

Waimakariri District Council

Utilities and Roading Committee

Agenda

Tuesday 17 October 2023

9am

Council Chambers
215 High Street
Rangiora

Members:

Cr Niki Mealings (Chairperson)

Cr Robbie Brine

Cr Philip Redmond

Cr Joan Ward

Cr Paul Williams

Mayor Dan Gordon (ex officio)



WAIMAKARIRI
DISTRICT COUNCIL

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A MEETING OF THE UTILITIES AND ROADING COMMITTEE WILL BE HELD IN THE COUNCIL CHAMBER, RANGIORA SERVICE CENTRE, 215 HIGH STREET, RANGIORA ON 17 OCTOBER 2023 AT 9AM.

Sarah Nichols
GOVERNANCE MANAGER

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

BUSINESS

1 **APOLOGIES**

Page No

2 **CONFLICTS OF INTEREST**

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

3 **CONFIRMATION OF MINUTES**

3.1 **Minutes of the meeting of the Utilities and Roothing Committee held on Tuesday 19 September 2023.**

10-22

RECOMMENDATION

THAT the Utilities and Roothing Committee:

- (a) **Confirms** the circulated Minutes of the meeting of the Utilities and Roothing Committee held on 19 September 2023, as a true and accurate record.

3.2 **Matters arising (From Minutes)**

4 **DEPUTATION/PRESENTATIONS**

Nil.

5 REPORTS

5.1 Approval of Design for Projects 1 and 3 of the Transport Choices Programme (Kaiapoi to Woodend and Woodend to Ravenswood Cycleways – Kieran Straw (Civil Project Team Leader) and Don Young (Senior Engineering Advisor)

RECOMMENDATION:

THAT the Utilities and Roading Committee:

- (a) **Receives** Report No. 230830134485.
- (b) **Approves** the detailed design as per attachment i. (Trim No. 230830134489) for Project 1, Kaiapoi to Woodend
- (c) **Approves** the detailed design as per attachment ii (Trim No. 220830134490) for Project 3, Woodend to Ravenswood
- (d) **Approves** the installation of no stopping lines required as per attachment v (Trim No. 230222024367 V02), noting that these will be added to the Councils Schedule of Parking Restrictions upon completion.
 - i. Ranfurly Street East Opposite Sidey Quay
- (e) **Notes** the installation of no-stopping lines (below) required as per attachment v (Trim No. 230222024367 V02), will be approved by Waka Kōtahi and will not be included within the Councils Schedule of Parking Restrictions upon completion.
 - i. Main Road (SH1) West Main Road frontage of No. 8 Woodglen Drive.
 - ii. Main Road (SH1) East No. 122 Main Road
 - iii. Main Road (SH1) West No. 133 Main Road
 - iv. Main Road (SH1) West Kerb build out at the Church.
- (f) **Notes** that these changes will result in the loss of 20 on-road car parking spaces, noting that the on-road car parking spaces on Main Road (SH1) are considered to be “road shoulder” and rarely get used for parking.
- (g) **Notes** that feedback from the consultation process has been incorporated into the design where applicable.
- (h) **Notes** that the recommendations within this report will require the reclamation of road reserve currently occupied by private residencies along Old North Road, and Main North Road (SH1), and that this has been discussed with the relevant property owners.
- (i) **Notes** that the deadline for the approval of the detail design and Schedule 2 agreement for funding has been extended to 27 October 2023, and that Waka Kōtahi have signalled that failure to meet that deadline will result in no funding being available. Also funding for construction is dependent on and will not be released until these have been approved by Waka Kōtahi.
- (j) **Notes** that the detailed design drawings are subject to an Independent Road Safety Audit, and that this process is yet to occur. Further minor changes are likely to be required as a result, and will be agreed with the General Manager Utilities and Roading.

- (k) **Notes** that this project will require an Archaeological Authority to construct, and that staff are currently working through this process.
- (l) **Notes** that staff have been working with Ngāi Tūāhuriri in relation to aspects of the alignment that occupy MR873 land, and that as a result, the alignment has been updated to ensure the path does not encroach into MR873 land.
- (m) **Notes** that staff have been working with Waka Kōtahi in relation to coordination with planned State Highway works and is also seeking the relevant approvals to locate the path in the State Highway Road corridor, and that Waka Kōtahi are yet to provide their formal approval of this alignment.
- (n) **Notes** that staff will proceed with the preparation of tender drawings, and documents in anticipation of receiving an approval to move to construction from Waka Kōtahi.
- (o) **Circulates** this report to the Kaiapoi-Tuahiwi Community Board, and the Woodend-Sefton Community Board for their information.

5.2 Eastern Districts Sewer Scheme and Oxford Wastewater Treatment Plan Annual Compliance Monitoring Report 2022-23 – Caroline Fahey (Water and Wastewater Asset Manager)

RECOMMENDATION:

THAT the Utilities and Roading Committee:

- (a) **Receives** Report No. 231003156382.
- (b) **Notes** that full compliance was achieved for all of the Eastern District Sewer Scheme (EDSS) Ocean Outfall consent conditions during the 2022-2023 monitoring period.
- (c) **Notes** that the Eastern Districts Sewer Scheme – Annual Compliance Monitoring Report 2022-2023 is currently being reviewed by Environment Canterbury.
- (d) **Notes** that although not required, the Oxford Sewer Scheme - Annual Monitoring Report 2022-2023 was provided to Environment Canterbury as good practice.
- (e) **Notes** that the Oxford Sewer Scheme did not achieve full compliance for the 2022-23 monitoring period. There were two reasons why the scheme did not achieve full compliance, one was due to lack of monitoring data to clearly demonstrate that the depth limit for effluent application at the irrigation field had been achieved, and the other was due to the exceedance of consent limit for faecal coliform level for two effluent samples taken.
- (f) **Notes** that staff are working on getting Irrigator 2 (western irrigator) connected to SCADA and installing additional flow monitoring equipment at the Oxford Irrigator site which will improve monitoring data collection to demonstrate compliance with the depth limit for effluent application at the irrigation field. Once this work is complete, the scheme is expected to be fully compliant.
- (g) **Notes** that UV equipment at the treatment plant has been replaced and operational procedures are being improved to address the faecal coliform limit exceedance.

- (h) **Circulates** this report to all Community Boards for their information.
- (i) **Circulates** a copy of this report to Te Ngāi Tūāhuriri Rūnanga, Te Kōhaka o Tūhaitara Trust and Waimakariri Water Zone Committee for their information.

5.3 July 2023 Flood Recover Progress Update – Jason Recker (Stormwater and Wastewater Manager), Joanne McBride (Roothing and Transport Manager) and Daryll Pinfold (Flood Team Lead)

RECOMMENDATION:

THAT the Utilities and Roothing Committee:

- (a) **Receives** Report No. 231005157963.
- (b) **Notes** that works on the three key areas of Cam River / Ruataniwha, Tuahiwi and Waikuku Beach has commenced and will require more detailed assessment, investigation and community and stakeholder consultation.
- (c) **Notes** that all 80 investigations have been triaged, 40 are currently being scoped, 32 are under investigation, 2 have works being reviewed for approval, five have works programmed, and one is complete.
- (d) **Notes** that of the 126 maintenance actions 22 are yet to start, 95 have been started and are work in progress, eight have been programmed, and one has been completed.
- (e) **Notes** that the total cost estimate for the flood recovery work is \$4.055 million.
- (f) **Notes** that future progress update reports to the Utilities and Roothing Committee will provide an update on the actual and forecast expenditure versus the approved budget.
- (g) **Notes** that a communications strategy document will be presented to the next Utilities and Roothing Committee meeting for endorsement.
- (h) **Circulates** this report to all Community Boards for information.

5.4 Cam River / Ruataniwha Report – Jason Recker (Stormwater and Wastewater Manager), Kalley Simpson (Three Waters Manager)

RECOMMENDATION:

THAT the Utilities and Roothing Committee:

- (a) **Receives** Report No. 231005158212.
- (b) **Notes** that there were immediate maintenance works identified and those works were completed by Council maintenance contractors in early October 2023.
- (c) **Notes** that the remaining maintenance works will be undertaken by Environment Canterbury with Council funding the upper section maintenance works above Bramleys Road. Environment Canterbury have advised that this will be undertaken in November / December 2023.

- (d) **Notes** that the immediate works are proposed in the vicinity of the Bradleys Road bridge to address a section of low bunding along the Cam River/ Ruataniwha.
- (e) **Notes** the funding of \$250,000, which was recently approved by Council (refer TRIM 230921147926) is sufficient to undertake the immediate works along the Cam River/ Ruataniwha.
- (f) **Notes** that the Cam River/ Ruataniwha scheme design is being updated by Environment Canterbury, which will consider the impact of development in Rangiora and the potential need to raise the existing stopbank system.
- (g) **Notes** that a subsequent report will be submitted to Council upon completion of the Environment Canterbury Scheme Plan that will provide a recommendation on the Council's future strategy for the Cam River/ Ruataniwha.
- (h) **Circulates** this report to all Community Boards for information.

5.5 Adoption of Road Safety Action Plan 2023/24 – Peter Daly (Road Safety Co-ordinator/Journey Planner) and Joanne McBride (Roading and Transport Manager)

RECOMMENDATION:

THAT the Utilities and Roading Committee:

- (a) **Receives** Report No. 230802117283.
- (b) **Adopts** the Road Safety Action Plan 2023/24 (Doc 190529076366).
- (c) **Circulates** this report to the Community Boards and all stakeholders of the Road Safety Working Group.
- (d) **Requests** that staff arrange a workshop to socialise this plan with All Boards.

5.6 Rangiora Stormwater Monitoring Report 2021-22 – Sophie Allen (Water Environment Advisor)

RECOMMENDATION:

THAT the Utilities and Roading Committee:

- (b) **Receives** Report No. 230904136693.
- (c) **Notes** that there were exceedances (non-compliances) during wet weather events of dissolved zinc, dissolved copper, dissolved reactive phosphorus, total suspended solids (one site only) and E. coli in some Rangiora waterways, in particular the Middle Brook and North Brook.
- (d) **Notes** that follow-up investigations are recommended in this report, which will be carried out by 3 Waters staff under existing budgets.
- (e) **Notes** drafting is underway of a Rangiora Stormwater Management Plan 2025-2040, which will incorporate these monitoring results and other information.
- (f) **Circulates** this report to the Waimakariri Water Zone Committee and the Rangiora-Ashley Community Board.

6 CORRESPONDENCE

Nil.

7 PORTFOLIO UPDATES

7.1 Roading – Councillor Philip Redmond

7.2 Drainage, Stockwater and Three Waters (Drinking Water, Sewer and Stormwater) – Councillor Paul Williams

7.3 Solid Waste– Councillor Robbie Brine

7.4 Transport – Mayor Dan Gordon

8 MATTERS REFERRED FROM KAIAPOI-TUAHIWI COMMUNITY BOARD

8.1 Approval to Install No-stopping Restrictions Along the Frontage of No. 20 Main Street, Oxford – Allie Mace-Cochrane (Transportation Engineer) and Shane Binder (Senior Transportation Engineer)

(Report No. 230905137573 to the Oxford-Ohoka Community Board meeting of 4 October 2023).

RECOMMENDATION

THAT the Oxford-Ohoka Community Board recommends:

THAT the Utilities and Roothing Committee:

(a) **Approves** the installation of no-stopping restrictions at the following location:

- i. On the north side of Main Street between the two vehicle crossings of No. 20 Main Street (approximately 4.0 metres long).

8.2 Approval to Install No-stopping Restrictions Along the Frontage of No. 20 Main Street, Oxford – Allie Mace-Cochrane (Transportation Engineer) and Shane Binder (Senior Transportation Engineer)

(Report No. 230718108142 to the Rangiora-Ashley Community Board meeting of 11 October 2023).

THAT the Rangiora-Ashley Community Board recommends:

THAT the Utilities and Roothing Committee:

(b) **Approves** the installation of the following no-stopping restrictions:

- i. On the north side of High Street between the vehicle crossings of 2A Ayers Street and 364B High Street.
- ii. Charles Upham Drive at the following locations:
 1. 17 metres north of the Salisbury Avenue intersection on the west side.
 2. 28 metres north and 14 metres south of the Valour Drive intersection on the east side.
 3. Between Salisbury Avenue and Chatsworth Avenue intersections on the west side.

4. Between Elm Drive and Chatsworth Avenue intersections on the east side.
5. 30 metres south of the Chatsworth Avenue intersection on the east side.

9 MATTERS FOR INFORMATION

9.1 Approval to Install Stop Controls at Various Intersections along Seddon Street, Rangiora – Allie Mace-Cochrane (Transport Engineer) and Shane Binder (Senior Traffic Engineer)

(Report No. 230707102697 to the Rangiora-Ashley Community Board meeting of 11 October 2023).

RECOMMENDATION

THAT the Utilities and Roading Committee

- (a) **Receives** the information in Item 9.1.

10 QUESTIONS UNDER STANDING ORDERS

11 URGENT GENERAL BUSINESS

12 MATTERS TO BE CONSIDERED WITH THE PUBLIC EXCLUDED

In accordance with section 48(1) of the Local Government Official Information and Meetings Act 1987 and the particular interest or interests protected by section 6 or section 7 of that Act (or sections 6, 7 or 9 of the Official Information Act 1982, as the case may be), it is moved:

1. That the public be excluded from the following parts of the proceedings of this meeting:
 - Item 12.1 Report from Management Team meeting of 2 October 2023
 - Item 12.2 Report from Management Team meeting of 2 October 2023

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

Meeting Item No. and subject	Reason for excluding the public	Grounds for excluding the public-
12.1 Report from Management Team meeting of 2 October 2023	Good reason to withhold exists under section 7	To carry on, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations) (s 7(2)(i)).
12.2 Report from Management Team meeting of 2 October 2023	Good reason to withhold exists under section 7	To carry on, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations) (s 7(2)(i)).

CLOSED MEETING

See Public Excluded Agenda (separate document)

OPEN MEETING

NEXT MEETING

The next meeting of the Utilities and Roading Committee will be held on Tuesday 21 November 2023 at 9am.

WORKSHOP

- Public Consultation Results for the Mandeville Resurgence Channel Project — *Jason Recker, Sam Murphy, Don Young and Gerard Cleary.*

MINUTES OF A MEETING OF THE UTILITIES AND ROADING COMMITTEE HELD IN THE COUNCIL CHAMBER, RANGIORA SERVICE CENTRE, 215 HIGH STREET, RANGIORA ON TUESDAY 19 SEPTEMBER 2023 AT 9AM.

PRESENT

Councillors N Meiling (Chairperson), R Brine, P Redmond, J Ward and P Williams.

IN ATTENDANCE

Councillor T Fulton.

J Millward (Chief Executive), G Cleary (General Manager Utilities and Roading), K Simpson (3 Waters Manager), J McBride (Roading and Transport Manager), D Pinfold (Flood Team Leader), K Straw (Civil Project Team Leader), S Allen (Water Environment Advisor) and K Rabe (Governance Advisor).

1 APOLOGIES

Moved: Councillor Mealings Seconded: Councillor Redmond

An apology for absence was received and sustained for Mayor D Gordon.

CARRIED

2 CONFLICTS OF INTEREST

There were no conflicts of interest recorded.

3 CONFIRMATION OF MINUTES

3.1 Minutes of the meeting of the Utilities and Roading Committee held on Tuesday 15 August 2023.

Moved: Councillor Mealings Seconded: Councillor Redmond

THAT the Utilities and Roading Committee:

- (a) **Confirms** the circulated Minutes of the meeting of the Utilities and Roading Committee held on 15 August 2023, as a true and accurate record.

CARRIED

3.2 Matters arising (From Minutes)

There were no matters arising.

4 DEPUTATION/PRESENTATIONS

Nil.

5 REPORTS

5.1 July 2023 Flood Recovery Progress Update –K Simpson (3 Waters Manager), J McBride (Roading and Transport Manager) and D Pinfold (Flood Team Leader)

K Simpson and J McBride were in attendance to present the report which provided a progress update on the July 2023 flood recovery work programme, which included investigation and maintenance actions and provided an overview of the physical works programme recommended by the investigations.

No questions emanated from this report.

Moved: Councillor Williams

Seconded: Councillor Redmond

THAT the Utilities and Roothing Committee:

- (a) **Receives** Report No. 230907139945;
- (b) **Notes** that the three key areas of Cam River / Ruataniwha, Tuahiwi and Waikuku Beach would require more detailed assessment, investigation and community and stakeholder consultation;
- (c) **Notes** that all 78 investigations had been triaged, 48 were currently being scoped and 30 were under investigation;
- (d) **Notes** that of the 126 maintenance actions 44 had been inspected and 82 were yet to be started;
- (e) **Notes** that a further report, covering the funding and rating implications of the \$4.04 million of unbudgeted expenditure related to the flood recovery, would go to the Council in October 2023 to seek approval of budgets for this expenditure.
- (f) **Notes** that future progress update reports to the Utilities and Roothing Committee would provide an update on the actual and forecast expenditure versus the approved budget;
- (g) **Notes** that a communications strategy document would be presented to the next Utilities and Roothing Committee meeting for endorsement;
- (h) **Circulates** this report to all Community Boards for information.

CARRIED

Councillor Williams thanked staff for the detailed report.

Councillor Redmond commented that staff had a job 'that just kept on giving', noting that Environment Canterbury had committed \$2million to the Cam River stopbank upgrade in the future.

Councillor Mealings noted it was a shame that these weather events were becoming a regular occurrence, however it was a positive outcome that staff were now experienced in the procedures and were professional in their assistance during these events. She congratulated staff on their response to July's weather event.

5.2 Amendment to Kerb and Channel Renewal Programme 2023/24 – K Straw (Civil Project Team Leader) and J McBride (Roothing and Transport Manager)

K Straw and J McBride were in attendance to speak to the report which sought the Committee's approval for an amendment to the Roothing Capital Programme for the 2023/24 financial year. The change related to the inclusion of the southern side of Palmer Street (Church Street to White Street) in the current financial year while shifting the previously approved Stephens Street to the 2027/28 financial year. This would allow both sides to Palmer Street to be completed at the same time causing less disruption for residents.

Councillor Mealings asked when the work in Palmer Street was likely to take place and J McBride replied that the design and tendering would be completed by December 2023 with work to proposed to commence early in 2024. Councillor Mealings noted that it would be good for the work to be completed prior to the commencement of the netball season and J McBride agreed that staff hoped to have the work completed during the summer.

Councillor Williams queried if this programme also covered new kerb and channelling and J McBride replied that this budget was specifically for renewals and currently there was no provision for new kerb and channelling. Any new kerb and channelling would be considered on a case by case basis and then applied for during the Annual Plan or Long Term Plan process. Councillor Williams raised concern that during heavy rain events sediment and mud run off from areas without kerb and channel often blocked drains in adjoining road with kerb and channelling.

Councillor Fulton raised the question of growth in relation to kerb and channel work and asked if this was considered when an area was being developed. J McBride acknowledged that only the side that fronted the new development would receive kerb and channelling. She informed members that roading, drainage, water and greenspace teams met once a quarter to discuss upcoming work programmes and projects to try and ensure that work was coordinated. There was a fine balance between what teams could deliver and budgets.

Moved: Councillor Mealings Seconded: Councillor Redmond

THAT the Utilities and Roading Committee:

- (a) **Receives** Report No. 230810122114.
- (b) **Approves** the amended 2023/24 Roading Capital Works Programme and Indicative Three-Year Programme (refer attachment I of the report Trim Ref: 230306030136(02)).
- (c) **Notes** that the amended programme moved the kerb and channel renewal for Stephens Street from the 2023/24 programme out to the 2027/28 programme.
- (d) **Notes** that the amended programme moved the kerb and channel renewal for Palmer Street (southern side) into the 2023/24 programme.
- (e) **Notes** that the Palmer Street kerb and channel renewal would be coordinated with planned stormwater and watermain upgrade work.
- (f) **Notes** that Stephens Street kerb and channel had a condition rating of "poor" however did not have any interdependencies in terms of other works and as such this site could be held in the short term without wider impacts.
- (g) **Circulate** this report to the Rangiora Ashley Committee Board for their information.

CARRIED

Councillor Mealings commented that this was a straightforward swap which made sense for residents in completing the work at one time.

Councillor Redmond agreed noting that the programme had already been approved and this was just a change in timing rather than a change to the programme.

5.3 Transport Choices – New Footpath Programme for Approval – K Straw (Civil Project Team Leader) and J McBride (Roading and Transport Manager)

K Straw and J McBride were in attendance to speak to the report which sought the Committee's approval of the New Footpath Programme associated with the Transports Choices funding package.

Councillor Williams queried if the affected community boards had been consulted regarding the contents of the report. J McBride noted that due to the tight timelines the Boards had not been consulted. Waka Kotahi had informed the Council that its expression of interest in this funding had been successful, however the projects would need to be completed by June 2024.

Moved: Councillor Ward

Seconded: Councillor R Brine

THAT the Utilities and Roading Committee:

- (a) **Receives** Report No. 230829133357;
- (b) **Approves** the New Footpath Programme, which formed the “Creating Walkable Neighbourhoods” Transport Choices Programme that included the following sites:
 - i. Lineside Road (East), outside NPD
 - ii. Edward Street (East), Wales Street to end.
 - iii. Chinnerys Road (south), Woodglen Drive to the reserve entrance.
 - iv. East Belt (East), No. 160 to Coldstream Road.
 - v. Woodfield Place (west), full length.
 - vi. Lees Road (South), Williams Street to Bayliss Drive.
 - vii. Station Road (north), outside Pak n Save (Provisional Site).
 - viii. Blake Street (north) Durham Street to Good Street (Provisional Site).
- (c) **Notes** that the programme was a single year programme, and that the programme may be amended (either increased or reduced) to fit the available budget, and that the programme included two “Provisional” sites to allow for flexibility;
- (d) **Notes** that Waka Kotahi were currently reviewing the programme and were yet to formally endorse the programme;
- (e) **Notes** that all works were required to be completed by 30 June 2024 to meet Waka Kotahi’s funding requirements;
- (f) **Notes** that sites had been selected based on their alignment with Transport Choices objectives, and proximity to other Transport Choices projects;
- (g) **Notes** that there was a likelihood that no stopping lines would be required on East Belt. The extent of this would be reported separately to Utilities and Roading Committee for approval prior to implementation.
- (h) **Circulates** this report to all Community Boards for their information.

CARRIED

Councillor Ward thanked staff for a well thought out and balanced report which was a good start on improving pedestrian safety.

Councillor Brine stated that he was 100% certain that the community boards would endorse this decision.

Councillor Redmond stated that Lees Road was the back entrance to the Sovereign Palms development and was used extensively by walkers. He also noted that with the proposed change to the Kaiapoi to Woodend cycleway this section of road would become even more busy. He also acknowledged that the tight timeframes for these projects would put pressure on staff, however as the funding was available it would be silly not to utilise it appropriately.

Councillor Williams stated he would support the motion however he did not believe that the Council should always take funding when it was offered without good reason. This should be a considered decision and funding accepted when needed. It was, after all, tax payers money and should be used for the projects and in districts that most needed it.

Councillor Mealings believed that this funding would address some of the deficiencies in the districts current network. Residents had been asking for these footpaths for some time and as staff had advised there currently was no budget for new footpaths. This funding would assist the Council to provide the residents with the required footpaths.

Councillor Ward noted that this Government funding would improve access for residents.

5.4 Community Biodiversity Funding – ZIPA Recommendation 2.8 – S Allen (Water Environment Advisor)

S Allen was in attendance and spoke to the report which sought the Committee's approval for the allocation of \$20,000 from the Zone Implementation Programme Addendum (ZIPA) budget to the Waimakariri Biodiversity Trust. This funding had been earmarked for community group support to carry out biodiversity work under the ZIPA recommendation 2.8.

Councillor Williams raised a concern that when biodiversity planting was done by community groups they often did not allow access for vehicles to carry out drainage maintenance. S Allen noted that this report and the funding was not required for plantings, this funding would be utilised mainly for the provision of a co-ordinator for the Trust.

Councillor Redmond queried if the transfer of this funding would negatively impact on the other ZIPA outcomes. S Allen stated that this funding was specifically for the administrative support for the Trust.

Moved: Councillor Brine

Seconded: Councillor Mealings

THAT the Utilities and Roading Committee:

- (a) **Receives** Report No 230817125849.
- (b) **Approves** the allocation of \$20,000 to the Waimakariri Biodiversity Trust for operational expenses from the existing 2023-24 Zone Implementation Programme Addendum (ZIPA) Opex budget.
- (c) **Supports** creation of an open (contestable) funding round for 2024-25 and future budget allocations for ZIPA recommendation 2.8, if Waimakariri District Council staff resourcing was sufficient to administer an open fund.
- (d) **Circulates** this report to the Waimakariri Water Zone Committee and the WDC-Rūnanga Liaison meeting for information.

CARRIED

Councillor Mealings noted that this was a good report and that the Trust did excellent work within the community. The Trust was able to apply for funding, reach more groups and be effective. It also managed the work that the Council did not have the resources to cover in this arena.

Councillor Redmond also supported the motion acknowledging that the funding was being utilised for what it was intended.

Councillor Fulton commented that it was good to have the Trust co-ordinate the many different community groups doing good work in the field.

6 CORRESPONDENCE

Nil.

7 PORTFOLIO UPDATES

7.1 Roading – Councillor Philip Redmond

Issues or Focus for Staff

- Draft submission for NLTP 24-27 funding for Road Safety Education and Maintenance/Operations/Renewals had been submitted to Waka Kotahi. The draft capital programmes were due towards the end of September 2023.
- Clean up from flooding on 23 July 2023 was continuing.
- Emergency Works Application had been sent to Waka Kotahi for financial assistance.
- Application for resilience funding for Lees Valley Road had been submitted to Waka Kotahi. This would be from a new Resilience Fund that the Government had announced in August 2023 and had a higher Funding Assistance Rate than normally available.
- Transport Choices projects were continuing to be progressed through detailed design. Next gateway for approval for construction funding needed to be met by 29 September 2023. The 'So Far As Is Reasonably Practicable' assessment for Railway Road/Marsh Road and Railway Road and Dunlops Road have been completed.

Capital

- Survey work for 2023/24 kerb and channel renewals was underway.
- Construction of the new roundabout at Kippenberger Avenue and MacPhail Avenue has been completed.
- The focus for September 2023 was the Transport Choices projects.

Operational

- Lees Valley Road slip repairs were currently being designed by WSP. One section of retaining wall was required. The remainder can be stabilised with rock.
- With warmer overnight temperatures being experienced ice gritting has largely stopped and final tidy up of grit is to be carried out.
- Warmer temperatures were bringing more vegetation growth, and mowing and spraying were commencing.
- Pre-reseal repairs were underway ahead of the resealing season.
- Road marking was underway to remark faded limit lines, edge lines and intersection markings.
- Footpath repairs were underway on Victoria Street at the access way to Subway/Liquorland and Mico.
- Asphalt resurfacing was planned on Williams Street between Courtenay Drive and Vickery Street overnight on 26 and 26 September 2023 with a stop/go in place.
- Asphalt resurfacing on West Belt between Oxford Road and Milesbrook Close on 28 and 29 September 2023 – one way closure in place.

Upcoming Work by Others

- Mainpower were working in Kaiapoi doing upgrades and had planned closures on Cass Street and Williams Street. Williams Street would be closed overnight between Coups Terrace and Sims Road for up to three nights – detour in place.
- Huntingdon Drive would be closed between Salsbury Avenue and Belmont Avenue from 25 September 2023 for approximately three weeks. This was to allow for the new road connection through to Charles Upham Drive.

Road Safety

- Students Against Drink Driving (SADD) events occurring at various high schools around the district including Oxford Area School which was held on 13 September 2023. Waimakariri District Council attended the event to support the programme.
- The Kickstart motorcycle safety series of events started last weekend (16 September 2023) in Little River. The Waimakariri District Council event would be held this weekend followed by the Hurunui and Selwyn events. These were part of the ACC Motorcycle Awareness Month nationwide series.
- Fatal crash on Oxford Road at McIvor Place early on 17 September 2023.
- Serious crash on Lineside Road on 7 September 2023 at Mulcocks Road intersection. Serious injury sustained by the driver which required hospitalization.

Community

- Consultation had now closed on the Transport Choices Walking and Cycling projects. Staff were processing the information gathered and would be providing updates to community boards following the Committee meeting.
- The Road Reserve Management Policy consultation had closed with three submissions being received with two wishing to be heard. The hearing was postponed and currently awaiting a new hearing date. One further submission was expected from the Walking Commission.
- The Loburn 68 Running Event was taking place in the Loburn/Ashley area on 30 September 2023. This was an on-road running race and there would be traffic management in place for runners and a one-way closure along Dixons Road East (closed at Marshmans Road through to Cones Road). This was the first time that this event had been held in the district.

Conference

Councillor Redmond tabled his notes on the recent Traffic Institute of New Zealand Conference (refer Trim Ref 230919145798).

7.2 Drainage, Stockwater and Three Waters (Drinking Water, Sewer and Stormwater) – Councillor Paul Williams

Water

- Oxford Rural No.1 – McPhedrons Road Well redevelopment had gone well and was expected to be back online this week. The Boil Water Notice would be lifted early next week once the turbid water from the river intake had been flushed through the system.
- Ashley Gorge Campground – The Boil Water Notice for the campground had now been lifted. The upgrade to connect the campground to the Oxford Rural No.2 supply was still expected to be completed in October 2023.
- The Council would have a visit from the Chief Executive of Taumata Arowai tomorrow (20 September 2023) to visit some of WDC's sites and meet with staff and Councillors. A report on the chlorination strategy would be presented to the next Council meeting in October 2023.

Wastewater

- The annual Ocean Outfall compliance report for the 2022/23 monitoring period had been submitted to Environment Canterbury and would be reported, along with the Oxford annual compliance report, to the next Utilities and Roading Committee meeting.

Drainage

- A meeting was held with residents of Washington Place at the West Eyreton Hall to discuss flooding. Staff were looking at what immediate works could be implemented this year in advance of the proposed works for next financial year.
- Mandeville Resurgence Channel project drop-in sessions were well attended. Staff got good feedback from the community on potential alternatives for the Stage 2 diversion works. A report summarising the feedback and recommending next steps would be presented to the November 2023 Council meeting.
- McIntosh Drain Pump Station was now fully commissioned and operational. Staff were currently working the key stakeholders to confirm a new date for the opening of the Kaiapoi Shovel Ready works.

7.3 Solid Waste– Councillor Robbie Brine*Bromley Compost Plant*

Christchurch City Council had started consulting with the wider community about the short and medium term options for processing or disposal of kerbside organic waste, and is open until early October 2023. Potential impact on WDC's organic service.

Standardising kerbside collection

WDC has received gazette notice for standardising kerbside recycling and food/organic collection services which will apply as from 1 February 2024. Staff are awaiting on Minster for the Environment's final advertising graphics and information prior to making any changes.

Kerbside recycling bin audits

Audits started two weeks ago and summary is as follows:

- 357 bins from Oxford, Pegasus and Rangiora were audited over six days – starting with bins on the 'watch list' in set areas then moving into a new area to start fresh bin checks. Of these:
 - 19 (5%) were issued Gold Stars
 - 98 (27%) were provided educational materials
 - 63 (18%) were tagged as contaminated
 - 20 (6%) of the contaminations were from the 'watchlist and the property owners have been written to about what has been found.
- No bins identified for removal as yet.

School and preschool recycling bin audits were undertaken in July and August, and the there were pleasing results from these.

7.4 Transport – Mayor Dan Gordon

Mayor Gordon was not at the meeting therefore there was no update on transport.

8 MATTERS REFERRED FROM KAIAPOI-TUAHIWI COMMUNITY BOARD

8.1 Kaiapoi High School – Proposed Safety Improvements – K Straw (Civil Project Team Leader) and J McBride (Roading and Transport Manager)

(Report No. 230411049603 to the Kaiapoi-Tuahiwi Community Board meeting of 21 August 2023).

K Straw and J McBride were in attendance to provide an update on this report which was approved by the Kaiapoi-Tuahiwi Community Board in August 2023.

Councillor Williams queried why this work was being carried out when the speed management around schools would address most of the problems by reducing speeds. K Straw replied that this work would incur minor cost and had been repeatedly requested by the school, the community board and the community.

Councillor Redmond reminded K Straw that when he brought this report to the Board he had requested further information regarding the close proximity of the pedestrian crossing and Otaki Street. K Straw responded, saying that he was investigating this matter and it appeared that the resident near the proposed crossing had two driveways, one in Otaki Street and one in Ohoka Road. If the Ohoka Road entrance was in use then the pedestrian crossing would need to be moved further east. This was still being investigated. Staff also noted that this project would only proceed once confirmation of funding had been received.

Councillor Fulton queried the different treatment of the two intersections on each side of the overbridge. J McBride noted that traffic flow was very different with traffic lights managing the possible tail back onto the motorway while the eastern intersection would be better managed by reducing speeds with a roundabout.

Moved: Councillor Ward Seconded: Councillor Williams

THAT the Utilities and Roading Committee:

- (a) **Approves** the Design as per Trim No. 230406049186.
- (b) **Approves** the installation of a pedestrian crossing on Ohoka Road, outside the Kaiapoi High School.
- (c) **Notes** that there would be no additional no-stopping lines installed as a result of the proposed pedestrian crossing.
- (d) **Notes** that there was budget allocated through the annual plan process for this project.

CARRIED

Councillor Ward stated she supported this motion as it was difficult to enter the traffic flow on Ohoka Road opposite the school at 3pm. With the pedestrian crossing it would force gaps in the traffic flow enabling exit from the side streets.

Council Redmond stated he supported this motion as had the Kaiapoi-Tuahiwi Community Board who had been requesting safety treatment outside the school for some years and doing nothing until the roundabout scheduled for 2028 was not an option.

Councillor Mealings agreed however also had concerns regarding the location of the pedestrian crossing and its proximity to the intersection of Otaki and Ohoka Roads.

9 MATTERS FOR INFORMATION

9.1 Request Extension of Contract 20/20 – Roothing Professional Service Contract – J McBride (Roothing & Transport Manager)

(Report No. 230808120962 to the Management Team Operations meeting of 14 August 2023).

J McBride took the report as read noting this this matter was for information.

Councillor Williams raised concern regarding the rollover of contract without reviewing them and noted that although this contract would now be rolled over for a further year work on reviewing the contract should be started now.

Moved: Councillor Redmond

Seconded: Councillor Williams

THAT the Utilities and Roothing Committee

(a) **Receives** the information in Item 9.1.

CARRIED

10 QUESTIONS UNDER STANDING ORDERS

Nil.

11 URGENT GENERAL BUSINESS

Nil.

12 MATTERS TO BE CONSIDERED WITH THE PUBLIC EXCLUDED

In accordance with section 48(1) of the Local Government Official Information and Meetings Act 1987 and the particular interest or interests protected by section 6 or section 7 of that Act (or sections 6, 7 or 9 of the Official Information Act 1982, as the case may be), it is moved:

Moved: Councillor Ward

Seconded: Councillor Williams

1. That the public be excluded from the following parts of the proceedings of this meeting:

Item 12.1 Report from Management Team meeting of 14 August 2023

Item 12.2 Report from Management Team meeting of 28 August 2023

Item 12.3 Report from Management Team meeting of 28 August 2023

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

Meeting Item No. and subject	Reason for excluding the public	Grounds for excluding the public.
12.1 Report from Management Team meeting of 14 August 2023	Good reason to withhold exists under section 7	To carry on, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations) (s 7(2)(i)).

12.2 Report from Management Team meeting of 28 August 2023	Good reason to withhold exists under section 7	To carry on, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations) (s 7(2)(i)).
12.3 Report from Management Team meeting of 28 August 2023	Good reason to withhold exists under section 7	To carry on, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations) (s 7(2)(i)).

CARRIED**CLOSED MEETING**

The public excluded portion of the meeting commenced at 10.35am and concluded at 10.38am.

OPEN MEETING

Moved: Councillor Redmond

Seconded: Councillor Brine

THAT open meeting resumes and the business discussed with the public excluded remains public excluded.

CARRIED**NEXT MEETING**

The next meeting of the Utilities and Roading Committee will be held on Tuesday 17 October 2023 at 9am.

There being no further business the meeting concluded at 10.38am.

CONFIRMED

 N Mealings
Chairperson

 Date

WAIMAKARIRI DISTRICT COUNCIL**REPORT FOR DECISION**

FILE NO and TRIM NO: RDG-32-115 / 230830134485

REPORT TO: UTILITIES & ROADING COMMITTEE

DATE OF MEETING: 17 October 2023

AUTHOR(S): Kieran Straw – Civil Project Team Leader
Don Young – Senior Engineering Advisor

SUBJECT: Approval of Design for Projects 1 & 3 of the Transport Choices Programme (Kaiapoi to Woodend and Woodend to Ravenswood Cycleways)

ENDORSED BY:

(for Reports to Council, Committees or Boards)	General Manager	Chief Executive
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1. SUMMARY

- 1.1. This report is seeking approval of the detailed design of the Kaiapoi to Woodend and the Woodend to Ravenswood Cycleways (Projects 1 and 3 of the Transport Choices Programme), to allow staff to progress to the tender phase of the project.
- 1.2. These projects have previously been reported on, and the scheme design approved for consultation as two separate projects, however consultation of the two projects was combined into one for the “Let’s Talk” consultation process.
- 1.3. After the approval from the Council to consult on the concept, the staff have sent fliers to all residents and businesses along the route and held two community drop-in sessions.
- 1.4. Consultation on the proposed cycle connections closed on 1 September 2023, and the project has received comment from both the residents along the route, and the wider community, having received 39 formal responses via the “Let’s Talk” consultation phase.
- 1.5. The feedback is summarised in Attachment iii. In summary, 39 submissions were received, of which 34 were in support of the cycleway (either with or without specific concerns), two had objections (one preferring to wait until the by-pass is installed so cyclists can use Main North Road, and the other preferring that drainage issues in Old North Road are resolved), and two were either blank, or neutral.
- 1.6. The staff commentary on the feedback is covered in more detail in Section 5.2 below.
- 1.7. In addition, Council staff have worked extensively with three key stakeholders, being Waka Kōtahi, Ngāi Tūāhuriri, and Ready Mix.
- 1.8. With regard to Waka Kōtahi, elements of this design are to be installed within the State Highway Road corridor. As such, Council staff have worked closely with Waka Kōtahi network staff to ensure that the proposed design does not adversely impact the state highway corridor, and maintenance. This detailed design is currently with Waka Kōtahi network staff awaiting formal approval of these elements of the design.
- 1.9. With regard to Ngāi Tūāhuriri, Council have met with and heard their concerns. As a result, the alignment of the proposed cycleway has moved off Māori Reserve Lands (MR873) and been re-directed away from the Urupā on Old North Road. This change has resulted in the cycleway being proposed along Williams Street from Old North Road to Pineacres intersection.

- 1.10. With regards to Ready Mix, the proposed cycleway will reclaim road reserve currently occupied by ReadyMix. ReadyMix remain committed to working with the Council to achieve the desired outcome and are willing to make the necessary changes within their yard to accommodate the cycleway.
- 1.11. Note that Waka Kōtahi have extended the construction deadline for Transport Choices projects to June 2025, which provides additional time to tender and construct. However, the Waka Kōtahi approval process for the detailed design of these projects has only been extended for one month. Therefore, final designs must be submitted to Waka Kōtahi prior to 27 October 2023.

Attachments:

- i. Detailed Design for Project 1 (Trim no. 230830134489)
- ii. Detailed Design for Project 3 (Trim no. 220830134490)
- iii. Let's Talk Survey Responses - Redacted version (Trim no. 230830134491)
- iv. Summary of Feedback (Trim no. 230929154414)
- v. Proposed Schedule of No Stopping Restrictions (Trim no. 230222024367 (V02))

2. RECOMMENDATION

THAT the Utilities and Roading Committee:

- (a) **Receives** Report No. 230830134485.
- (b) **Approves** the detailed design as per attachment i.(Trim No. 230830134489) for Project 1, Kaiapo to Woodend
- (c) **Approves** the detailed design as per attachment ii (Trim No. 220830134490) for Project 3, Woodend to Ravenswood
- (d) **Approves** the installation of no stopping lines required as per attachment v (Trim No. 230222024367 V02), noting that these will be added to the Councils Schedule of Parking Restrictions upon completion.
 - i. Ranfurly Street East Opposite Sidey Quay
- (e) **Notes** the installation of no-stopping lines (below) required as per attachment v (Trim No. 230222024367 V02), will be approved by Waka Kōtahi and will not be included within the Councils Schedule of Parking Restrictions upon completion.
 - i. Main Road (SH1) West Main Road frontage of No. 8 Woodglan Dr
 - ii. Main Road (SH1) East No. 122 Main Road
 - iii. Main Road (SH1) West No. 133 Main Road
 - iv. Main Road (SH1) West Kerb build out at the Church.
- (f) **Notes** that these changes will result in the loss of 20 on-road car parking spaces, noting that the on-road car parking spaces on Main Road (SH1) are considered to be "road shoulder" and rarely get used for parking.
- (g) **Notes** that feedback from the consultation process has been incorporated into the design where applicable.
- (h) **Notes** that the recommendations within this report will require the reclamation of road reserve currently occupied by private residencies along Old North Road, and Main North Road (SH1), and that this has been discussed with the relevant property owners.

- (i) **Notes** that the deadline for the approval of the detail design and Schedule 2 agreement for funding has been extended to 27th October 2023, and that Waka Kōtahi have signalled that failure to meet that deadline will result in no funding being available. Also funding for construction is dependent on and will not be released until these have been approved by Waka Kōtahi.
- (j) **Notes** that the detailed design drawings are subject to an Independent Road Safety Audit, and that this process is yet to occur. Further minor changes are likely to be required as a result, and will be agreed with the General Manager Utilities and Roading
- (k) **Notes** that this project will require an Archaeological Authority to construct, and that staff are currently working through this process.
- (l) **Notes** that staff have been working with Ngāi Tūāhuriri in relation to aspects of the alignment that occupy MR873 land, and that as a result, the alignment has been updated to ensure the path does not encroach into MR873 land.
- (m) **Notes** that staff have been working with Waka Kōtahi in relation to coordination with planned State Highway works and is also seeking the relevant approvals to locate the path in the State Highway Road corridor, and that Waka Kōtahi are yet to provide their formal approval of this alignment.
- (n) **Notes** that staff will proceed with the preparation of tender drawings, and documents in anticipation of receiving an approval to move to construction from Waka Kōtahi.
- (o) **Circulates** this report to the Kaiapoi-Tuahiwi Community Board, and the Woodend-Sefton Community Board for their information.

3. **BACKGROUND**

- 3.1. The Waimakariri District Council have committed to improving multi-modal transport options throughout the district. The intention is to provide safe and accessible facilities which encourage active movements within the community.
- 3.2. The Walking and Cycling Network Plan has been derived to deliver upon the actions which were agreed and endorsed in the Waimakariri Walking and Cycling Strategy 2017-2022. The vision of this strategy is “Waimakariri residents choose to walk and cycle, and that the environment is friendly, safe and accessible for walkers and cyclists”. Overall, the aim of the strategy is to encourage walking and cycling, both for recreational and commuter travel. This policy was developed with alignment to Regional Transport Plans and other national/regional policy documents.
- 3.3. A previous report was taken to All Boards in August 2021 seeking approval to consult on the draft Walking and Cycling Network Plan (refer to TRIM No. 210920151361 for further background information).
- 3.4. Following this district wide consultation, a further report was taken to the Boards and then the Council in October 2022 seeking adoption of the Walking and Cycling Network Plan, and associated Infrastructure Prioritisation Programme. This was adopted.
- 3.5. In March 2023, reports (Trim No. 230131011994 and 230131011989) were approved, and sought the approval of the scheme designs for Projects 1 and 3 for consultation purposes.
- 3.6. Prior to proceeding to consultation, an additional memo (Trim no. 230324041210) was prepared detailing design changes discussed at the Board meeting on 20 March 2020.

- 3.7. The consultation for Projects 1 and 3 consisted of targeted one on one discussions with key stakeholders that were considered to be significantly impacted. A wider “Let’s Talk” engagement process followed in August, and consisted of two community drop-in sessions, one for Kaiapoi, and one for Woodend.
- 3.8. Feedback as a result of the engagement process has been largely positive, with approximately 40 people attending drop-in sessions, and 39 people completing the on-line survey. Of those that completed the on-line survey 87% of people had positive responses in support of the project.

4. ISSUES AND OPTIONS

- 4.1. The design for this cycleway route has been broken into sections and changes from the Scheme Design previously presented are described below. The following should be read in conjunction with Attachment i and ii of this report.

4.2. Project 1 – Kaiapoi to Woodend

4.2.1. Smith Street

The proposed cycleway commences at the existing stop bank walkways. This provides good connectivity to the Passchendaele Memorial Path, the Christchurch Northern Corridor Cycleway (via Peraki Street), and the Kaiapoi town centre.

The path connects into the stop bank from Charles Street with a proposed widening of the existing footpath up to the top of the stop bank.

Since the Scheme design was presented for approval, staff have relocated the Smith Street crossing to the eastern side of the Charles Street intersection and propose to install a kerb build-out on the south side of Smith Street. A watts profile speed hump is to be installed on Charles Street on approach to the road crossing.

4.2.2. Ranfurly Street

A 2.5m shared use path is now proposed to be located solely on the eastern side of Ranfurly Street. This revised alignment reduces the impact on the parking loss apart from the need to extend the existing no stopping lines opposite Sidey Quay by 12m (two car parking spaces).

The Shared Use path now also continues for the full length of Ranfurly Street. To reduce the likelihood of a cyclist on the path clashing with a car door, a 1.5m painted buffer is to be painted between the existing on-road parking and the shared use path. To achieve this, the traffic lanes will be reduced to 3.4m in each direction, however there is no adverse impact for the number of on-street parking spaces. Note that this alignment has been designed with the possible Disc Golf facility in mind, and existing parking is maintained.

At the Dale Street intersection, the vehicle priority is still be changed, giving Old North Road the priority over Dale Street traffic (previously approved at Scheme Design approval stage). However, to provide consistency at all road crossings, the cycleway is no longer proposed to have priority.

4.2.3. Old North Road (formed length)

There is no change along this length from the previously approved scheme design, however residents of Old North Road raised concerns regarding drainage which the project will look to address in conjunction with this project.

Staff have carried out an initial review of the likely drainage issues, but this aspect is yet to be fully designed. This will be carried out and appropriate works either incorporated into the construction or (if the work is more intensive) programmed for a future project. Discussions will take place with local residents as this is being worked through.

4.2.4. Old North Road (unformed)

Following feedback from the consultation, this portion of the route has been reconsidered, and is now proposed to be installed alongside Williams Street rather than the unformed road reserve. This alignment has the following benefits:

- Has improved safety benefits in regards to having existing lighting, and passive security
- Provides connectivity to the existing residential properties on Williams Street and to local destinations (Kaiapoi Lakes, Pineacres Tavern)
- Provides footpath access to existing bus stops
- Stays clear of MR873 lands.

This alignment involves a crossing of Williams Street just north of the gated Lakes properties, with the path continuing along the eastern side of the road across Lees Road to the Pineacres entrance. Due to this change in alignment, there is no longer a road crossing of Williams Street near the state highway, which removes a potential for increased conflict where there is already safety concerns. A short workshop was held with the Kaiapoi-Tuahiwi Community Board, and they are aware and supportive of the change.

4.2.5. State Highway 1 Pineacres Intersection to Sandhills Road

The timing of the proposed Waka Kōtahi Safety improvements at the Pineacres intersection is currently unknown. As a result, the alignment of the path in front of the Pineacres Tavern has changed slightly and will be located against the existing kerb. This alignment has slightly less impact on the car parking outside the tavern.

Outside the Pineacres holiday park, the path is now proposed to be located within the Waka Kōtahi Road corridor, adjacent to the truck weigh station.

The design over this length is a combination of a new shared use path, and using the existing wide sealed shoulder, with concrete kerb separators between the cycleway, and the weigh station. Staff are continuing to finalise the design with Waka Kōtahi to ensure drainage issues are properly resolved.

4.2.6. Sandhills Road (unformed)

This section was originally designed to be within the road reserve for the full length apart from a short stretch where it was intended to divert outside of the road reserve in order to avoid Ready Mix's operating area which currently encroaches on the road reserve.

Previously staff had proposed to install the path within this length on Ready Mix land with a view of creating an easement to prevent bisecting the existing paddock at No. 780 Main North Road, and to minimise impacts on the Ready Mix operation. However following discussions with Ngāi Tūāhuriri staff now propose to utilise the existing road corridor. This will require Ready Mix to rearrange their operational access roads, which they are willing to consider. The cycle path will be fully fenced off from their site, and appropriate signage and barriers will be carefully considered at this location to minimise the risks. This will include speed humps for the vehicles, chicanes for the cyclists and clear signage and markings requiring cyclists to give way.

There are no further changes to the path alignment north of the Ready Mix yard, within the unformed length of Sandhills Road.

4.2.7. Sandhills Road (formed)

The shared path will reduce in width to 2.5m along this length to minimise earthworks. Cross sections have been developed to ensure the path can be constructed within the existing dunes and road reserve. The path will be constructed in the dunes using a combination of cut, fill, gabion baskets, and low retaining walls.

