley/Rakahuri River and not the future protection of the river. He also questioned the methods used to clear the Ashley/Rakahuri River section from the Ashley Gorge Bride to the Okuku River confluence, which had been sprayed for weed control.

C Latham commented that the success of the Braided River Revival Programme would only be measurable in the future.

R Johnston enquired if regulations of Plan Change 7 to the Canterbury Land and Water Regional Plan were now applicable. M Blackwell confirmed that Plan Change 7 was currently operative, although there had been appeals against the ECan Council's decision.

R Johnston further questioned if the Overseer model would be used as an objective measurement of variables. E Harvie explained that the Government's review indicated that Overseer, in its current form, should not be used as the only way to measure farm nutrient losses. T Davie noted that the Government was working on improvements to the Overseer model, which was expected to be completed in August 2022, at which point further testing would be undertaken before the system would be deemed fit for purpose. The Ministry for Primary Industries and Ministry for the Environment indicated that a

revised Overseer model would be available before Christmas. It is anticipated that the improvement in the Overseer model would address most of the concerns raised in the 2021 review. ECan was, consequently awaiting this improved fit-for-purpose model for measuring nitrogen leaching into the soil.

Councillor Stewart pointed out that the CWMS Waimakariri Zone Committee's budget to allocate to projects was restricted to $50,000. The Committee had, therefore, only identified six projects to fund during the 2022/23 financial year. She noted that the Committee mostly had an advisory role and could make recommendations to the Council and ECan, and not to undertake projects.

Regarding public meetings, M Blackwell noted that M Bates and R Johnston had been the two prominent public members that had addressed the CWMS Waimakariri Zone Committee over the last six years. He would have liked to have more members of the public present to share their views, however, it seemed challenging to get the public engaged.

2.3 **J Ensor – Mandeville Resident**

J Ensor explained that he was the independent Chairperson of the Mandeville Residents Association, which represented approximately 6,000 residents. The Mandeville Residents were concerned about the nitrate levels in groundwater. He noted that the farming practices in Canterbury had changed dramatically over the last few years, however, he was still concerned about the intense winter grazing and feeding that could result in the leaching of nitrate into the groundwater.

J Ensor advised that Mandeville residents were also concerned about the Tree Waters Reform, as they did not believe the proposed reform would address any of the problems experienced in the Ohoka/Mandeville area. In conclusion, J Ensor commended the work that ECan's Northern Area Engineer, Fred Brooks, had done along the Makerikeri River in the Loburn/Sefton area.

M Blackwell reported that the CWMS Waimakariri Zone Committee was in the process of compiling a list of the top ten environmental tips for lifestyle blocks. He noted that as the Chairperson of the Mandeville Residents, J Ensor, had an extensive database of lifestyle block owners who could assist the Committee in compiling the list. J Ensor commented that he would be happy to assist the Committee.

3. REPORTS

3.1 Waitaha Action to Impact Fund – Update (for information) – A Bower, (ECan, Community Partnerships Co-ordinator))

A Bower reported that the Waitaha Action to Impact Fund was a contestable fund for community organisations in Canterbury. The fund aimed to build community engagement and action for a better environment in the region. The fund was piloted in 2021 and received 46 applications, totalling over $810,000, far exceeding the funding available. All applications were assessed against the criteria, and 20 applicants were selected to receive funding for the 2021/22 financial year. A Bower noted that $215,190 was allocated. All successful recipients would be expected to provide a minimum of 30% of the total project budget, which may come from funding or equivalent in-kind contributions. The fund was a multi-year regional fund, and applications were considered for a three period. Out of the 20 successful applications from last year, 14 had applied for multi-year funding.

A Bower reported that ECan had increased the Waitaha Action to Impact Fund to $600,000 for the 2022/23 financial year. The submission period for online funding applications was anticipated to be open from 18 July 2022 to 12 September 2022. She requested input from the CWMS Waimakariri Zone Committee on how to reach out to groups and organisations to make them aware of the available funding. She also asked the Committee

to promote the fund within their communities.

Councillor Stewart sought clarity on the nature of the groups that could apply to the Waitaha Action to Impact Fund. A Bower confirmed that they had to be incorporated societies or charitable trusts.

M Blackwell asked if multi-year projects would be funded from the financial year's budget in which they applied or in parts over the life of the projects. A Bower explained that projects would be allocated funding from the annual budgets for the project's timeframe. However, ECan could not guarantee funding until each year's budget had been approved, so multi-year projects would only be approved in principle and supported further if funding was available in the following years. Projects could be anywhere from $5,000 to $30,000 per annum for a maximum of three years.

J Cooke enquired how ECan would be measuring if the outcomes of the projects had been achieved. A Bower advised that applicants signed a grant agreement each year which set out the timeframes and deliverables for each project. The project size would determine the extent of project management required by ECan. Langer projects would be expected to submit project plans for each year of the project that would highlight the deliverables.