In order to fit the shared path alongside the road, the road carriageway requires realignment at several bends. At these locations, the seal will be widened on the outside of the bend to create space to install the shared path on the eastern side of Sandhills Road, maintaining a separation of at least 1.5m along the full length to Woodend Beach Road.

Construction in this area will require removal of some trees, and also stand-over in case of archaeological finds.

4.2.8. Woodend Beach Road

There is no change along this length from the previously approved scheme design, however what had previously intended to be unsealed in the short term will now be asphalted as the timeframe of the proposed roundabout is unknown.

4.2.9. Main Road Woodend (SH1)

There is no change along this length from the previously approved scheme design, however additional line marking to encourage cycles to travel slowly on the shared use path through this section have been added. The adjacent landowners who either encroach on the road reserve, or are near to a bus stop that requires moving have been spoken to, and they are accepting of the works.

4.3. **Project 3 – Woodend to Ravenswood**

4.3.1. Main Road, Woodend (Woodend Road to Chinnery's Road)

There is no change to this section of path. However, note the section below that relates to the Woodend Road intersection.

4.3.2. Main Road, Woodend (Chinnerys Road to 70km/hr speed threshold)

On the northern side of the Chinnerys Road intersection, the design was altered to design around the space constraint at No. 133 Chinnerys Road. This has been achieved by realigning the Chinnerys Road kerb alignment on approach to the intersection to shift the traffic lanes to the south by approximately 1m.

Following the scheme road safety audit, and concerns raised by Waka Kōtahi staff, the open drain to the north of Chinnerys Road is now to be piped. This increases separation from the state highway. A short section of open drain remains outside No. 133 Chinnerys Road. Outside this location, the path will remain behind concrete kerb separators as per the original design. This is due to the proximity of two MainPower utility poles that are cost-prohibitive to remove.

4.3.3. Garlick Street connection

There is no change along this length from the previously approved scheme design.

The Ravenswood Developer has confirmed that their path will be constructed before the end of 2023 in conjunction with Stage 6 of the development.

4.3.4. Main Road, Woodend (Pegasus Connection)

The Pegasus Connection on the eastern side of State Highway (from St Barnabas church northwards to Pegasus Boulevard) was originally intended to be included provisionally. However there has been no support from Waka Kōtahi for this connection, and therefore has been removed from the detailed design.

It should be noted that the Transport Choices funding application did not include this link. This section will need considering separately by the Council as part of the LTP.

- 4.4. Waka Kōtahi's Woodend Safety Improvement Project currently has no timeline for construction. This means that the Woodend Road traffic signals originally intended to act as a transition between the proposed Shared Use Path and the existing on-road cycle lanes will not be possible for some time. Council staff are therefore actively investigating the feasibility of widening and marking the existing footpath on the western side of Main Road, from School Road to Woodend Road as an alternative solution to link the two sections of Shared Use Path. It should be noted that this link is outside the scope of the Transport Choices application, and will be considered with Waka Kōtahi separately.
- 4.5. There are implications on community wellbeing by the issues and options that are the subject matter of this report.
- 4.6. The Management Team has reviewed this report and support the recommendations.

5. **COMMUNITY VIEWS**

5.1. **Mana whenua**

Te Ngāi Tūāhuriri hapū are affected by, or have an interest in the subject matter of this report.

The cycleway alignment has been discussed extensively with Ngāi Tūāhuriri, and as a result of these discussions alignment changes have been made to ensure that the path is not encroaching into MR873, and is constructed some distance away from the Urupā on Old North Road.

Mahaanui Kurataiao has also been engaged to carry out an assessment and provide a Cultural Values Statement to accompany the archaeological authority that will be required to complete the work. This is on-going.

5.2. **Groups and Organisations**

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

Adjacent residents and businesses

Staff went door to door to speak to residents of Old North Road, and residents that backed onto the unformed road reserves of Old North Road, and Sandhills Road prior to approval of the Scheme Design. Two of these residents submitted formal responses in objection to the cycleway, with one wanting the project to be put on hold until the Woodend Bypass is constructed (so that cyclists can use Main North Road), and the other wanting Council to address the drainage issues in Old North Road as a priority ahead of constructing a cycleway.

Following approval of the scheme design a flyer was sent to all residents along the route asking for feedback, and two community drop-in sessions were held at the Woodend Community Centre, and Ruataniwha Civic Centre. These drop-in sessions were for “directly impacted stakeholders and residents” and were also open to the wider public.

Over two nights approximately 40 to 50 attend the meetings, about half of these being residents or business owners from the area and the other half being other interested parties who were not directly impacted by the works, such as residents of Pegasus. There were also a small number of elected members and the Mayor in attendance.

Following feedback received regarding the development of the unformed road reserve on Old North Road, staff have revised the design to be installed on the berm alongside Williams Street, from Old North Rd to the Pineacres intersection. A separate information notice was prepared and delivered to all residents impacted by the proposed change in route. Residents of Williams Street that back onto Old North Road favour the change in alignment, while there was no response from any resident on the eastern side of Williams Street.

In summary, the feedback is as follows:

In support	30
In support of a cycleway, but some concerns	4
Total in support	34
General opposition	2
Neutral / left blank	3

Christchurch Ready Mix

Staff have previously been working with Christchurch Ready Mix regarding two separate locations where the unformed road corridor passes through Ready Mix. In both instances, Council will be required to reclaim the currently occupied road reserve to avoid the need to construct the path within MR873.

This change in route will require Ready Mix to alter their yard entrance and operations, however Ready Mix remain committed to working with Council to allow the cycleway to proceed.

Pineacres Holiday Park

Staff have been working with the Pineacres Holiday Park. The owners are generally supportive of the proposal.

The detailed design locates the cycleway on the Waka Kōtahi Road reserve outside the Holiday Park, and therefore has minimal impact on their business.

ECan

The proposed design requires the installation of ramps within the ECan stop bank on Smith Street. ECan have provided their approval of this.

Waka Kōtahi

Staff have been working with Waka Kōtahi to co-ordinate the design of the cycleway with the proposed Woodend Safety Improvements. However Waka Kōtahi do not have a timeline for this work at this time. As a result, further changes have been made to the detailed design to reflect the likely increase in time between these two projects.

Staff have also been working with Waka Kōtahi's Transport Choices staff during the development of the design to ensure that the design aligns with the Transport Choices funding objectives. Any concerns they have had have been worked through, and they are supportive of the design, and the proposed alignment.

Waka Kōtahi however are yet to formally sign off of the design, including the portions of the cycleway that are located within the Waka Kōtahi Road Corridor. This is expected to come by end of October following the submission of the detailed design to Waka Kōtahi.

St Barnabas Church

The previous scheme design included a pedestrian refuge crossing location adjacent to the church to provide connectivity to the Garlick Street path, and the church. This has since been removed; however staff have discussed the project, and the impact on parking with the church.

The St Barnabas Church presented the scheme design at their vestry meeting in which there were no concerns, and they were supportive of the project.

5.3. Wider Community

The wider community is likely to be affected by, or to have an interest in the subject matter of this report.

Feedback on the route was carried out as part of the Walking and Cycling Network Plan. Specific consultation for this project has been focused on the targeted consultation with directly affected residents and business as outlined under bullet point 5.2, with information also being available on Council's website and the drop-in sessions being open to the wider Community.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT**6.1. Financial Implications**

There are financial implications of the decisions sought by this report.

A previous report (Trim 230619089921) went to Council in July 2023 seeking a decision on whether to reallocate budget from Project 4 (Rangiora on-road cycle lanes) to cover the likely shortfall across the other Transport Choices Projects. Council voted to not proceed with Project 4 and relocate the budget.

Therefore, the combined cost of the three remaining Strategic Cycleways is \$6,116,786.00, and there is a total combined budget of \$6,136,000.00. There is adequate budget to allow the design to proceed to tender.

It is yet to be confirmed whether this project is to be tendered as a single contract, or broken into separate contracts, however it is staffs' intention to have the new cycleway open to the public by Christmas 2024.

6.2. **Sustainability and Climate Change Impacts**

The recommendations in this report do have sustainability and/or climate change impacts.

Creating a safe and accessible walking and cycling network, which comes with improving infrastructure, increases the uptake of these activities for both recreational and commuter users. This results in a subsequent decrease in the number of people using single occupancy vehicles, particularly for shorter trips. This comes with many benefits, including health and the reduction of greenhouse gas emissions.

6.3 **Risk Management**

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

Risks remain regarding the length of the cycleway that is to be installed within the Waka Kōtahi Road corridor. Although staff have been in discussions with Waka Kōtahi throughout the design process, we are yet to receive formal approval that the cycleway can be installed within the Waka Kōtahi road corridor.

There also remains a risk that accidents will occur along the proposed cycleway, due to the increased use by cyclists, and potential for conflicts with vehicles. This needs to be carefully managed through a mixture of good design, signage and education, which should minimise these risks. However, a residual risk will remain, and this needs to be recognised.

6.3 **Health and Safety**

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

The Scheme Design previously approved for consultation was subjected to an independent Road Safety Audit. The Detailed Design drawings are also required to be subjected to a further independent Road Safety Audit, as well as third audit upon completion of physical works.

Contractors engaged for the works will be required to be SiteWise registered, and complete Site Specific Safety Plans prior to commencing works on site.

7. **CONTEXT**

7.1. **Consistency with Policy**

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

7.2. **Authorising Legislation**

Local Government Act 2002

7.3. **Consistency with Community Outcomes**

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

Public spaces and facilities are plentiful, accessible and high quality, and reflect cultural identity.

- There are wide-ranging opportunities for people to enjoy the outdoors.
- The accessibility of community and recreation facilities meets the changing needs of our community.

Core utility services are sustainable, resilient, affordable, and provided in a timely manner.

- Climate change considerations are incorporated into all infrastructure decision-making processes.





Transport is accessible, convenient, reliable, and sustainable.

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

7.4. **Authorising Delegations**

The Utilities and Roading Committee have the Delegations to accept this report, and approve the detailed design of this cycleway, allowing staff to progress to tendering phase.

LEGEND

-  MR873 PROPERTY
-  FOOTPATH CONSTRUCTION
-  GRASS BERM
-  NEW SIGN

NOTES

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CONTRACTOR TO LIAISE WITH SURROUNDING BUSINESSES TO LIMIT ANY DISRUPTIONS

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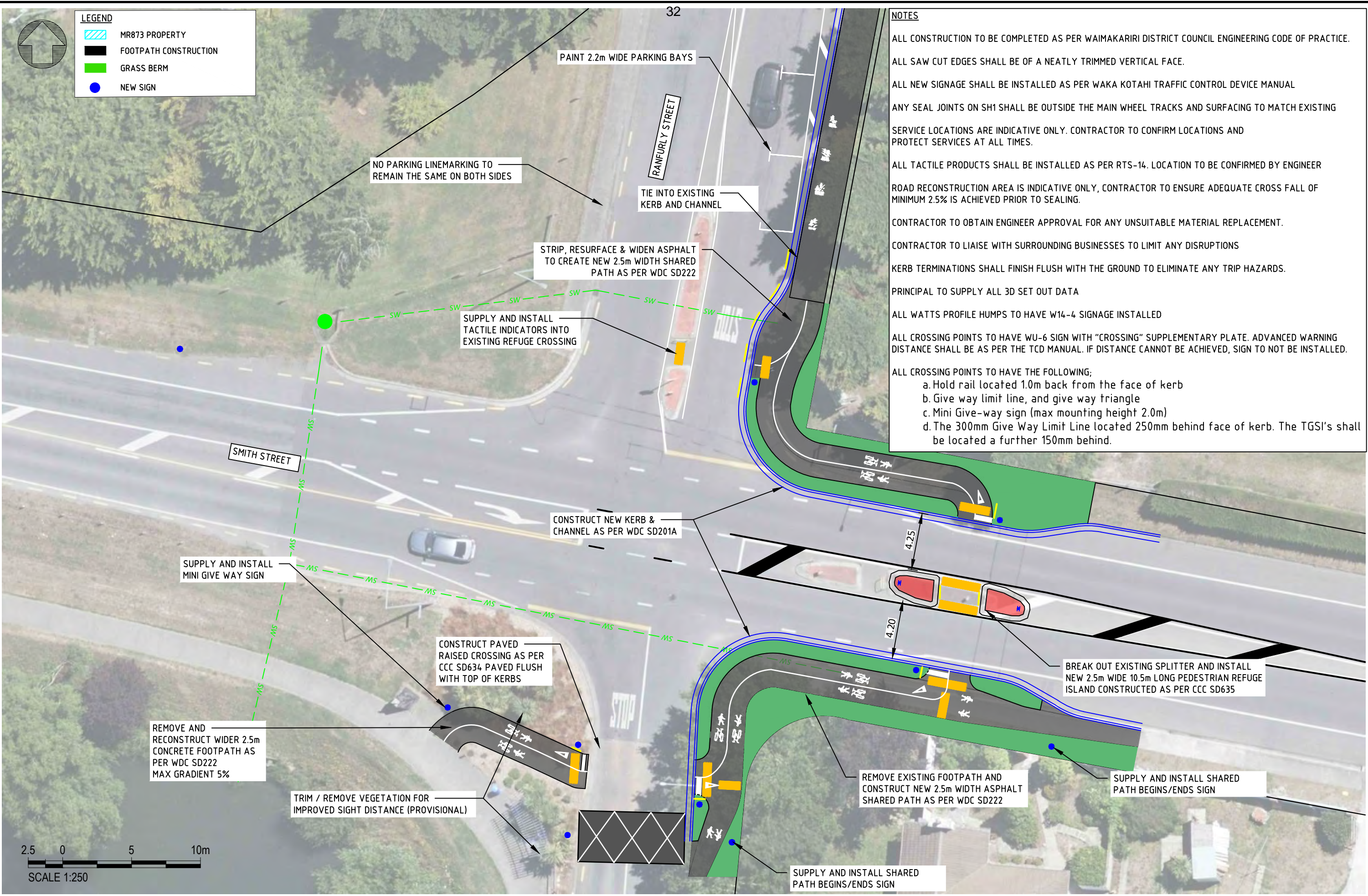
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DRAWN	GK	26/01/2023	CON No	---
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DESIGNED	---	--/--/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	--/--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/--/2023	VERTICAL	---



PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
RANFURLY STREET SMITH STREET INTERSECTION

PRELIMINARY
 NOT FOR CONSTRUCTION

DRAWING **4348**

SHEET 01 REVISION A

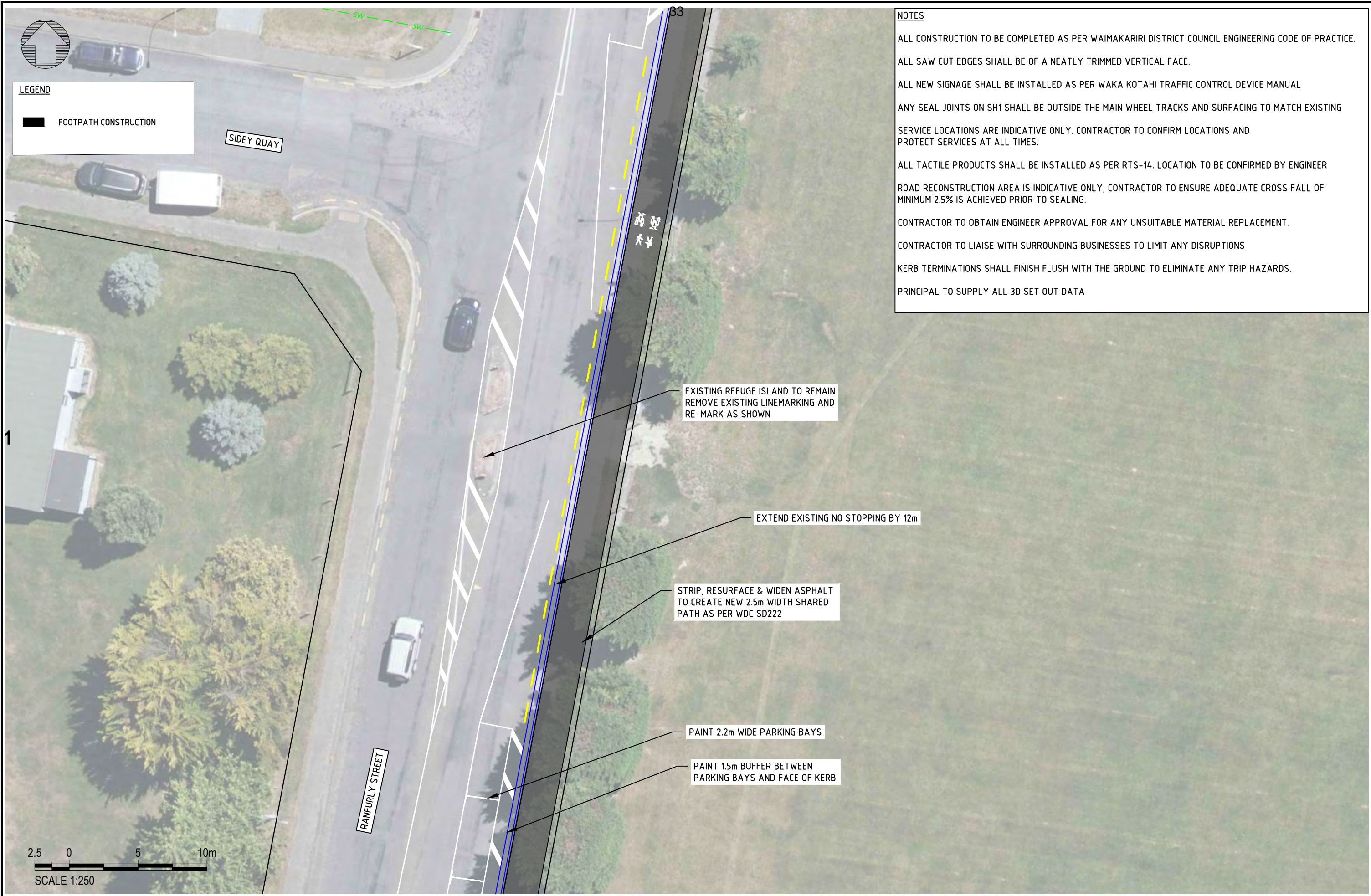


LEGEND

FOOTPATH CONSTRUCTION

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PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
RANFURLY STREET SIDEY QUAY INTERSECTION

PRELIMINARY
 NOT FOR CONSTRUCTION
 DRAWING 4348
 SHEET 02 REVISION A



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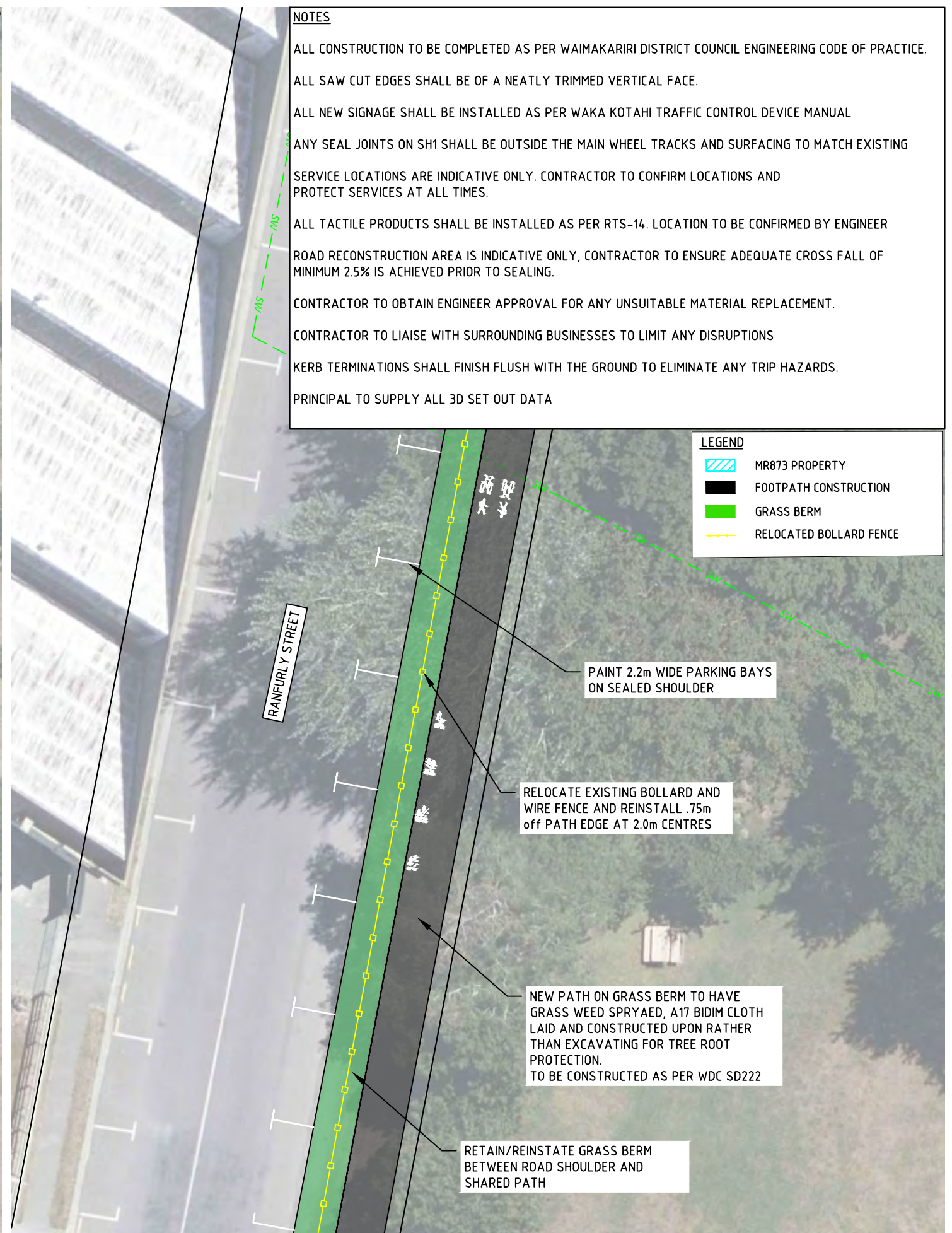
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PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
RANFURLY STREET CROSS SECTION

PRELIMINARY
 NOT FOR CONSTRUCTION
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4348
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LEGEND

	MR873 PROPERTY
	FOOTPATH CONSTRUCTION
	GRASS BERM
	RELOCATED BOLLARD FENCE

REV	REVISION DETAILS	DRN	CHK	APP	DATE
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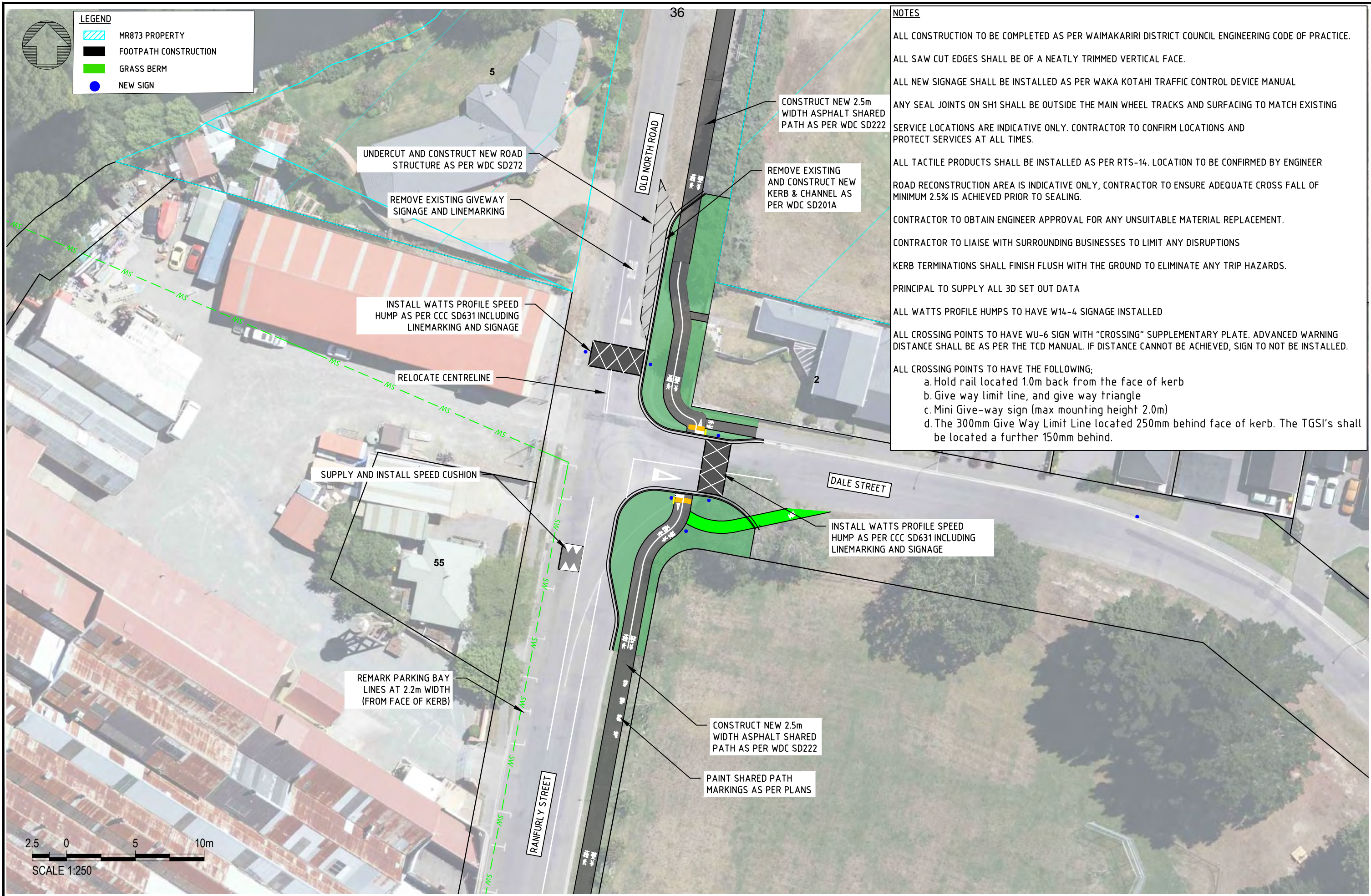
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PROJECT	KAIAPOI TO WOODEND SHARED PATH
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SHEET TITLE	RANFURLY STREET CROSS SECTION
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PRELIMINARY NOT FOR CONSTRUCTION	
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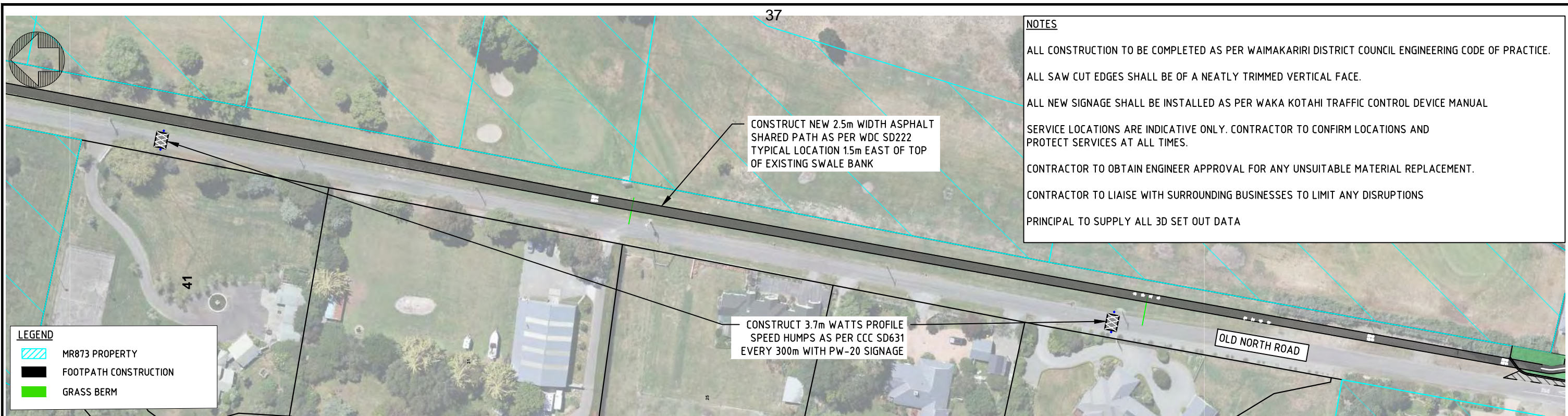
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PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
RANFURLY STREET DALE STREET

PRELIMINARY
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 DRAWING **4348**
 SHEET 05 REVISION A



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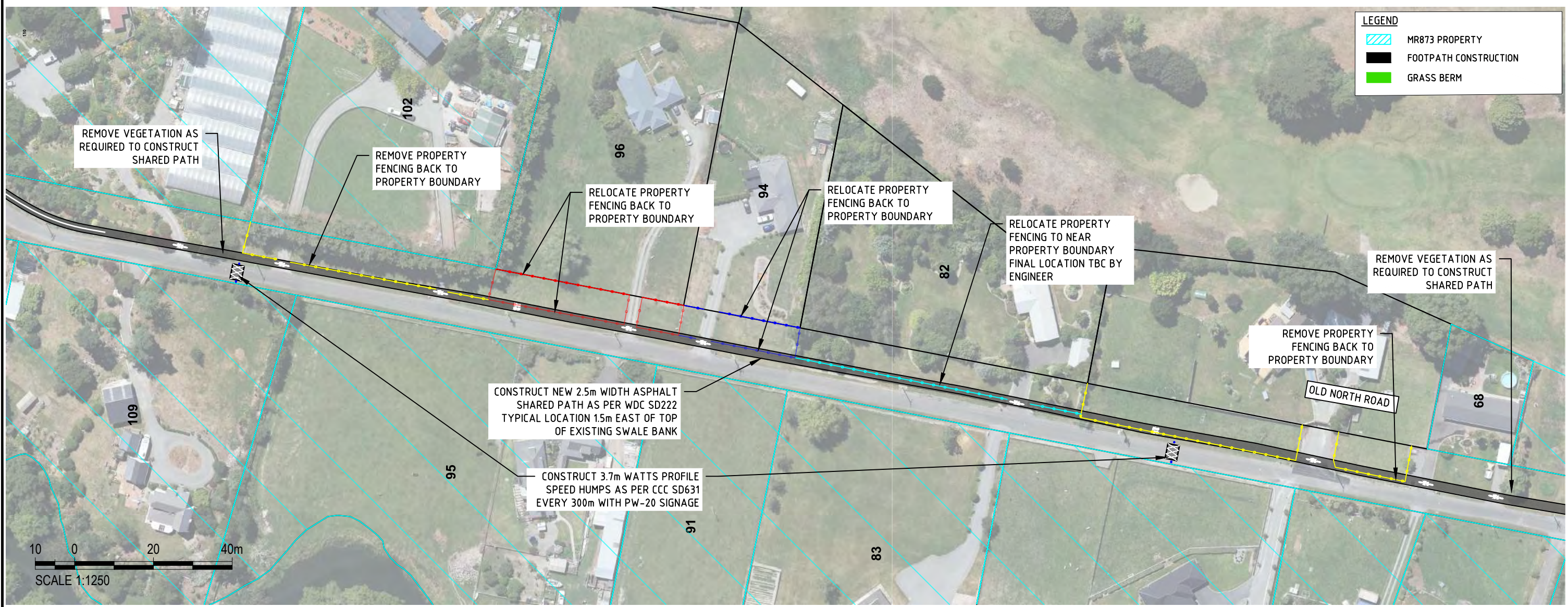
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PROJECT

KAIAPOI TO WOODEND SHARED PATH

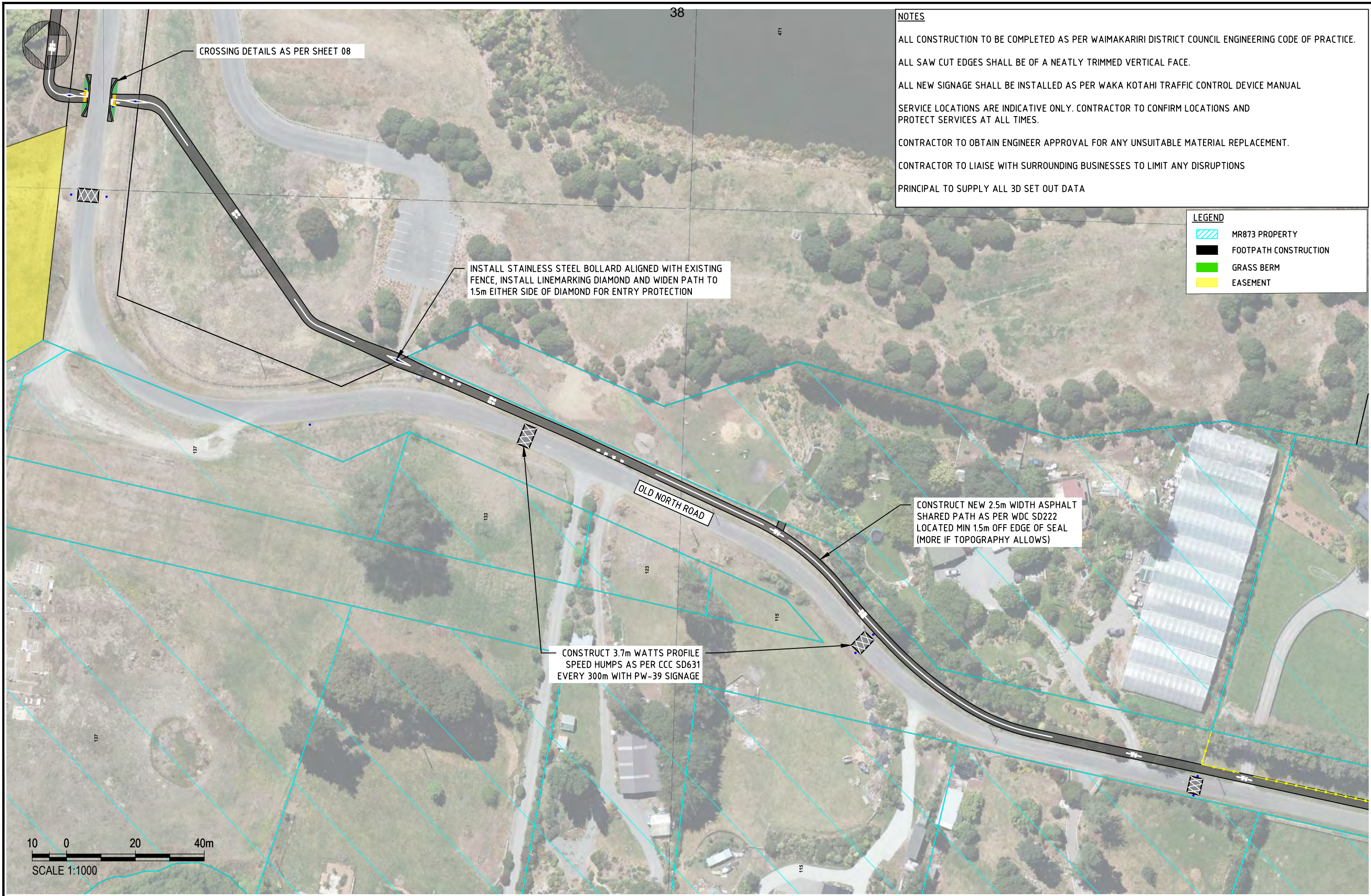
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RANFURLY STREET DALE STREET

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING 4348

SHEET 06 REVISION A



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LEGEND

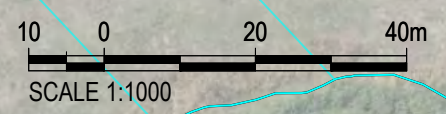
- MR873 PROPERTY
- FOOTPATH CONSTRUCTION
- GRASS BERM
- EASEMENT

INSTALL STAINLESS STEEL BOLLARD ALIGNED WITH EXISTING FENCE, INSTALL LINEMARKING DIAMOND AND WIDEN PATH TO 1.5m EITHER SIDE OF DIAMOND FOR ENTRY PROTECTION

CONSTRUCT NEW 2.5m WIDTH ASPHALT SHARED PATH AS PER WDC SD222 LOCATED MIN 1.5m OFF EDGE OF SEAL (MORE IF TOPOGRAPHY ALLOWS)

CONSTRUCT 3.7m WATTS PROFILE SPEED HUMPS AS PER CCC SD631 EVERY 300m WITH PW-39 SIGNAGE

CROSSING DETAILS AS PER SHEET 08



REV	REVISION DETAILS	DRN	CHK	APP	DATE
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PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
OLD NORTH ROAD

PRELIMINARY
 NOT FOR CONSTRUCTION
 DRAWING **4348**
 SHEET 07 REVISION A

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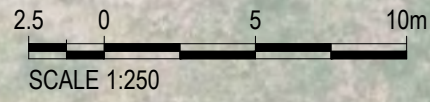
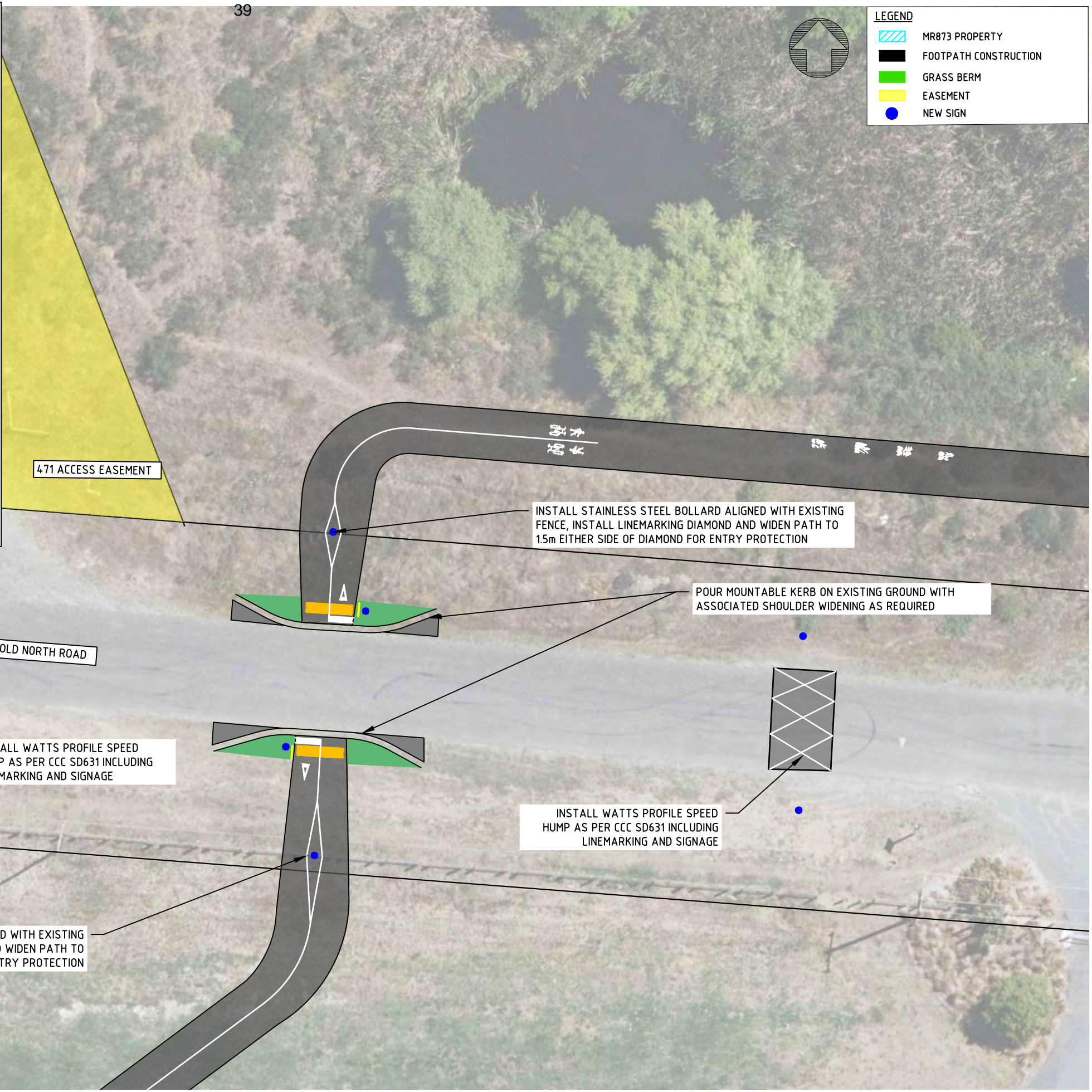
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PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
OLD NORTH ROAD INTO KAIAPOI LAKES

PRELIMINARY
 NOT FOR CONSTRUCTION
 DRAWING **4348**
 SHEET 08 REVISION A

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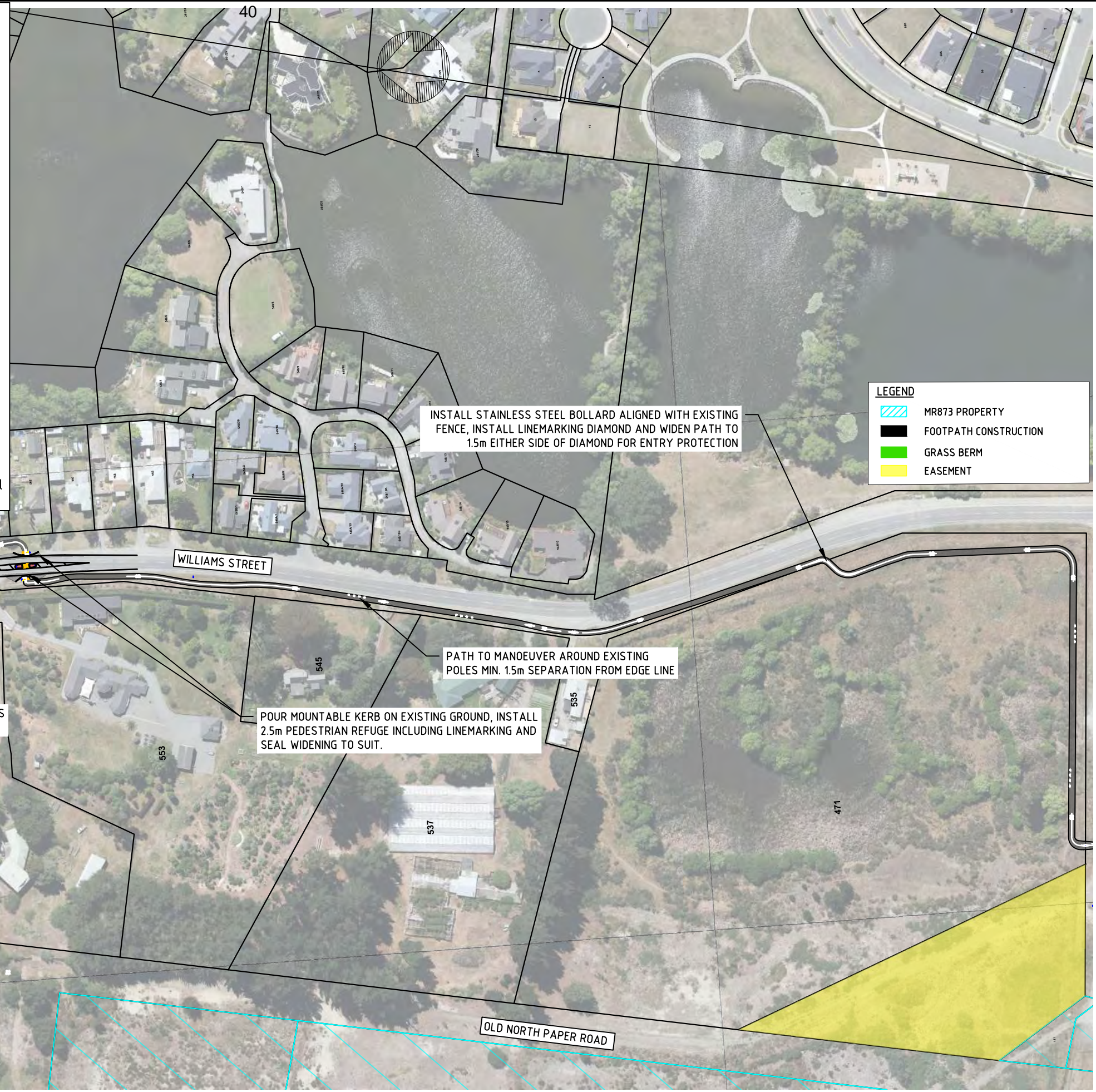
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DESIGNED	---	--/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/2023	VERTICAL	---



PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
WILLIAMS ST TO PINEACRES

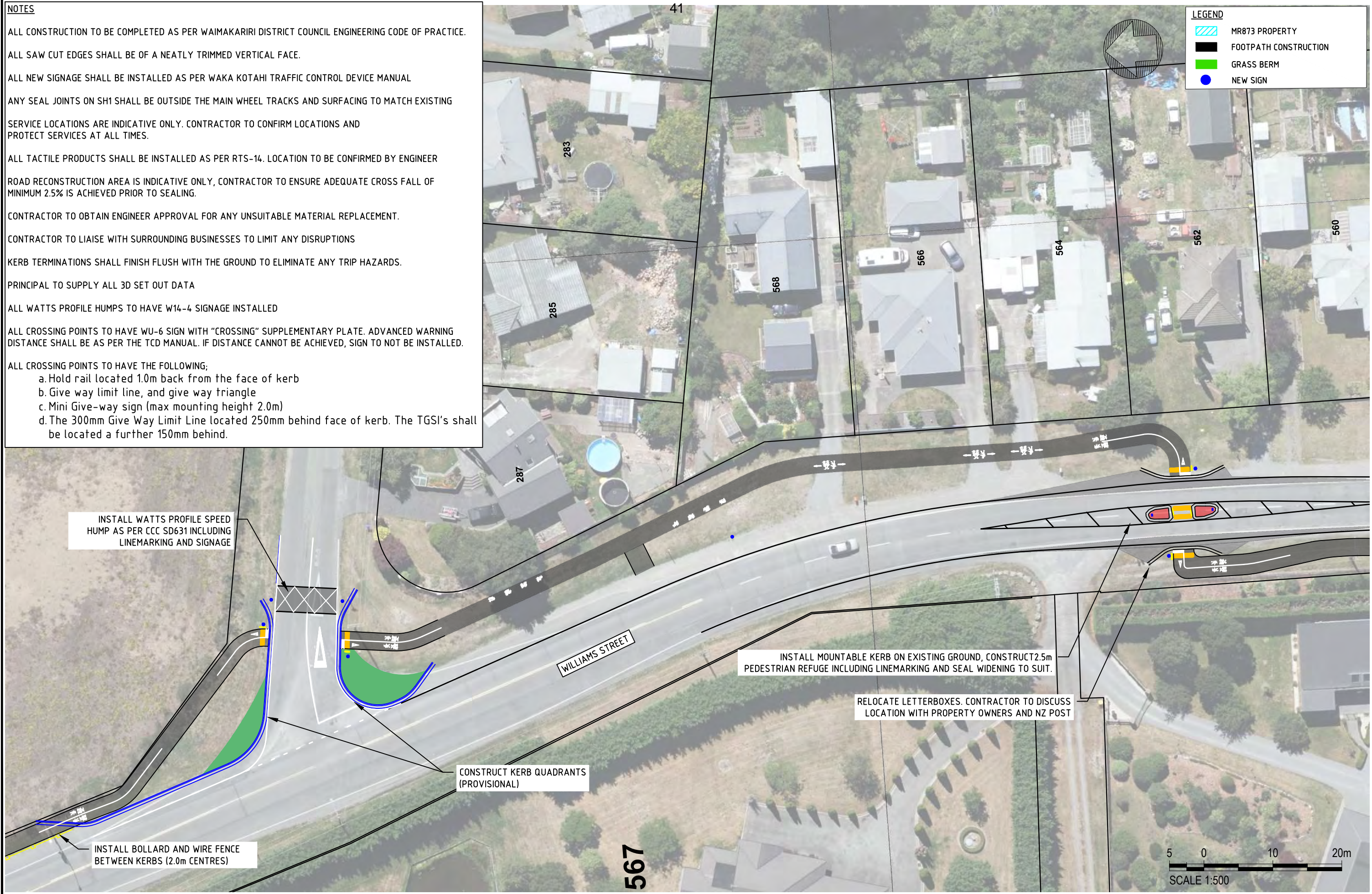
PRELIMINARY
 NOT FOR CONSTRUCTION
 DRAWING **4348**
 SHEET 09 REVISION A

NOTES

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LEGEND

- MR873 PROPERTY
- FOOTPATH CONSTRUCTION
- GRASS BERM
- NEW SIGN



REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

SURVEYED	---	---	PROJECT No	PD001949
DRAWN	GK	26/01/2023	CON No	---
DRAWING CHKD	KS	--/2023	SCALE (A3)	1:500
DESIGNED	---	--/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/2023	VERTICAL	---



PROJECT
KAIAPOI TO WOODEND SHARED PATH

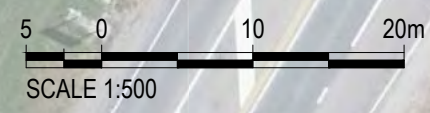
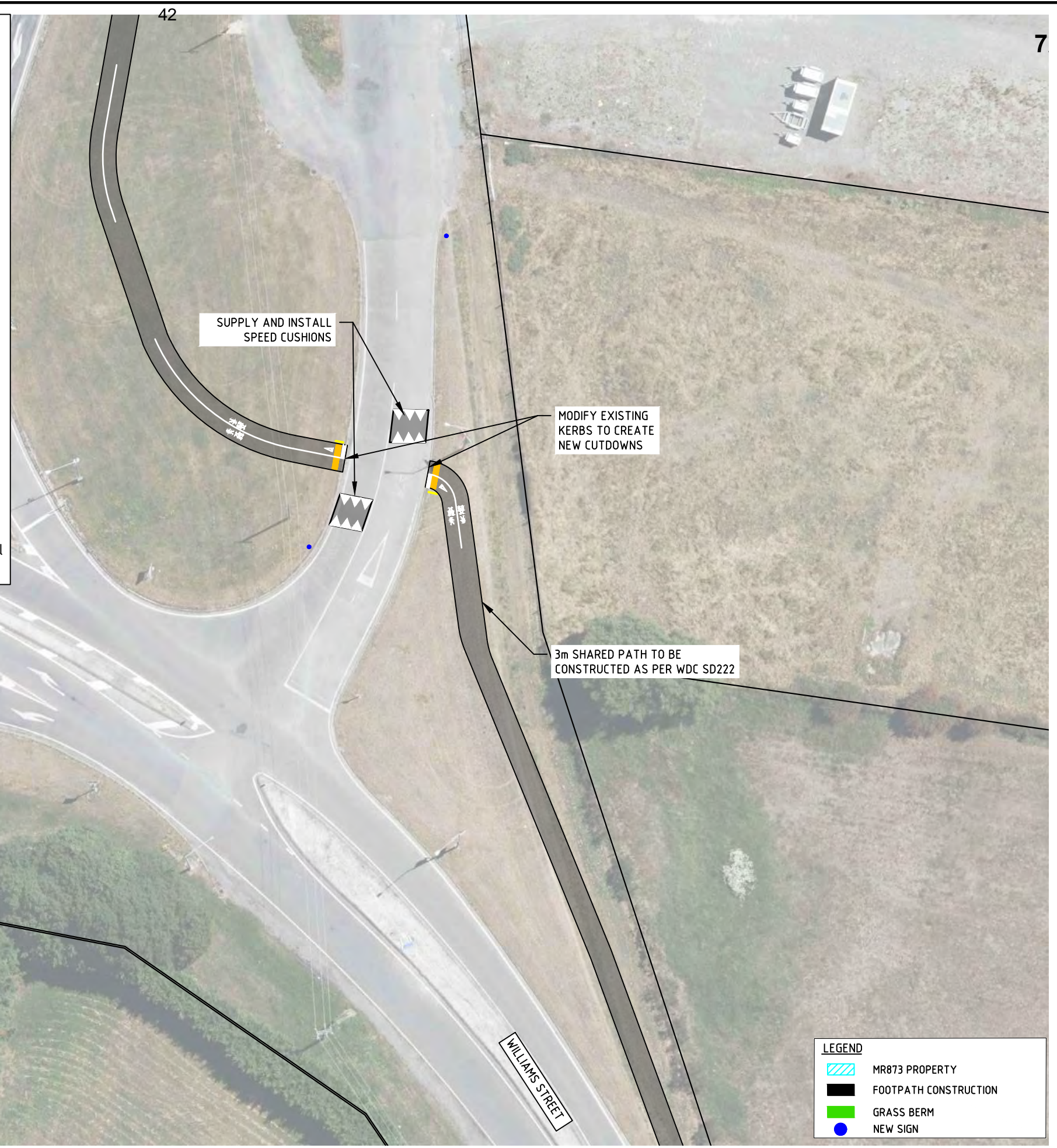
SHEET TITLE
WILLIAMS ST TO PINEACRES CROSSINGS

PRELIMINARY
 NOT FOR CONSTRUCTION
 DRAWING **4348**
 SHEET 10 REVISION A



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LEGEND

	MR873 PROPERTY
	FOOTPATH CONSTRUCTION
	GRASS BERM
	NEW SIGN

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

SURVEYED	---	---	PROJECT No	PD001949
DRAWN	GK	26/01/2023	CON No	---
DRAWING CHKD	KS	--/2023	SCALE (A3)	1:500
DESIGNED	---	--/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/2023	VERTICAL	---



PROJECT
 KAIAPOI TO WOODEND
 SHARED PATH

SHEET TITLE
 WILLIAMS ST
 SH 1 INTERSECTION

PRELIMINARY NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
11	A



43

LEGEND

	MR873 PROPERTY
	FOOTPATH CONSTRUCTION
	GRASS BERM

NOTES

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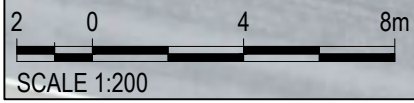
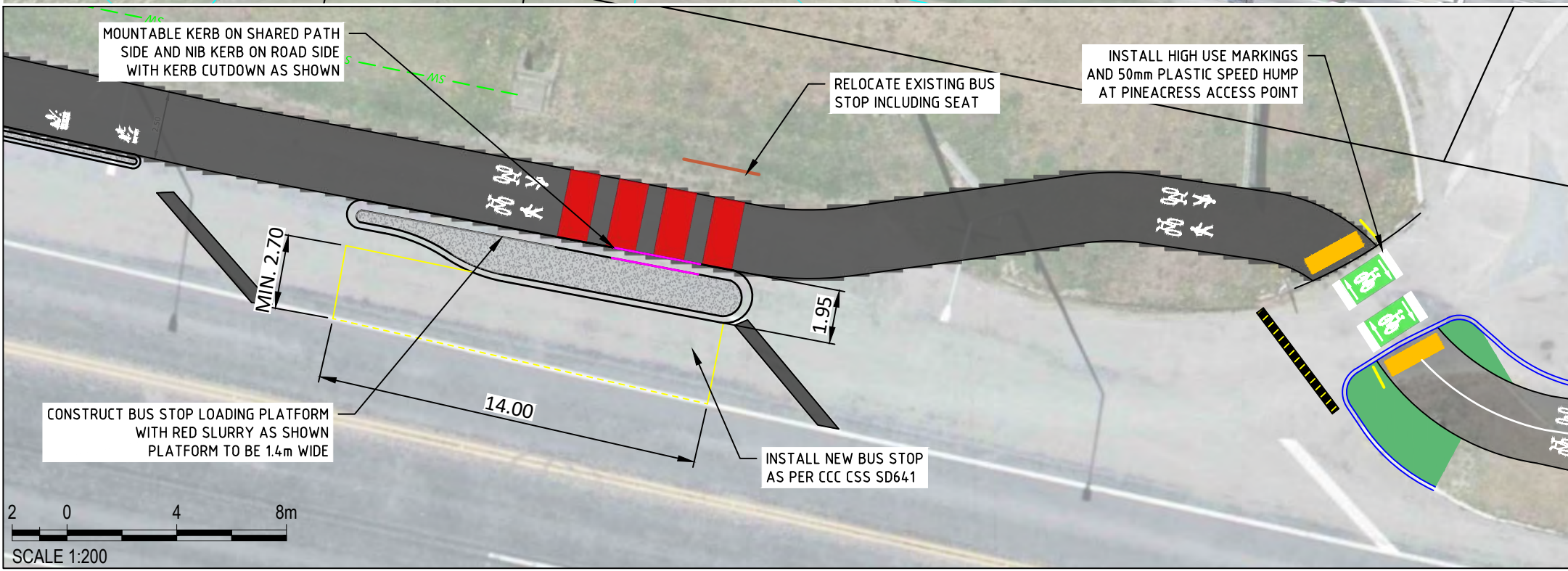
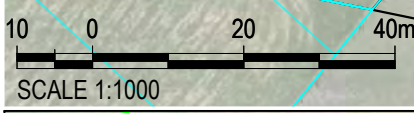
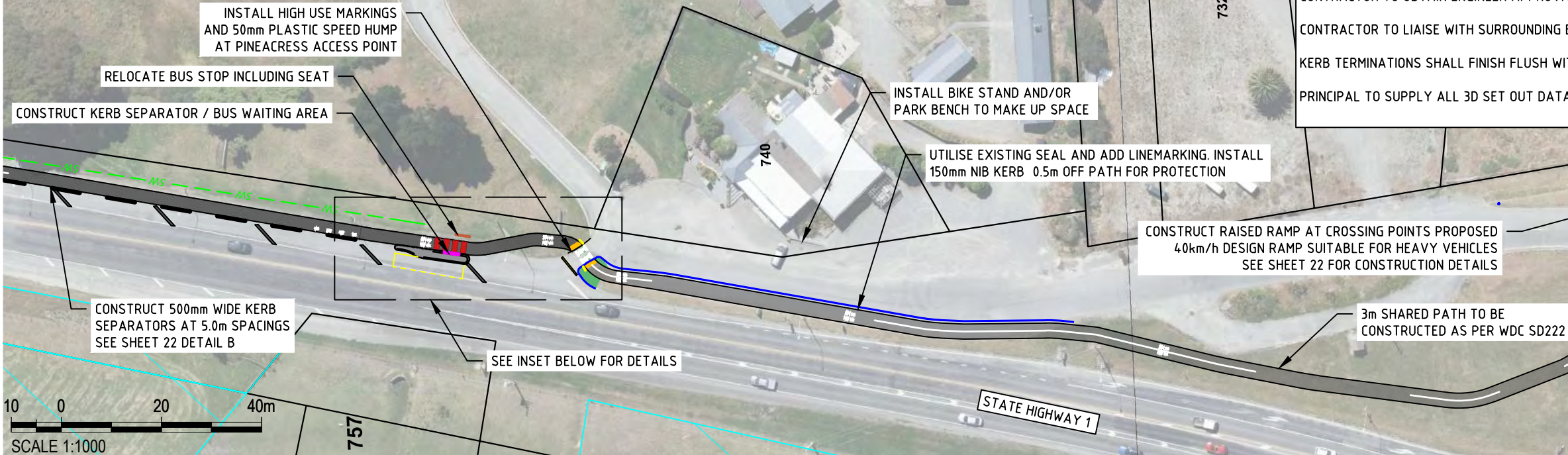
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REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

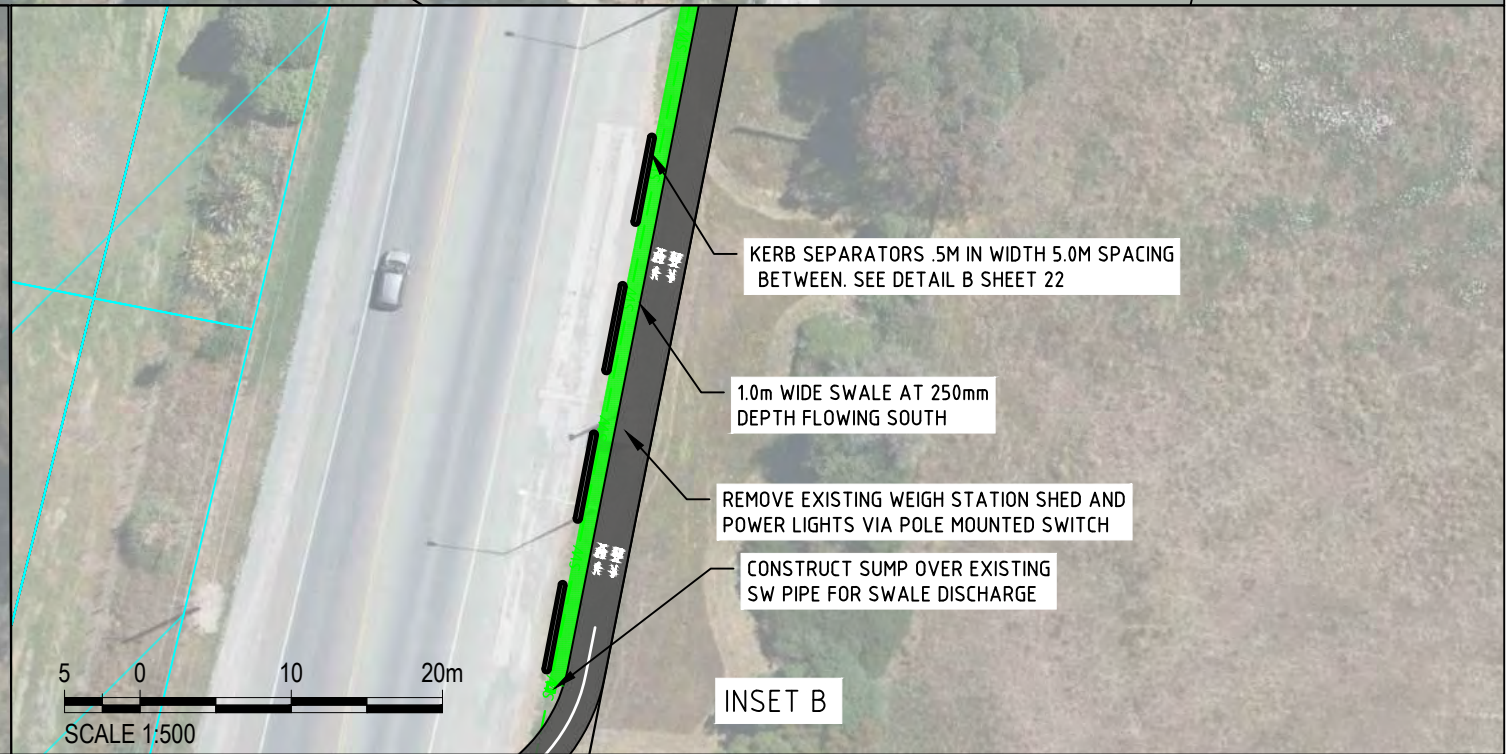
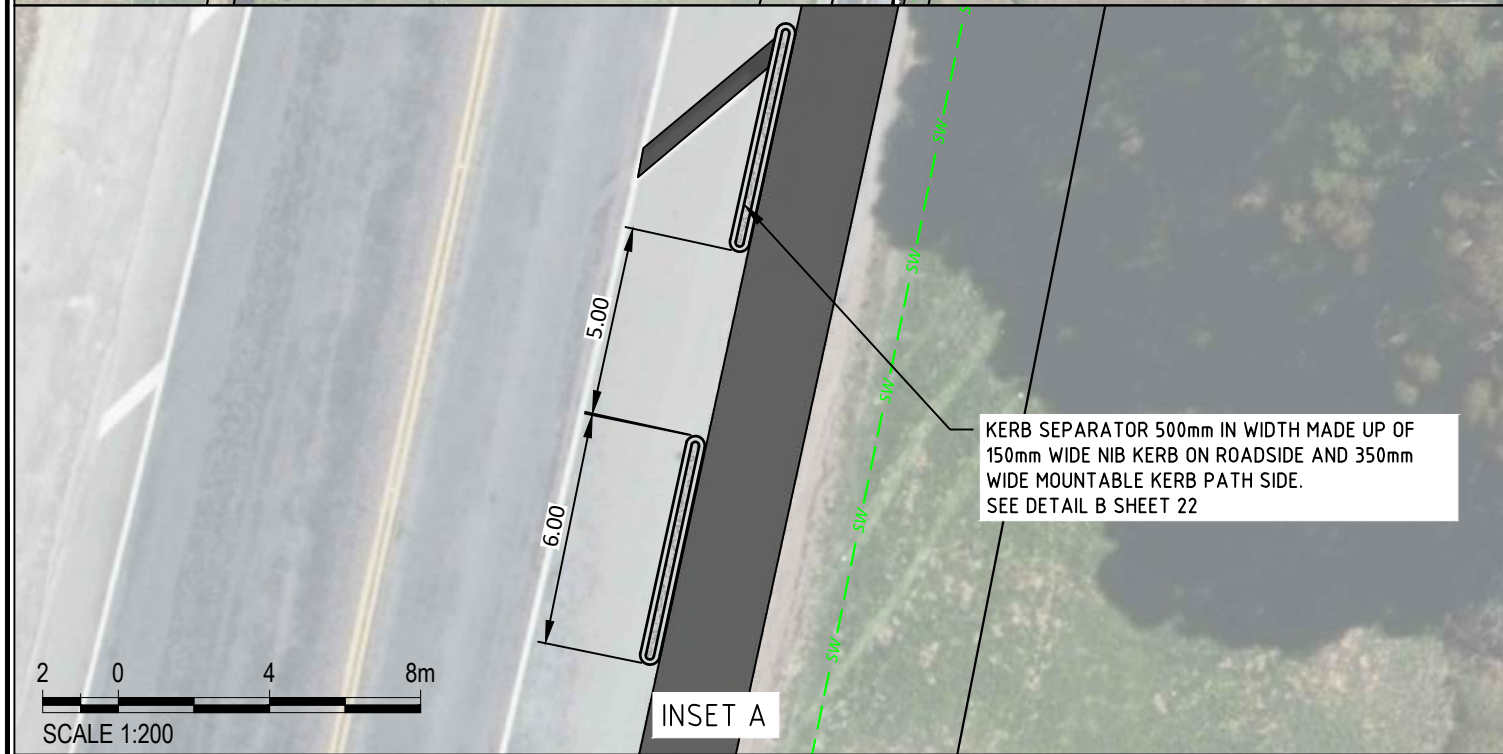
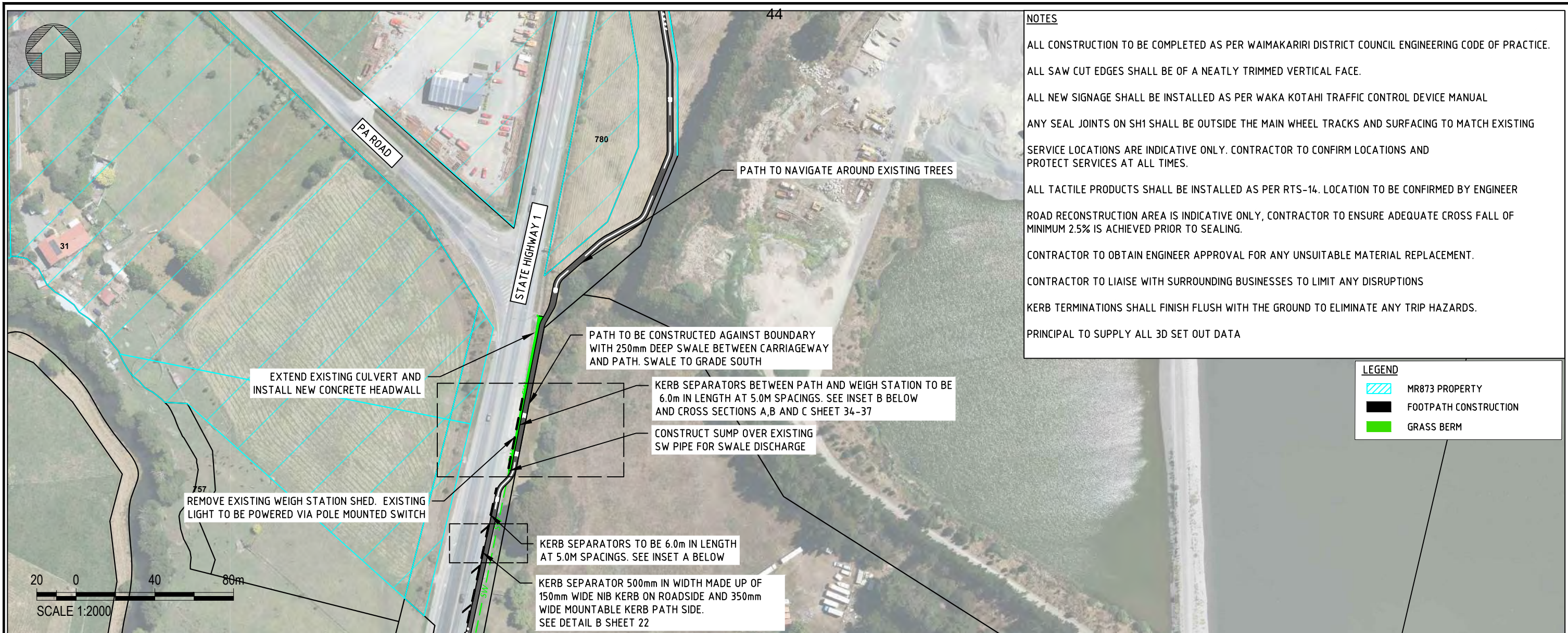
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DESIGNED	---	--/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/2023	VERTICAL	---



PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
OUTSIDE PINEACRES

PRELIMINARY NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
12	A



REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

SURVEYED	---	---	PROJECT No	PD001949
DRAWN	GK	26/01/2023	CON No	---
DRAWING CHKD	KS	--/2023	SCALE (A3)	1:1000
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DESIGNED CHKD	---	--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/2023	VERTICAL	---

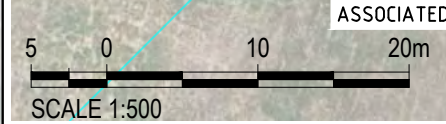
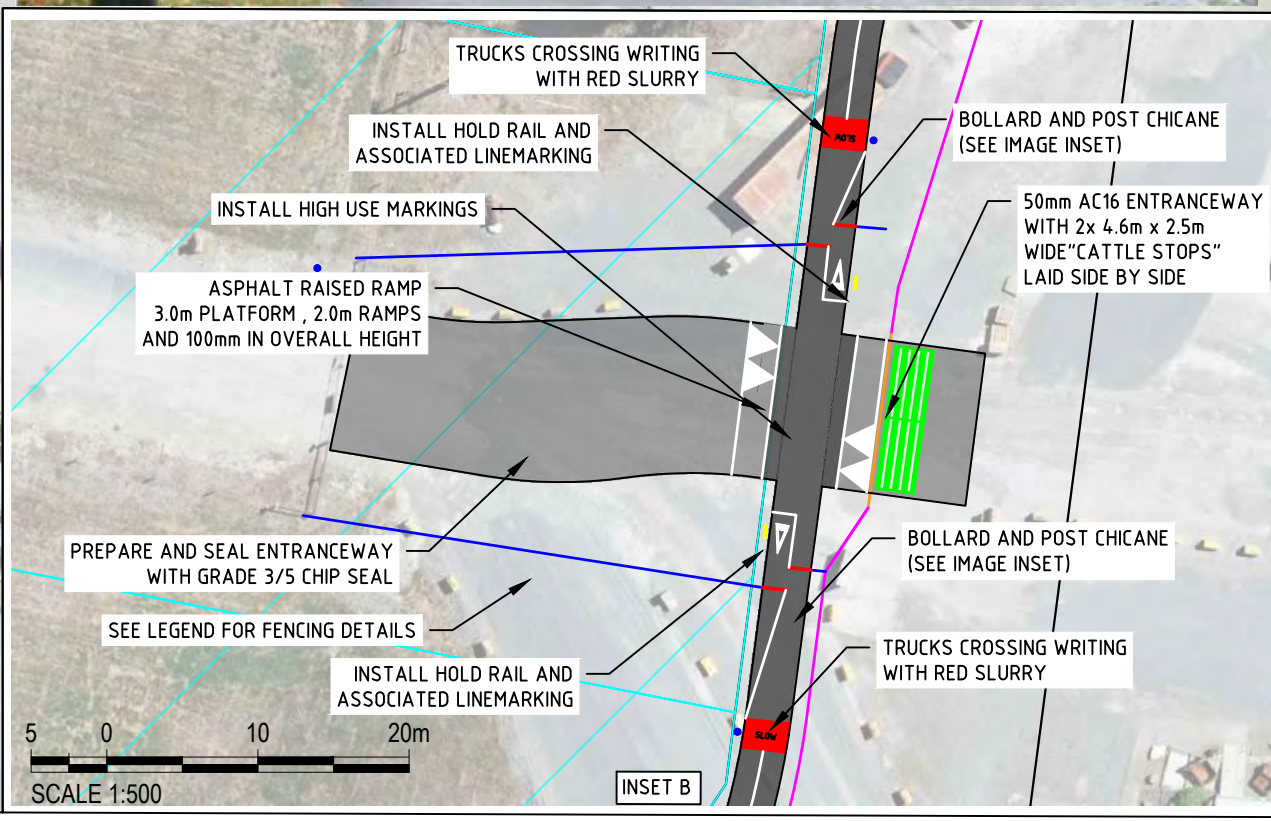
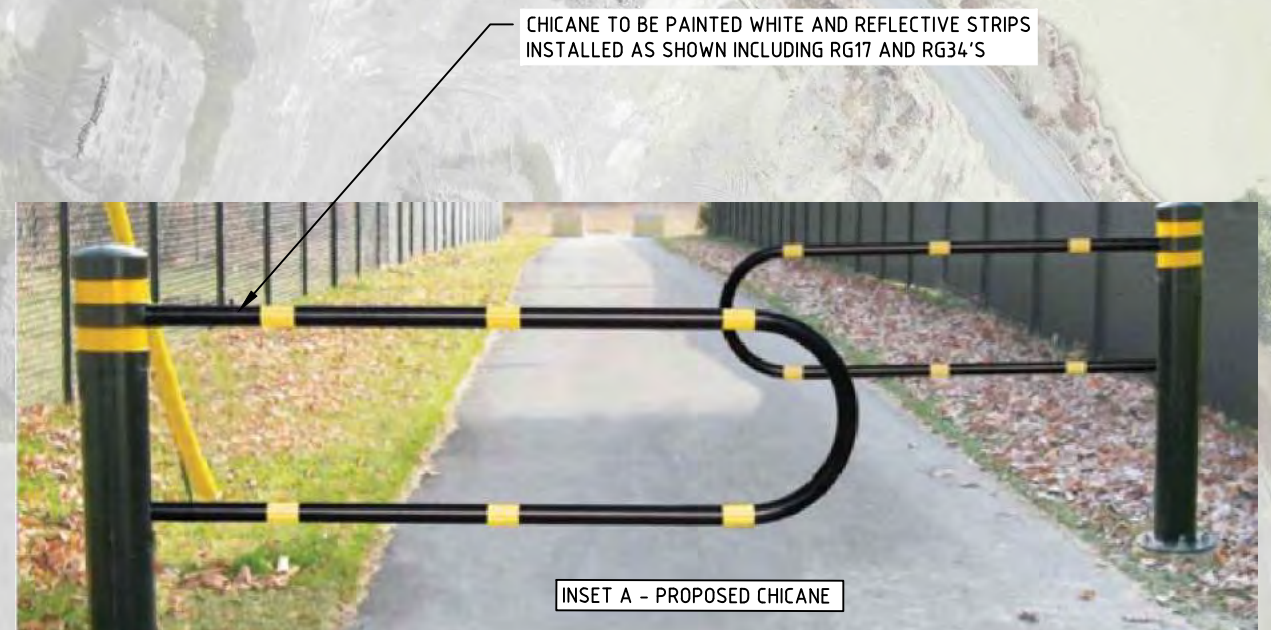
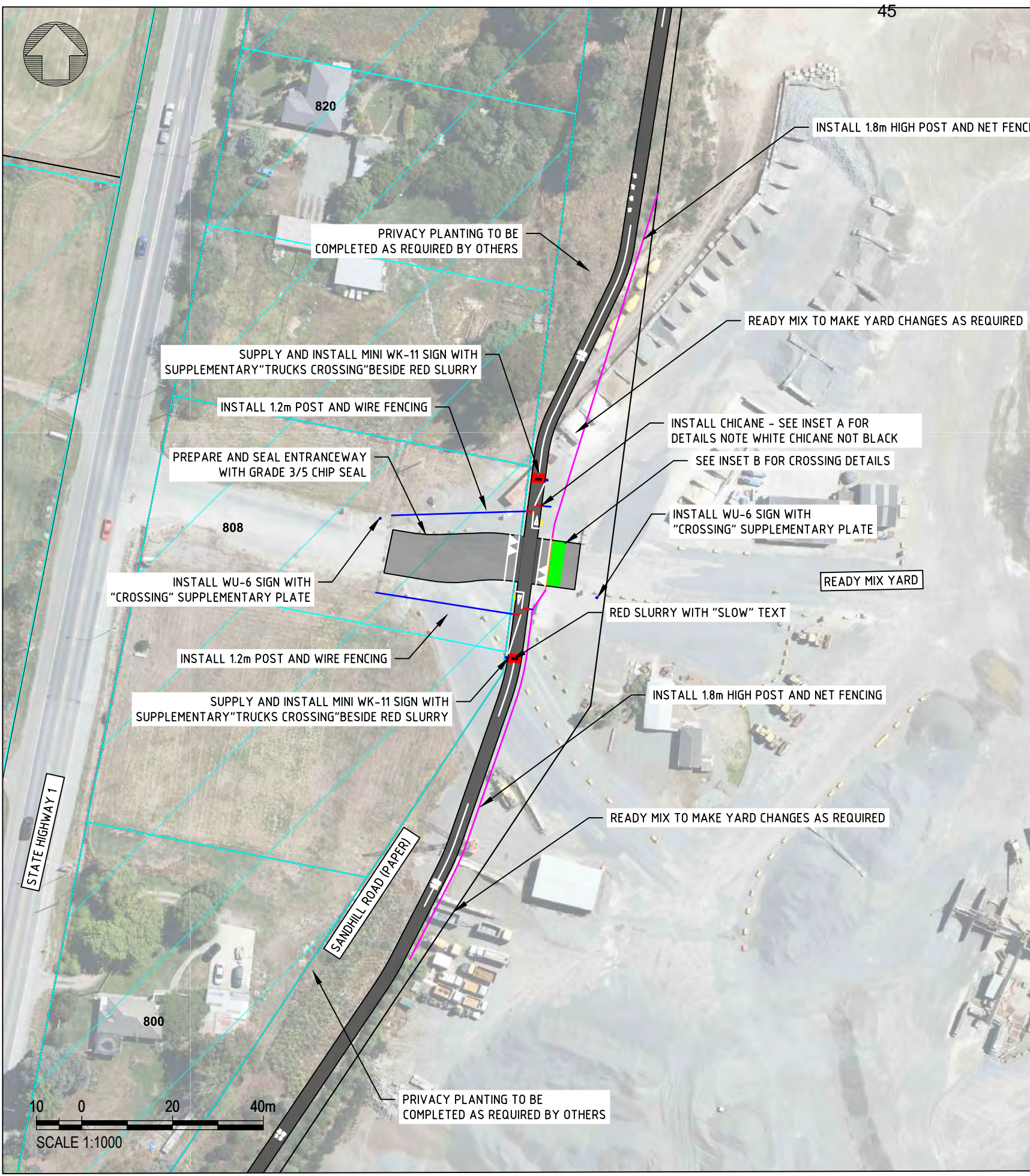


PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
STATE HIGHWAY 1 NEAR READYMIX

PRELIMINARY NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
13	A

LEGEND	
	MR873 PROPERTY
	FOOTPATH CONSTRUCTION
	4.6 x 2.5m "CATTLE STOPS"
	1.8m HIGH POST AND NET FENCE
	1.2m HIGH POST AND WIRE FENCE
	PROPOSED GATEWAY
	NEW SIGN



REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

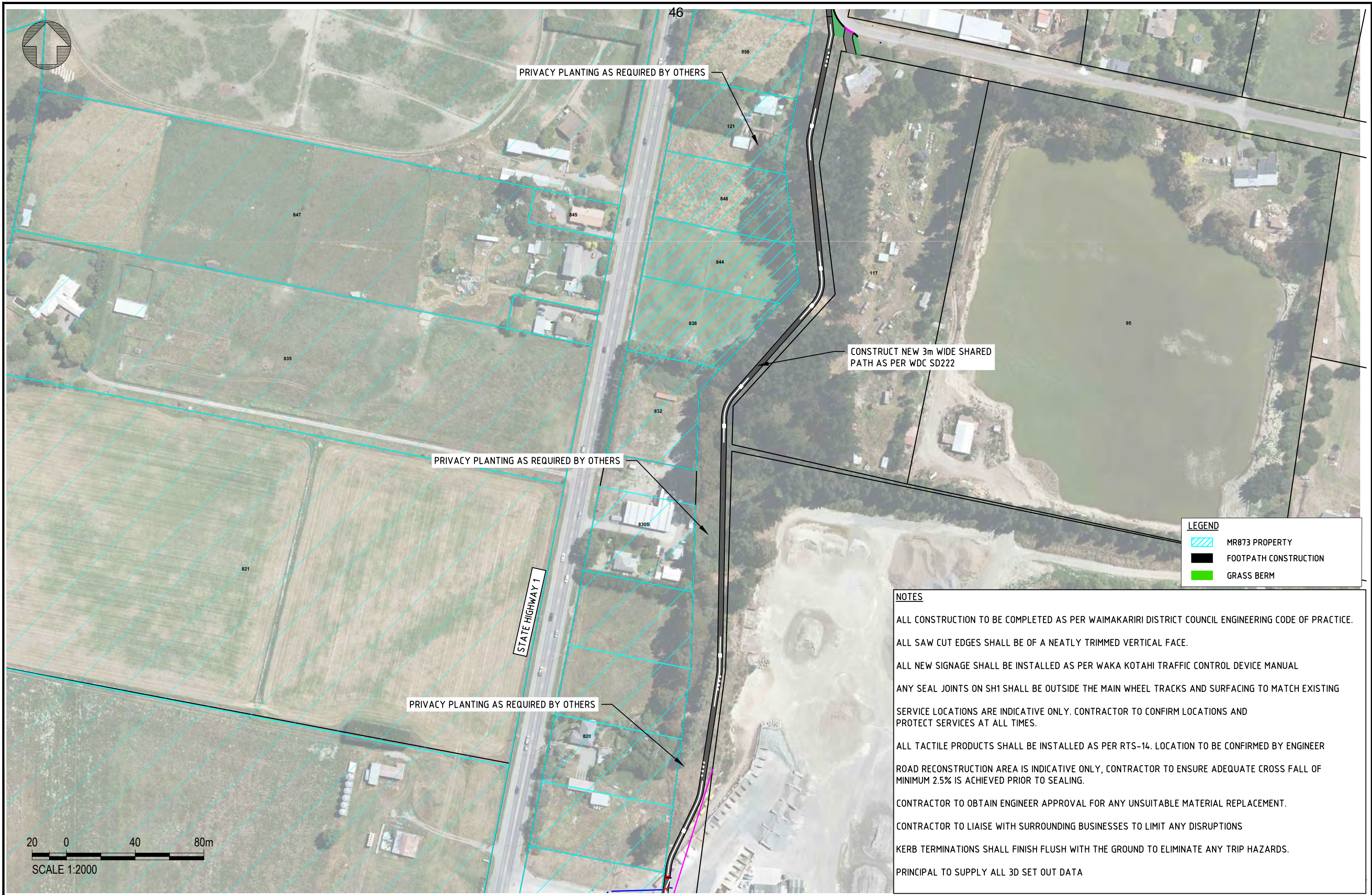
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DRAWN	GK	26/01/2023	CON No	---
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DESIGNED	---	--/--/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	--/--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/--/2023	VERTICAL	---



PROJECT	KAIAPOI TO WOODEND SHARED PATH
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SHEET TITLE	READY-MIX CONCRETE CROSSING
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PRELIMINARY NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
14	A



PRIVACY PLANTING AS REQUIRED BY OTHERS

CONSTRUCT NEW 3m WIDE SHARED PATH AS PER WDC SD222

PRIVACY PLANTING AS REQUIRED BY OTHERS

PRIVACY PLANTING AS REQUIRED BY OTHERS

LEGEND	
	MR873 PROPERTY
	FOOTPATH CONSTRUCTION
	GRASS BERM

NOTES

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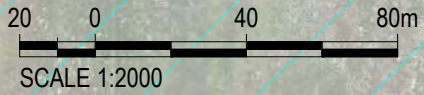
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REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

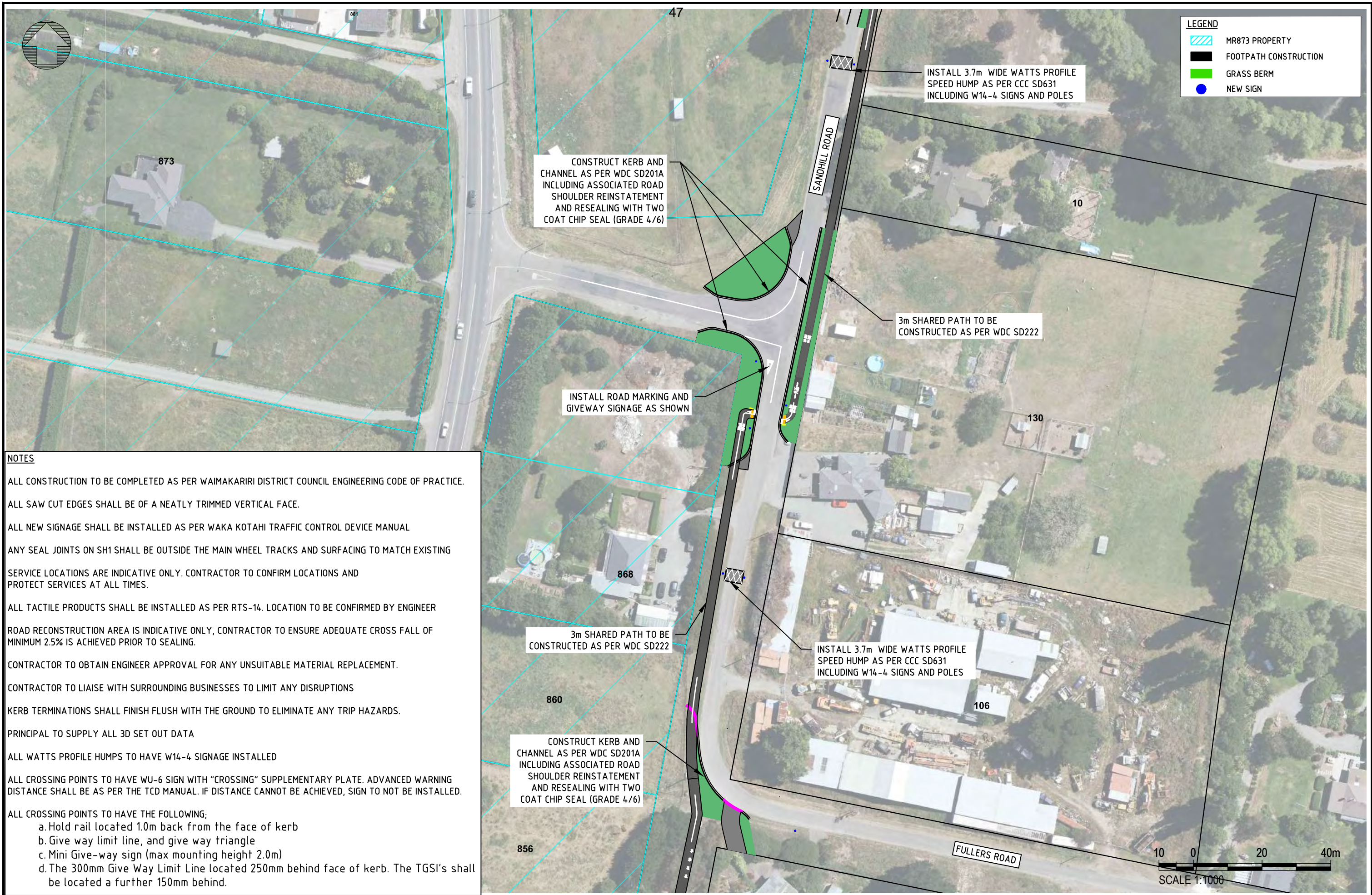
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DRAWN	GK	26/01/2023	CON No	---
DRAWING CHKD	KS	--/2023	SCALE (A3)	1:2000
DESIGNED	---	--/2023	DATUM ORIGIN	
DESIGNED CHKD	---	--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/2023	VERTICAL	



PROJECT	KAIAPOI TO WOODEND SHARED PATH
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SHEET TITLE	NORTH OF READY-MIX
-------------	--------------------

PRELIMINARY NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
15	A



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A	DETAILED DESIGN	GK	KS	JM	26/01/2023




SURVEYED	---	---	PROJECT No	PD001949
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DRAWING CHKD	KS	26/01/2023	SCALE (A3)	1:1000
DESIGNED	---	26/01/2023	DATUM ORIGIN	---
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APPROVED	---	26/01/2023	VERTICAL	---

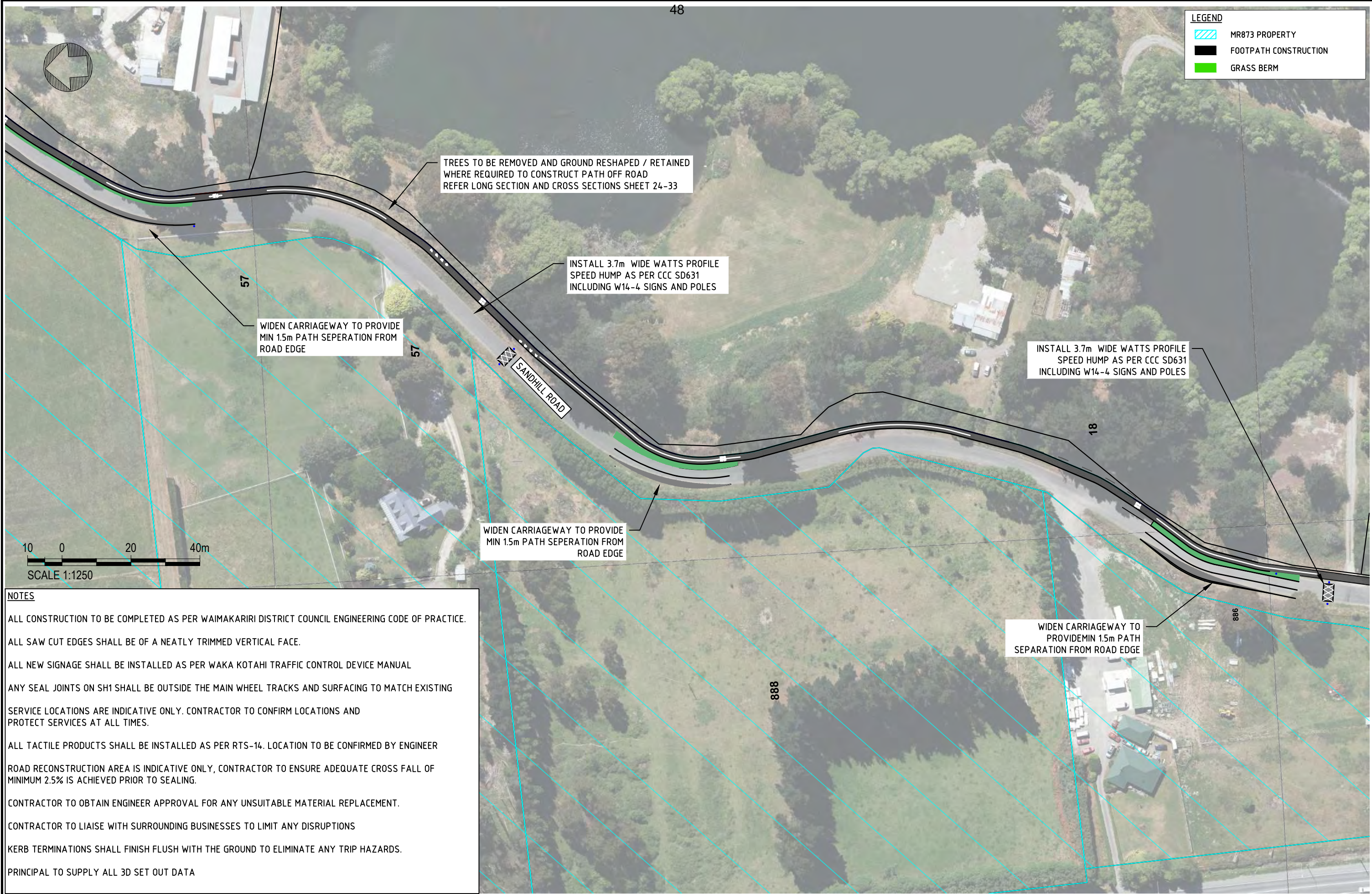


PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
STATE HIGHWAY 1 SANDHILL INTERSECTION

PRELIMINARY
 NOT FOR CONSTRUCTION
 DRAWING **4348**
 SHEET 16 REVISION A

LEGEND	
	MR873 PROPERTY
	FOOTPATH CONSTRUCTION
	GRASS BERM



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REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

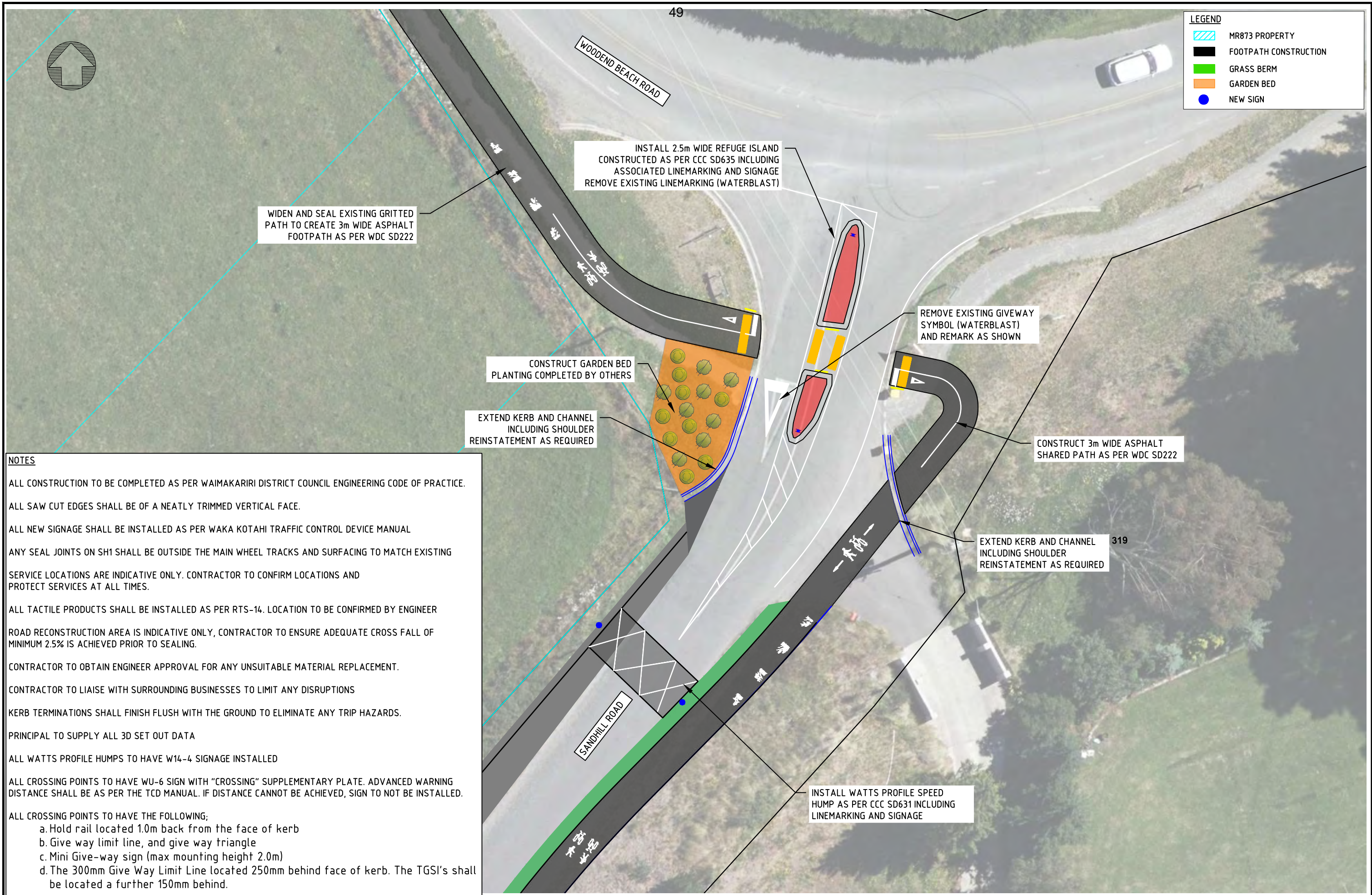
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DESIGNED CHKD	---	--/--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/--/2023	VERTICAL	---



PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
SANDHILL ROAD TO WOODEND BEACH ROAD

PRELIMINARY NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
17	A



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REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

SURVEYED	---	---	PROJECT No	PD001949
DRAWN	GK	26/01/2023	CON No	---
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DESIGNED	---	--/--/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	--/--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/--/2023	VERTICAL	---



PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
SANDHILL ROAD WOODEND BEACH ROAD

PRELIMINARY
 NOT FOR CONSTRUCTION
 DRAWING **4348**
 SHEET 18 REVISION A



NOTES

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LEGEND

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	FOOTPATH CONSTRUCTION
	GRASS BERM

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

SURVEYED	---	---	PROJECT No	PD001949
DRAWN	GK	26/01/2023	CON No	---
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APPROVED	---	--/--/2023	VERTICAL	---



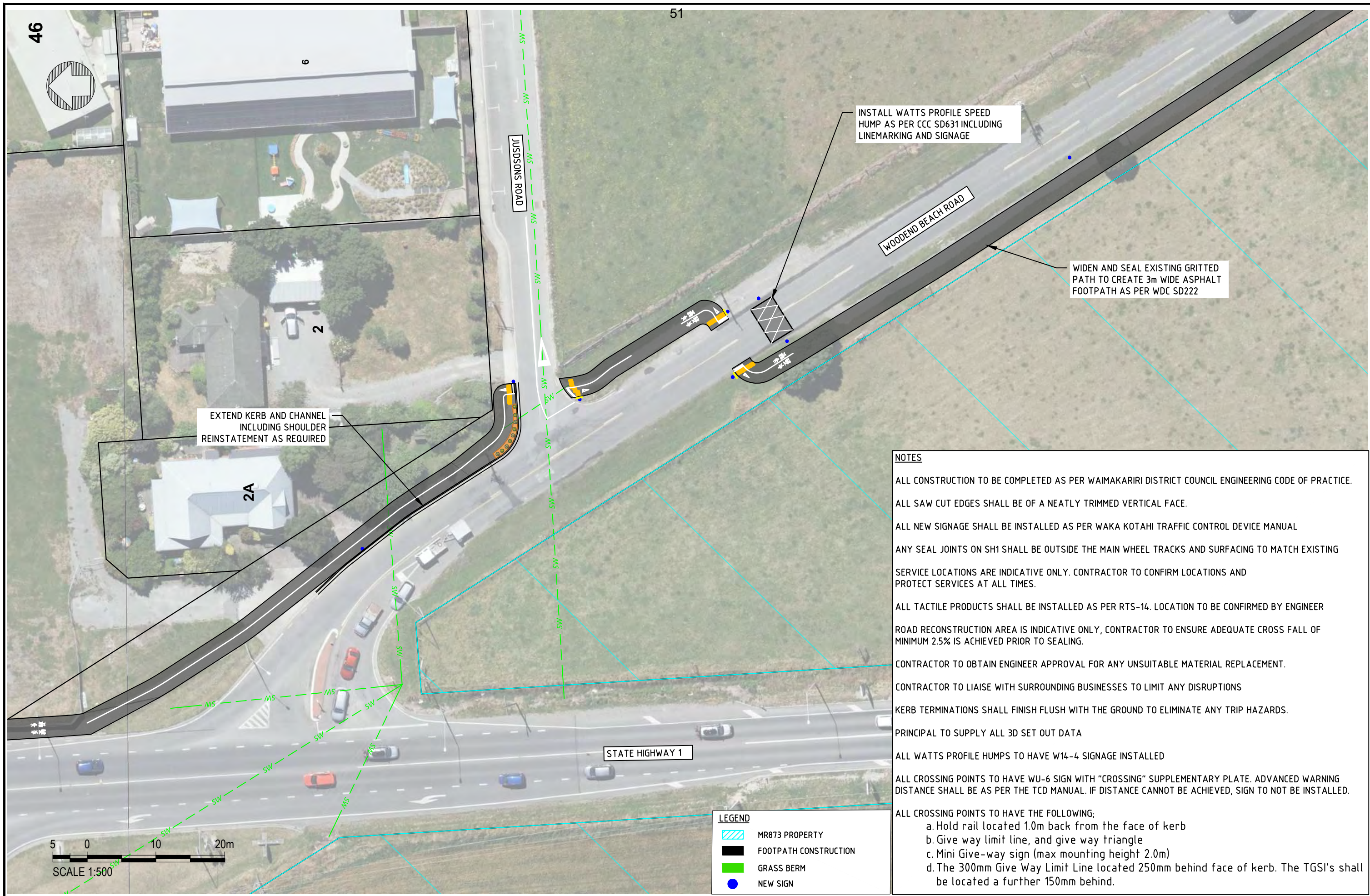
PROJECT

KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE

WOODEND BEACH ROAD

PRELIMINARY NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
19	A



46

51



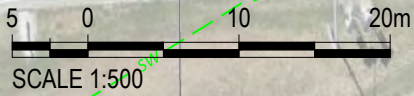
EXTEND KERB AND CHANNEL INCLUDING SHOULDER REINSTATEMENT AS REQUIRED

INSTALL WATTS PROFILE SPEED HUMP AS PER CCC SD631 INCLUDING LINEMARKING AND SIGNAGE

WIDEN AND SEAL EXISTING GRITTED PATH TO CREATE 3m WIDE ASPHALT FOOTPATH AS PER WDC SD222

NOTES

- ALL CONSTRUCTION TO BE COMPLETED AS PER WAIMAKARIRI DISTRICT COUNCIL ENGINEERING CODE OF PRACTICE.
- ALL SAW CUT EDGES SHALL BE OF A NEATLY TRIMMED VERTICAL FACE.
- ALL NEW SIGNAGE SHALL BE INSTALLED AS PER WAKA KOTAHĪ TRAFFIC CONTROL DEVICE MANUAL
- ANY SEAL JOINTS ON SH1 SHALL BE OUTSIDE THE MAIN WHEEL TRACKS AND SURFACING TO MATCH EXISTING
- SERVICE LOCATIONS ARE INDICATIVE ONLY. CONTRACTOR TO CONFIRM LOCATIONS AND PROTECT SERVICES AT ALL TIMES.
- ALL TACTILE PRODUCTS SHALL BE INSTALLED AS PER RTS-14. LOCATION TO BE CONFIRMED BY ENGINEER
- ROAD RECONSTRUCTION AREA IS INDICATIVE ONLY, CONTRACTOR TO ENSURE ADEQUATE CROSS FALL OF MINIMUM 2.5% IS ACHIEVED PRIOR TO SEALING.
- CONTRACTOR TO OBTAIN ENGINEER APPROVAL FOR ANY UNSUITABLE MATERIAL REPLACEMENT.
- CONTRACTOR TO LIAISE WITH SURROUNDING BUSINESSES TO LIMIT ANY DISRUPTIONS
- KERB TERMINATIONS SHALL FINISH FLUSH WITH THE GROUND TO ELIMINATE ANY TRIP HAZARDS.
- PRINCIPAL TO SUPPLY ALL 3D SET OUT DATA
- ALL WATTS PROFILE HUMPS TO HAVE W14-4 SIGNAGE INSTALLED
- ALL CROSSING POINTS TO HAVE WU-6 SIGN WITH "CROSSING" SUPPLEMENTARY PLATE. ADVANCED WARNING DISTANCE SHALL BE AS PER THE TCD MANUAL. IF DISTANCE CANNOT BE ACHIEVED, SIGN TO NOT BE INSTALLED.
- ALL CROSSING POINTS TO HAVE THE FOLLOWING;
 - a. Hold rail located 1.0m back from the face of kerb
 - b. Give way limit line, and give way triangle
 - c. Mini Give-way sign (max mounting height 2.0m)
 - d. The 300mm Give Way Limit Line located 250mm behind face of kerb. The TGSI's shall be located a further 150mm behind.