Moved: M Blackwell Seconded: E Harvie

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** these updates for its information and with consideration to the Committee's 2021 to 2024 Action Plan priorities.

CARRIED

3.2 Communications – Update (for information) – K Whitwell (Northern Zones Communications Principal. ECan) and A Veltman (Northern Zone land Management Advisor, ECan)

K Whitwell took the report as read, highlighting the communication and engagement activity completed by ECan's Communications and Engagement staff.

W Main noted that older generations may not be as au fait with electronic communications, and she questioned what ECan was doing to reach these people. K Whitwell explained that ECan also tried to employ traditional communication channels to reach local community members, hence advertising some campaigns in local newspapers and targeted flyer distribution. A Veltman commented that she had contacted local farmers and asked them to spread the information on winter grazing to their neighbours.

Regarding the intensive winter grazing campaign, R Johnston expressed his concern about the proposed trail flyover to be undertaken, as he believed this to be an invasion of privacy. C Latham commented that the Central Government was driving the flyover campaigns. A Veltman noted that the flyover campaign was based on trust and was being discussed with local farmers and industry partners to assist this initiative.

Moved: M Jolly Seconded: C Latham

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** this update for its information and with consideration to the Committee's 2021 to 2024 Acton Plan priorities.

CARRIED

3.3 **Ashley/Rakahuri Braided River Revival Draft Strategy – update (for information) – S Worthington (Braided River Revival Advisor, ECan) and A Arps (Northern Zone Manager, ECan)**

A Arp provided a brief overview of the history of the Braided River Revival Programme, noting that the programme aligned with the ZIP Addendum recommendations, which focused on the Ashley/Rakahuri River. He highlighted the following projects undertaken as part of the programme:

- Ashley/Rakahuri Stepping Stones
- Te Aka Aka connection
- Woody weeds clearance in Lees Valley
- Rangiora Reach
- Planting projects on brim transitions.
- Purchase of land at Waikuku
- Work being done in Taranaki Stream.

S Worthington explained that the Braided River Revival team had been collating various documents into one non-statutory document, thereby combining the collective input from many places, including the management plan, the management strategy and community vision. The team had also been working on a draft Braided River Revival Strategy, which Ngāi Tahu was now reviewing via Mahaanui Kurataiao Ltd. She noted that this was a fundamental step in ensuring that the team created a collaborative and supported strategy. S Worthington provided a brief summary of how the Braided River Revival Strategy had been structured on two levels. First was the 'Overarching Strategy', which highlighted the vision, core values and overarching outcomes. There were also the key actions to be implemented for the entire Ashley/Rakahuri River. The second layer of the strategy dealt with the landscape-specific actions, which included the actual steps to be implemented on the ground. The team was anticipating a large number of submissions once the draft strategy was submitted for public consultation.

In conclusion, S Worthington elaborated on the Rangiora Reach project, which had been out for public consultation. ECan had employed an external consultant to draft a holistic Master Plan for the Rangiora Reach, which would focus on crucial restoration actions and visions for this area, considering the available funding. It was anticipated that projects would be identified that could enhance the area's biodiversity and recreation values, yet while also taking into consideration the critical flood protection infrastructure in this area.

Councillor Stewart questioned how the implementation of the Braided River Revival Strategy would be funded. S Worthington noted that ECan had made funding available for implementing the Braided River Revival Programme. A Arps undertook to provide the budget for the compilation of the strategy and the implementation of the proposed actions to the Committee.

Councillor Stewart also enquired when the feedback from Mahaanui Kurataiao Ltd on the strategy was expected. S Worthington commented that ECan had agreed to give them as much time as they may need, so a set date was unavailable.

E Harvie suggested that the draft Braided River Revival Strategy be provided to the CWMS Waimakariri Zone Committee now for consideration to save time during the consultation process. S Worthington advised that the Rūnanga requested that the document not be made publicly available until they have had an opportunity to provide input. A Arps noted the relevant ‘Ashley/Rakahuri’ recommendations the Committee had included in the Waimakariri ZIP Addendum been taken into consideration as the strategy was being drafted.

M Griffin noted that it may be helpful if the CWMS Waimakariri Zone Committee was provided with more information on the various Reaches until the draft Braided River Revival Strategy had been finalised.

C Latham expressed her concern that the CWMS Waimakariri Zone Committee, as the community representatives, had not been consulted prior to the Rangiora Reach Project being opened for public consultation. S Worthington commented that ECan considered the Committee a key stakeholder and apologised for the Committee not being consulted due to an administrative oversight.

Moved: C Latham Seconded: M Jolly

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** this update for its information and with consideration to the Committee's 2021 to 2024 Acton Plan priorities in the Rakahuri/Ashley River catchment.