LEGEND

	MR873 PROPERTY
	FOOTPATH CONSTRUCTION
	GRASS BERM
	NEW SIGN

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

SURVEYED	---	---	PROJECT No	PD001949
DRAWN	GK	26/01/2023	CON No	---
DRAWING CHKD	KS	--/--/2023	SCALE (A3)	1:500
DESIGNED	---	--/--/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	--/--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/--/2023	VERTICAL	---



PROJECT	KAIAPOI TO WOODEND SHARED PATH
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SHEET TITLE	STATE HIGHWAY 1 WOODEND BEACH ROAD
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PRELIMINARY NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
20	A



LEGEND

	MR873 PROPERTY
	FOOTPATH CONSTRUCTION
	GRASS BERM
	NEW SIGN

NOTES

ALL CONSTRUCTION TO BE COMPLETED AS PER WAIMAKARIRI DISTRICT COUNCIL ENGINEERING CODE OF PRACTICE.

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SERVICE LOCATIONS ARE INDICATIVE ONLY. CONTRACTOR TO CONFIRM LOCATIONS AND PROTECT SERVICES AT ALL TIMES.

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ROAD RECONSTRUCTION AREA IS INDICATIVE ONLY, CONTRACTOR TO ENSURE ADEQUATE CROSS FALL OF MINIMUM 2.5% IS ACHIEVED PRIOR TO SEALING.

CONTRACTOR TO OBTAIN ENGINEER APPROVAL FOR ANY UNSUITABLE MATERIAL REPLACEMENT.

CONTRACTOR TO LIAISE WITH SURROUNDING BUSINESSES TO LIMIT ANY DISRUPTIONS

KERB TERMINATIONS SHALL FINISH FLUSH WITH THE GROUND TO ELIMINATE ANY TRIP HAZARDS.

PRINCIPAL TO SUPPLY ALL 3D SET OUT DATA

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

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DRAWN	GK	26/01/2023	CON No	--
DRAWING CHKD	KS	--/2023	SCALE (A3)	1:1000
DESIGNED	--	--/2023	DATUM ORIGIN	
DESIGNED CHKD	--	--/2023	HORIZONTAL	NZTM GD2000
APPROVED	--	--/2023	VERTICAL	



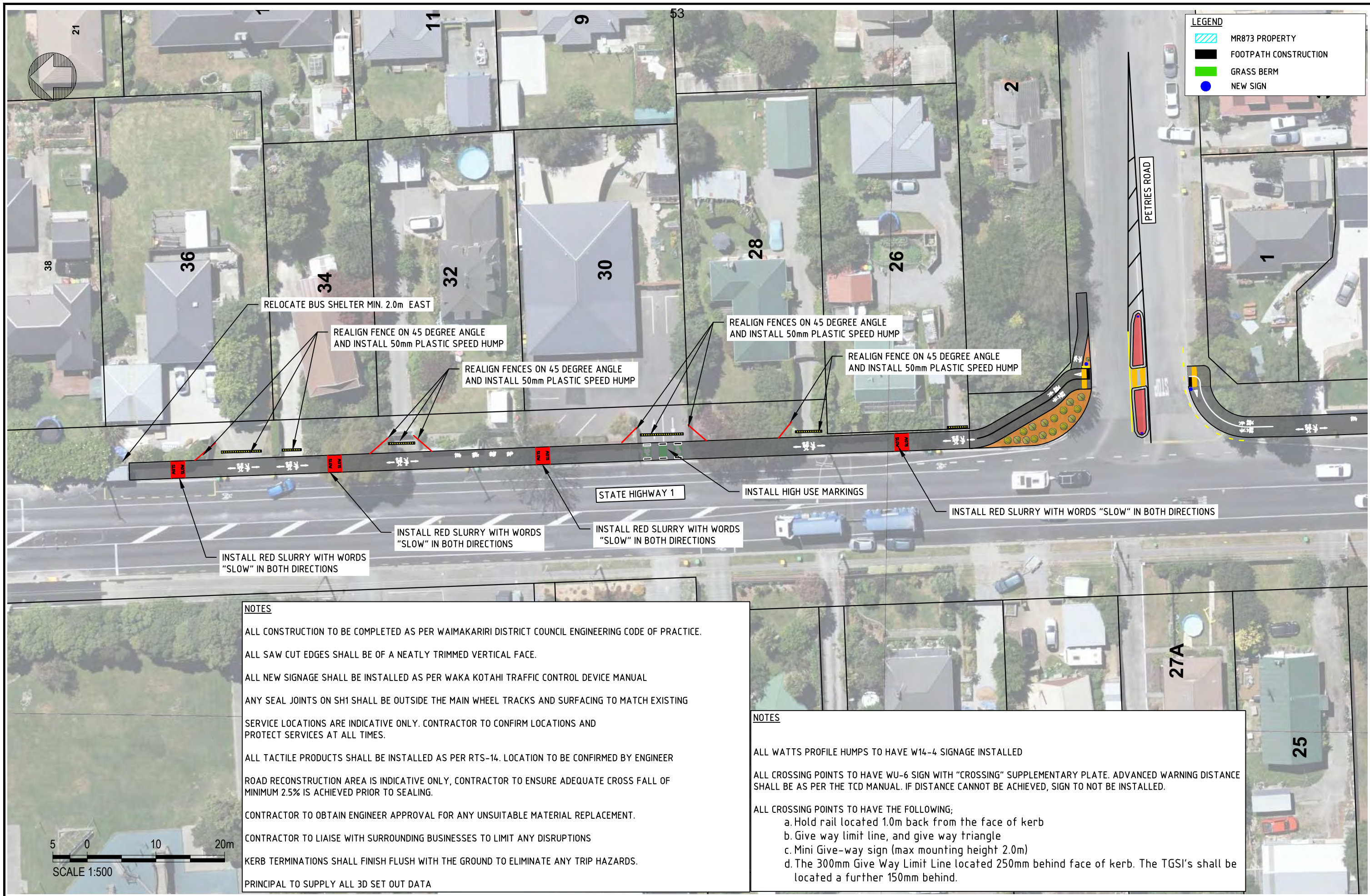
PROJECT

KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE

WOODEND BEACH ROAD TO PETRIES ROAD

PRELIMINARY	
NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
21	A



LEGEND

	MR873 PROPERTY
	FOOTPATH CONSTRUCTION
	GRASS BERM
	NEW SIGN

NOTES

ALL CONSTRUCTION TO BE COMPLETED AS PER WAIMAKARIRI DISTRICT COUNCIL ENGINEERING CODE OF PRACTICE.

ALL SAW CUT EDGES SHALL BE OF A NEATLY TRIMMED VERTICAL FACE.

ALL NEW SIGNAGE SHALL BE INSTALLED AS PER WAKA KOTAHI TRAFFIC CONTROL DEVICE MANUAL

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KERB TERMINATIONS SHALL FINISH FLUSH WITH THE GROUND TO ELIMINATE ANY TRIP HAZARDS.

PRINCIPAL TO SUPPLY ALL 3D SET OUT DATA

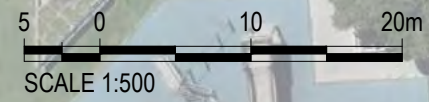
NOTES

ALL WATTS PROFILE HUMPS TO HAVE W14-4 SIGNAGE INSTALLED

ALL CROSSING POINTS TO HAVE WU-6 SIGN WITH "CROSSING" SUPPLEMENTARY PLATE. ADVANCED WARNING DISTANCE SHALL BE AS PER THE TCD MANUAL. IF DISTANCE CANNOT BE ACHIEVED, SIGN TO NOT BE INSTALLED.

ALL CROSSING POINTS TO HAVE THE FOLLOWING;

- Hold rail located 1.0m back from the face of kerb
- Give way limit line, and give way triangle
- Mini Give-way sign (max mounting height 2.0m)
- The 300mm Give Way Limit Line located 250mm behind face of kerb. The TGSI's shall be located a further 150mm behind.



REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

SURVEYED	---	---	PROJECT No	PD001949
DRAWN	GK	26/01/2023	CON No	---
DRAWING CHKD	KS	---/---/2023	SCALE (A3)	1:500
DESIGNED	---	---/---/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	---/---/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	---/---/2023	VERTICAL	---



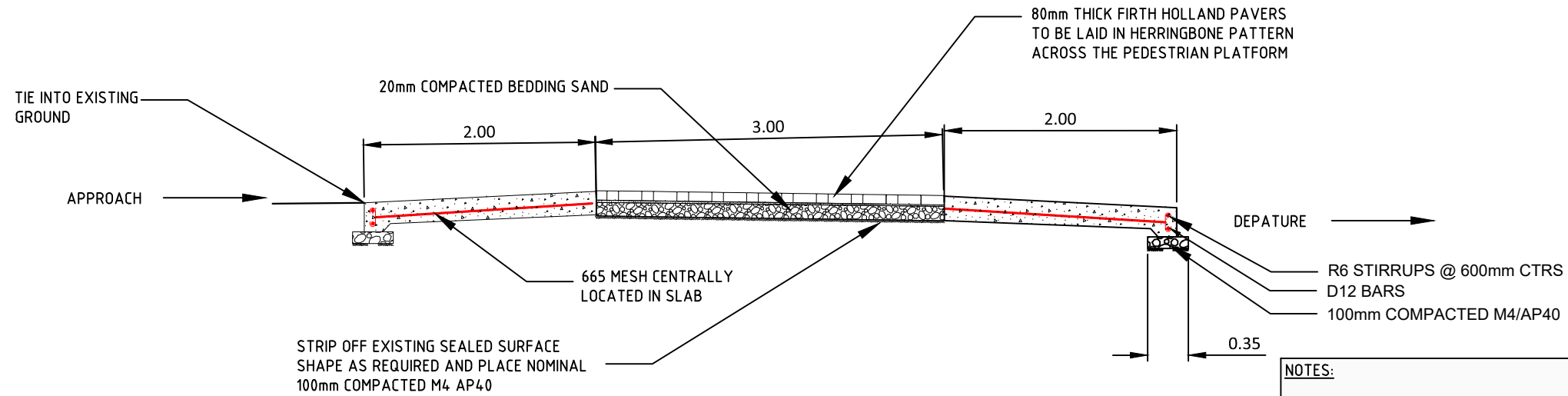
PROJECT

KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE

**STATE HIGHWAY 1
PETRIES ROAD TO SIGNALS**

PRELIMINARY NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
22	A



DETAIL A
RAISED PLATFORM TYPICAL SECTION
 SCALE 1:50

NOTES:

ALL PLATFORM RAMPS (BOTH ENTRANCE AND DEPARTURE) SHALL BE FINISHED WITH BROOMED CONCRETE

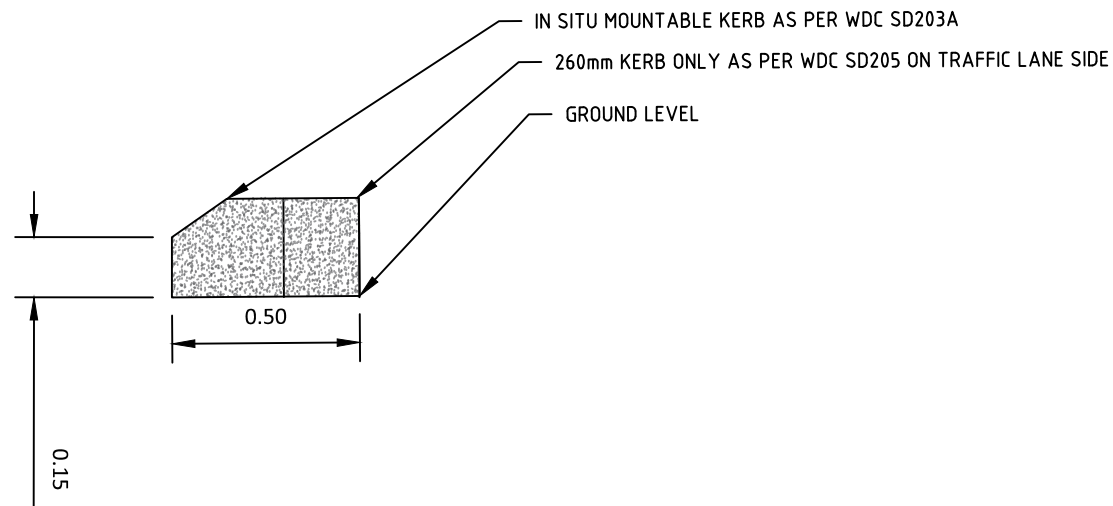
RAISED TABLE PLATFORM SHALL MEASURE 3.0M IN LENGTH AND SHALL BE SURFACED WITH 80MM THICK X 200MM FIRTH HOLLAND PAVERS LAID IN THE HERRINGBONE PATTERN. THE COLOUR SHALL BE "TERRACOTTA"

CONCRETE RAMPS SHALL REPRESENT THE FOLLOWING;

- APPROACH RAMP 1:20 GRADIENT (100mm OVER 2.0m)
- DEPARTURE RAMP 1:20 GRADIENT (100mm OVER 2.0m)

ALL CONCRETE SHALL HAVE MINIMUM 50MM COVER OVER REINFORCING

ALL CONCRETE SHALL COMPLY WITH NZS3107:1997 AND SHALL HAVE A COMPRESSIVE STRENGTH OF 25mpa AT 28 DAYS



DETAIL B
CYCLEWAY TREATMENT
KERB SEPERATOR
 SCALE 1:20

ALL CONCRETE SHALL COMPLY WITH NZS3107:1997 AND SHALL HAVE A COMPRESSIVE STRENGTH OF 25mpa AT 28 DAYS

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

SURVEYED	---	---	PROJECT No	PD001949
DRAWN	GK	26/01/2023	CON No	---
DRAWING CHKD	KS	--/2023	SCALE (A3)	1:500
DESIGNED	---	--/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/2023	VERTICAL	---



PROJECT	KAIAPOI TO WOODEND SHARED PATH
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SHEET TITLE	DETAILS
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PRELIMINARY NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
23	A



REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

SURVEYED	---	---	PROJECT No	PD001949
DRAWN	GK	26/01/2023	CON No	---
DRAWING CHKD	KS	--/2023	SCALE (A3)	1:1250
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DESIGNED CHKD	---	--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/2023	VERTICAL	---

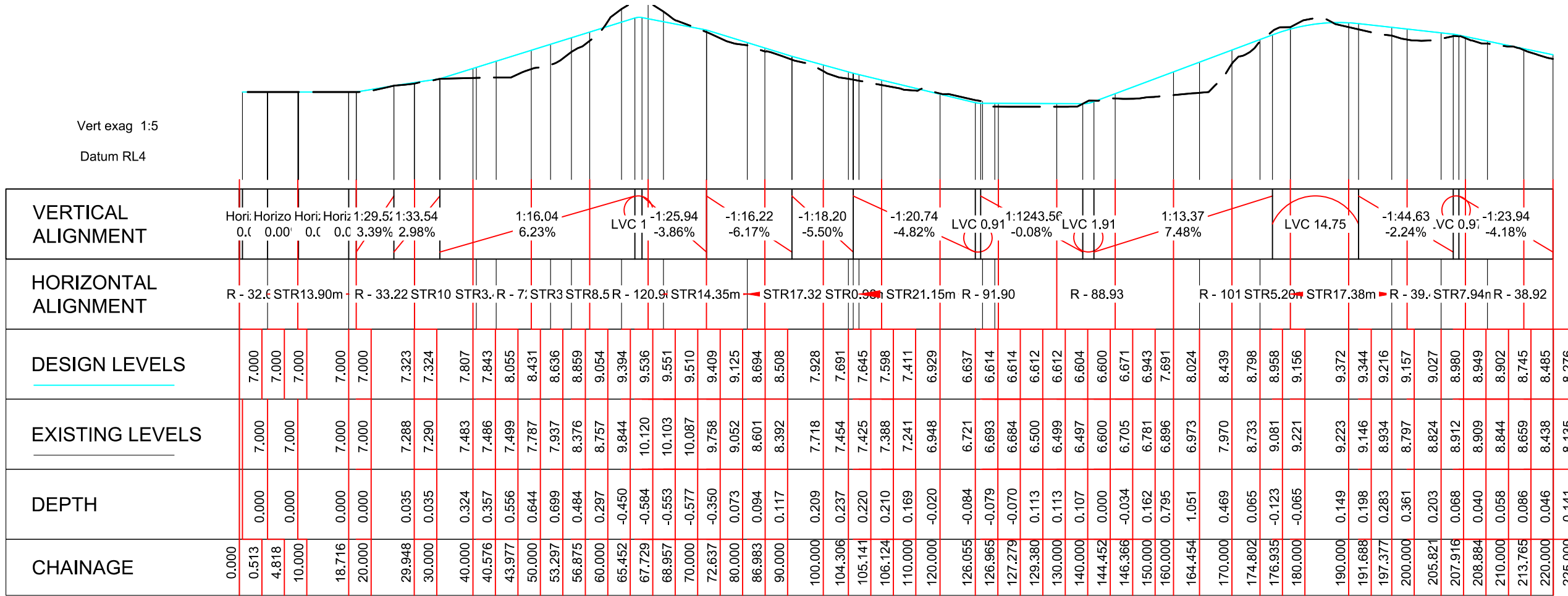


PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
SANDHILL ROAD CROSS SECTION OVERVIEW

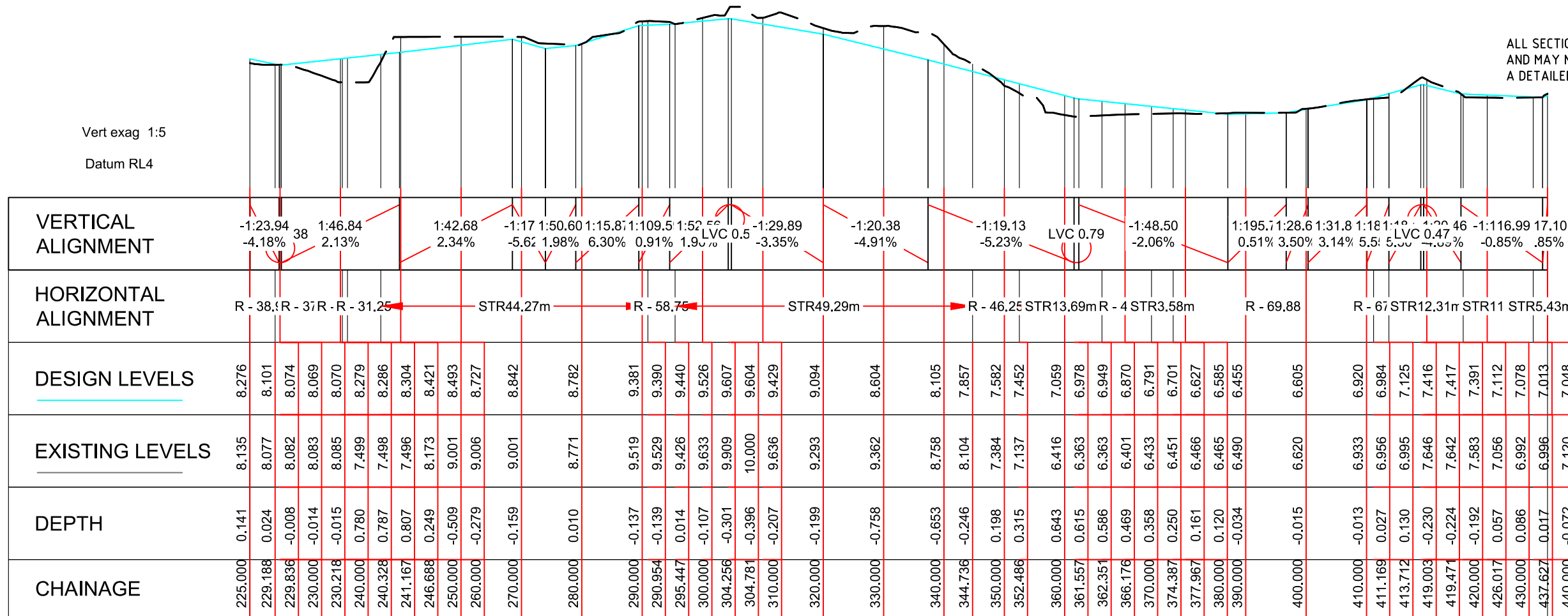
PRELIMINARY
 NOT FOR CONSTRUCTION
 DRAWING **4348**
 SHEET 24 REVISION A

Vert exag 1:5
Datum RL4



ALL SECTIONS CREATED USING CONTOUR DATA AND MAY NOT BE 100% ACCURATE BUT STILL DEPICT A DETAILED PICTURE OF EXTENT OF WORKS

Vert exag 1:5
Datum RL4



REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

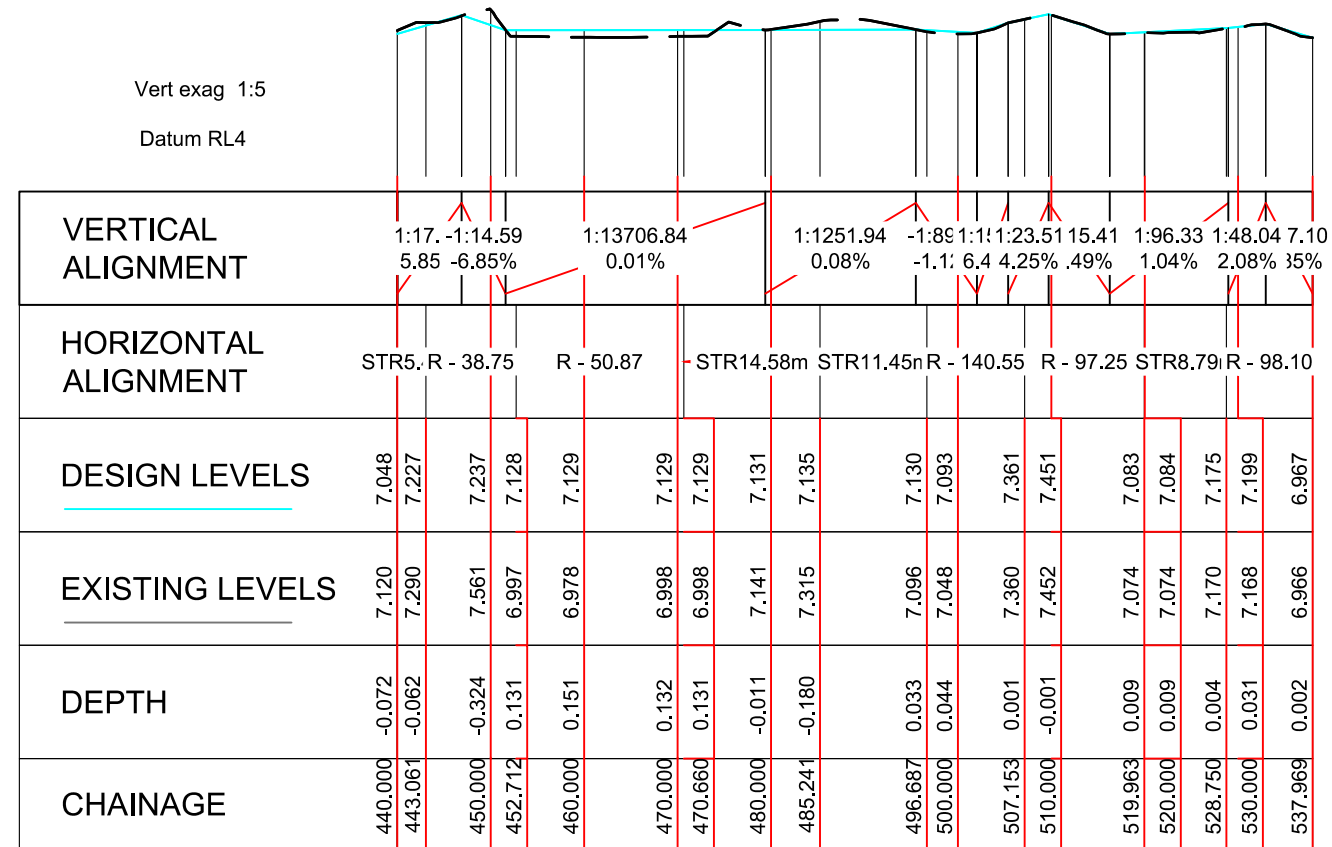
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DRAWN	GK	26/01/2023	CON No	---
DRAWING CHKD	KS	--/2023	SCALE (A3)	NTS
DESIGNED	---	--/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	--/2023	HORIZONTAL NZTM GD2000	---
APPROVED	---	--/2023	VERTICAL	---



PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
SANDHILL ROAD LONG SECTIONS

FOR INFORMATION	
NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
25	A



ALL SECTIONS CREATED USING CONTOUR DATA AND MAY NOT BE 100% ACCURATE BUT STILL DEPICT A DETAILED PICTURE OF EXTENT OF WORKS

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

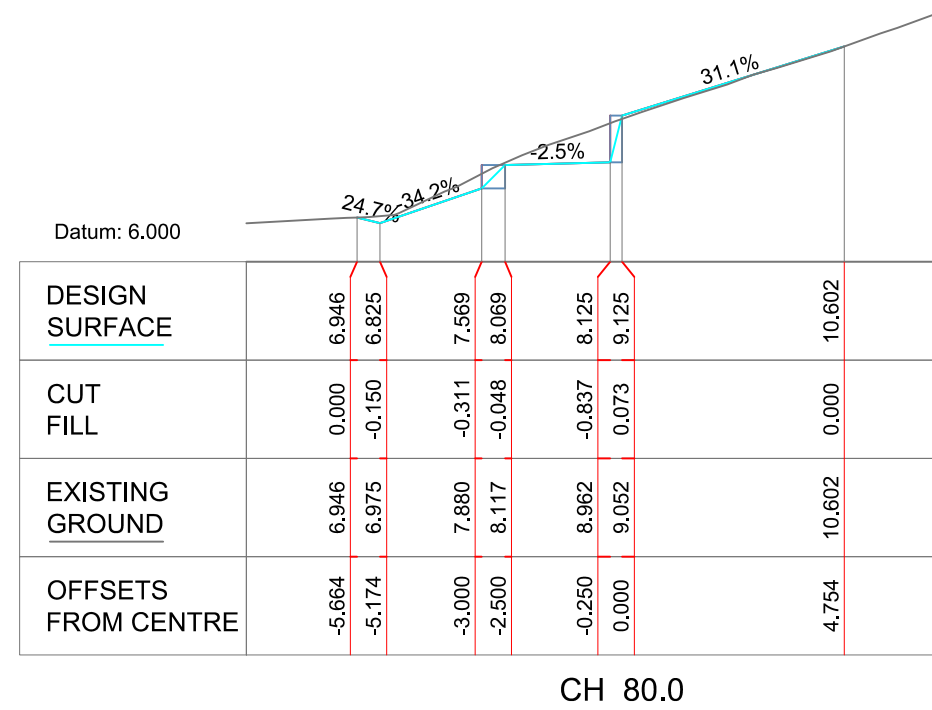
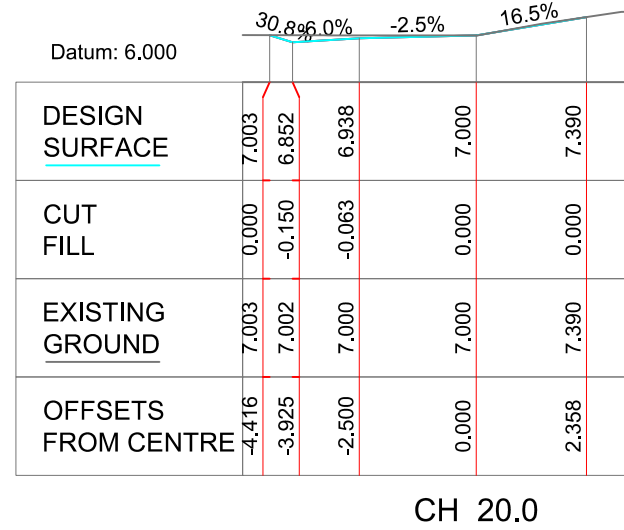
SURVEYED	---	---	PROJECT No	PD001949
DRAWN	GK	26/01/2023	CON No	---
DRAWING CHKD	KS	--/--/2023	SCALE (A3)	NTS
DESIGNED	---	--/--/2023	DATUM ORIGIN	
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APPROVED	---	--/--/2023	VERTICAL	



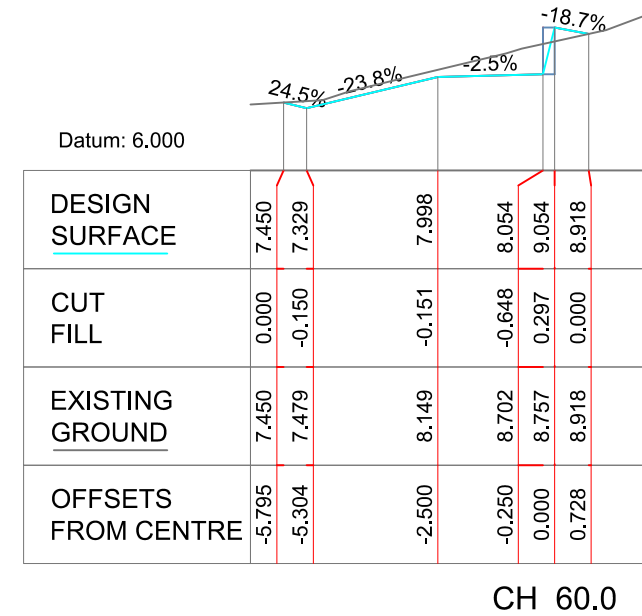
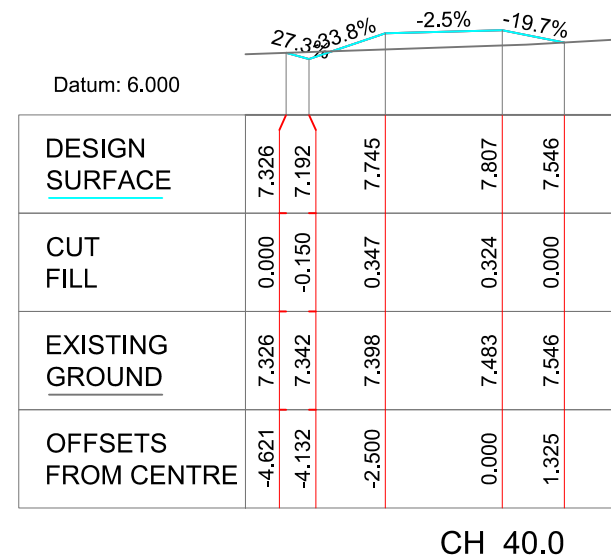
PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
SANDHILL ROAD LONG SECTIONS

FOR INFORMATION	
NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
26	A



ALL SECTIONS CREATED USING CONTOUR DATA AND MAY NOT BE 100% ACCURATE BUT STILL DEPICT A DETAILED PICTURE OF EXTENT OF WORKS



REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

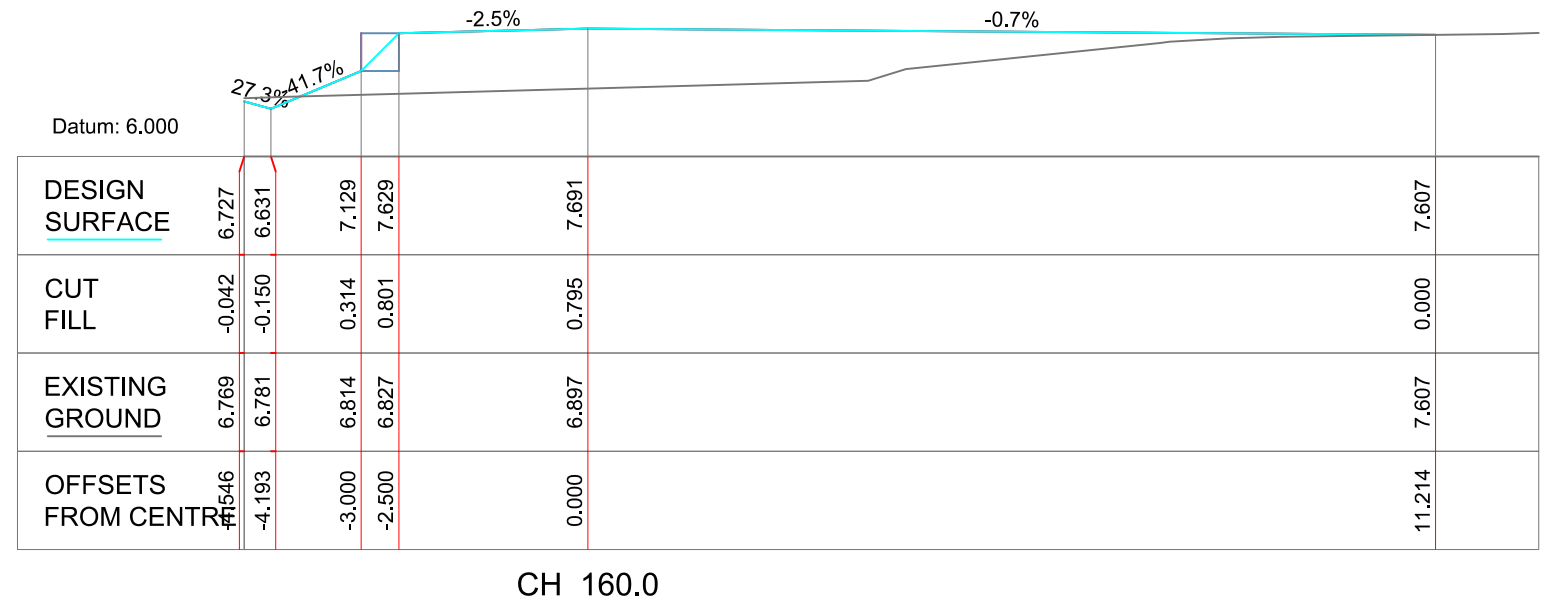
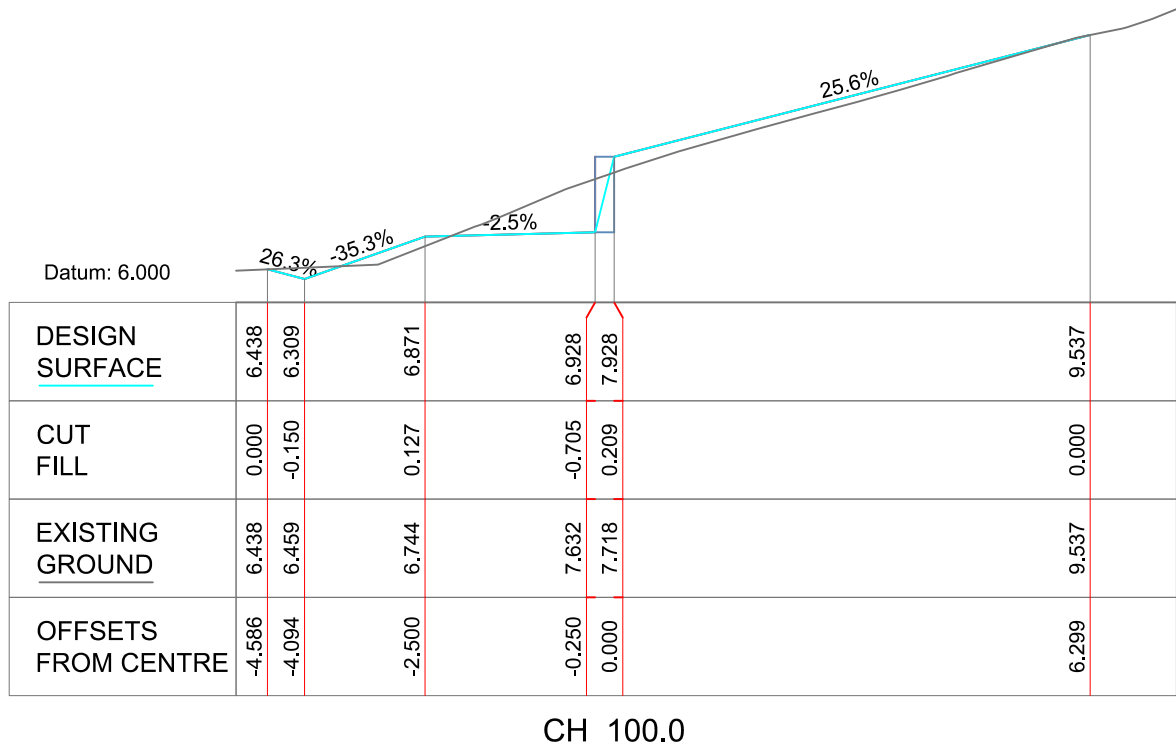
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DRAWING CHKD	KS	--/2023	SCALE (A3)	1:100
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APPROVED	--	--/2023	VERTICAL	



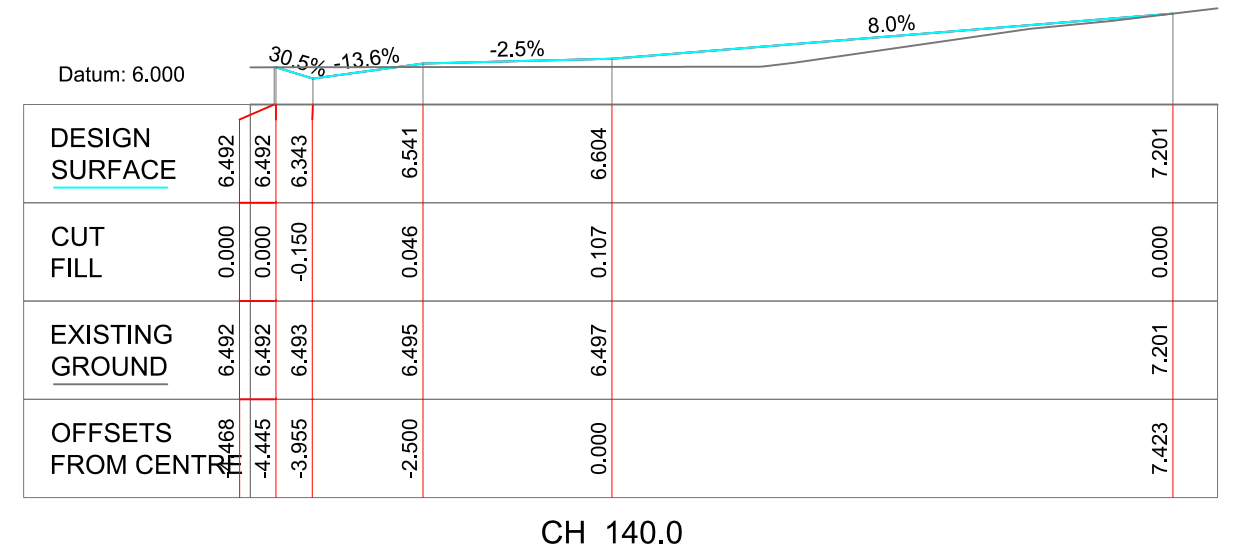
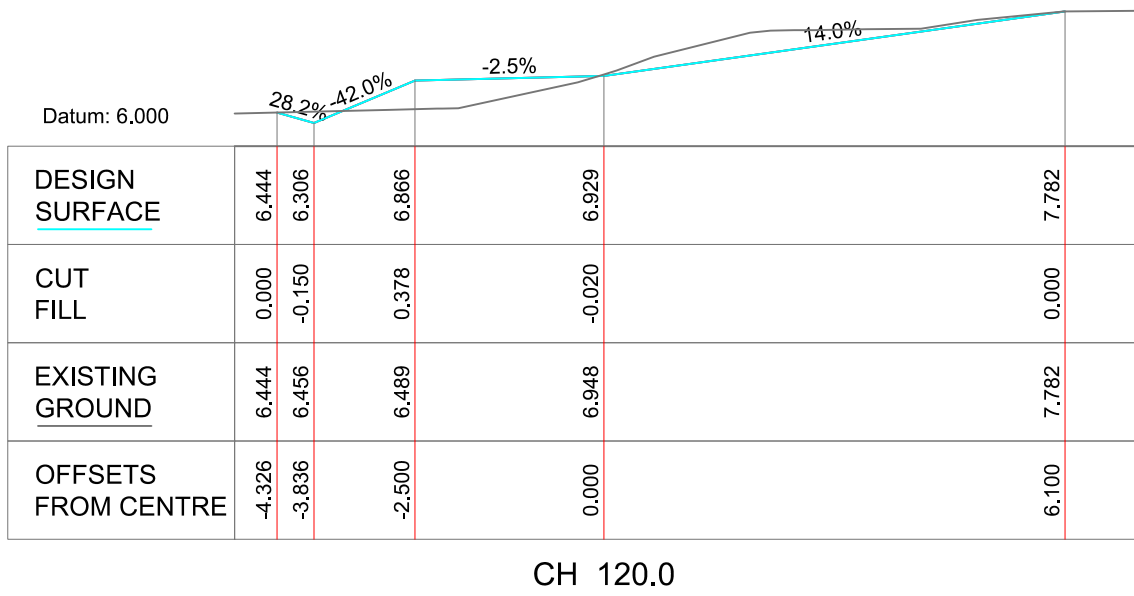
PROJECT	KAIAPOI TO WOODEND SHARED PATH
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SHEET TITLE	SANDHILL ROAD CROSS SECTIONS 0-80
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FOR INFORMATION	
NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	27
REVISION	A



ALL SECTIONS CREATED USING CONTOUR DATA AND MAY NOT BE 100% ACCURATE BUT STILL DEPICT A DETAILED PICTURE OF EXTENT OF WORKS



REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

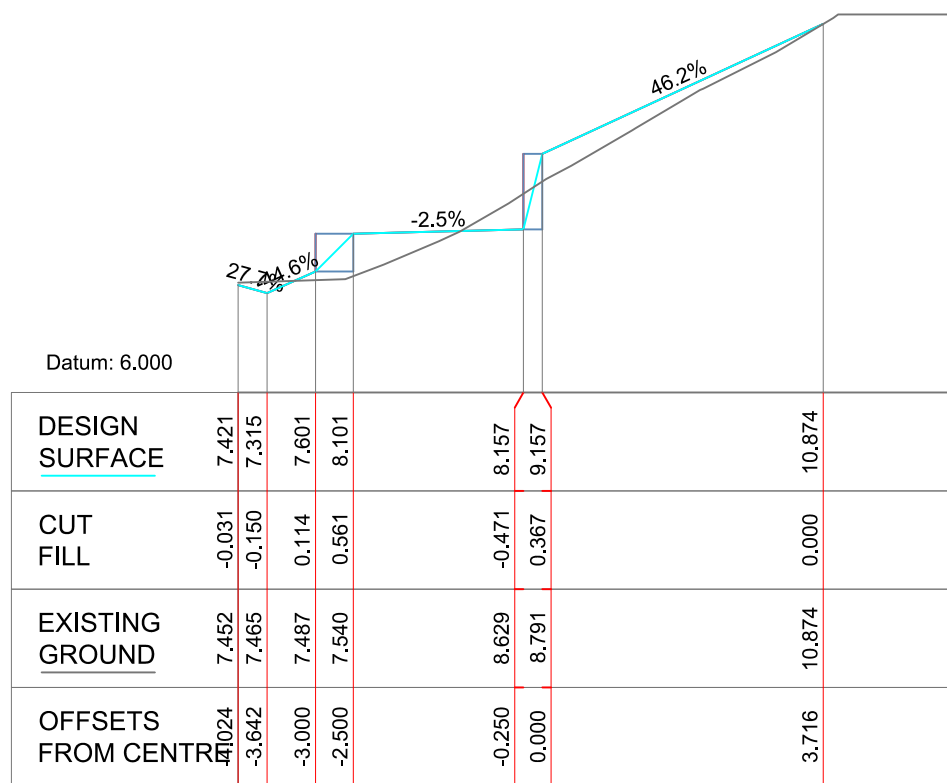
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DRAWN	GK	26/01/2023	CON No	---
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DESIGNED CHKD	---	--/2023	HORIZONTAL NZTM GD2000	---
APPROVED	---	--/2023	VERTICAL	---



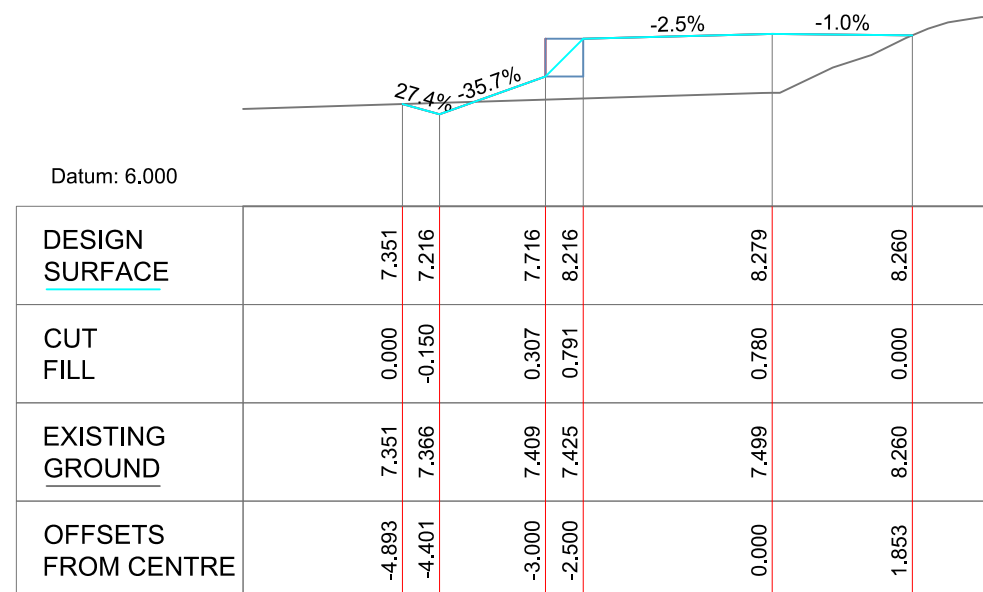
PROJECT
KAIAPOI TO WOODEND SHARED PATH

SHEET TITLE
SANDHILL ROAD CROSS SECTIONS 100-160

FOR INFORMATION	
NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
28	A

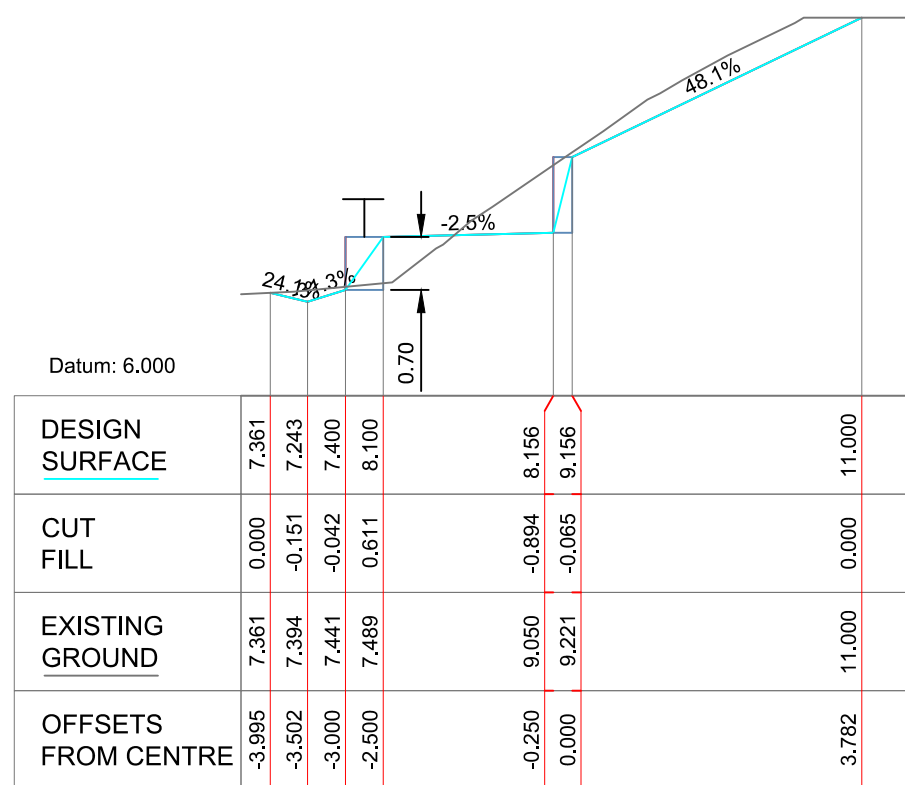


CH 200.0

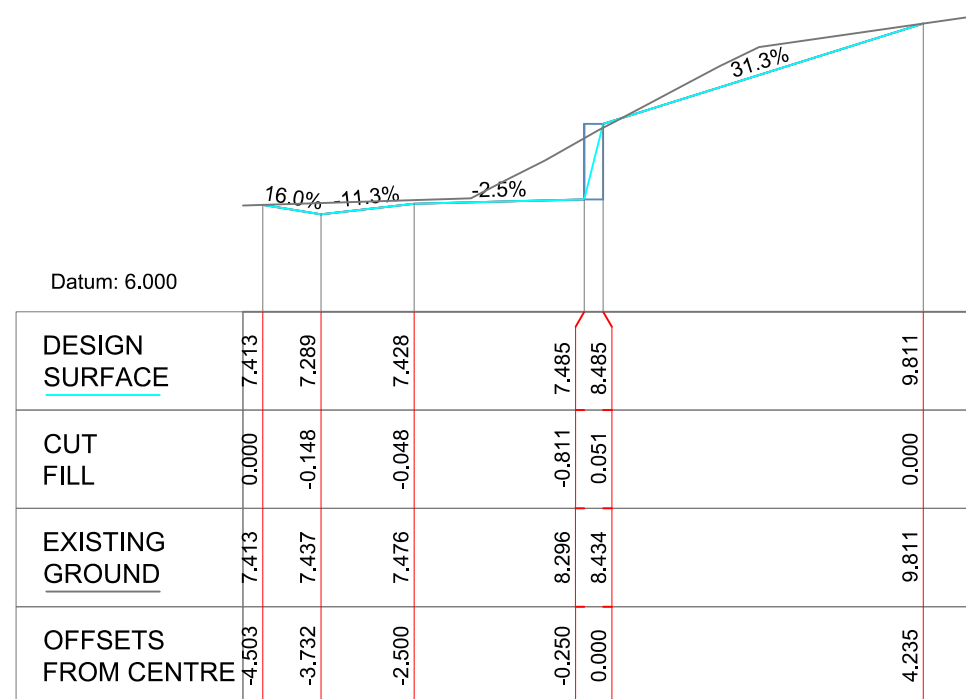


CH 240.0

ALL SECTIONS CREATED USING CONTOUR DATA AND MAY NOT BE 100% ACCURATE BUT STILL DEPICT A DETAILED PICTURE OF EXTENT OF WORKS



CH 180.0



CH 220.0

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

SURVEYED	--	--	PROJECT No	PD001949
DRAWN	GK	26/01/2023	CON No	--
DRAWING CHKD	KS	--/--/2023	SCALE (A3)	1:100
DESIGNED	--	--/--/2023	DATUM ORIGIN	
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APPROVED	--	--/--/2023	VERTICAL	

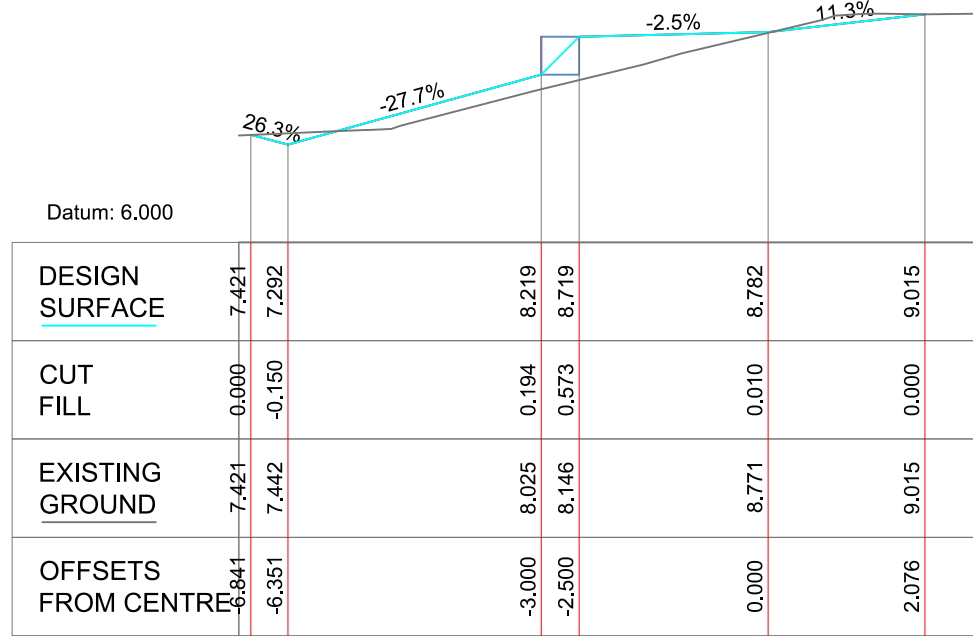


PROJECT
KAIAPOI TO WOODEND SHARED PATH

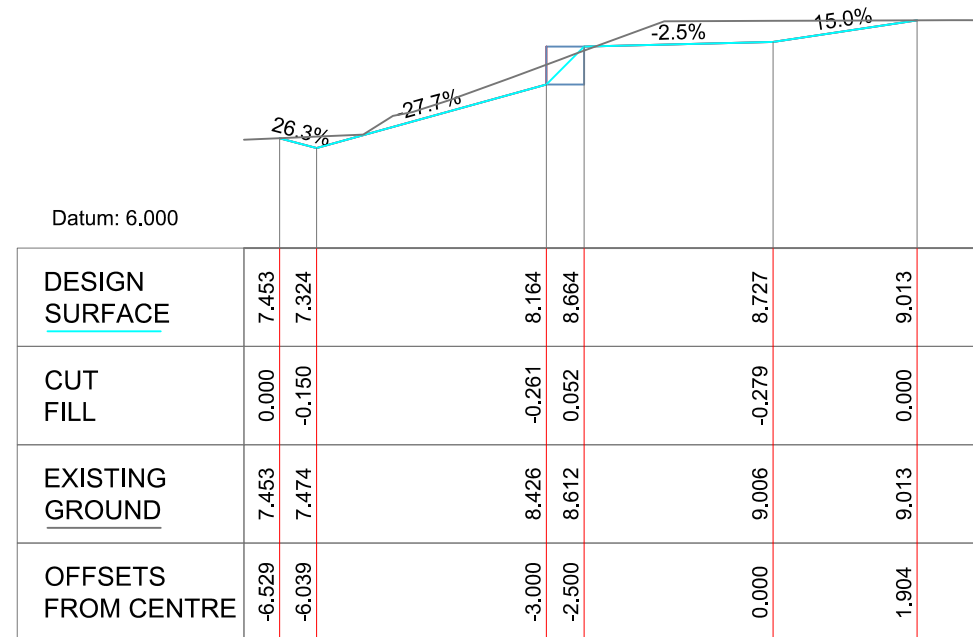
SHEET TITLE
SANDHILL ROAD CROSS SECTIONS 180-240

FOR INFORMATION	
NOT FOR CONSTRUCTION	
DRAWING 4348	
SHEET 29	REVISION A

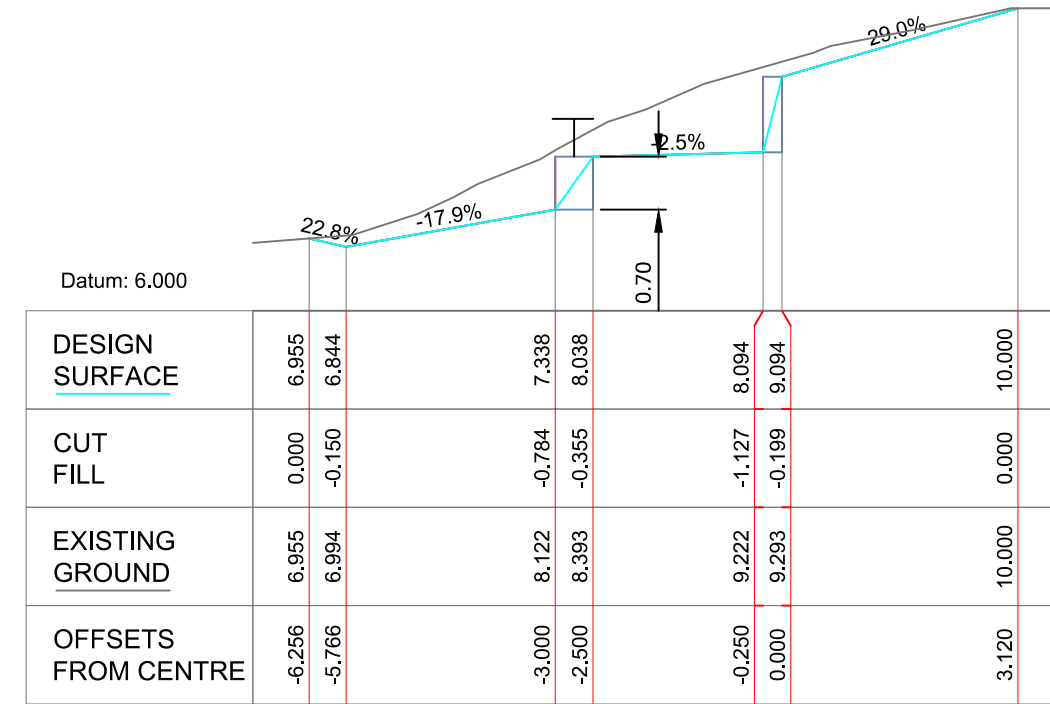
ALL SECTIONS CREATED USING CONTOUR DATA
AND MAY NOT BE 100% ACCURATE BUT STILL DEPICT
A DETAILED PICTURE OF EXTENT OF WORKS



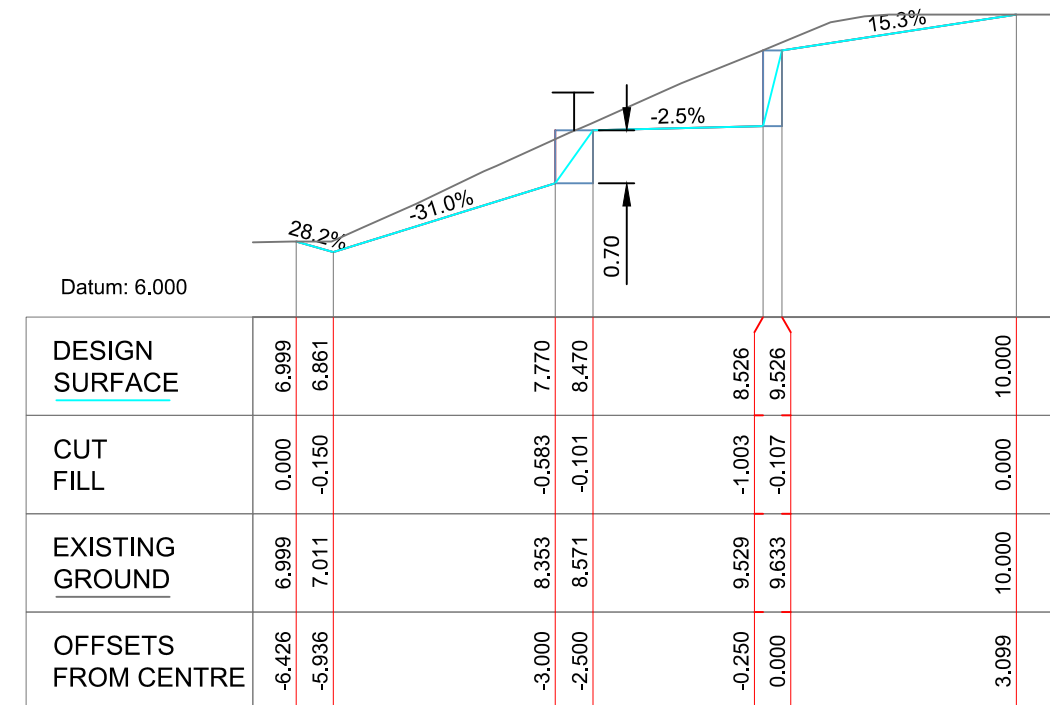
CH 280.0



CH 260.0



CH 320.0



CH 300.0

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

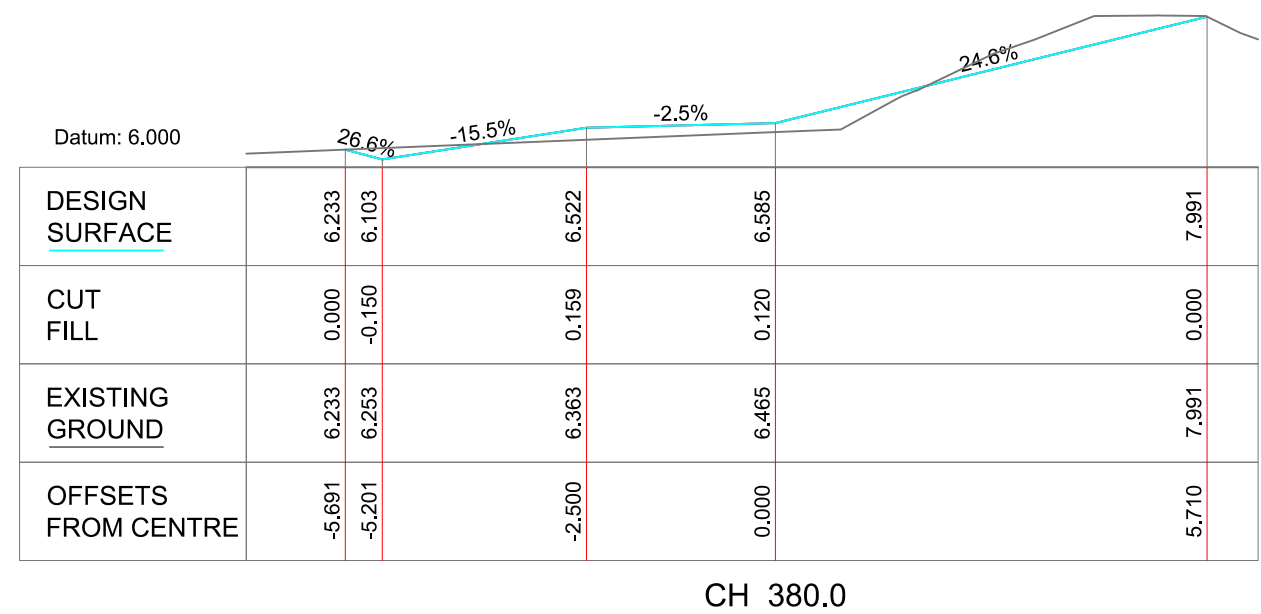
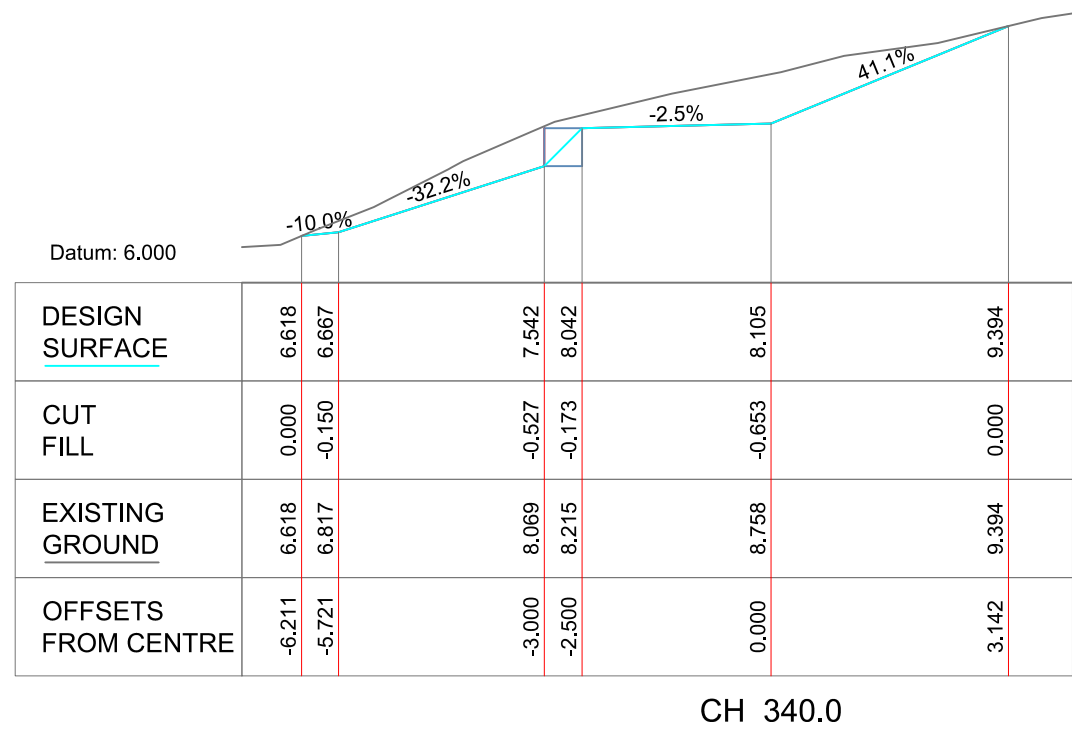
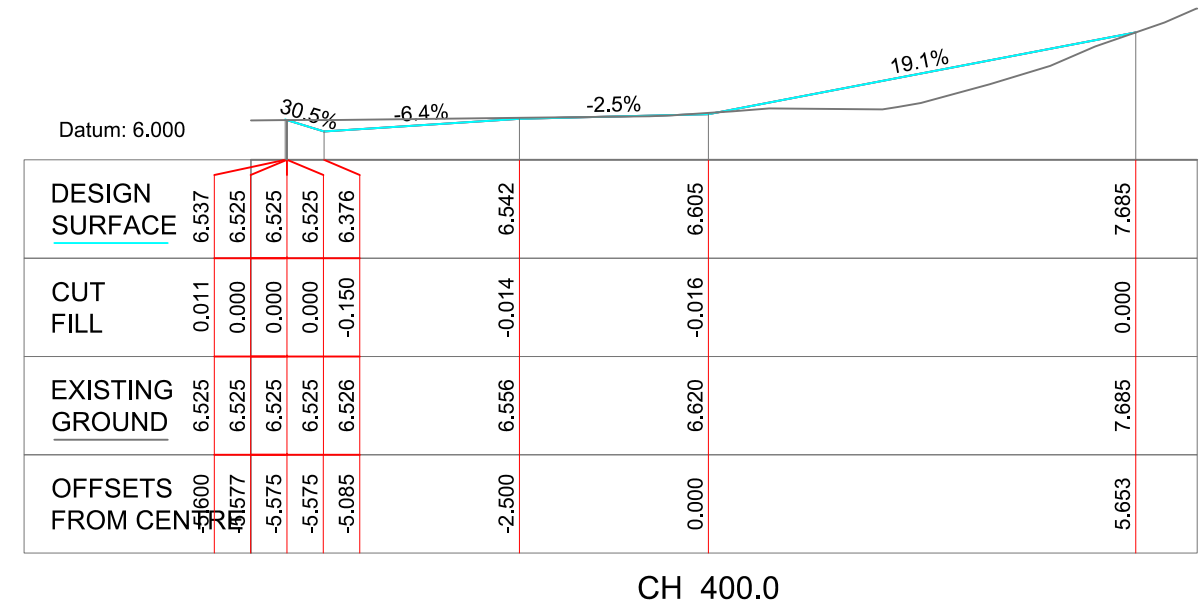
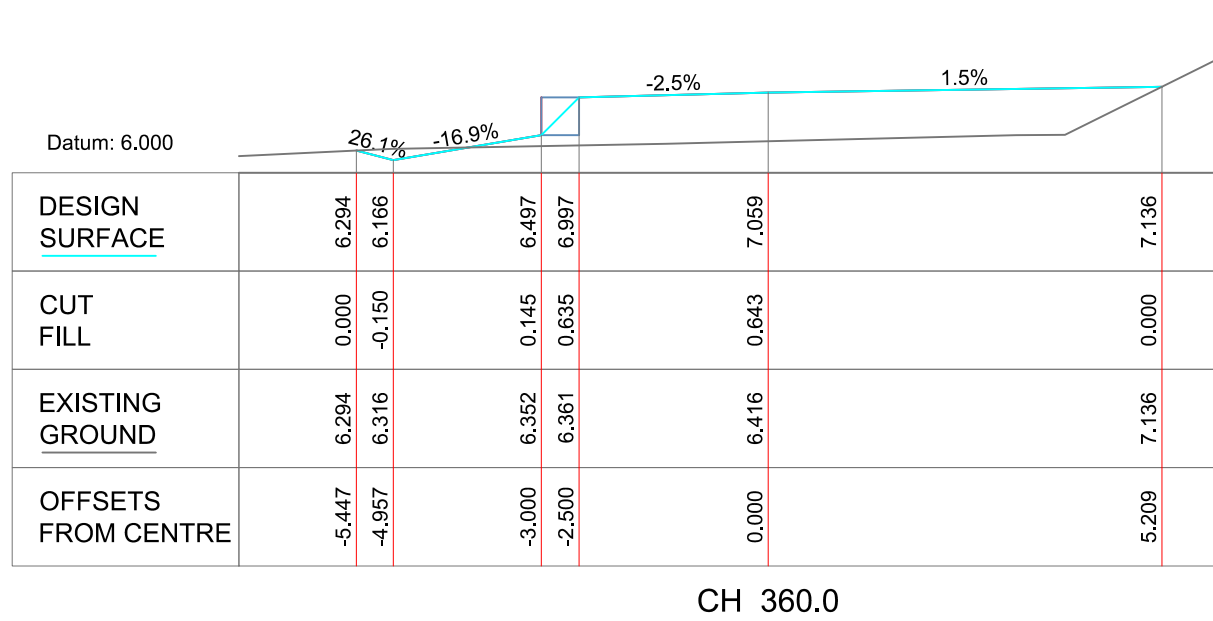
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APPROVED	--	--/--/2023	VERTICAL	



PROJECT	KAIAPOI TO WOODEND SHARED PATH
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SHEET TITLE	SANDHILL ROAD CROSS SECTIONS 260-320
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FOR INFORMATION	
NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	30
REVISION	A



ALL SECTIONS CREATED USING CONTOUR DATA AND MAY NOT BE 100% ACCURATE BUT STILL DEPICT A DETAILED PICTURE OF EXTENT OF WORKS

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

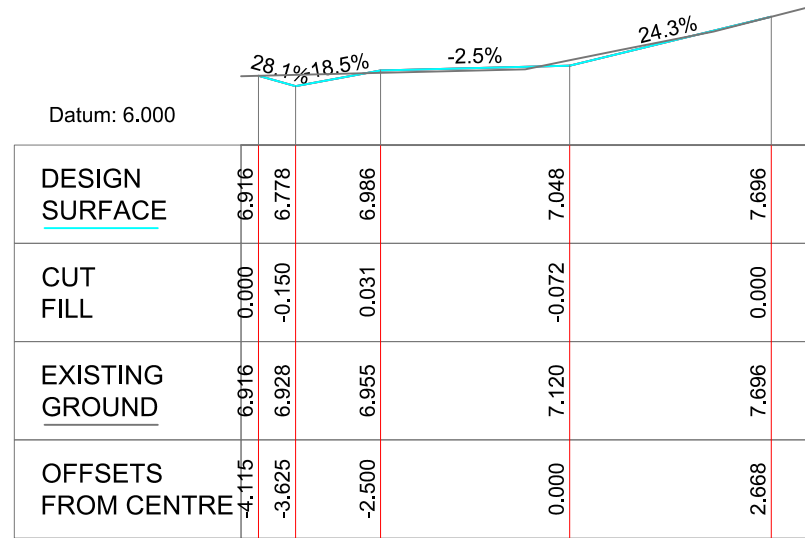
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DESIGNED CHKD	--	--/2023	HORIZONTAL NZTM GD2000	
APPROVED	--	--/2023	VERTICAL	



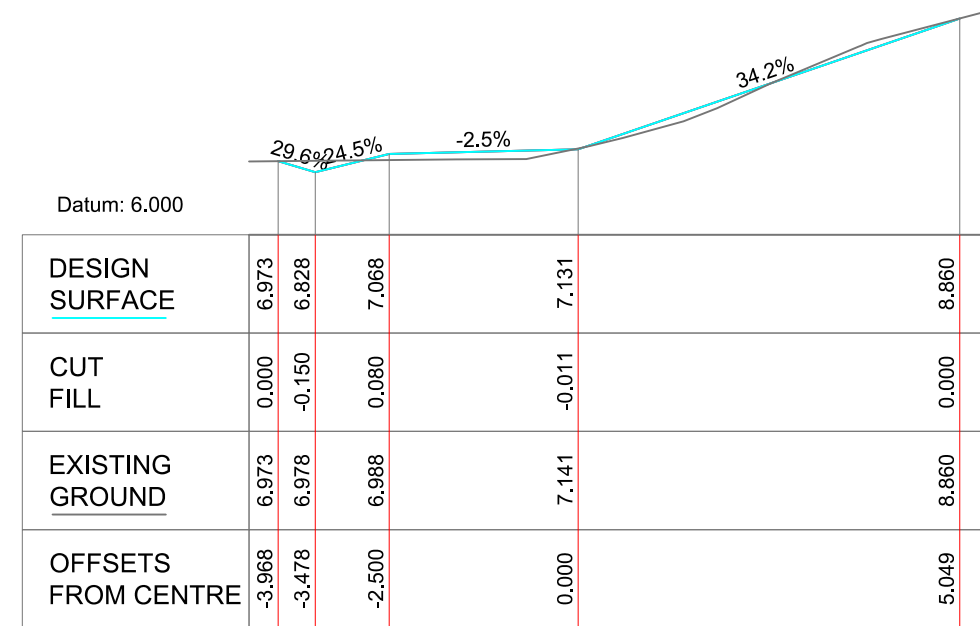
PROJECT	KAIAPOI TO WOODEND SHARED PATH
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SHEET TITLE	SANDHILL ROAD CROSS SECTIONS 340-400
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FOR INFORMATION	
NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	31
REVISION	A

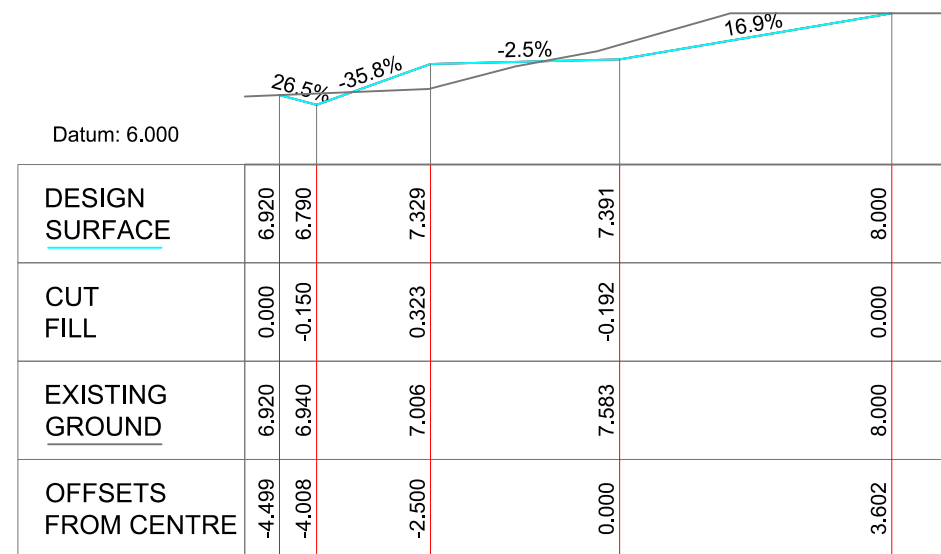


CH 440.0

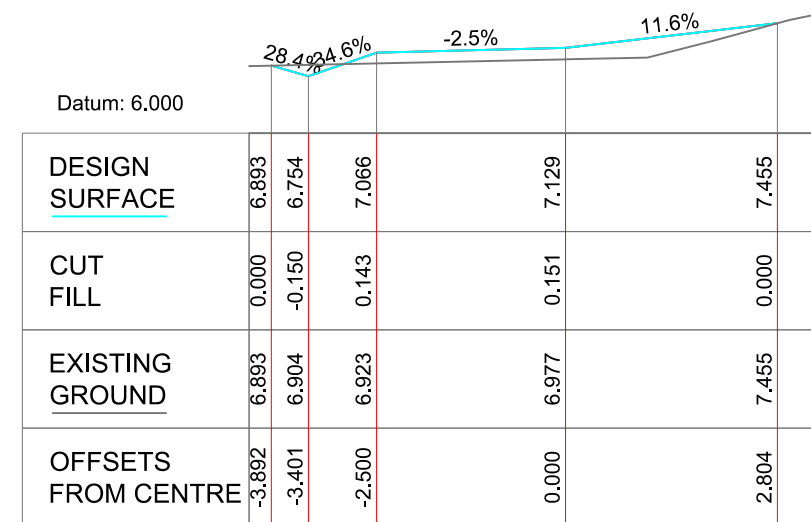


CH 480.0

ALL SECTIONS CREATED USING CONTOUR DATA AND MAY NOT BE 100% ACCURATE BUT STILL DEPICT A DETAILED PICTURE OF EXTENT OF WORKS



CH 420.0



CH 460.0

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

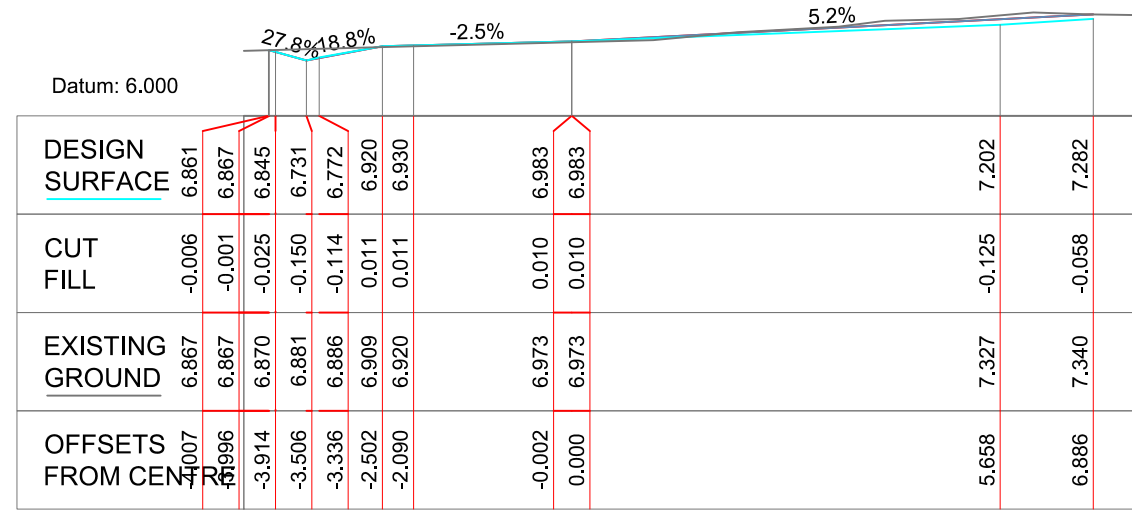
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DESIGNED CHKD	---	--/--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/--/2023	VERTICAL	



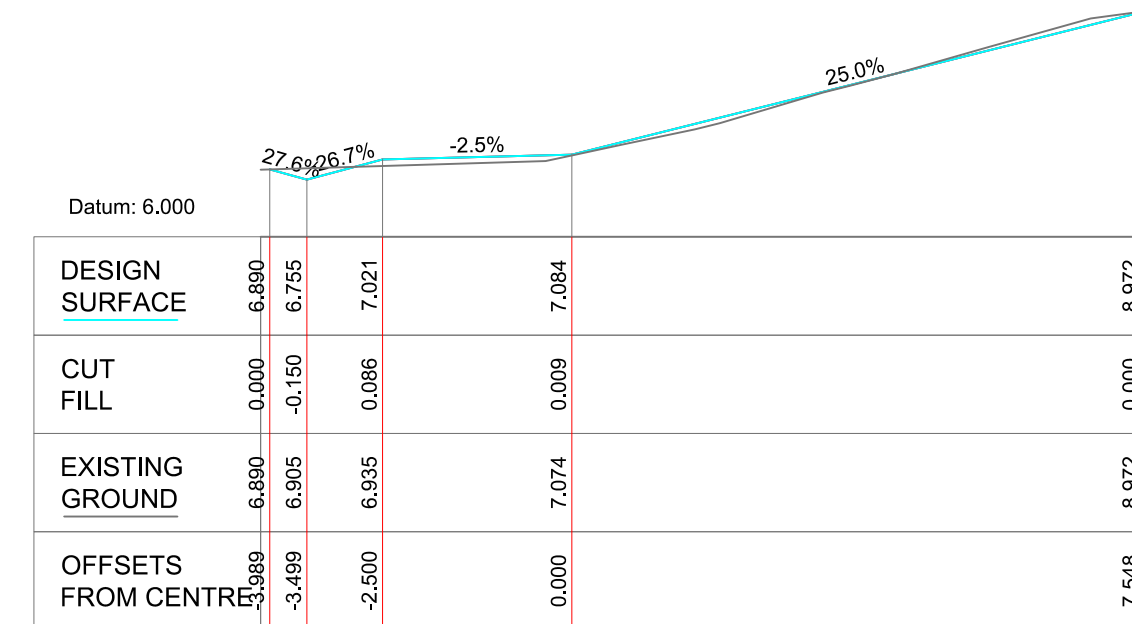
PROJECT	KAIAPOI TO WOODEND SHARED PATH
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SHEET TITLE	SANDHILL ROAD CROSS SECTIONS 420-480
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FOR INFORMATION	
NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
32	A



CH 537.7



CH 520.0

ALL SECTIONS CREATED USING CONTOUR DATA AND MAY NOT BE 100% ACCURATE BUT STILL DEPICT A DETAILED PICTURE OF EXTENT OF WORKS

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

SURVEYED	---	---	PROJECT No	PD001949
DRAWN	GK	26/01/2023	CON No	---
DRAWING CHKD	KS	--/--/2023	SCALE (A3)	1:100
DESIGNED	---	--/--/2023	DATUM ORIGIN	
DESIGNED CHKD	---	--/--/2023	HORIZONTAL NZTM GD2000	
APPROVED	---	--/--/2023	VERTICAL	

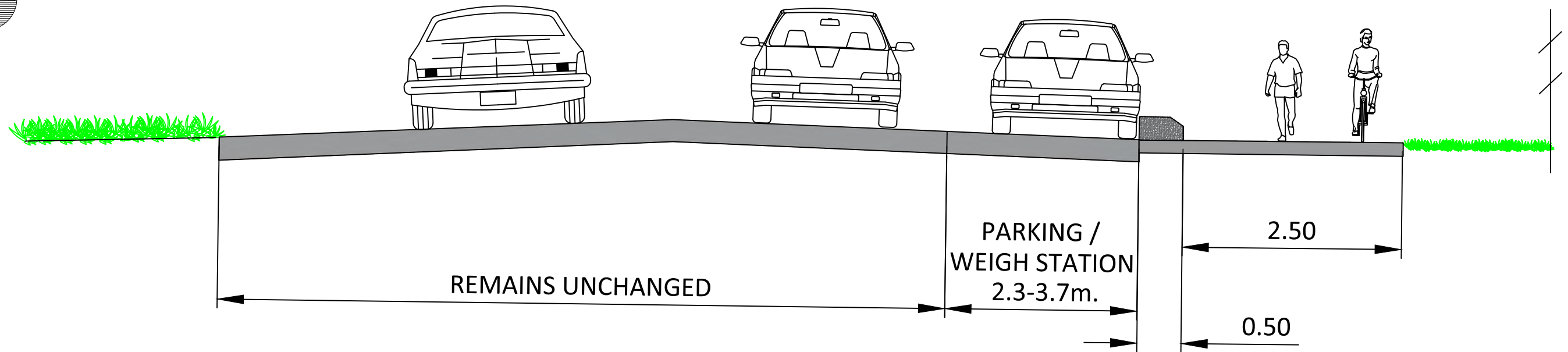
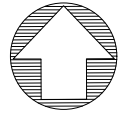


PROJECT
KAIAPOI TO WOODEND SHARED PATH

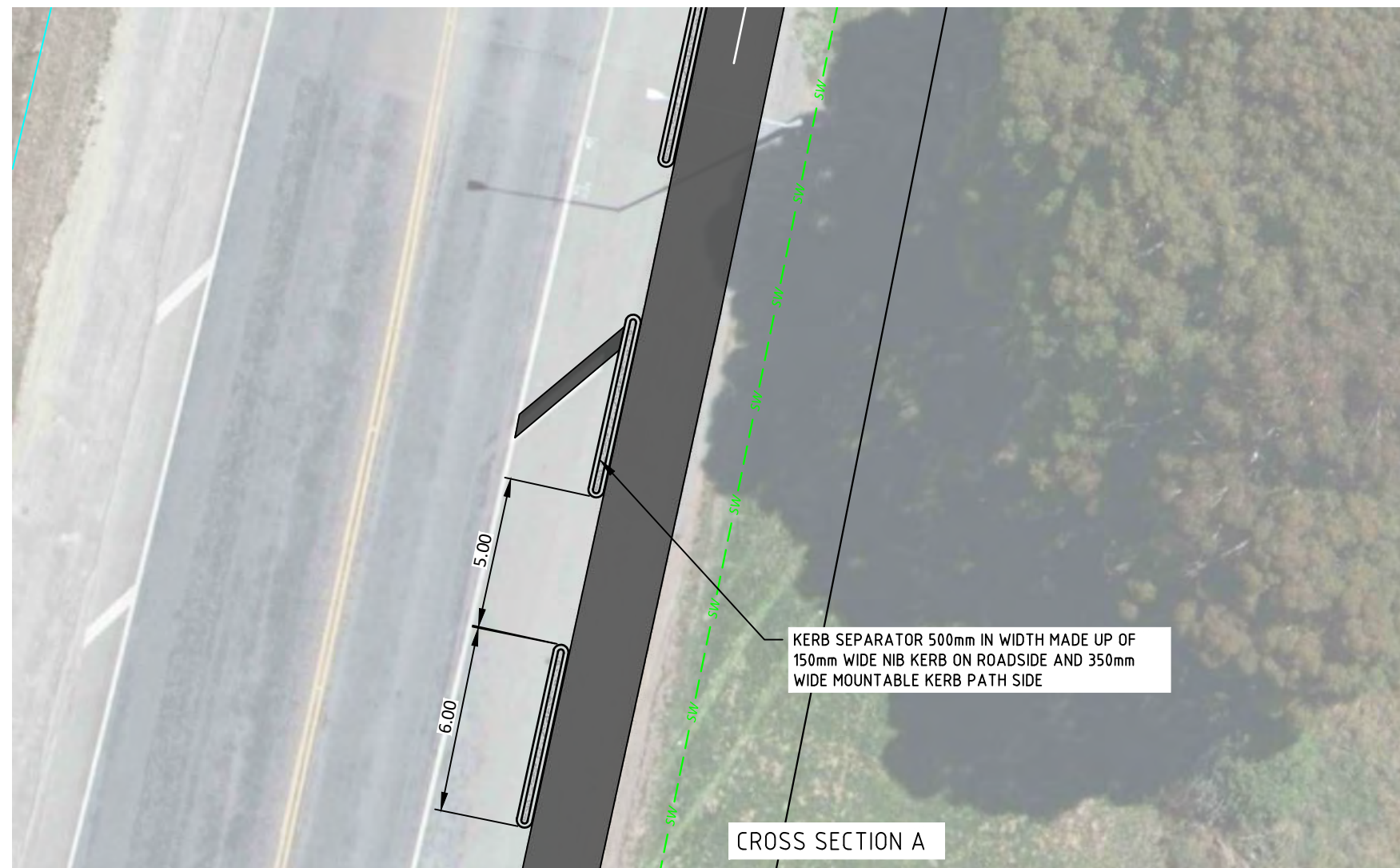
SHEET TITLE
SANDHILL ROAD CROSS SECTIONS 520-540

FOR INFORMATION	
NOT FOR CONSTRUCTION	
DRAWING 4348	
SHEET 33	REVISION A

65



CROSS SECTION A
 MAIN NORTH ROAD / SH1
 PINEACRES - WEIGH STATION



REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

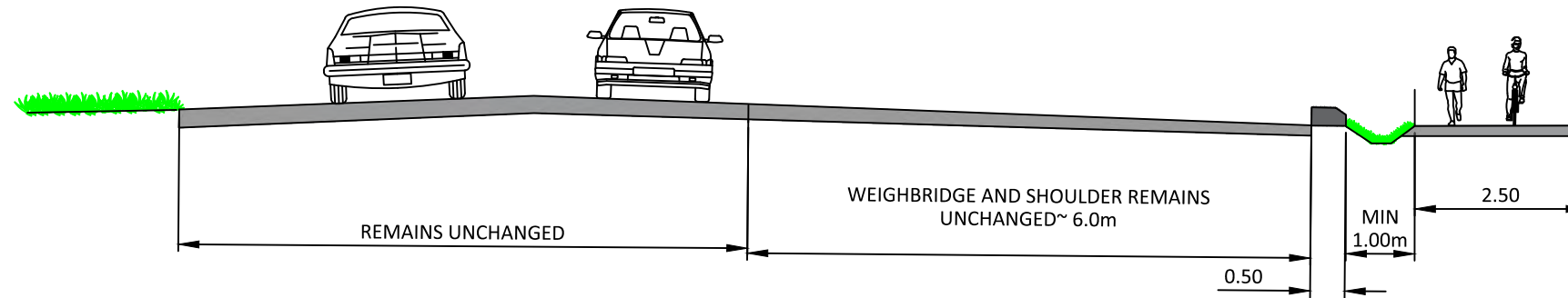
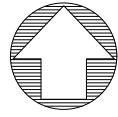
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DESIGNED	---	--/--/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	--/--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/--/2023	VERTICAL	---