CARRIED

4. COMMITTEE UPDATES – M GRIFFIN (ECAN)

4.1 Zone Committee Working Groups

- Landcare Working Group

  E Harvie noted that the Members Evening scheduled for 6 July 2022 was cancelled due to Covid.

- Biodiversity Working Group

  No discussion emanated from this point.

- Lifestyle Block Working Group

  No discussion emanated from this point.

- Monitoring Working Group

  No discussion emanated from this point.

4.2 WDC Land and Water Committee – 22 May 2022

The previous Land and Water Committee meeting was held on Tuesday 22 May 2022.

J Cooke noted the terrestrial planting along the Kaiapoi River and the support of the second phase of ECan's watercress Mahinga Kai project. He requested information on the first phase of the project. A Arp commented that it was a small project on the Cam River. M Griffin undertook to update the CWMS Waimakariri Zone Committee on Mahinga Kai project at a future meeting.

4.3 Regional Surface Water Long-Term Trends update for the Natural Environment Committee – 19 May 2022

E Harvie sought clarity on when the work would be finalised and what the information would be used for. T Davie explained that ECan had been focused on determining the current state and trends, i.e. the baseline State of the Environment information. It was envisaged that more detailed information would be added in future. He noted that it was difficult to determine what the information may be used for in future.

T Davie advised that ECan was currently concentrating on establishing a solid relationship with Mana Whenua to be in the best position to adhere to the consultation requirements of the National Policy Statement for Freshwater Management.

Councillor Stewart believed that the changes to land use management which had been happening around the region had not been sufficient to bring about widespread changes in groundwater quality. She questioned if the planned changes had not been adequate or if they had not yet been fully implemented. T Davie noted that the various Plan Changes, such as PC 1 to PC 7, had been approved to support reductions in nutrient leaching. However, implementation of these plans was staggered and therefore, not fully implemented. There was also the problem of historic consents being issued for longer timeframes than what was now proposed in the Plan Changes.

C Latham enquired what ECan would define as a 'fully implemented' plan. T Davie noted that ECan was currently working on defining what a fully implemented plan would entail.

4.4 Proposed Plan Change 7 – Canterbury Land and Water Regional Plan

No discussion emanated from this point.

4.5 Further Information Links

No discussion emanated from this point.

4.7 Action Points from previous Zone Committee Meetings.

Councillor Stewart commented that many previously asked questions still needed to be responded to. She was especially concerned about the unavailability of information about the water quality of private water supplies, which made up 24% of Waimakariri District water users (about 18,000 people). She wished to see these wells being tested regular and a database being compiled. The Council had done a limited nitrate level study on private wells, however, they did not have the funding to broaden the investigation. Even the limited study had shown that nitrate levels in some private wells were high. She questioned what the Council and ECan were doing to compile the database to guard against a possible health crisis.

T Davie noted that ECan had no responsibility for the water quality of private wells and therefore did not keep a database on private wells. Councillor Stewart commented that all local authorities had responsibility for the wellbeing of their residents as it was a crucial issue of community wellbeing. T Davie acknowledged the point made by Councillor Stewart and noted that ECan was working on a planning framework to bring down nitrate levels in groundwater.

Moved: E Harvie Seconded: C Latham

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** these updates for its information and with reference to the Committee's 2022 Work Programme and Community Engagement priorities.

CARRIED

5. REPORTS FOR INFORMATION

5.1 Zone Implementation Programme Addendum Capital Works Programme 2022/23 – S Allen (WDC, Water Environment Advisor)

5.2 Long Term Trends – Groundwater and Surface Water – C Hanson (ECan, Groundwater Science Manager)

5.3 Long Term Trends Surface Water Natural Environment Committee Report – H Shaw (ECan, Surface Water Science Manager)

Moved: E Harvie Seconded: C Latham

THAT the CWMS Waimakariri Zone Committee:

(a) **Receives** Items 5.1 to 5.3 for information.

6. CONFIRMATION OF MINUTES

6.1 **Minutes of the Canterbury Water Management Strategy Waimakariri Zone Committee meeting – 4 April 2022**

Moved: M Jolly Seconded: C Latham

THAT the CWMS Waimakariri Zone Committee:

(a) **Confirms** the Minutes of the Canterbury Water Management Strategy Waimakariri Zone Committee meeting, held on 4 April 2022, as a true and accurate record.

CARRIED

6.2 **Matters Arising**

None

7. GENERAL BUSINESS

Nil

KARAKIA

M Griffin provided the karakia to close the meeting.

NEXT MEETING

The next meeting of the CWMS Waimakariri Water Zone Committee was scheduled for the 5 September 2022 at 3:30pm.

THERE BEING NO FURTHER BUSINESS, THE MEETING CLOSED AT 6.15 PM.

CONFIRMED

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Chairperson Date