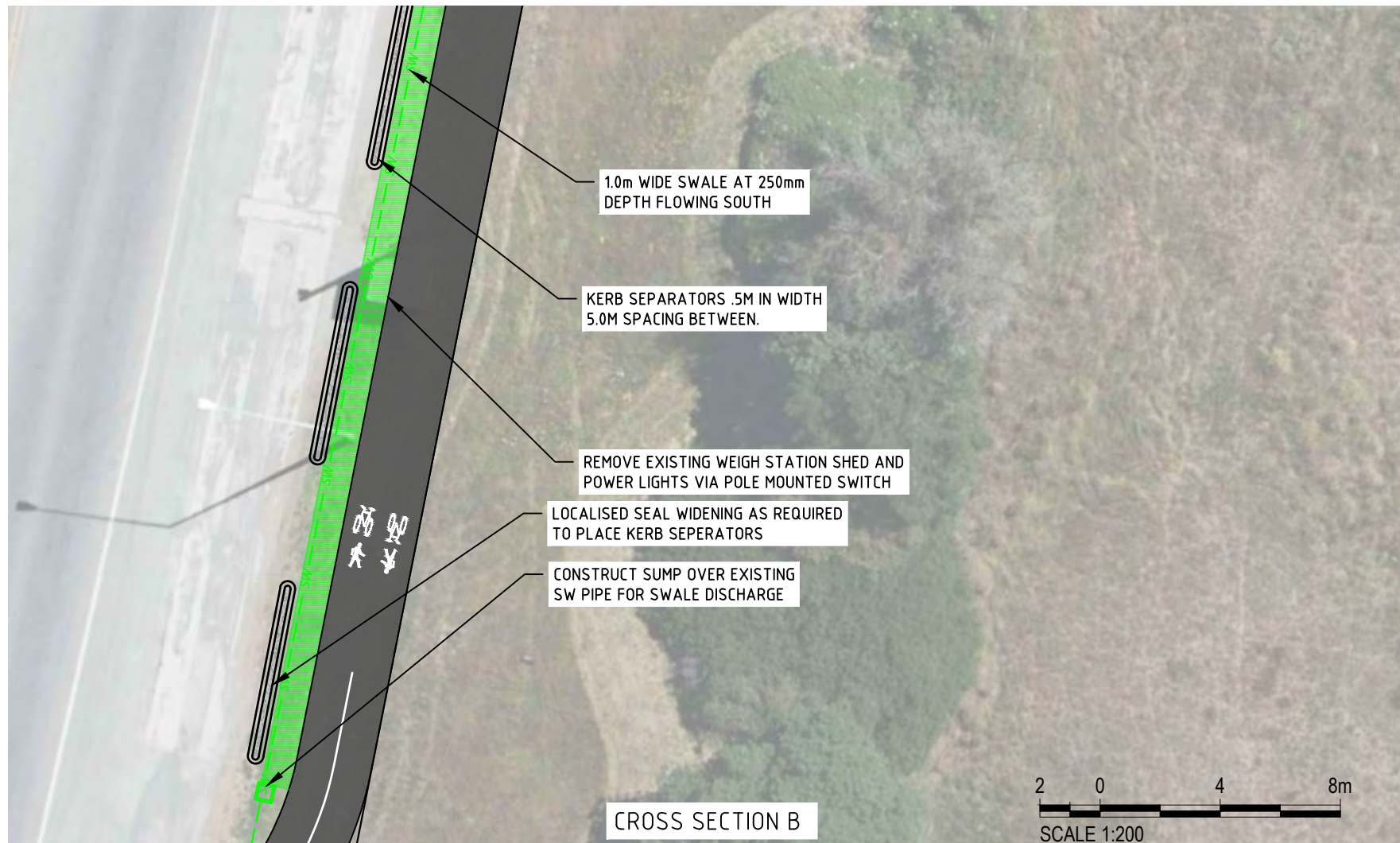
PROJECT	KAIAPOI TO WOODEND SHARED PATH
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SHEET TITLE	STATE HIGHWAY 1 CROSS SECTION A
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FOR INFORMATION	
NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
34	A



CROSS SECTION B
MAIN NORTH ROAD / SH1
OUTSIDE WEIGH BRIDGE
 SCALE : NTS



REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

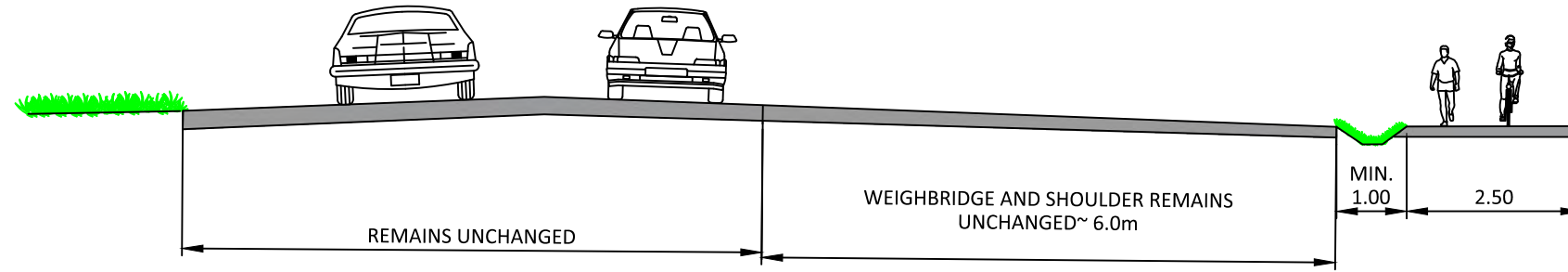
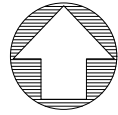
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DRAWN	GK	26/01/2023	CON No	---
DRAWING CHKD	KS	--/2023	SCALE (A3)	1:1000
DESIGNED	---	--/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/2023	VERTICAL	---



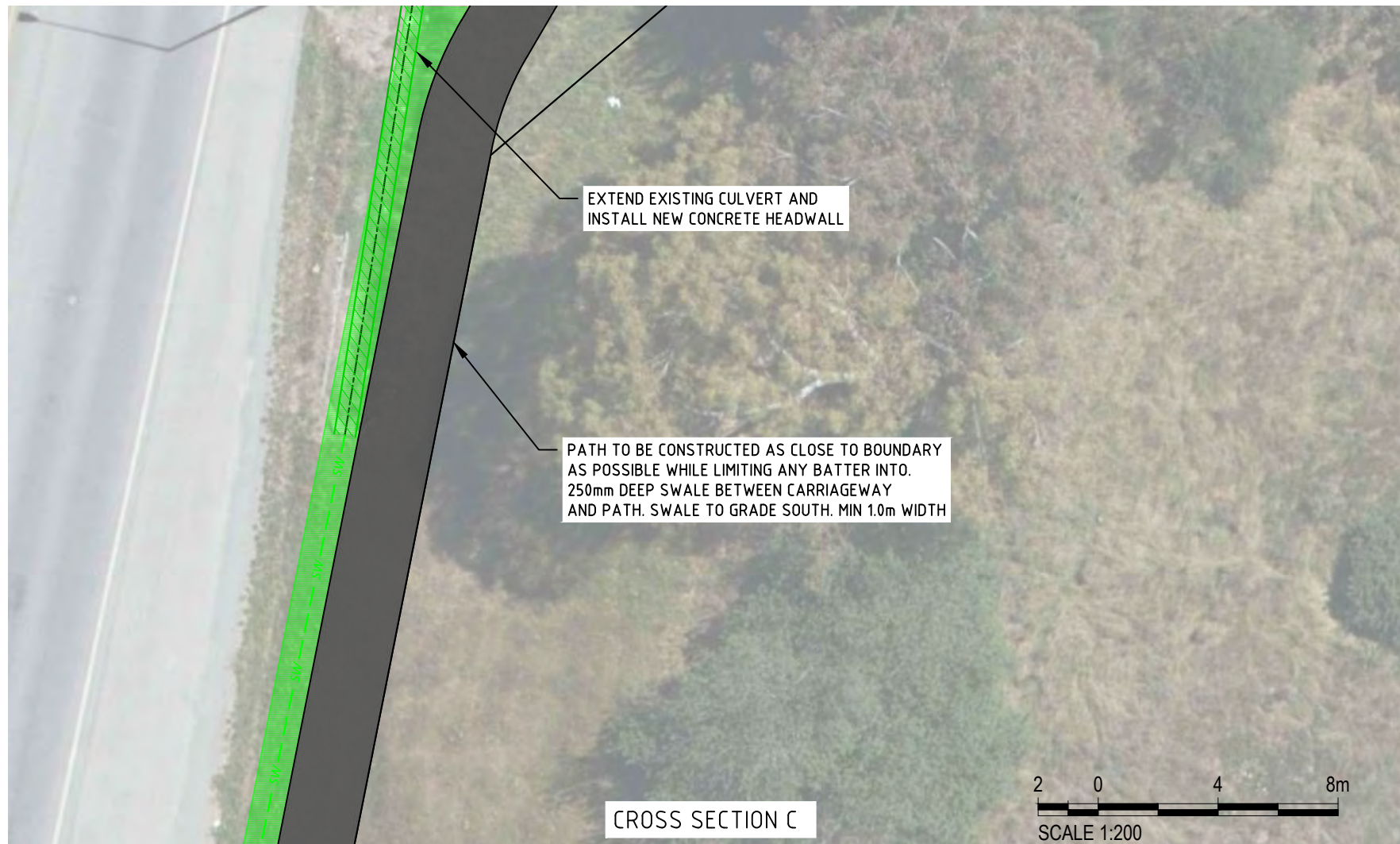
PROJECT	KAIAPOI TO WOODEND SHARED PATH
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SHEET TITLE	STATE HIGHWAY 1 CROSS SECTION B
-------------	---------------------------------

FOR INFORMATION	
NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
35	A



CROSS SECTION C
MAIN NORTH ROAD / SH1
WEIGH BRIDGE NORTH
 SCALE : NTS



CROSS SECTION C

2 0 4 8m
 SCALE 1:200

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	26/01/2023

SURVEYED	---	---	PROJECT No	PD001949
DRAWN	GK	26/01/2023	CON No	---
DRAWING CHKD	KS	--/2023	SCALE (A3)	1:1000
DESIGNED	---	--/2023	DATUM ORIGIN	---
DESIGNED CHKD	---	--/2023	HORIZONTAL	NZTM GD2000
APPROVED	---	--/2023	VERTICAL	---



PROJECT	KAIAPOI TO WOODEND SHARED PATH
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SHEET TITLE	STATE HIGHWAY 1 CROSS SECTION C
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FOR INFORMATION	
NOT FOR CONSTRUCTION	
DRAWING	4348
SHEET	REVISION
36	A



NOTES

- ALL CONSTRUCTION TO BE COMPLETED AS PER WAIMAKARIRI DISTRICT COUNCIL ENGINEERING CODE OF PRACTICE.
- ALL SAW CUT EDGES SHALL BE OF A NEATLY TRIMMED VERTICAL FACE.
- ALL NEW SIGNAGE SHALL BE INSTALLED AS PER MOTSAM
- ANY SEAL JOINTS ON SH1 SHALL BE OUTSIDE THE MAIN WHEEL TRACKS AND SURFACING TO MATCH EXISTING
- SERVICE LOCATIONS ARE INDICATIVE ONLY. CONTRACTOR TO CONFIRM LOCATIONS AND PROTECT SERVICES AT ALL TIMES.
- ALL TACTILE PRODUCTS SHALL BE INSTALLED AS PER RTS-14. LOCATION TO BE CONFIRMED BY ENGINEER
- ROAD RECONSTRUCTION AREA IS INDICATIVE ONLY, CONTRACTOR TO ENSURE ADEQUATE CROSS FALL OF MINIMUM 2.5% IS ACHIEVED PRIOR TO SEALING.
- CONTRACTOR TO OBTAIN ENGINEER APPROVAL FOR ANY UNSUITABLE MATERIAL REPLACEMENT.
- FOOTPATH TO BE CONSTRUCTED AS PER WAIMAKARIRI DISTRICT COUNCIL STANDARD DRAWING 222
- CONTRACTOR TO LIASE WITH SURROUNDING BUSINESSES TO LIMIT ANY DISRUPTIONS
- KERB TERMINATIONS SHALL FINISH FLUSH WITH THE GROUND TO ELIMINATE ANY TRIP HAZARDS.
- ALL SUMPS DISCHARGING TO SOAKPITS SHALL BE AS PER WDC SD 330B
- PRINCIPAL TO SUPPLY ALL 3D SET OUT DATA

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	14/08/2023

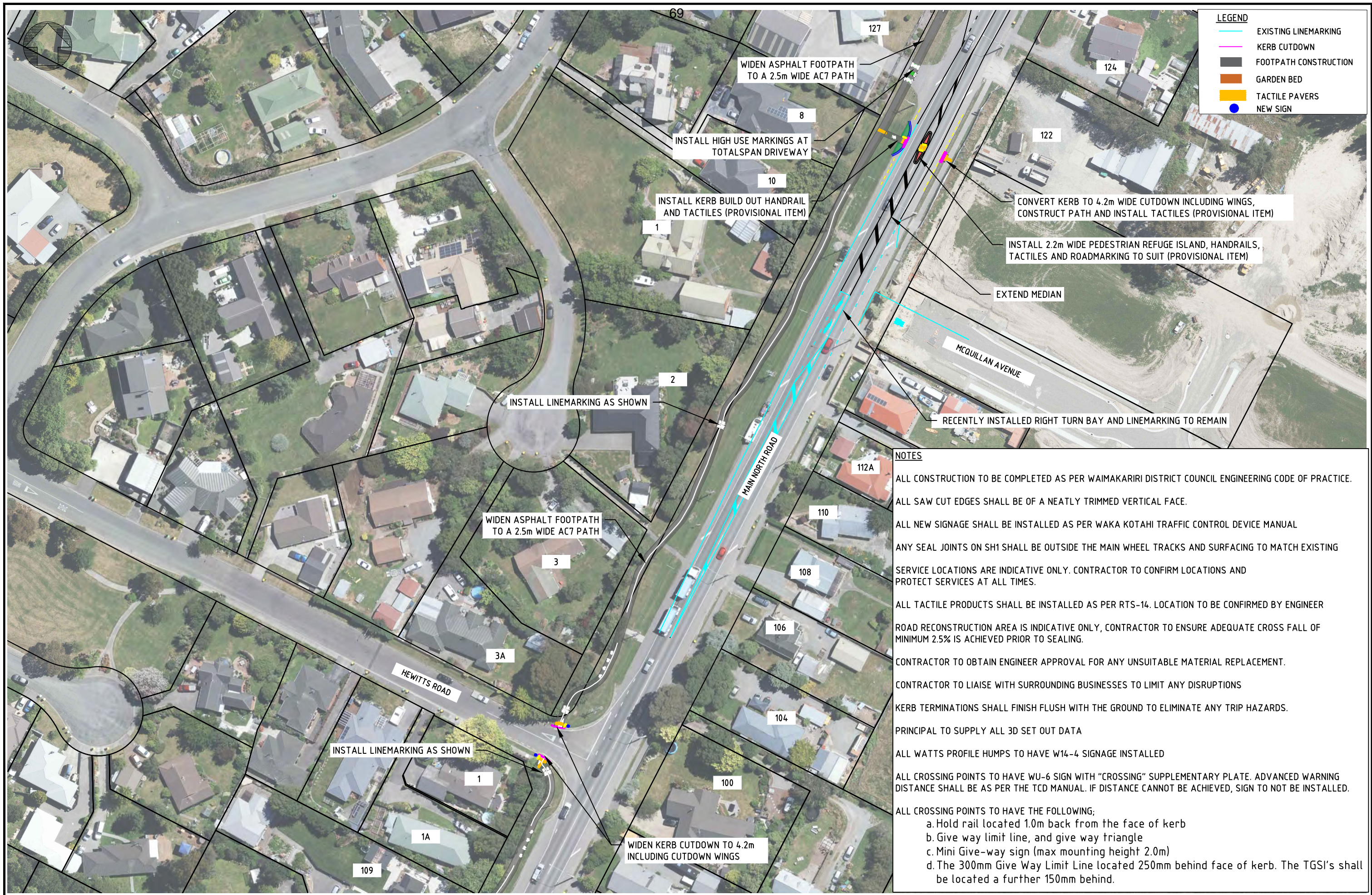
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DESIGNED	GK	14/08/2023	DATUM ORIGIN	
DESIGNED CHKD	KS	18/08/2023	HORIZONTAL	NZTM GD2000
APPROVED	JM	XXX	VERTICAL	



PROJECT
**WOODEND TO PEGASUS
SHARED PATH**

SHEET TITLE
**MAIN NORTH ROAD
WOODEND ROAD TO
109 MAIN NORTH ROAD**

FOR TENDER
NOT FOR CONSTRUCTION
DRAWING
4357
SHEET
01
REVISION
A



LEGEND	
	EXISTING LINEMARKING
	KERB CUTDOWN
	FOOTPATH CONSTRUCTION
	GARDEN BED
	TACTILE PAVERS
	NEW SIGN

NOTES

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ALL NEW SIGNAGE SHALL BE INSTALLED AS PER WAKA KOTAHI TRAFFIC CONTROL DEVICE MANUAL

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CONTRACTOR TO LIAISE WITH SURROUNDING BUSINESSES TO LIMIT ANY DISRUPTIONS

KERB TERMINATIONS SHALL FINISH FLUSH WITH THE GROUND TO ELIMINATE ANY TRIP HAZARDS.

PRINCIPAL TO SUPPLY ALL 3D SET OUT DATA

ALL WATTS PROFILE HUMPS TO HAVE W14-4 SIGNAGE INSTALLED

ALL CROSSING POINTS TO HAVE WU-6 SIGN WITH "CROSSING" SUPPLEMENTARY PLATE. ADVANCED WARNING DISTANCE SHALL BE AS PER THE TCD MANUAL. IF DISTANCE CANNOT BE ACHIEVED, SIGN TO NOT BE INSTALLED.

ALL CROSSING POINTS TO HAVE THE FOLLOWING;

- Hold rail located 1.0m back from the face of kerb
- Give way limit line, and give way triangle
- Mini Give-way sign (max mounting height 2.0m)
- The 300mm Give Way Limit Line located 250mm behind face of kerb. The TGSi's shall be located a further 150mm behind.

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	14/08/2023

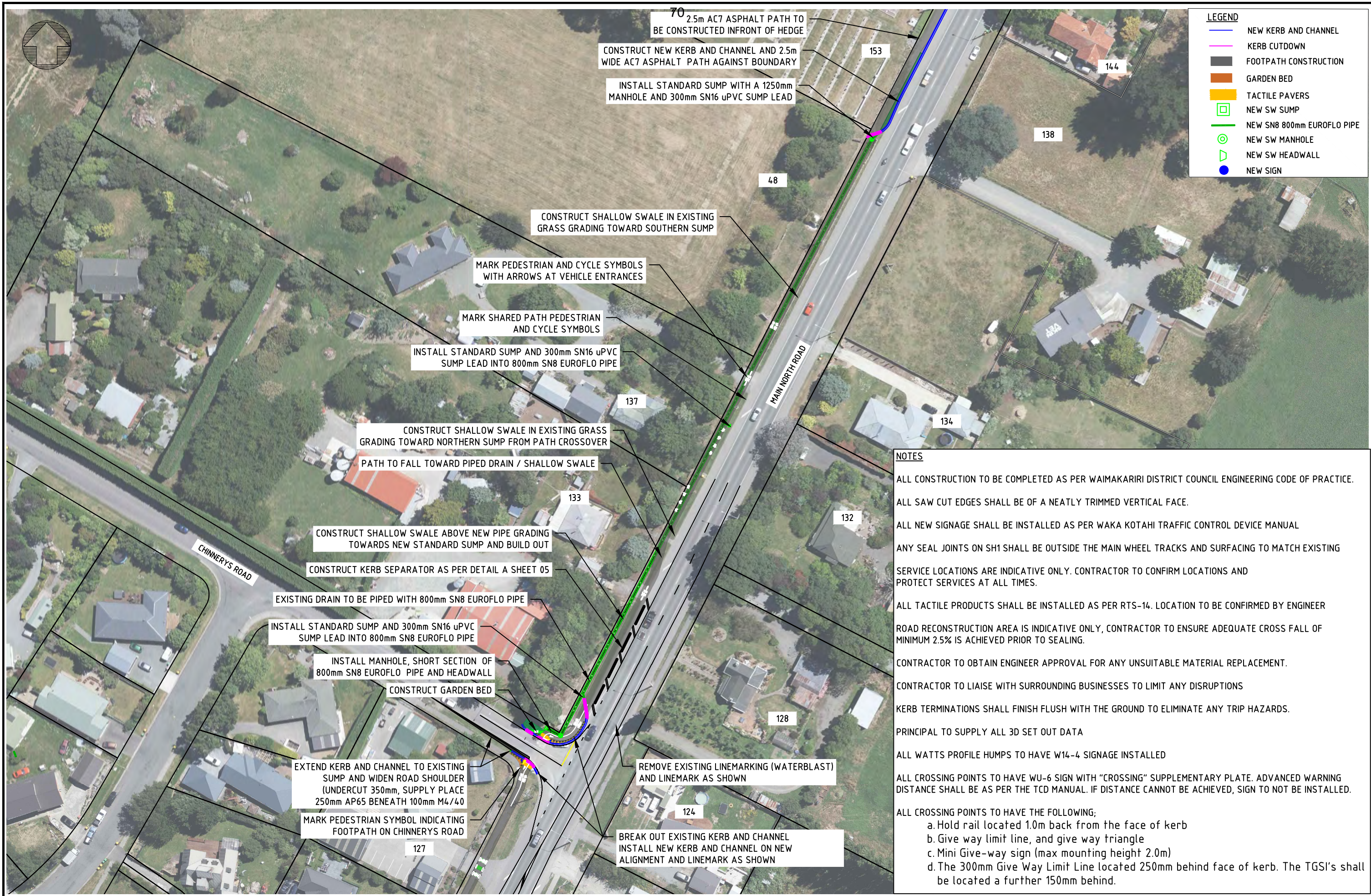
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DESIGNED	GK	14/08/2023	DATUM ORIGIN		
DESIGNED CHKD	KS	18/08/2023	HORIZONTAL	NZTM GD2000	
APPROVED	JM	XXX	VERTICAL		



PROJECT
**WOODEND TO PEGASUS
SHARED PATH**

SHEET TITLE
**MAIN NORTH ROAD
HEWITTS ROAD TO
127 MAIN NORTH ROAD**

FOR TENDER NOT FOR CONSTRUCTION	
DRAWING	4357
SHEET	REVISION
02	A



LEGEND

- NEW KERB AND CHANNEL
- KERB CUTDOWN
- FOOTPATH CONSTRUCTION
- GARDEN BED
- TACTILE PAVERS
- NEW SW SUMP
- NEW SN8 800mm EUROFLO PIPE
- NEW SW MANHOLE
- NEW SW HEADWALL
- NEW SIGN

NOTES

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KERB TERMINATIONS SHALL FINISH FLUSH WITH THE GROUND TO ELIMINATE ANY TRIP HAZARDS.

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ALL CROSSING POINTS TO HAVE THE FOLLOWING;

- a. Hold rail located 1.0m back from the face of kerb
- b. Give way limit line, and give way triangle
- c. Mini Give-way sign (max mounting height 2.0m)
- d. The 300mm Give Way Limit Line located 250mm behind face of kerb. The TGS's shall be located a further 150mm behind.

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	14/08/2023

SURVEYED	PROJECT No	PD001950
DRAWN GK 14/08/2023	CON No	
DRAWING CHKD KS 18/08/2023	SCALE (A3)	1:1000
DESIGNED GK 14/08/2023	DATUM ORIGIN	
DESIGNED CHKD KS 18/08/2023	HORIZONTAL NZTM GD2000	
APPROVED JM XXXX	VERTICAL	



PROJECT
WOODEND TO PEGASUS
SHARED PATH

SHEET TITLE
MAIN NORTH ROAD
CHINNERYS ROAD TO CHURCH

FOR TENDER NOT FOR CONSTRUCTION	
DRAWING	4357
SHEET	REVISION
03	A



LEGEND	
	NEW KERB AND CHANNEL
	KERB CUTDOWN
	FOOTPATH CONSTRUCTION
	PROPOSED / EXISTING PATH
	GARDEN BED
	TACTILE PAVERS



NOTES

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FOOTPATH TO BE CONSTRUCTED AS PER WAIMAKARIRI DISTRICT COUNCIL STANDARD DRAWING 222

CONTRACTOR TO LIAISE WITH SURROUNDING BUSINESSES TO LIMIT ANY DISRUPTIONS

KERB TERMINATIONS SHALL FINISH FLUSH WITH THE GROUND TO ELIMINATE ANY TRIP HAZARDS.

ALL SUMPS DISCHARGING TO SOAKPITS SHALL BE AS PER WDC SD 330B

PRINCIPAL TO SUPPLY ALL 3D SET OUT DATA

REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DETAILED DESIGN	GK	KS	JM	14/08/2023

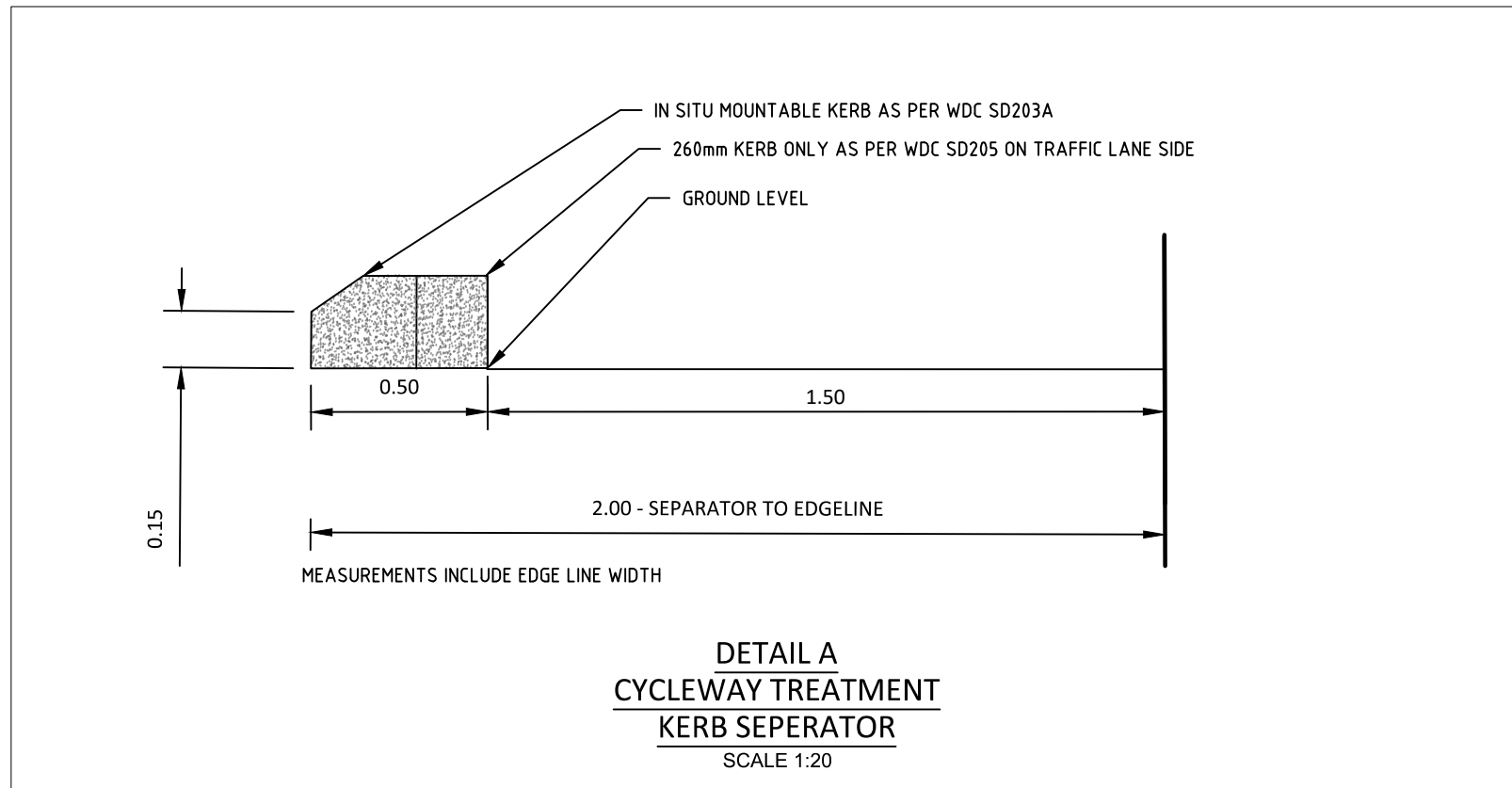
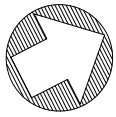
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DESIGNED	GK	15/08/2023	DATUM ORIGIN	
DESIGNED CHKD	KS	18/08/2023	HORIZONTAL NZTM GD2000	
APPROVED	JM	XXXXX	VERTICAL	



PROJECT	WOODEND TO PEGASUS SHARED PATH
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SHEET TITLE	MAIN NORTH ROAD CHURCH TO RAVENSWOOD
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FOR INFORMATION	
NOT FOR CONSTRUCTION	
DRAWING	4357
SHEET	REVISION
04	A



REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	TENDER ISSUE	GK	KS	JM	14/08/2023

SURVEYED			PROJECT No	PD001950
DRAWN	GK	01/03/2023	CON No	
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DESIGNED	GK	01/03/2023	DATUM ORIGIN	
DESIGNED CHKD	KS	01/03/2023	HORIZONTAL	NZTM GD2000
APPROVED	JM	01/03/2023	VERTICAL	



PROJECT
WOODEND TO PEGASUS SHARED PATH

SHEET TITLE
MAIN NORTH ROAD KERB SEPERATOR DETAIL

FOR TENDER	
NOT FOR CONSTRUCTION	
DRAWING	4357
SHEET	REVISION
05	A

Survey Responses

21 February 2020 - 03 September 2023

Tell us what you think

Let's Talk Waimakariri

Project: Kaiapoi Ravenswood Cycleway



VISITORS					
66					
CONTRIBUTORS			RESPONSES		
37			39		
37	0	0	39	0	0
Registered	Unverified	Anonymous	Registered	Unverified	Anonymous

**Respondent No:** 1**Login:** **Email:** **Responded At:** Aug 16, 2023 15:35:48 pm**Last Seen:** Aug 16, 2023 03:29:11 am**IP Address:** **Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Overall I support the plan. Consider taking the cycle way through the new Copperbeach Road extension, (in addition to, or as an alternate to current plan) connecting to Gladstone Rd, which would avoid parts of SH1, particularly the dangerous woodend beach road/Rangiora/Woodend Rd. Copperbeach Rd probably needs a shared use path as it is regularly used by walkers and cyclists (makes a nice loop around the outskirts of Woodend), and once open will likely carry more traffic than is safe to have people walking without having a dedicated footpath. Would also be a shorter connection for many Pegasus residence to Kaiapoi, and take them off the dangerous SH1.

Q2. Name:

Q3. Email/Phone:

**Respondent No:** 2**Login:****Email:****Responded At:** Aug 16, 2023 17:23:34 pm**Last Seen:** Aug 16, 2023 05:20:56 am**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

It's a great idea, will it continue to the Pegasus round about? The road to that point (heading north from woodend) is particularly pedestrian/bike hostile. I'm very excited to have a safe way to travel to kaiapoi from woodend via bike.

Q2. Name:**Q3. Email/Phone:**



Respondent No: 3

Login:

Email:

Responded At: Aug 17, 2023 20:38:47 pm

Last Seen: Aug 17, 2023 08:33:43 am

IP Address:

Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?

Would have been great to see a map/plan of the proposed route before taking the survey. Is it going to be separated? Sealed? Does it have lighting?

Q2. Name:

Q3. Email/Phone:

**Respondent No:** 4**Login:****Email:****Responded At:** Aug 18, 2023 21:53:32 pm**Last Seen:** Aug 18, 2023 09:45:11 am**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Sounds like a good plan, really needed. One thing - when going north, how do you get from the Jill Creamer cycle track on Woodend Beach road to the traffic lights near the school. At the moment the only way is to ride on the footpath on the eastern side of the SH1 to you get to the lights.

Q2. Name:**Q3. Email/Phone:**

**Respondent No:** 5**Login:****Email:****Responded At:** Aug 20, 2023 07:16:38 am**Last Seen:** Aug 19, 2023 19:15:19 pm**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Really excited about this, it will mean I can bike into Christchurch. At present outside of the mountain bike track the only option is state highway one and that is far too dangerous. This will open up so many options for people.

Q2. Name:**Q3. Email/Phone:**

**Respondent No:** 6**Login:** **Email:** **Responded At:** Aug 20, 2023 07:40:46 am**Last Seen:** Aug 19, 2023 19:39:11 pm**IP Address:** **Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Whatever is being proposed needs to extend over the Ashley Bridge on SH1 so that is accessible to the people of Sefton.

Q2. Name:**Q3. Email/Phone:**

**Respondent No:** 7**Login:****Email:****Responded At:** Aug 21, 2023 17:50:31 pm**Last Seen:** Aug 21, 2023 05:40:34 am**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

The current plan looks like an excellent one to keep everyone moving in safe an effective manner I currently cycle this route in the spring through to autum as it currently, it is a little terrifying, I am really looking forward to seeing more people able to use cycling as an option of safe transport, as I have so many comments on how lucky I am to be able to cycle to work, although in its current state it is not safe. I am looking forward to not Having to worry about whether I will make it in one piece! Thank you to all who are behind the scenes making this happen.

Q2. Name:

Q3. Email/Phone:



Respondent No: 8

Login: [Redacted]

Email: [Redacted]

Responded At: Aug 21, 2023 17:59:21 pm

Last Seen: Aug 27, 2023 02:23:35 am

IP Address: [Redacted]

Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?

I am in full support of the proposed cycleway from Kaiapoi to Ravenswood. It is much needed and will provide a connection from Woodend to Kaiapoi to hook up with the cycleway into the city. It will also enable our children to cycle to Kaiapoi High School instead of taking the bus or being driven which is better for our environment.

Q2. Name:

Q3. Email/Phone:

**Respondent No:** 9**Login:****Email:****Responded At:** Aug 21, 2023 19:01:47 pm**Last Seen:** Aug 21, 2023 06:56:31 am**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

This does not appear to be a safe option, certainly not when coming from Pegasus. SH1 still needs to be crossed at roundabout with Pegasus which has no visibility and council has previously advised not to cross but instead drive alongside SH1 which is also very unsafe. Then there is another SH1 crossing in Woodend which also becomes increasingly difficult due to heavy traffic and finally at Pines crossing Williams Street will be a challenge. Crossing SH1 should not be included for a cycleway

Q2. Name:**Q3. Email/Phone:**

**Respondent No:** 10**Login:****Email:****Responded At:** Aug 21, 2023 19:09:26 pm**Last Seen:** Aug 21, 2023 07:08:44 am**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

I love it! A wonderful loop will be able to be used and enjoyed between Rangiora, Woodend and Kaiapoi residents!

Q2. Name:**Q3. Email/Phone:**

**Respondent No:** 11**Login:** [Redacted]**Email:** [Redacted]**Responded At:** Aug 21, 2023 19:14:00 pm**Last Seen:** Aug 21, 2023 07:10:14 am**IP Address:** [Redacted]**Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Fine as long as it does not interfere with traffic flow for cars, and is not expensive. I see many walking & cycling tracks never being used, its a "nice to have" item that should not be necessary except for lanes painted on the side of the road. And they should NEVER go through farm land, because they provide access to dishonest people.

Q2. Name:**Q3. Email/Phone:**

**Respondent No:** 12**Login:****Email:****Responded At:** Aug 21, 2023 20:57:05 pm**Last Seen:** Aug 21, 2023 08:56:20 am**IP Address:**

Q1. **Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Sooner the better, it's great there are more cycleways. We enjoy using them.

Q2. **Name:**

Q3. **Email/Phone:**

**Respondent No:** 13**Login:****Email:****Responded At:** Aug 21, 2023 21:38:52 pm**Last Seen:** Aug 21, 2023 09:36:14 am**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

This is a much needed connection for the safety of cyclists. Lot's of children would like to cycle to Kaiapoi high school from Woodend but at the moment it's just not safe enough to use the 100 kmh road.

Q2. Name:**Q3. Email/Phone:**

**Respondent No:** 14**Login:****Email:****Responded At:** Aug 21, 2023 21:42:51 pm**Last Seen:** Aug 21, 2023 09:36:25 am**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Yes simply JUST GET ON WITH IT. Don't waste anymore time with theses surveys, we have already told you that this is what we want and are happy with your updated plan. So let's get it done!

Q2. Name:**Q3. Email/Phone:**

**Respondent No:** 15**Login:****Email:****Responded At:** Aug 21, 2023 21:46:19 pm**Last Seen:** Aug 21, 2023 09:40:27 am**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Great idea. I do a lot of biking around this area and there is a lack of bike paths to do this. The existing pathway through from Woodend Beach to Kaiapoi (Beach Rd) is very muddy in Winter and is only suitable for mountain bikes. It would open up an opportunity for many people to bike recreationally or for those who live in Woodend/Ravenswood to bike to work in Kaiapoi.

Q2. Name:**Q3. Email/Phone:**



Respondent No: 16

Login:

Email:

Responded At: Aug 21, 2023 22:00:30 pm

Last Seen: Aug 21, 2023 09:58:30 am

IP Address:

Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?

Great idea! It's horrible biking from CHCH to Woodend. Once you get to Kaiapoi it feels very unsafe but it is great until Kaiapoi on the Northern corridor.

Q2. Name:

Q3. Email/Phone:



Respondent No: 17

Login:

Email:

Responded At: Aug 21, 2023 23:15:25 pm

Last Seen: Aug 21, 2023 11:12:25 am

IP Address:

Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?

This project has my unqualified support. The sooner completed the better.

Q2. Name:

Q3. Email/Phone:

**Respondent No:** 18**Login:** **Email:** **Responded At:** Aug 22, 2023 08:41:13 am**Last Seen:** Aug 21, 2023 20:30:45 pm**IP Address:** **Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Wonderful initiative! Motor vehicle drivers, especially large trucks, are very aggressive toward bicycles in the area so it is really good when cycles can have their own space... but motor vehicle driver education would also be a good thing. No doubt this is already part of the plan, but I will emphasise here: It would be great if the cycle lanes were also coupled with more bicycle stands/cages around Kaiapoi and Rangiora and if these were in places that people felt safe leaving their bikes to go into stores and so forth (not miles away from everyone or near where people are likely to back into it). Ideally, to encourage cycling, bicycles would have the best parking sport in any location and it would have a roof over it so if it rains you have a dry seat to ride home on. It is helpful to have a roof also if you have just been grocery shopping and need to load up your bike in the rain :) Toilets along the route, as well as a table or seats is also much appreciated.

Q2. Name:

Q3. Email/Phone:

**Respondent No:** 19**Login:****Email:****Responded At:** Aug 22, 2023 09:34:58 am**Last Seen:** Sep 01, 2023 04:00:01 am**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Great to see investment in alternative transport methods in Waimakariri. Would really like to see connection to Pegasus included in this plan. The only missing link is that over/under SH1 and it becomes more essential as Ravenswood develops and traffic increases. On road cycleways have limitations, and especially when between the road and parked cars. The potential for 'open door' events is ever present. On SH1 this could have severe consequences.

Q2. Name:

Q3. Email/Phone:



Respondent No: 20

Login: [Redacted]

Email: [Redacted]

Responded At: Aug 22, 2023 09:35:01 am

Last Seen: Aug 21, 2023 21:33:42 pm

IP Address: [Redacted]

Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?

Much needed, but also needs a safe link to Pegasus and Waikuku.

Q2. Name:

Q3. Email/Phone:

**Respondent No:** 21**Login:****Email:****Responded At:** Aug 22, 2023 09:43:06 am**Last Seen:** Aug 31, 2023 06:34:42 am**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Great, this is long overdue and will be awesome for children cycling to school and those of us wanting to ditch our cars and safely cycle around the district. The connection from Woodend to Ravenswood is seriously overdue.

Q2. Name:**Q3. Email/Phone:**



Respondent No: 22

Login:

Email:

Responded At: Aug 22, 2023 12:27:29 pm

Last Seen: Aug 22, 2023 00:25:49 am

IP Address:

Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?

This will be excellent and really connect major communities in Waimakariri.

Q2. Name:

Q3. Email/Phone:



Respondent No: 23

Login:

Email:

Responded At: Aug 22, 2023 14:05:07 pm

Last Seen: Aug 22, 2023 02:02:24 am

IP Address: 77.207.37

Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?

Please can the stretch from St Barnabas Church to the entrance of Pegasus be included in the plan. Leaving this last bit undone is a significant safety concern for both pedestrians and cyclists.

Q2. Name:

Q3. Email/Phone:

**Respondent No:** 24**Login:****Email:****Responded At:** Aug 22, 2023 14:45:43 pm**Last Seen:** Aug 22, 2023 02:41:52 am**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Great initiative for getting newcomers and current residents on low carbon transport options. Would like to see signalised crossing at SH1 for pedestrians and cyclists

Q2. Name:**Q3. Email/Phone:**



Respondent No: 25

Login:

Email:

Responded At: Aug 22, 2023 19:04:43 pm

Last Seen: Aug 22, 2023 07:02:52 am

IP Address:

Q1. **Any feedback on the Kaiapoi to Ravenswood Cycleway?**

not answered

Q2. **Name:**

not answered

Q3. **Email/Phone:**

not answered



Respondent No: 26

Login:

Email:

Responded At: Aug 23, 2023 09:16:36 am

Last Seen: Sep 01, 2023 04:00:01 am

IP Address:

Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?

UNLESS THE STORM WATER DRAINAGE ON THE EAST SIDE OF OLD NORTH RD IS SORTED (AS PROMISED) WE HAVE NO INTEREST IN YOUR PLAN FOR A CYCLEWAY. THE WHOLE STREET (THAT IS NORTH RD NOT RANFURLY ST0 WOULD RATHER HAVE A SEWER SCEEM AND STORMWATER BEFOR A CYCLETRACK. TO DO ALL 3 AT THE SAME TIME WOULD MAKE MORE SENCE.

Q2. Name:

Q3. Email/Phone:

**Respondent No:** 27**Login:** villiger**Email:** adrianschori@gmail.com**Responded At:** Aug 23, 2023 12:06:45 pm**Last Seen:** Aug 23, 2023 00:05:10 am**IP Address:** 202.134.34.147**Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

not answered

Q2. Name:

Adrian Schori

Q3. Email/Phone:

adrianschori@gmail.com

**Respondent No:** 28**Login:****Email:****Responded At:** Aug 24, 2023 08:57:19 am**Last Seen:** Aug 23, 2023 20:52:39 pm**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Another great idea. An area that we bike through regularly and a cycle way will improve access greatly especially avoiding SHW 1

Q2. Name:**Q3. Email/Phone:**

**Respondent No:** 29**Login:****Email:****Responded At:** Aug 24, 2023 18:09:42 pm**Last Seen:** Aug 24, 2023 05:53:16 am**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

A fantastic opportunity. Needs lots of footpath signage as a lot walking done too. Whitehead Signes and Designs has some up already at Kaiapoi ie Keep Left and Ride Safely Donated by Lynda Hopefully riding will bring more

Q2. Name:**Q3. Email/Phone:**



Respondent No: 30

Login: [Redacted]
Email: [Redacted]

Responded At: Aug 24, 2023 22:19:23 pm

Last Seen: Aug 24, 2023 10:17:37 am

IP Address: [Redacted]

Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?

I would be very pro this. As an active rider that uses the main road multiple times a week it would be nice to get off it. The northern corridor as strengthened this

Q2. Name:

Q3. Email/Phone:

**Respondent No:** 31**Login:** [REDACTED]**Email:** [REDACTED]**Responded At:** Aug 27, 2023 13:55:07 pm**Last Seen:** Aug 27, 2023 01:52:40 am**IP Address:** [REDACTED]**Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Much needed safety from road traffic. Hope there is good separation from traffic . Great to encourage safe cycling for all ages.

Q2. Name:**Q3. Email/Phone:**



Respondent No: 32

Login:

Email:

Responded At: Aug 27, 2023 17:25:59 pm

Last Seen: Aug 27, 2023 05:20:20 am

IP Address:

Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?

I believe that such a cycleway is absolutely necessary and I fully support the proposed route. This is because currently the only way for cyclists to safely travel from Woodend or Pegasus to Kaiapoi is through Rangiora, which is such an extreme detour that such a route becomes useless. Adding this route will make access for pedestrians and cyclists much better, and reduce car dependence. This may even make access to the Kaiapoi park-and-ride better for those in Woodend, so could be able to indirectly provide better public transport service to them. Overall I believe that this will be a great piece of infrastructure and I fully support it.

Q2. **Name:**

Q3. **Email/Phone:**

**Respondent No:** 33**Login:****Email:****Responded At:** Aug 28, 2023 11:48:26 am**Last Seen:** Aug 27, 2023 23:37:24 pm**IP Address:****Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

We now have undertakings from both main political parties to go ahead with the Woodend Bypass under the next government. Once the Bypass goes through the existing SH1 from Williams St Kaiapoi to Woodend will become a secondary road with far less traffic. Cycling from Woodend to Pineacres Cnr will become a lot safer on this road then. This planned cycleway is going to breach the privacy and security of many properties on this route by giving access to the rear of most of these properties. It is my opinion that this should be put on hold until the bypass is built and an alternative route adopted.

Q2. Name:

Q3. Email/Phone:



Respondent No: 34

Login:

Email:

Responded At: Aug 29, 2023 20:43:30 pm

Last Seen: Aug 29, 2023 08:42:12 am

IP Address:

Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?

Great idea

Q2. Name:

Q3. Email/Phone:

**Respondent No:** 35**Login:** **Email:** **Responded At:** Aug 30, 2023 09:21:11 am**Last Seen:** Sep 01, 2023 04:00:01 am**IP Address:** **Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

We live on Old Nth Rd Kaiapoi and really keen on this pathway. So many people walk and bike past our house as they do a circuit around the 'lakes' down the road it will be safer. Some cars really speed down this road so maybe judder bars needed. That side of road floods in wet weather so be good to have this sorted as well. Also sihhest ptting sewer connection in for Old Nth Rd Kaiapoi at some time to support environment and waterway. Great idea can't wait to use it.

Q2. Name:

Q3. Email/Phone:

**Respondent No:** 36**Login:** [REDACTED]**Email:** [REDACTED]**Responded At:** Aug 30, 2023 13:06:05 pm**Last Seen:** Aug 30, 2023 00:36:39 am**IP Address:** [REDACTED]**Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

It looks like a really good solution to make this direct connection between Kaiapoi and Woodend/Ravenswood/Pegasus A few points Dale St should be a T intersection with Ranfurly St and the Cycle/footpath having priority - Give Way or Stop control for Dale St. Signage for path priority. Crossing Old North Rd the priority should be with the Cycle/footpath. Old North Road Traffic should face traffic management with STOP or GIVE WAY with Cycle Pedestrian route getting priority. Traffic management should be in place for crossing Williams St - Traffic Lights? Sandhill Road should (I actually believe MUST) be closed from Fullers Road to SH1. This will remove an intersection from the path and also remove the most dangerous intersection in the district. Intersections are the highest risk points for cyclists and historically left turning traffic are a more major problem - all turning in fact but the stats used to highlight Left turn failure to give way. Again - Well done. I am looking forward to using it

Q2. Name:

Q3. Email/Phone:

1



Respondent No: 37

Login: [REDACTED]

Email: [REDACTED]

Responded At: Aug 31, 2023 07:06:27 am

Last Seen: Aug 27, 2023 20:52:39 pm

IP Address: [REDACTED]

Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?

Ravenswood to Kaiapoi cycleway. This route will add an important town to town link for people on bicycles in the Waimakariri district. In combination with the existing Passchendaele and Rangiora-Woodend cycleways, it "closes the loop" and goes a long way towards providing a connected network linking the various towns. Given the level of development it is great that it is being extended up to the Ravenswood area. The route looks good, making good use of existing low-use roads or paper road corridors, and the signaled SH1 crossing point in Woodend. Hopefully it will be built to a similar level of service to the two existing urban connector cycleways, Passchendaele and Rangiora-Woodend. The aim should be to cater for riders of all ages and abilities. While the route uses a varied mix of on and off road facilities, users of the cycle route will appreciate • Coherence/cohesion • Directness • Attractiveness • Safety • Comfort Where the route uses on road facilities, they should be designed so it's clear whether it's a shared lane or a reserved cycle path. Speed management measures might be needed for motor vehicles in any shared zone. Where the route crosses roads, it will be important to provide a crossing that looks helpful for a safe crossing with build-outs or a centre refuge or both. This will be especially important where the route crosses Williams St near Pineacres, and at Smith and Charles St at the southern end of the route. In addition to signposting for the route as advertised, there should be signposting to make it clear how to connect to the Rangiora-Woodend cycle route at Woodend, to the Passchendaele path at Kaiapoi, and to Gladstone Rd to provide a safe link into the south of Pegasus. With an eye to the future, you should be thinking ahead to maintaining a viable cycle route from Kaiapoi to Woodend/Ravenswood if a Woodend bypass is built. This might mean the a new road will need underpasses for cycle routes. Stephen Wood & Spokes Canterbury

Q2. **Name:**

Q3. **Email/Phone:**



Respondent No: 38

Login:

Email:

Responded At: Aug 31, 2023 20:04:45 pm

Last Seen: Aug 31, 2023 07:59:03 am

IP Address:

Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?

Great idea. Look forward to cycling triangle (Rangiora, Woodend, Kaiapoi)

Q2. Name:

Q3. Email/Phone:

**Respondent No:** 39**Login:** [REDACTED]**Email:** [REDACTED]**Responded At:** Sep 03, 2023 17:27:33 pm**Last Seen:** Sep 03, 2023 05:00:18 am**IP Address:** [REDACTED]**Q1. Any feedback on the Kaiapoi to Ravenswood Cycleway?**

Exciting to see a circular route to provide Rangiora to Kaiapoi to Woodend to Rangiora, including Ravenswood if desired.

Q2. Name:**Q3. Email/Phone:**

Respondent #	SUPPORT		Neutral	OPPOSE	
	Generally support	Support but have concerns re design		General objection	General objections to expenditure on Cycleways
1		1			
2	1				
3	1				
4	1				
5	1				
6	1				
7	1				
8	1				
9		1			
10	1				
11			1		
12	1				
13	1				
14	1				
15	1				
16	1				
17	1				
18	1				
19	1				
20	1				
21	1				
22	1				
23		1			
24	1				
25			1		
26				1	
27			1		
28	1				
29	1				
30	1				
31	1				
32	1				
33				1	
34	1				
35	1				
36		1			
37	1				
38	1				
39	1				
SUBTOTAL	30	4	3	2	0
TOTAL	34		3	2	

Waimakariri District Council: No-Stopping Restriction Schedule associated with Transport Choices Project 1 & 3

Item	Locality	Street	Side of Street	Location	Distance [m]	No. of spaces impacted	Notes
	Kaiapoi	Ranfurlly Street	East	Opposite Sidey Quay	12	2	Extend existing no stopping by 12m
	Woodend	Main Road (SH1)	West	Main Road frontage of NO. 8 Woodglen Dr	33	5	Pedestrian Refuge Island
	Woodend	Main Road (SH1)	East	No. 122 Main Road	33	5	Pedestrian Refuge Island
	Woodend	Main Road (SH1)	West	No. 133 Main Road	35	6	
	Woodend	Main Road (SH1)	West	Kerb build out at church	10	2	

Note SH1 no-stopping will be gazetted by Waka Kotahi as part of their processes.

WAIMAKARIRI DISTRICT COUNCIL**REPORT FOR INFORMATION**

FILE NO and TRIM NO: SEW-12 / 231003156382

REPORT TO: UTILITIES AND ROADING COMMITTEE

DATE OF MEETING: 17 October 2023

AUTHOR(S): Caroline Fahey, Water & Wastewater Asset Manager

SUBJECT: Eastern Districts Sewer Scheme and Oxford Wastewater Treatment Plant
Annual Compliance Monitoring Reports 2022 – 2023

ENDORSED BY:
(for Reports to Council,
Committees or Boards)



General Manager



Chief Executive

1. **SUMMARY**

- 1.1. The purpose of this report is to update the Utilities and Roading Committee on the consent compliance performance of the Eastern District Sewer Scheme (EDSS) and Oxford Sewer Scheme for the 2022-2023 reporting year (1 July 2022 to 30 June 2023).
- 1.2. The Eastern District Sewer Scheme (EDSS) Ocean Outfall operates under resource consent CRC041162.2, in conjunction with various other consents that enable the wastewater schemes operation. Consent compliance for monitoring data of this nature is determined on two levels:
 - Has the frequency of monitoring met the consent requirements
 - Does the monitoring data comply with any numerical limits specified in the consent conditions
- 1.3. Full compliance was achieved for all EDSS consent conditions during the 2022-2023 monitoring period.
- 1.4. The Oxford Sewer Scheme is operated under three Canterbury Regional Council (CRC) resource consents being CRC961013, CRC144561 and CRC184787. These consents do not require an annual compliance report however a report has been prepared as good practice.
- 1.5. Full compliance was not achieved for the Oxford Sewer Scheme consent conditions during the 2022-2023 monitoring period. The main reasons for non-compliance relate to the lack of monitoring data to clearly demonstrate that the depth limit for effluent application at the irrigation field had been achieved, and exceedance of consent limit for faecal coliform level for 2 effluent samples taken.
- 1.6. In order to resolve these issues, staff are working to get the western irrigator (Irrigator 2) connected to SCADA and to install additional flow monitoring equipment at the Oxford Irrigator site which will improve monitoring data collection to demonstrate compliance with the depth limit for effluent application at the irrigation field. Additionally, the UV equipment at the treatment plant has been replaced and operational procedures improved to address the faecal coliform limit exceedance.

- 1.7. Environment Canterbury (ECan) are currently reviewing the Annual Compliance Monitoring Reports for the 2022-2023 period. A compliance report will be issued by ECan following the completion of their review.

Attachments:

- i. Eastern Districts Sewer Scheme – Annual Compliance Monitoring Report 2022-2023 (TRIM 230718108139)
- ii. Oxford Sewer Scheme – Annual Compliance Monitoring Report 2022-2023 (TRIM 230913142543)

2. **RECOMMENDATION**

THAT the Utilities and Roothing Committee:

- (a) **Receives** Report No.
- (b) **Notes** that full compliance was achieved for all of the Eastern District Sewer Scheme (EDSS) Ocean Outfall consent conditions during the 2022-2023 monitoring period.
- (c) **Notes** that the Eastern Districts Sewer Scheme – Annual Compliance Monitoring Report 2022-2023 is currently being reviewed by Environment Canterbury.
- (d) **Notes** that although not required, the Oxford Sewer Scheme - Annual Monitoring Report 2022-2023 was provided to Environment Canterbury as good practice.
- (e) **Notes** that the Oxford Sewer Scheme did not achieve full compliance for the 2022-23 monitoring period. There were two reasons why the scheme did not achieve full compliance, one was due to lack of monitoring data to clearly demonstrate that the depth limit for effluent application at the irrigation field had been achieved, and the other was due to the exceedance of consent limit for faecal coliform level for 2 effluent samples taken.
- (f) **Notes** that staff are working on getting Irrigator 2 (western irrigator) connected to SCADA and installing additional flow monitoring equipment at the Oxford Irrigator site which will improve monitoring data collection to demonstrate compliance with the depth limit for effluent application at the irrigation field. Once this work is complete, the scheme is expected to be fully compliant.
- (g) **Notes** that UV equipment at the treatment plant has been replaced and operational procedures are being improved to address the faecal coliform limit exceedance.
- (h) **Circulates** this report to all Community Boards for their information.
- (i) **Circulates** a copy of this report to Te Ngāi Tūāhuriri Rūnanga, Te Kōhaka o Tūhaitara Trust and Waimakariri Water Zone Committee for their information.

3. **BACKGROUND**

- 3.1. The purpose of this report is to update the Utilities and Roothing Committee on the consent compliance performance of the Eastern District Sewer Scheme and Oxford Sewer Scheme for the 2022-2023 reporting year.

Eastern District Sewer Scheme

- 3.2. The treatment facilities at the Rangiora, Kaiapoi, Woodend and Waikuku Beach Wastewater Treatment Plants (WWTP's) discharge into a pipeline (the Ocean Outfall), that discharges into Pegasus Bay between Pines/Kairaki Beach and Woodend Beach. These treatment plants and the Ocean Outfall comprise the Eastern Districts Sewer Scheme (EDSS). Figure 1 below geographically describes the scheme. The EDSS operates under a number of resource consents from the Canterbury Regional

Council. The focus of this report is CRC041162.2, the consent that authorises the discharge of treated effluent into the coastal marine environment from the Ocean Outfall.

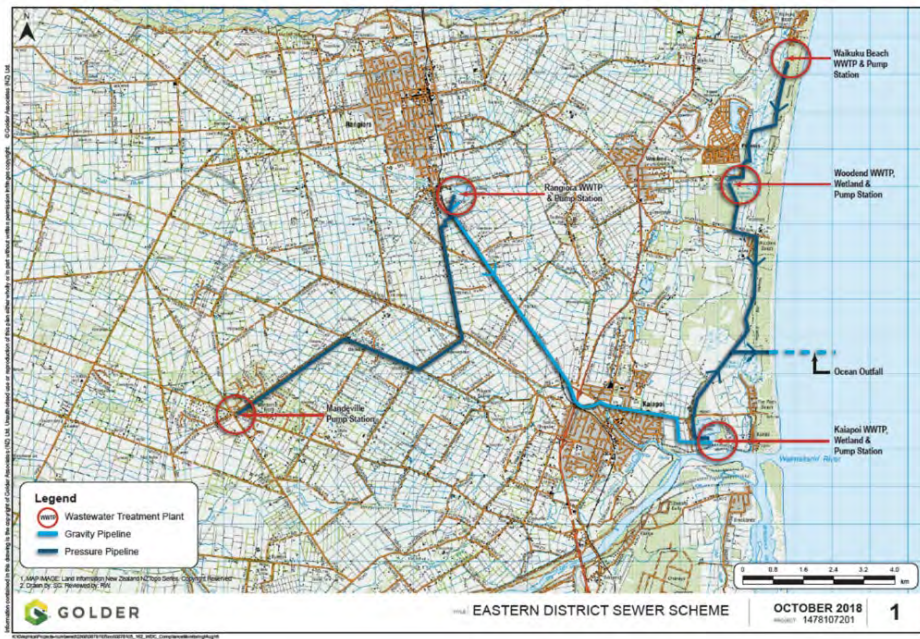


Figure 1: Eastern District Sewer Scheme Map

Oxford Sewer Scheme

3.3. The Oxford Sewer Scheme operates a wastewater treatment plant (WWTP) at Oxford, which serves approximately 900 properties. The WWTP is located on the north side of the Eyre River on High Street with an irrigation disposal field location on the south side of the Eyre River on Woodstock Road. Figure 2 below describes these locations geographically.

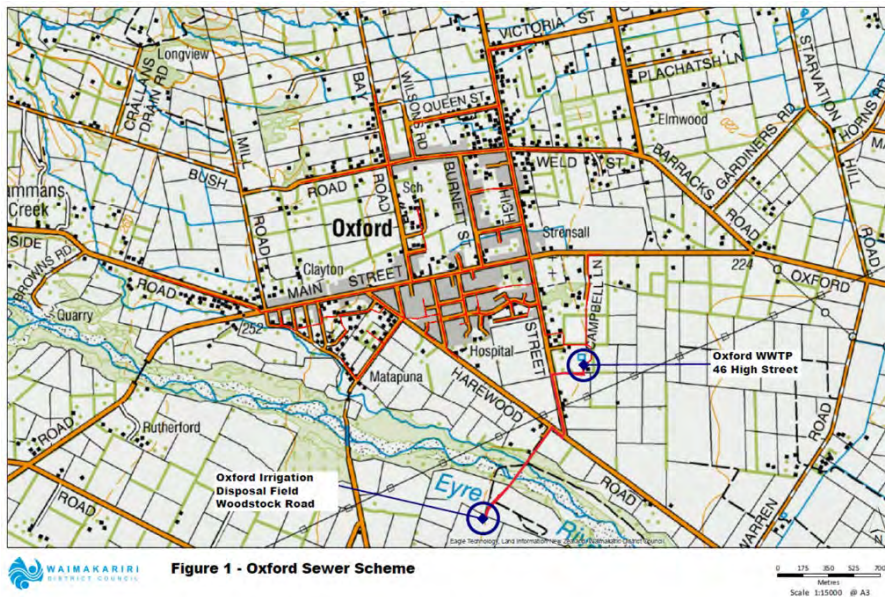


Figure 2: Oxford Sewer Scheme Map

4. ISSUES AND OPTIONS

4.1. Eastern District Ocean Outfall

4.1.1. Table 1 provides a summary of compliance for each consent utilised to operate the Eastern Districts Ocean Outfall. Full compliance was achieved for all the consents for the 2022/23 monitoring period.

Table 1: Summary of Eastern District Ocean Outfall Consent Compliance 2022/23

Consent	Activity	Compliance
CRC041162.2	To discharge treated sewerage effluent into coastal marine area from sub-aqueous ocean outfall	Full compliance
CRC041049	To discharge treated sewage effluent to the infiltration wetland and to ground water via seepage at the Kaiapoi WWTP	Full compliance
CRC168391	To discharge treated sewage effluent via seepage onto land (Woodend)	Full compliance
CRC145027	To discharge dewatered sludge removed from a wastewater pond to land (Rangiora)	Full compliance
CRC031724	To discharge groundwater from subsoil drains into the marine area of Jockey Baker Creek	Full Compliance (no discharge)
CRC168388	To discharge contaminants to air (Woodend)	Full Compliance
CRC950610	To discharge contaminants to air (Kaiapoi)	Full Compliance
CRC962560	To discharge contaminants to air (Waikuku)	Full Compliance
CRC030917	To discharge contaminants, via seepage, from Rangiora STP to land	Full Compliance
CRC041163	For the erection, placement and maintenance of an ocean outfall pipeline and temporary structures, including a trestle structure and sheet piling for the purpose of constructing an ocean outfall, within the coastal marine area	Full Compliance
CRC154176	To discharge contaminants to land (Kaiapoi)	Full Compliance
CRC168390	To use land for storing, treating and discharging human effluent (Woodend)	Full Compliance
CRC173124	To discharge contaminants (odour) to air (Rangiora)	Full Compliance

4.1. Oxford Sewer Scheme

4.1.1. Table 2 provides a summary of compliance for each consent utilised to operate the Oxford Sewer Scheme.

Table 2: Summary of Oxford Sewer Scheme Consent Compliance 2022/23

Consent	Activity	Compliance
CRC961013	To discharge contaminants to air	Fully compliant
CRC144561	Land use consent for the establishment of a sewage storage basin	Fully compliant
CRC184787	To discharge contaminant into land to water	Non-compliant, lack of SCADA data for Irrigator 2 overstates the effluent to land application depth

through Irrigator 1; high faecal coliform spikes in July and January during the 2022/23 year likely due to issues with the UV disinfection unit (one faulty unit was however replaced on 8/9/22).

4.1. **Oxford Sewer Scheme non-compliances**

4.1.1. **Irrigator Issues**

- 4.1.2. Condition 13 – Unable to demonstrate that the depth of effluent application was not exceeded due to lack of monitoring data from Irrigator 2 (western irrigator) overstating of the depth of effluent application by Irrigator 1 (eastern irrigator).
- 4.1.3. Irrigator 2 was damaged in early 2021 due to a strong wind event and was only replaced in September 2022. Between the period of June 2022 and September 2022, a temporary irrigation system using k-lines was deployed to apply effluent to the western irrigation field. There was only monitoring data available for Irrigation 1 to calculate the depth of effluent application during this monitoring period. Staff had difficulty getting support from the irrigator supplier to assist with getting Irrigator 2 connected to SCADA which led to monitoring data being unavailable.
- 4.1.4. Staff are working on getting the western irrigator (Irrigator 2) connected to SCADA and to install additional flow monitoring equipment at the Oxford Irrigator site which will improve monitoring data collection to demonstrate compliance with the depth limit for effluent application at the irrigation field. Once this work is complete, the scheme is expected to be fully compliant.

4.1.5. **Faecal Coliform Limit Exceedance**

- 4.1.6. Condition 4 – Faecal Coliform Bacterial concentration exceeded the 500cfu/100ml limit for 2 samples taken in July 2022 and January 2023.
- 4.1.7. For the July sample this was due to operational issues with the UV units and the plant operators observed a poor quality of effluent at this time. One known faulty UV unit was replaced and recommissioned on 8/9/2022, therefore it is expected that higher compliance should be achieved from that date onwards. There were no clear operational issues causing the high January 2023 sample however results following the exceedance on that date were compliant. Operational improvement are being made to sample data collection by using the Infrastructure Data app which will provide better operational records going forward.

Implications for Community Wellbeing

- 4.2. Despite non-compliances there are no known implications on community wellbeing by the issues and options that are the subject matter of this report.
- 4.3. The Management Team has reviewed this report and support the recommendations.

5. **COMMUNITY VIEWS**

5.1. **Mana whenua**

- 5.2. Te Ngāi Tūāhuriri hapū may be interested in the findings of the Ocean Outfall Compliance Report 2022/23, due to their relationship with the coastal area used for kai moana/mahinga kai gathering. At the recent WDC-Runanga joint meeting it was mentioned that a cultural monitoring plan would be developed in conjunction with Mahaanui Kurataio Limited for our

wastewater operations. The recommendations of this report include circulation of this report and the attachments to Te Ngāi Tūāhuriri Rūnanga for their information.

5.3. **Groups and Organisations**

5.4. Council staff meet regularly with residents adjacent to the Woodend WWTP, who are interested in operations and performance of this plant. A copy of the Annual Compliance Monitoring Report can be made available to them for information purposes.

5.5. There have also been a number of members of the public who have been interested in the performance of the Kaiapoi WWTP and have raised concerns in the past with the Waimakariri Zone Committee. A copy of the Annual Compliance Monitoring Report will be made provided to Waimakariri Zone Committee for information purposes.

5.6. Te Kōhaka o Tūhaitara Trust manages the Tūhaitara Coastal Park where the ocean outfall is located.

5.7. There are no other groups and organisations likely to be affected by, or to have a direct interest in the subject matter of this report. There has been no discussions or consultation with any group as part of this compliance monitoring report.

5.8. **Wider Community**

The wider community is not likely to be affected by, or to have an interest in the subject matter of this report.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

6.1. **Financial Implications**

6.2. There are not financial implications of the decisions sought by this report. However it should be noted that on-going non-compliances can result in increased monitoring costs and action being taken against the Council (i.e. abatement notice). Such instances can result in loss of confidence from the public as well as adverse effect to Council's reputation. Approximately \$100,000 is being allowed for in the budgets for monitoring of the Ocean Outfall.

6.3. Once the work to connect Irrigator 2 (western irrigator) to SCADA and additional flow monitoring equipment have been installed at the Oxford Irrigator site, the scheme is expected to be fully compliant. There is existing budget to complete this work.

6.4. **Sustainability and Climate Change Impacts**

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

6.6. **Risk Management**

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

6.8. **Health and Safety**

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

7. CONTEXT

7.1. **Consistency with Policy**

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

7.3. **Authorising Legislation**

7.4. Not applicable.

7.5. **Consistency with Community Outcomes**

7.6. The Council's community outcomes are relevant to the actions arising from recommendations in this report. Managing the Council's Eastern Districts Sewer Scheme and Oxford Wastewater Scheme in a manner that is compliant with our Canterbury Regional Consents ensures;

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

7.7. **Authorising Delegations**

7.8. This report is for information only as the compliance reports have already been submitted to Environment Canterbury for review, therefore no actions requiring delegated authority are recommended.



REPORT

**Eastern Districts Sewer Scheme – Annual Compliance
Monitoring Report 2022 - 2023**

Waimakariri District Council

3 October 2023

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LIST OF ABBREVIATIONS AND UNITS

ammoniacal-N	ammoniacal nitrogen
BODs	five-day biochemical oxygen demand
°C	degrees Celsius
cfu/100 mL	colony forming units per 100 millilitres
CRC	Canterbury Regional Council
DIN	dissolved inorganic nitrogen
DO	dissolved oxygen
DRP	dissolved reactive phosphorus
EDSS	Eastern Districts Sewer Scheme
EDS	Eastern Districts Sewer
<i>E. coli</i>	<i>Escherichia coli</i>
ESR	Institute of Environmental Science and Research
g/m ³	grams per cubic metre
iu	infectious units
km	kilometre
LOESS	local polynomial regression fitting
L/s	litres per second
MDL	method detection limit
m	metres
mL	millilitres
m ³	cubic metres
m ³ /day	cubic metres per day
N	number of samples
nitrate-N	nitrate nitrogen
NIWA	National Institute of Water and Atmospheric Research
PCB	polychlorinated biphenyls
PAH	polycyclic aromatic hydrocarbons
pfu	plaque forming units
SCADA	supervisory control and data acquisition

TN	total nitrogen
TP	total phosphorus
TSS	total suspended solids
UV	ultraviolet
WDC	Waimakariri District Council
WWTP	wastewater treatment plant

1. INTRODUCTION

1.1. Background

Waimakariri District Council (WDC) operates wastewater treatment plants (WWTPs) at Rangiora, Kaiapoi, Woodend and Waikuku Beach, located in the eastern part of the district. In 2006, the treatment facilities at each WWTP were upgraded, with the flows from these four locations combined for discharge to the coastal marine environment via an ocean outfall located in Pegasus Bay. The upgraded system and ocean outfall, shown in Figure 1, is known as the Eastern District Sewer Scheme (EDSS).

The EDSS operates under a number of resource consents from Canterbury Regional Council (CRC) also known as Environment Canterbury (ECan), which are listed in Table 1 along with their respective reporting requirements and level of compliance for the 2022/23 monitoring year.

Table 1: Eastern District Sewer Scheme Resource Consents

Consent	Activity	Reporting	Compliance
CRC041162.2	To discharge treated sewerage effluent into coastal marine area from sub-aqueous ocean outfall	Refer to Section 2.0 of this report	Full compliance
CRC041049	To discharge treated sewage effluent to the infiltration wetland and to ground water via seepage at the Kaiapoi WWTP	Refer to Section 3.0 of this report	Full compliance
CRC168391	To discharge treated sewage effluent via seepage onto land (Woodend)	Refer to Section 4.0 of this report	Full compliance
CRC145027	To discharge dewatered sludge removed from a wastewater pond to land (Rangiora)	Refer to Section 6.0 of this report	Full compliance
CRC031724	To discharge groundwater from subsoil drains into the marine area of Jockey Baker Creek	Refer to Section 5.0	Full Compliance (no discharge)
CRC168388	To discharge contaminants to air (Woodend)	No reporting required No events to report	Full Compliance
CRC950610	To discharge contaminants to air (Kaiapoi)	No reporting required No Events to Report	Full Compliance
CRC962560	To discharge contaminants to air (Waikuku)	No reporting required No events to Report	Full Compliance
CRC030917	To discharge contaminants, via seepage, from Rangiora STP to land	No reporting required	Full Compliance
CRC041163	For the erection, placement and maintenance of an ocean outfall pipeline and temporary structures, including a trestle structure and sheet piling for the purpose of constructing an ocean	No reporting required	Full Compliance

	outfall, within the coastal marine area		
CRC154176	To discharge contaminants to land (Kaiapoi)	No reporting required	Full Compliance
CRC168390	To use land for storing, treating and discharging human effluent (Woodend)	No reporting required	Full Compliance
CRC173124	To discharge contaminants (odour) to air (Rangiora)	Section 7.0	Full Compliance




1.2. Report Scope

The scope of this report fulfils the reporting requirements of consents issued to WDC by ECan for the purpose of managing and administering the EDSS, these include; CRC041162.2, CRC041049, CRC168391, CRC173124 and CRC145027. These consents require an annual monitoring report be submitted to Environment Canterbury. The reports are required to be submitted variously between 31 July and 31 August each year. However, a combined report for all five resource consents with a due date of 31 August has been agreed between WDC and ECan. Figure 1 below shows the location of the District Ocean Outfall pipeline and individual WWTP sites.

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Legend

-  Wastewater Treatment Plant
-  Gravity Pipeline
-  Pressure Pipeline

1. MAP IMAGE: Land Information New Zealand NZ Topo Series. Copyright Reserved
 2. Drawn by: SG. Reviewed by: RW



2. CRC041162.2 – DISCHARGE FROM OCEAN OUTFALL

2.1. Overview

Consent compliance for the period 1 July 2022 through to 30 June 2023 ('the monitoring period'), has been assessed by WDC. This report includes comparison with data reported in previous monitoring periods, where applicable, reported under the EDSS resource consents.

2.2. Condition 2 – Discharge Volume and Rate

Condition 2 states:

“The discharge shall not exceed a rate of 660 litres per second or 57,000 cubic metres per day.”

Discharge volumes to the ocean outfall were recorded by a supervisory control and data acquisition (SCADA) system, which transmits via a broadband connection to an InTouch data visualisation system. This system is more reliable than the radio link previously used to download outflow data. The meter is still read manually on at least a monthly basis to provide a backup data record in the event the SCADA system fails.

Daily discharge volumes for the 2022/23 period are plotted in Figure 2. Total discharge volumes did not exceed 32,000 m³/day and remained well below the consent limit. Data gathered since July 2022 is graphed in Figure 2. The maximum daily instantaneous discharge rates for the 2022/23 monitoring period are illustrated in Figure 3 below. The Ocean Outfall raw flow data is attached in APPENDIX D “Ocean Outfall Flow Analysis Figures” TRIM 230719109053.

The spike in outfall volumes during July 2022 shown in Figure 2 is a result of the heavy rainfall that Waimakariri experienced from 12 July until 3 August 2022.

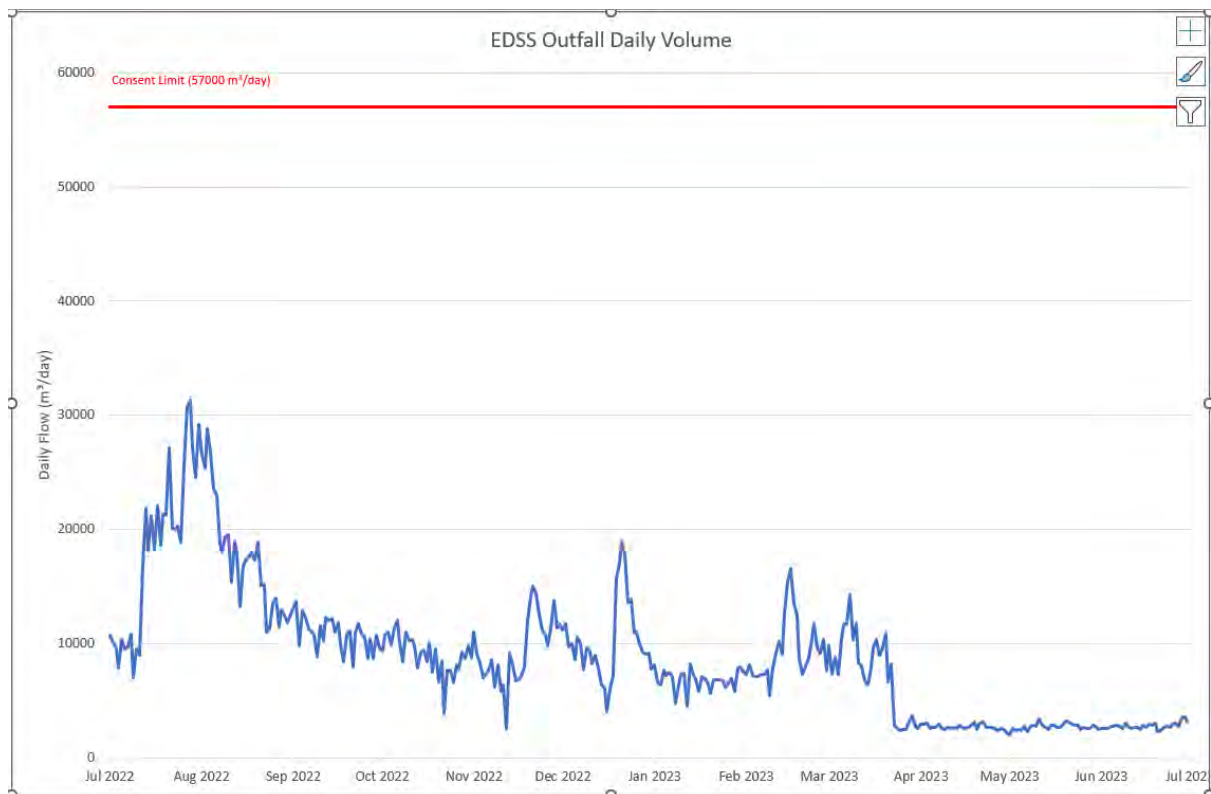


Figure 2. Daily discharge volumes to ocean outfall between July 2022 to June 2023

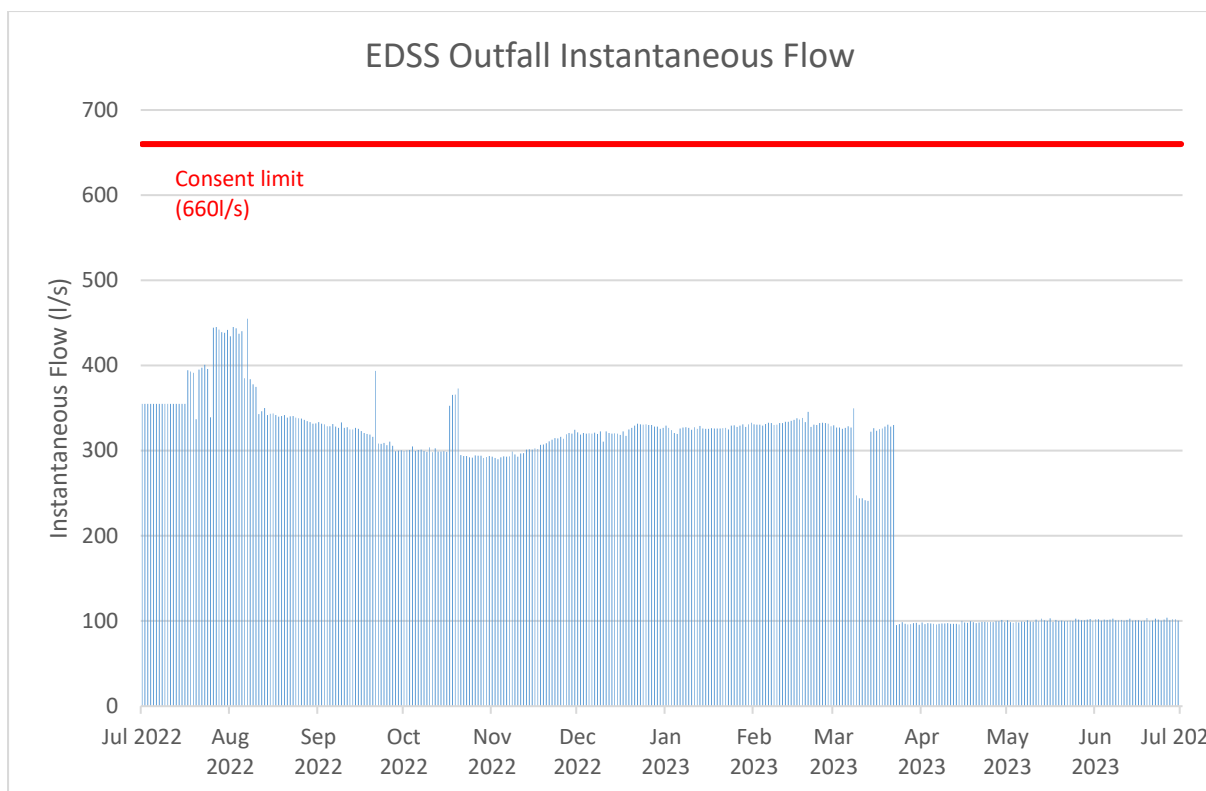


Figure 3: Maximum instantaneous daily discharge rate to ocean outfall between July 2022 and June 2023

Figures 2 and 3 show the ocean outfall daily discharge volume and instantaneous flow rates remained consistently below the consent limits of 57,000 m³/day and 660 L/s, respectively. As a result compliance with Condition 2 was met in full.

The above graphs show flow records reduced suddenly then remained relatively flat from 23 March 2023 onwards. This is the result of a flow meter recording issue at the Kaiapoi WWTP outflow meter which was fixed on 6 July 2023. From 23 March 2023 until 30 June 2023 data is only shown in the above graphs from the Woodend WWTP outflow with no outflow data included from Kaiapoi in the results shown in the graphs. Compliance with consent limits through this period is inferred, based on the preceding data.

The attached raw data sheets show several meter error data corrections in yellow highlight with notes explaining these corrections, where applicable (TRIM 230719109053 – Ocean Outfall Flow Analysis). Further explanation is provided within the attached email (Appendix E - email explanation of data corrections and meter errors TRIM 230720109120).

2.3. Conditions 9 – 12: Ocean Outfall Pipeline Discharge Quality

2.3.1. Overview of monitoring and compliance requirements

Condition 9

Condition 9 states the following:

“A single grab sample shall be taken from the ocean outfall pipeline at the frequencies noted in this condition and the same shall be analysed for the identified contaminants at the frequencies noted for each contaminant. Report schedules shall be prepared recording the results of such analyses. Grab sample locations and the times at which the grab samples are taken shall be recorded and included in the reporting schedules. The consent holder shall retain the reporting schedules.

a) *Weekly*

- i. *pH -reported as pHunits*
- ii. *Dissolved oxygen - reported as % saturation*
- iii. *Temperature - reported as °C*
- iv. *Five-day biochemical oxygen demand - reported as g O/m³*
- v. *Filtered five-day biochemical oxygen demand - reported as g O/ m³*
- vi. *Total suspended solids - reported as g/ m³*
- vii. *Dissolved inorganic nitrogen - reported as g N/ m³*
- viii. *Ammoniacal nitrogen - reported as g N/ m³*
- ix. *Dissolved reactive phosphorus - reported as g P/ m³*
- x. *Faecal coliforms - reported as no./100ml*
- xi. *Enterococci - reported as no./100ml*
- xii. *Escherichia coli - reported as no./100ml.*

b) *Monthly*

- i. *Total phosphorus – reported as g P/ m³*
- ii. *Total nitrogen – reported as g N/ m³*

c) *Three monthly for the first two years and then six monthly thereafter*

- i. *Arsenic - reported as g/ m³*
- ii. *Cadmium - reported as g/ m³*
- iii. *Chromium - reported as g/ m³*
- iv. *Copper - reported as g/ m³*
- v. *Lead - reported as g/ m³*
- vi. *Nickel - reported as g/ m³*
- vii. *Zinc - reported as g/ m³*
- viii. *Mercury - reported as g/ m³*

All metal analysis shall be for total metals only.

d) *Three Monthly for the first two years and then annually thereafter*

- i. *Human Enterovirus. (no./10l)*
- ii. *Human Adenovirus. (no./10l).*

e) *Annually*

- i. *Thermophilic campylobacter spp (cfu/l)*
- ii. *Salmonella spp (no./l)*
- iii. *Organo chlorine pesticides – reported as g/ m³*
- iv. *Polychlorinated biphenyls – report as g/ m³*
- v. *Polycyclic aromatic hydrocarbons – reported as g/ m³*

The initial two year monitoring period began in May 2006 and concluded in April 2008. Since then, metals have been analysed at six monthly intervals, with viral and bacterial monitoring completed annually, in line with Condition 9 above.

Condition 11

Condition 11 requires that monitoring results for five-day biochemical oxygen demand (BODs), total suspended solids (TSS) and ammoniacal nitrogen (ammoniacal-N) are compared with the following limits:

“Based on the weekly sampling required by Condition (9) of this consent, and taken over each 26 week period commencing on the 1st of May, and the 1st of November of each year during

the term of this consent, no more than 16 values in each 26 week period shall exceed the following standards for each of the named contaminants [Table 3]:”

Table 3: Condition 11 limit of resource consent CRC041162.2.

Contaminant	Unit	Standard
BOD5 (filtered)	g/m ³	25
Total suspended solids	g/m ³	200
Ammoniacal nitrogen	g/m ³	27

Condition 12

Condition 12 requires that faecal indicator bacteria monitoring results are compared with prescribed limits:

“Based on the weekly sampling required by Condition (9) of this consent, over each Summer period (November - February inclusive) and over each Winter period (March - October inclusive), no more than six values from eight consecutive samples, shall exceed the following standard values and no more than two values from eight consecutive samples, shall exceed the higher value for enterococci and faecal coliforms /Table 4/.”

Table 4: Condition 12 limits of resource consent CRC041162.2.

Contaminant	Unit	Standard value		Higher value	
		Summer	Winter	Summer	Winter
Enterococci	No./100mL	500	500	1,500	1,500
Faecal coliforms	No./100mL	1,000	9,000	5,000	20,000

2.3.2. Physicochemical

The results of weekly physicochemical monitoring at the outfall structure between July 2022 and June 2023 are summarised in Table 5, alongside results from the previous monitoring period (July 2021 – June 2022). These results are discussed by parameter below. Physicochemical monitoring requirements were met during the 2022/23 period.

Table 5: Physicochemical water quality in the ocean outfall discharge.

Parameter	July 2022 to June 2023			July 2021 to June 2022		Consent Limit
	Samples	Median	Range	Median	Range	
Laboratory pH (unit less)	52	7.9	7.6 – 9.7	7.9	7.6-9.4	
Field pH (unit less)	53	7.63	6.0 – 16.05	7.1	6.4 – 8.45	
DO (g/m³)	53	1.3	0.0– 14.7	7.83	0.0-14.03	
Temperature (°C)	53	14.3	4.3 – 22.1	14.15	3.1 – 25.6	
TSS (g/m³)	52	34	12 - 139	40	8-91	200

pH

Laboratory measured pH in 2022/23 and field measured pH which is compared with earlier years are graphed below. There is no consent limit for pH. The field results show a spike of high pH in August 2022 (several results show a pH of around 16, see the red circle within the below graph, which is likely to be a meter reading error or data entry error). The error has been subsequently corrected as seen in subsequent data. However most lab and field results were between 6.5 and 8.5.

Junction Ocean Outfall

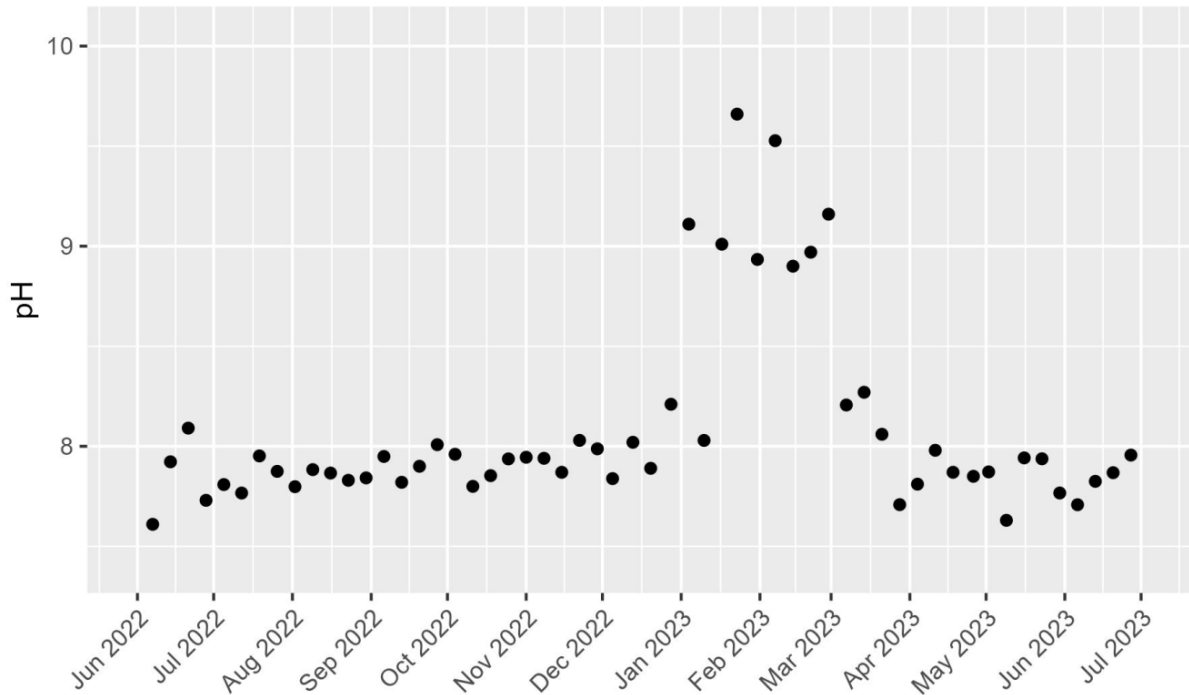


Figure 4: pH (laboratory sample) of the ocean outfall discharge between July 2022 to June 2023

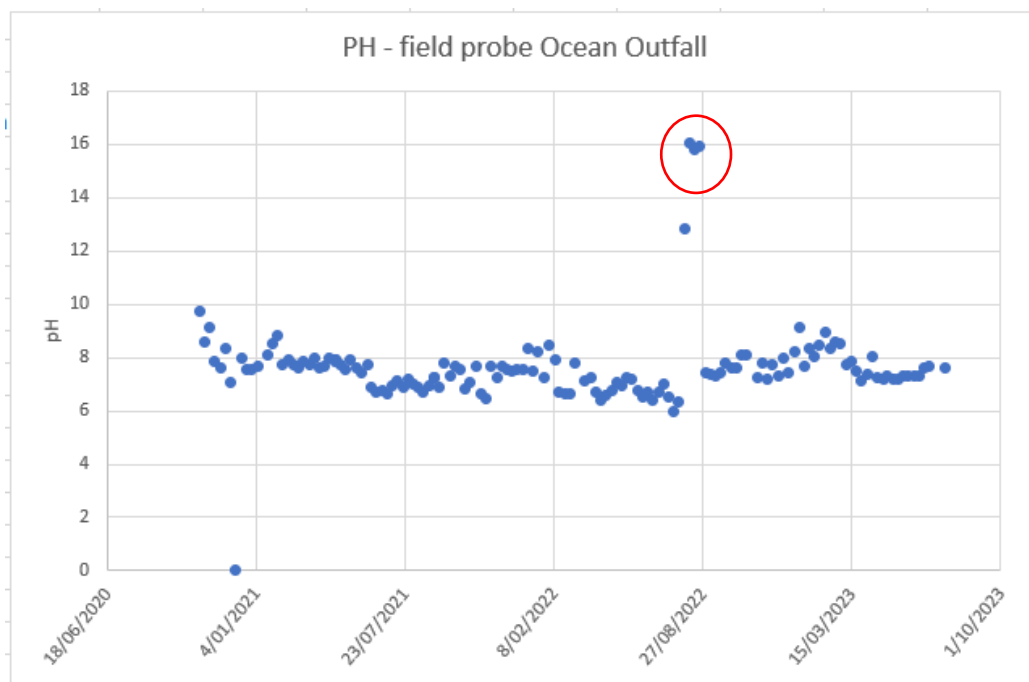


Figure 5: pH (field probe) of the ocean outfall discharge between October 2020 to June 2023

Dissolved oxygen

Dissolved oxygen (DO) concentrations in the Ocean Outfall discharge were trending downwards in the 2022/23 year in comparison with previous years, as shown in the below graph. The DO measurements are taken with handheld meters that are calibrated monthly. The DO was sampled weekly at the outfall structure as required under Condition 9 (see Appendix H for raw data records). There is no consent limit for DO.

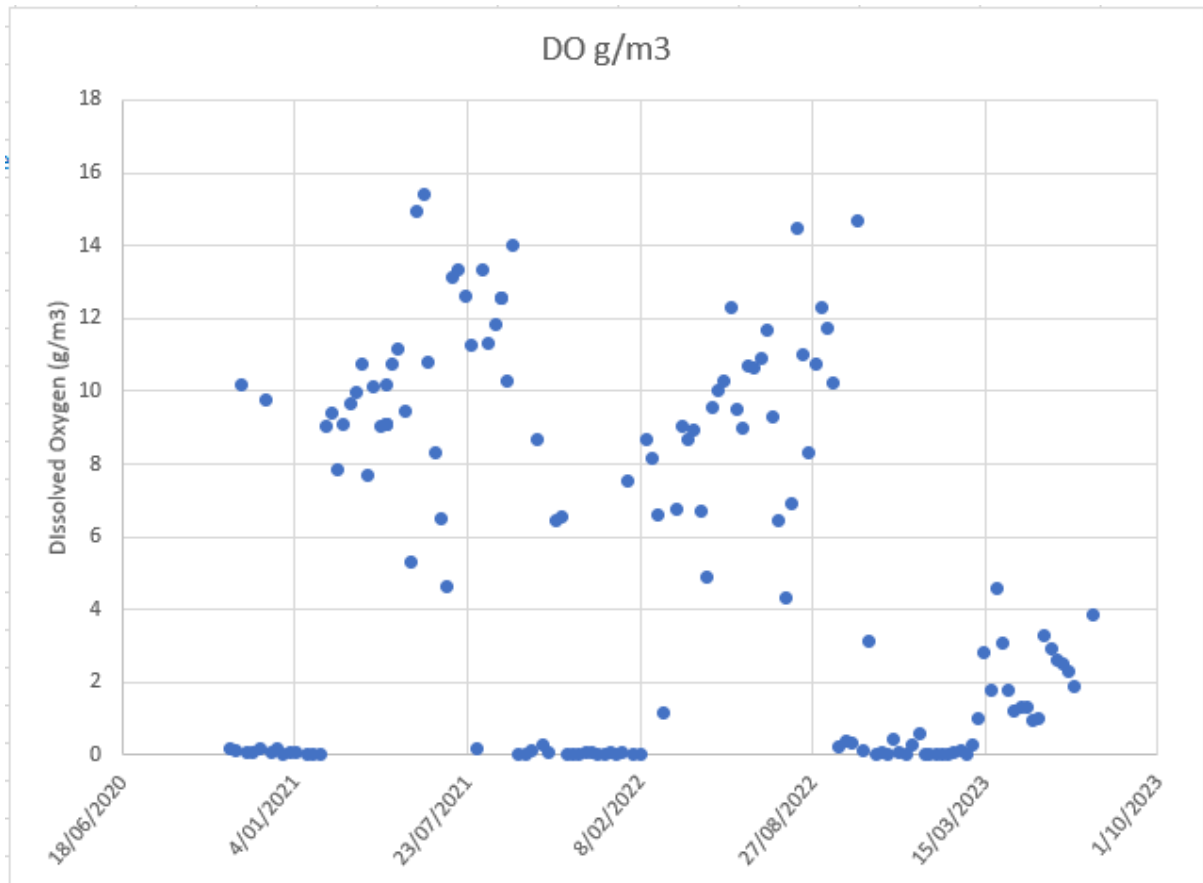


Figure 6. Dissolved oxygen concentrations in the ocean outfall discharge between October 2020 and June 2023.

Temperature

Temperature data showed typical seasonal variation (Figure 7). The annual temperature range in 2022/23 is consistent with previous years. The temperature was sampled weekly at the Outfall structure as required under Condition 9 (see Appendix H for raw data records). There is no consent limit for temperature.

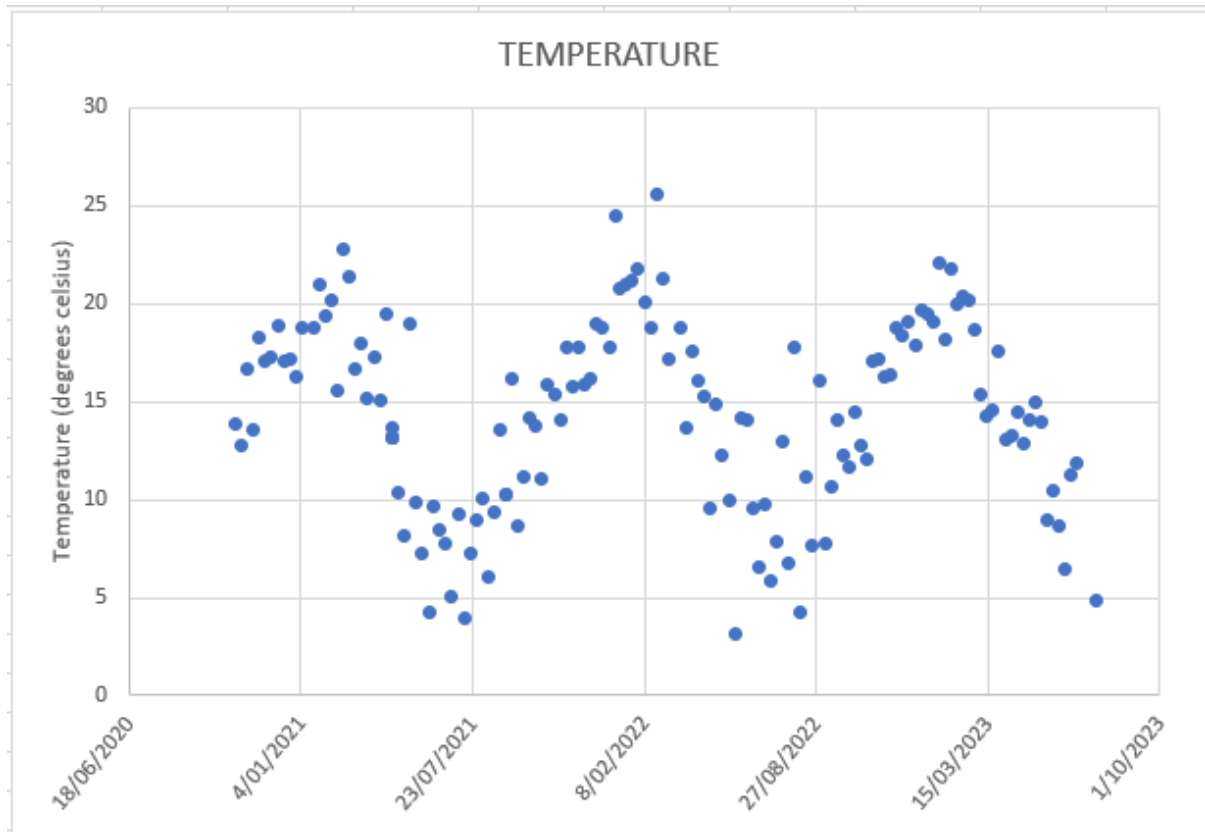


Figure 7. Temperature of the ocean outfall discharge between October 2020 and June 2023

Total suspended solids

There was no exceedance of the consent limit for TSS (200 g/m^3) over the 2022/23 monitoring period of 52 samples (Figure 8), with the maximum reading being 139 g/m^3 which is well below this allowance. Therefore, full compliance was achieved for Condition 11 of the resource consent, which allows up to 16 exceedances in each 26-week period of the current monitoring period. On average the results were very similar with the previous monitoring period (median in 2022/23 of 34 g/m^3 compared with a median of 40 g/m^3 in the previous year). In general, the TSS concentrations displayed consistent quality. The higher TSS results recorded are related to times of high algal numbers in the treatment ponds.

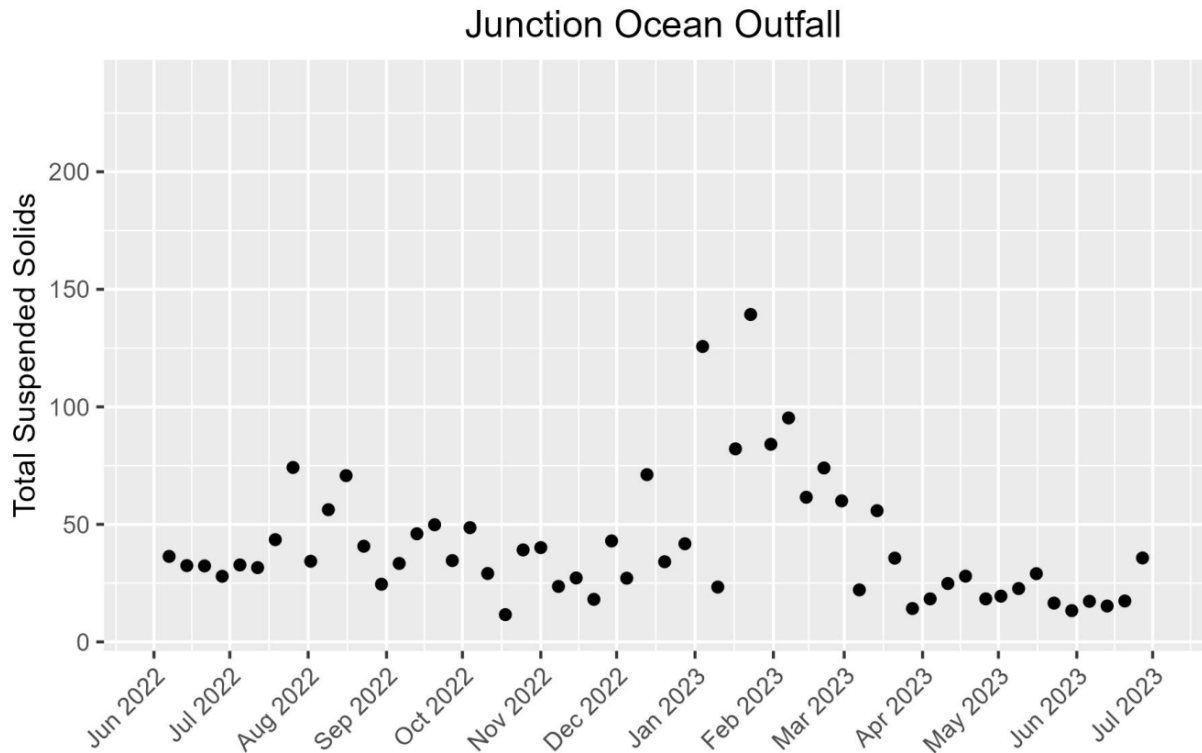


Figure 8. Total suspended solids in the ocean outfall discharge between July 2022 and June 2023.

2.3.3. Biochemical oxygen demand

Biochemical oxygen demand (BOD) results for the 2022/23 monitoring period were similar to those recorded during 2021/22 (Table 6), ranging in the current year from 9 g O²/m³ to 43 g O²/m³, compared with 10 g O²/m³ to 39 g O²/m³ in the previous year.

The soluble BOD results were similar in the 2022/23 monitoring period compared to the previous period and remain well within the consent limit. A summary of BOD results from the ocean outfall discharge is provided in Table 6.

Table 6: Biochemical oxygen demand (g O₂/m³) in the ocean outfall discharge.

Species	July 2022 to June 2023			July 2021 to June 2022		Consent Limit
	Samples	Median	Range	Median	Range	
BOD₅ (g O₂/m³)	52	20	9- 43	21	10-39	
Soluble BOD₅ (g O₂/m³)	52	4	2 - 6	3	2 - 18	25

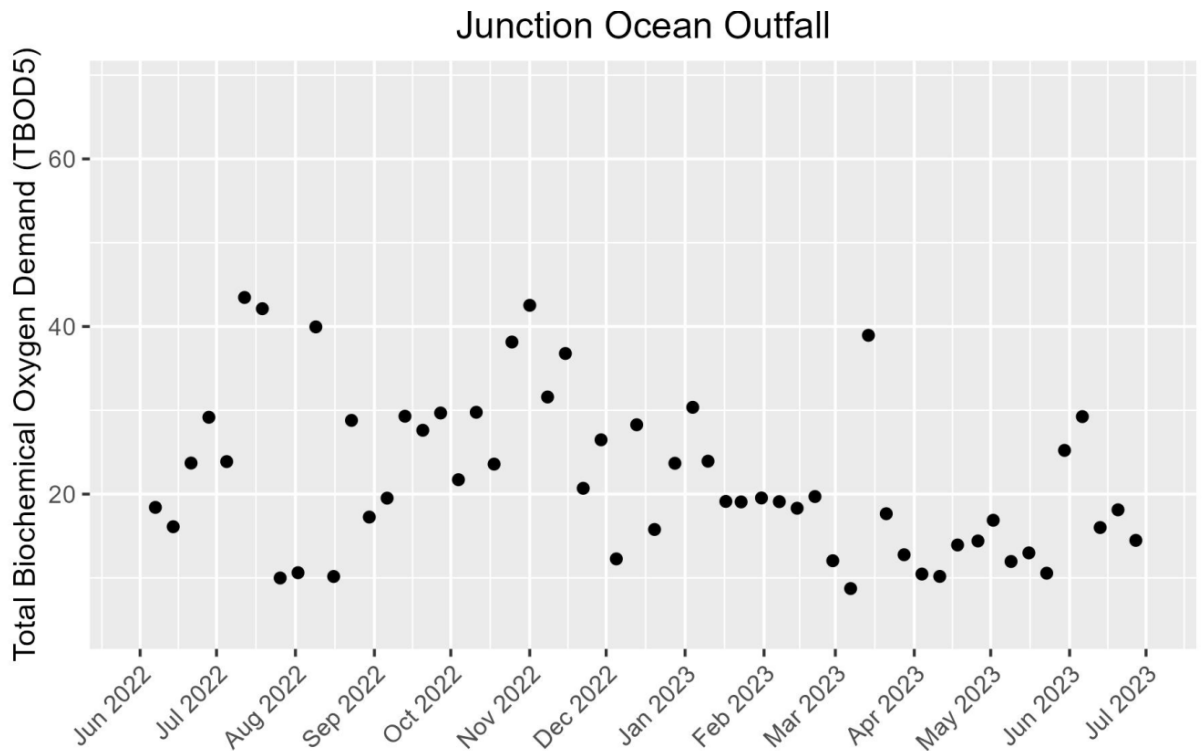


Figure 9: Five-day biochemical oxygen demand of the ocean outfall discharge July 2022 - June 2023.

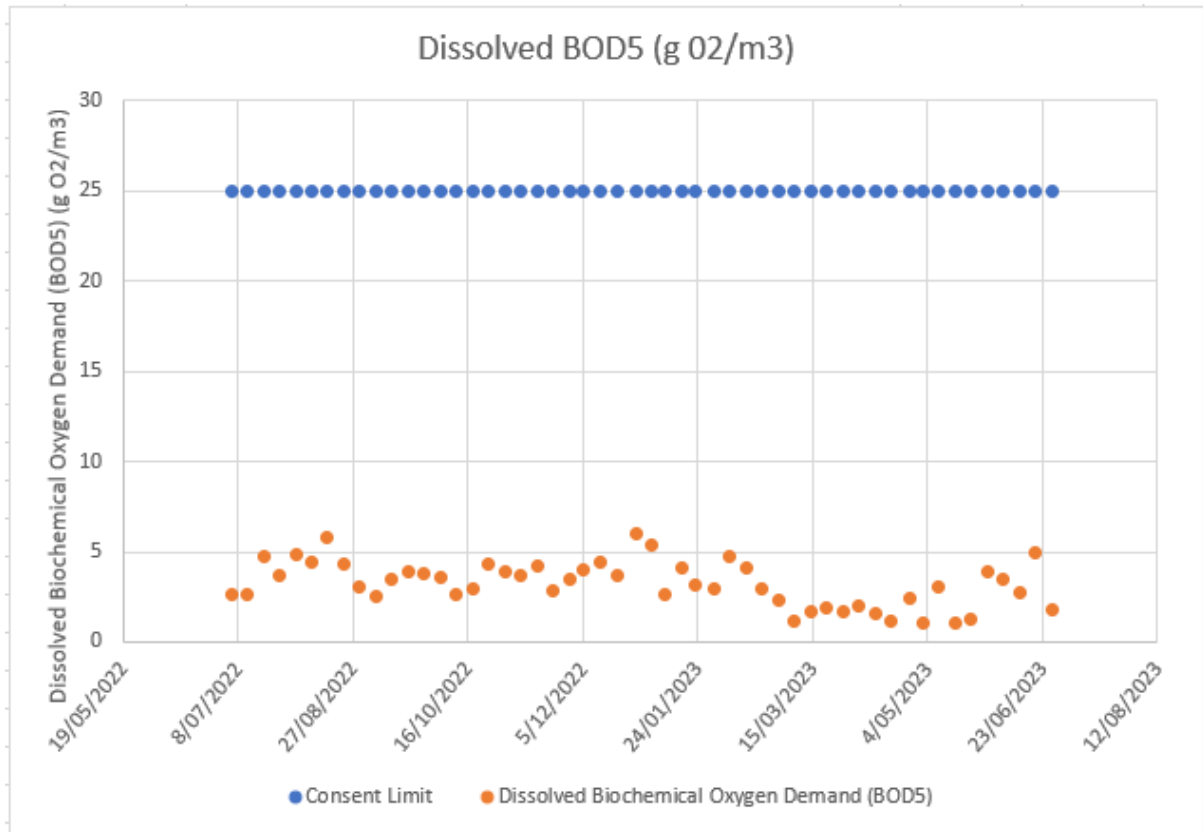


Figure 10. Soluble five-day biochemical oxygen demand of the ocean outfall discharge from July 2022-June 2023

2.3.4. Nutrients

Condition 9 requires dissolved inorganic nitrogen (DIN), ammoniacal-N and dissolved reactive phosphorus (DRP) to be measured weekly. Total nitrogen (TN) and total phosphorus (TP) are required to be measured monthly. The frequency of monitoring prescribed by Condition 9 was met for all parameters other than one missed sample of Total Nitrogen and Total Phosphorous during July 2022, which was due to an error in a bottle set distribution to the laboratory. This was offset by collection of additional samples in December 2022 and January 2023.

Table 7: Nutrient concentrations (g/m³) in the ocean outfall discharge.

Parameters	July 2022 to June 2023			July 2021 to June 2022		Consent Limit
	N	Median	Range	Median	Range	
Dissolved inorganic nitrogen	51	14.9	0.035-23	12.8	1.07-30	
Ammoniacal-N	52	12.4	0.024-23	11.6	0.082 - 30	27
Total nitrogen	13	13.2	8.9-20	17	6.1- 30	
Dissolved reactive phosphorus	52	4	0.7-9.2	4	1.37 – 9.2	
Total phosphorus	13	5.2	2.7 – 8.3	5	3.2– 9.7	

Note: * No more than 16 values to exceed limit in the 26-week period beginning 1 May and 1 November. N: number of samples.

The dissolved inorganic nitrogen results shown in Figure 11 below, indicate a decrease throughout the summer months. There is no consent limit for DIN.

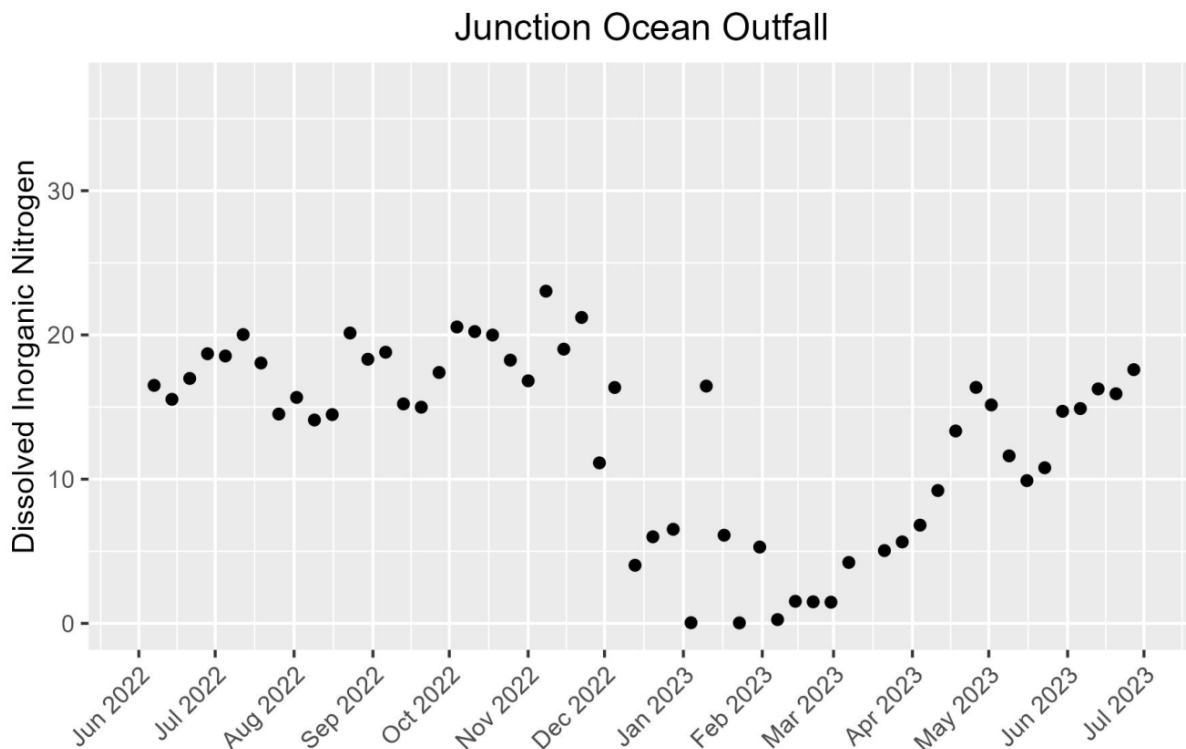


Figure 11. Dissolved inorganic nitrogen concentrations in ocean outfall discharge June 2022-July 2023

In general the Ammoniacal-N (NH_4) levels are similar to the 2021/22 monitoring period. During the 2022/23 year there were no exceedances of the consent limit of 27g/m³ of Total Ammoniacal-N. TAN levels are also lower over the summer months.

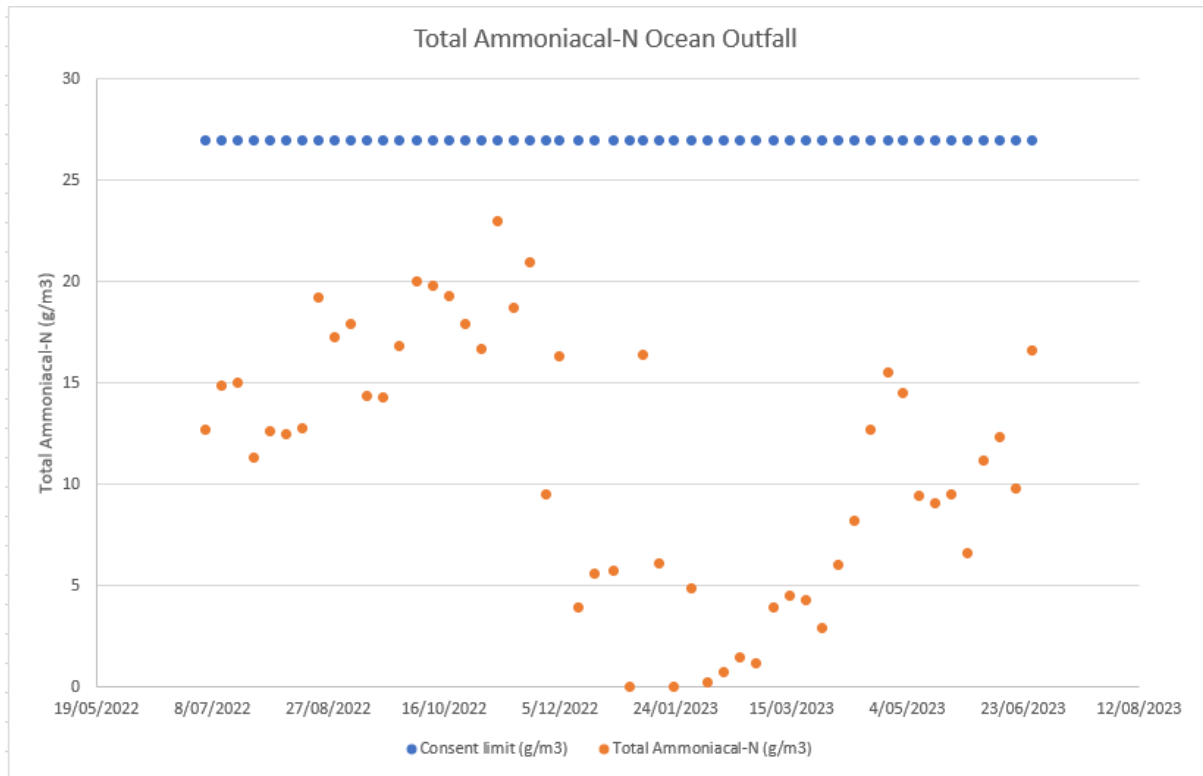


Figure 12. Ammoniacal-N concentrations in the ocean outfall discharge between July 2022 and June 2023

Total nitrogen (TN) concentrations over the 2022/23 monitoring period show a slight downward trend through the year (Figure 13 below). There is no consent limit for TN. No sample result is available for July 2022.

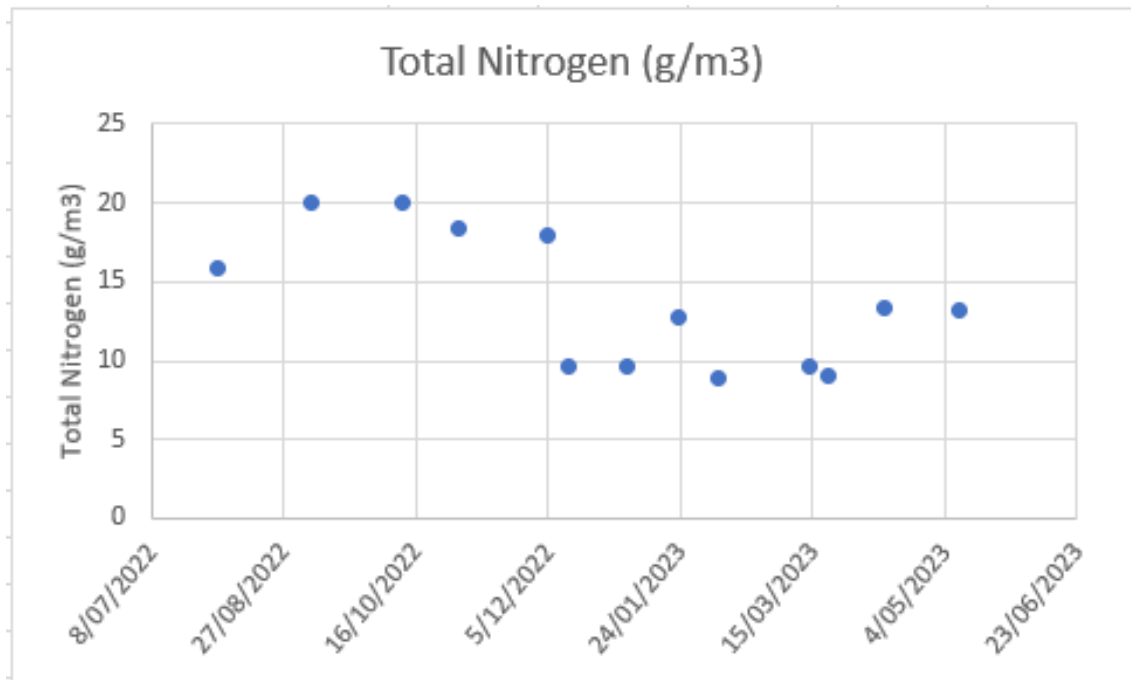


Figure 13. Total nitrogen concentrations in ocean outfall discharge between July 2022 and June 2023

The monitoring results for dissolved reactive phosphorous (DRP) and total phosphorous (TP) are shown in Figures 14 and 15. The pond performance and algae species and numbers remained stable during the 2022-23 period. Most of the phosphorus was present in the dissolved form (DRP). There are no consent limits for DRP or TP. The median DRP was unchanged between 2022/23 and 2021/22 periods (4g/m³).

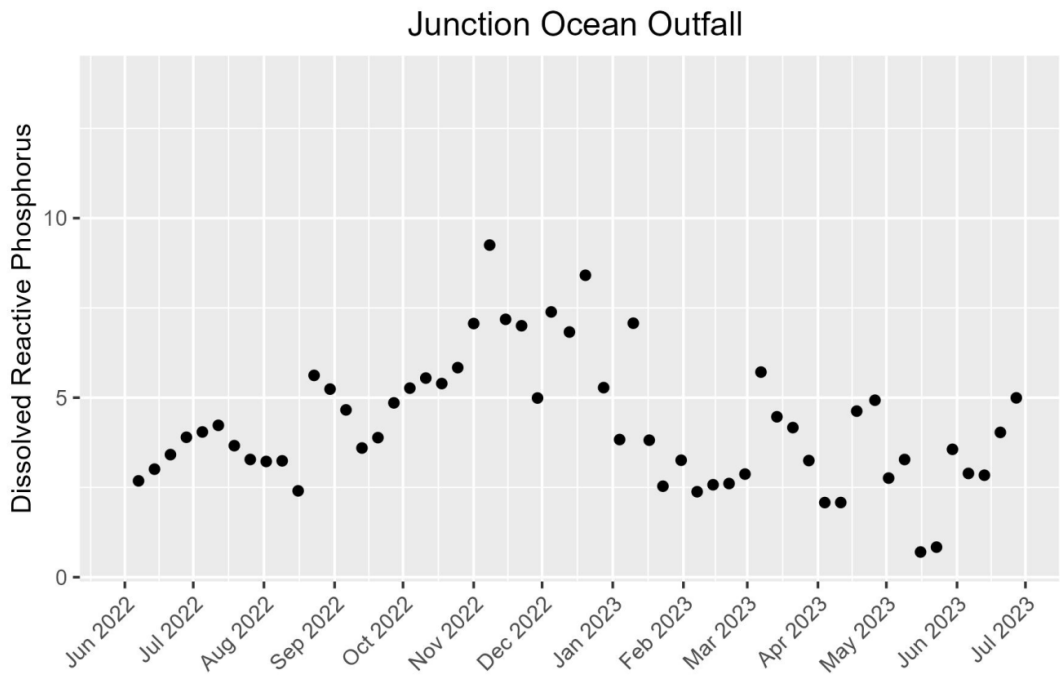


Figure 14. Dissolved reactive phosphorus concentrations in the ocean outfall discharge from June 2022 to July 2023.

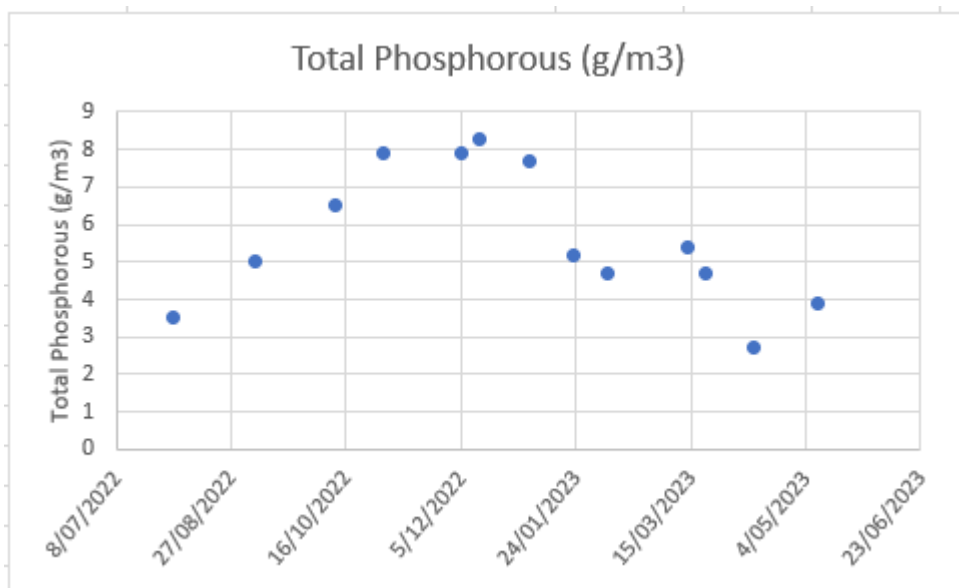
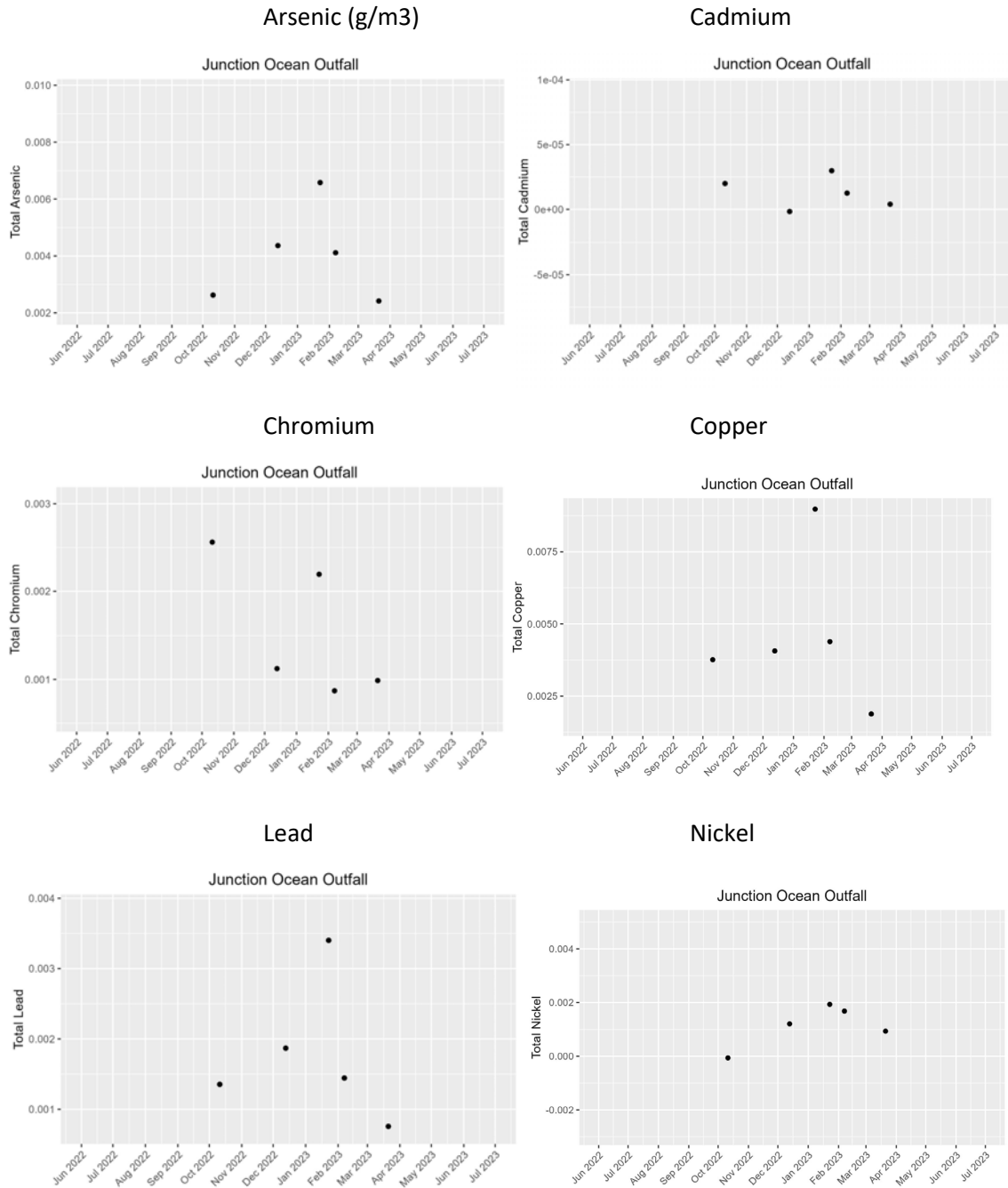


Figure 15. Total phosphorus concentrations in ocean outfall discharge between July 2022 and June 2023

2.3.5. Metals and metalloids

Total metal and metalloid concentrations from July 2022 until June 2023 are shown in Figure 16 below. These metals are required to be sampled twice a year however 5 samples of each parameter were taken during the 2022/23 year. Review of the results show the results for the metals were generally comparable to previous monitoring periods. It is noted however there was an individual spike in copper, lead and zinc in the January 2023 sample, which appears to be an isolated event (see Figure 16 below). Results for mercury and cadmium in the 2022/23 samples in Figure 17 appear flat or partly flat in their result ranges because these metals were not detected by the laboratory in these samples during that period. There are no consent limits for any trace metals and metalloids.



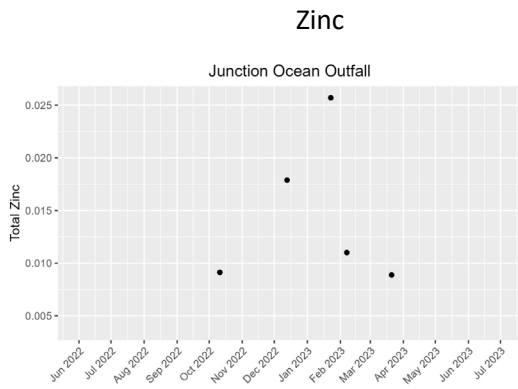
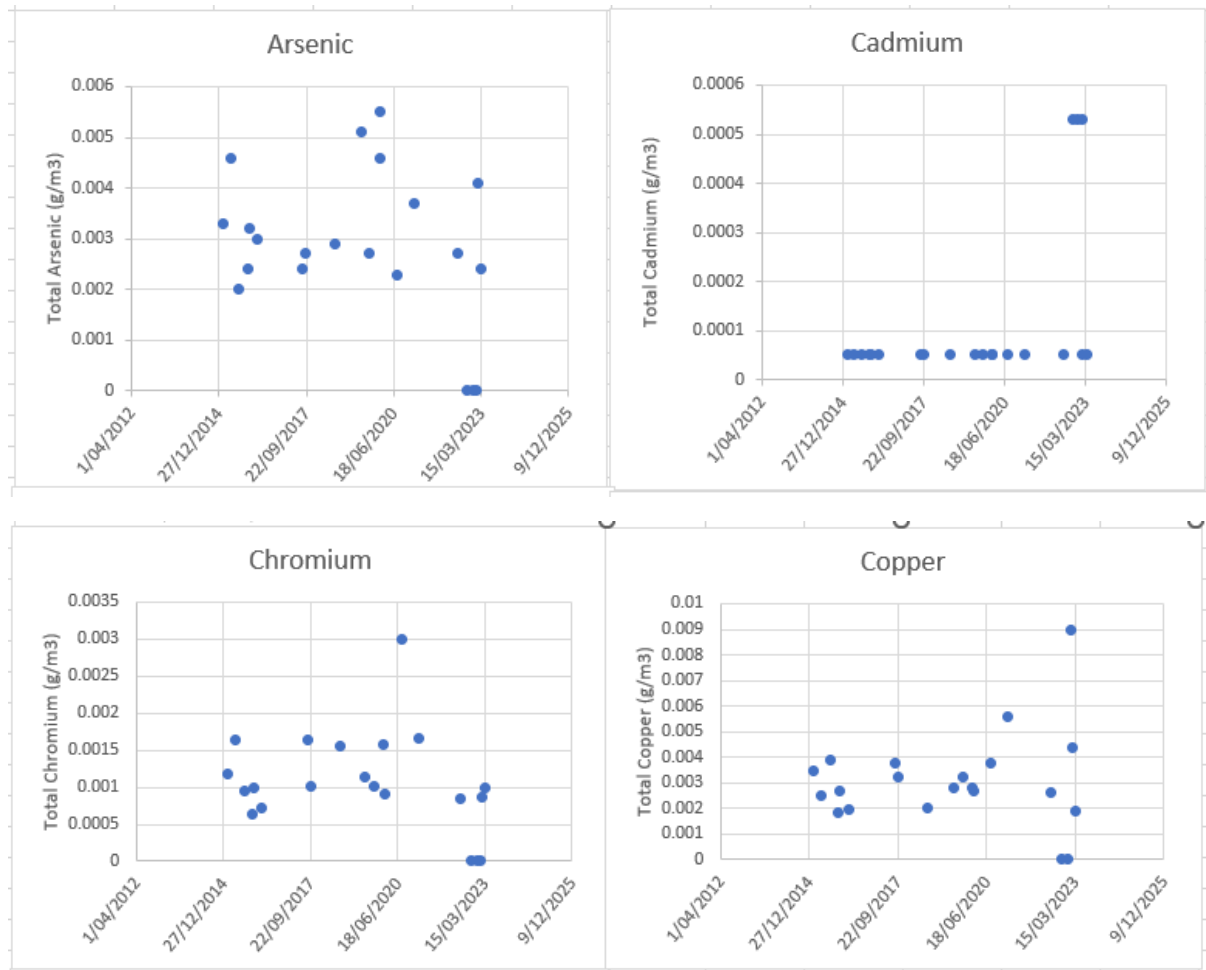


Figure 16: Total metals and metalloids in ocean outfall discharge between July 2022 and June 2023



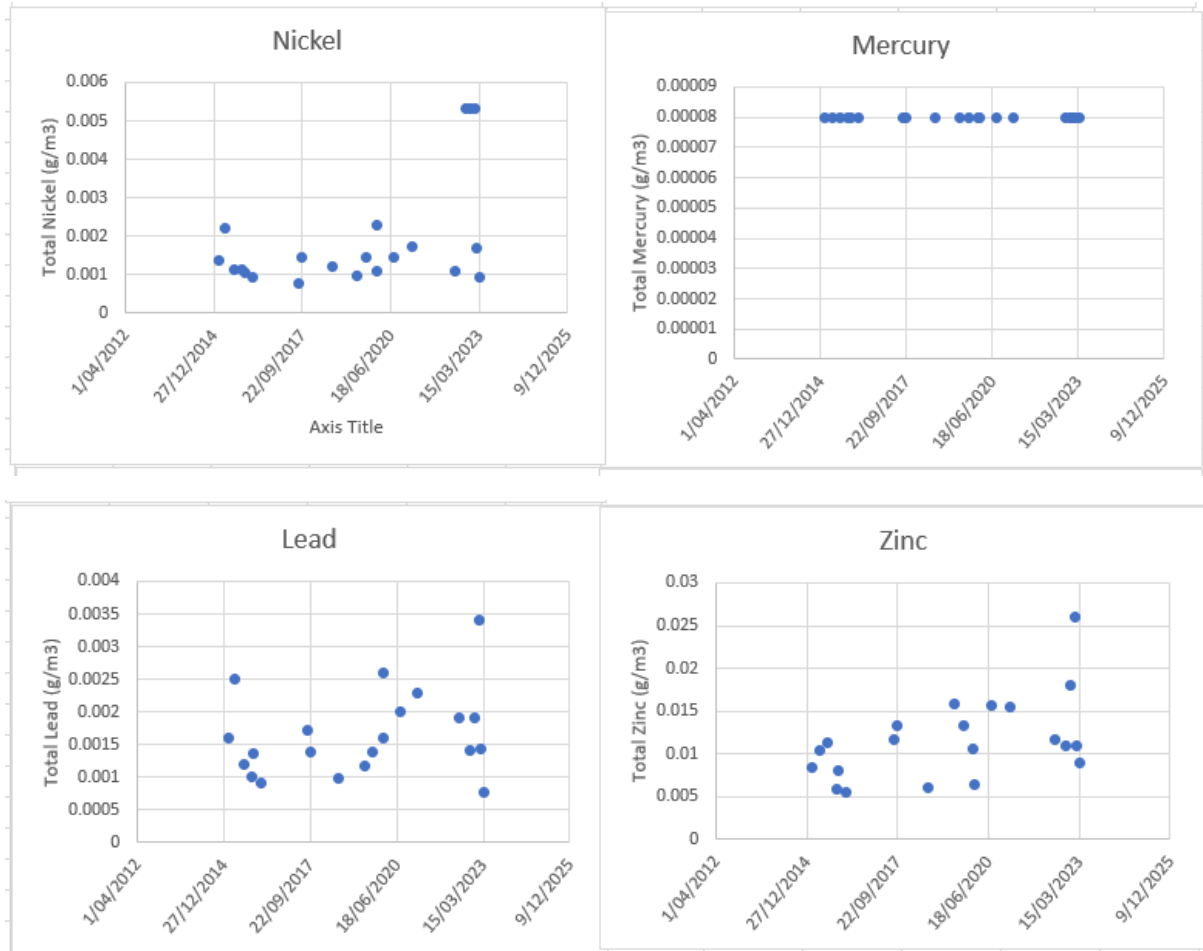


Figure 17: Total metals and metalloids in ocean outfall discharge between 2015 and 2023

2.3.6. Microbiological quality

The Woodend and Kaiapoi WWTPs have ultraviolet (UV) disinfection systems in operation to reduce bacterial numbers in the discharge. During the 2022/23 monitoring period the UV system was in continuous operation for the Woodend WWTP and predominantly operates at the Kaiapoi plant as it is activated whenever pre-set levels of bacteria are detected.

Consent CRC041162.2 specifies weekly monitoring of three faecal indicator bacteria:

- Faecal coliforms
- Enterococci
- *Escherichia coli* (*E. coli*)

The faecal indicator monitoring data for 2022/23 is summarised in Table 8 and is compared with the previous year (2021/22). This data is plotted alongside relevant consent limits as shown in the Figures on the following pages. The sampling frequency for faecal indicator bacteria during the current monitoring period complied with the requirements of Condition 9.

The graphs on the following page show Faecal Coliform numbers below relevant seasonal consent limits over the full 2022/23 monitoring period. Hence full compliance with Condition 12 was achieved for faecal coliforms.

Table 8: Faecal indicator bacteria in the ocean outfall discharge (cfu/100 mL).

Indicator	July 2022 to June 2023			July 2021 to June 2022			Consent Limit	
	N	Median	Range	N	Median	Range	Standard	High
Faecal coliforms (summer: Nov-Feb)	18	150	10-410	17	69	21 – 510	1,000	5,000
Faecal coliforms (winter: March - Oct)	34	115	10-2000	23	50	10 – 1,300	9,000	20,000
Enterococci	52	52	10- 24,200	48	40	10-2,440	500	1,500
<i>E. coli</i>	52	90	10- 1,400	49	50	10-990	-	-

Note: "For each period (summer: November–February; winter: March–October) no more than six out of eight consecutive samples may exceed the 'standard' value and no more than two out of eight consecutive samples may exceed the 'high' value. N: number of samples.

Enterococci numbers in a wastewater discharge of this type are typically lower than faecal coliform or *E. coli* numbers, which are more likely to include non-human derived faecal indicator bacteria as well as human- derived sources. Consent limits for enterococci do not vary between seasons as they do for faecal coliforms, although there is still a standard (500 cfu/100 mL) and high (1,500 cfu/100 mL) limit.

The resource consent allows for six out of eight consecutive samples to exceed the standard limit, and two out of eight consecutive samples to exceed the high limit. There were only three occasions out of a total of 52 samples through 2022/23 when the enterococci exceeded 500 cfu/100mL, and only two occasions through the year when samples exceeded the 1,500 cfu/100mL "high" limit and these were not consecutive. Almost all samples through the year were well beneath the "standard" limit.

The Council believes a likely cause of the individual enterococci spikes in the graph below are from biofilm sloughing off within the pipe when the sample is taken which causes an occasional very high enterococci reading. This is not representative of the usual water quality of the discharge.

In any case, full compliance with Condition 12 was achieved for enterococci with both the standard and high consent limits.

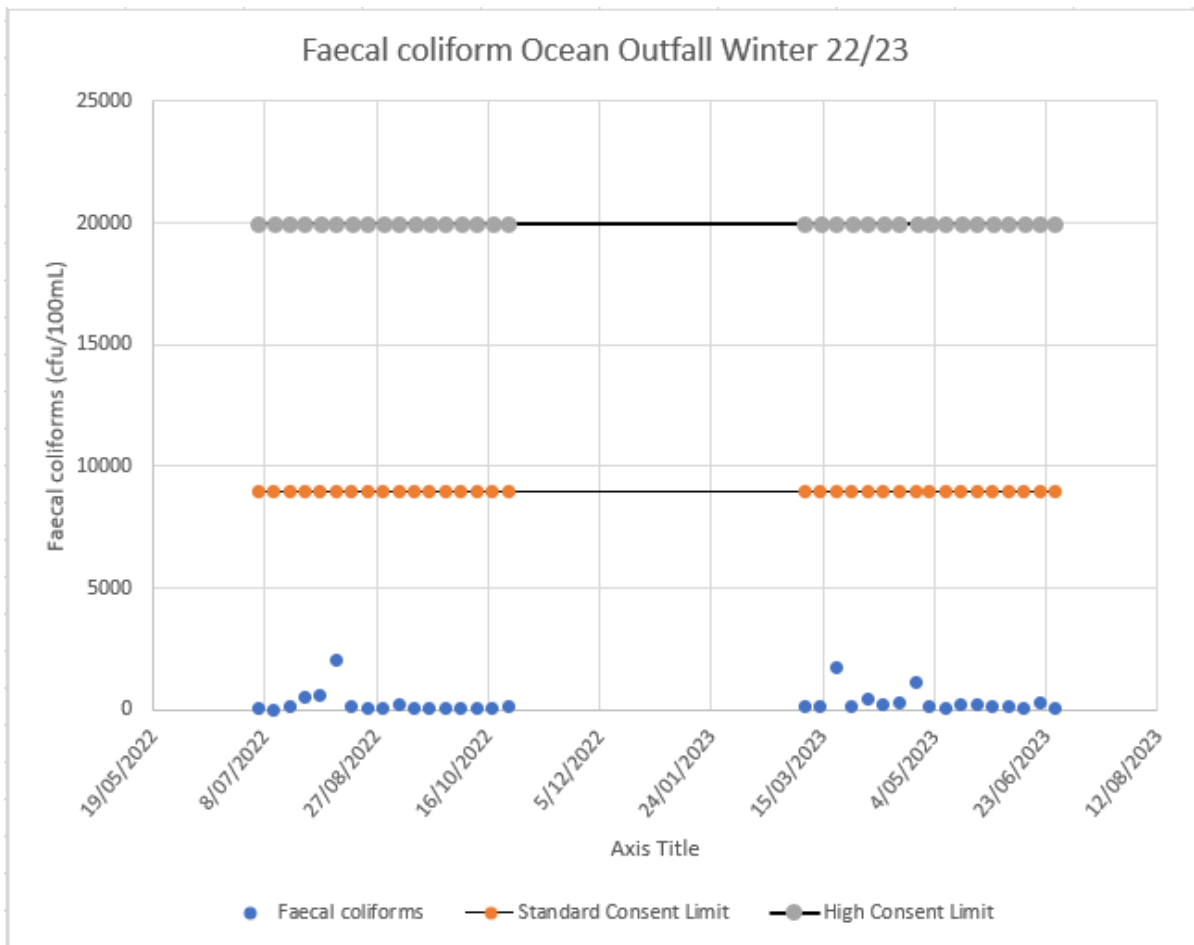


Figure 18. Faecal coliforms in ocean outfall discharge between July 2022 and June 2023 (winter samples only)

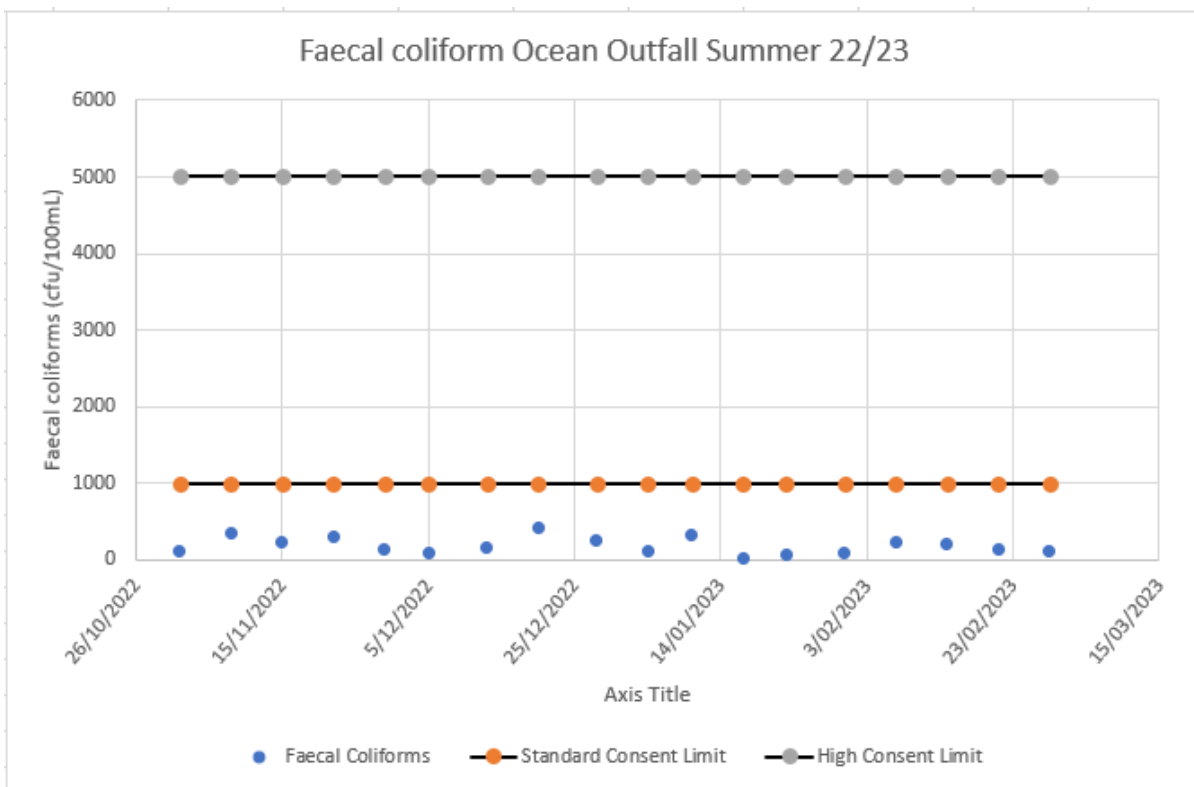


Figure 19. Faecal coliforms in ocean outfall discharge between November 2022 and February 2023 (summer samples only)

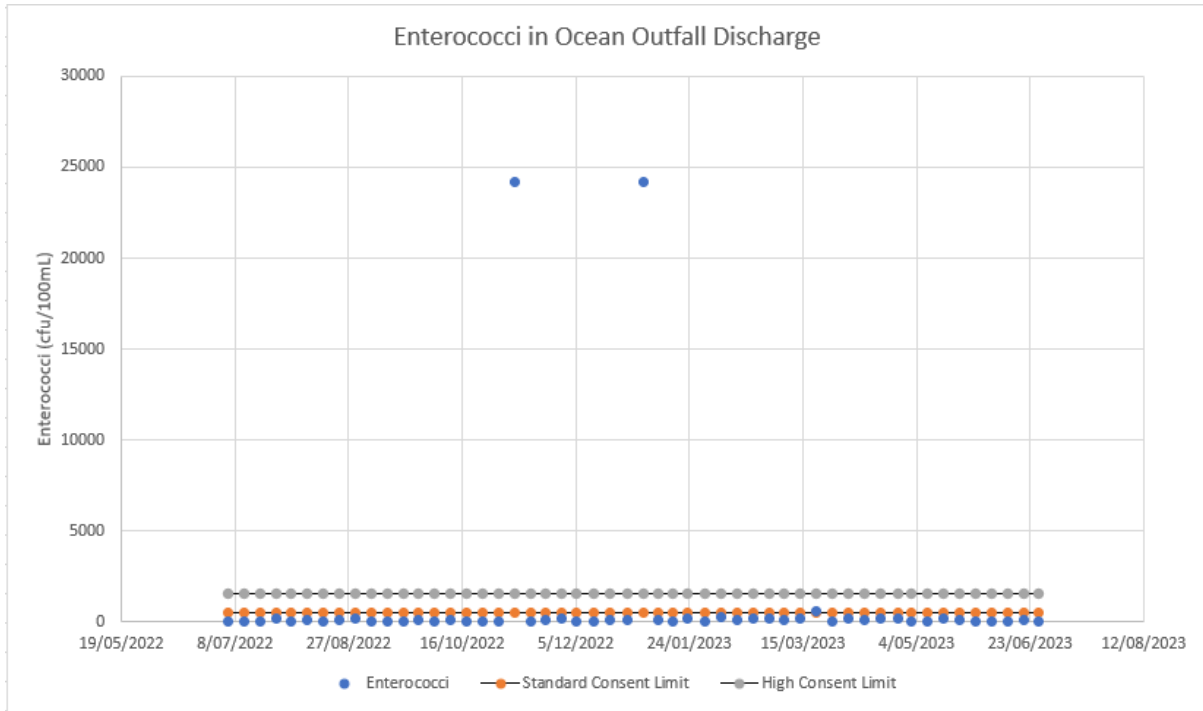


Figure 20. Enterococci in ocean outfall discharge between July 2022 and June 2023

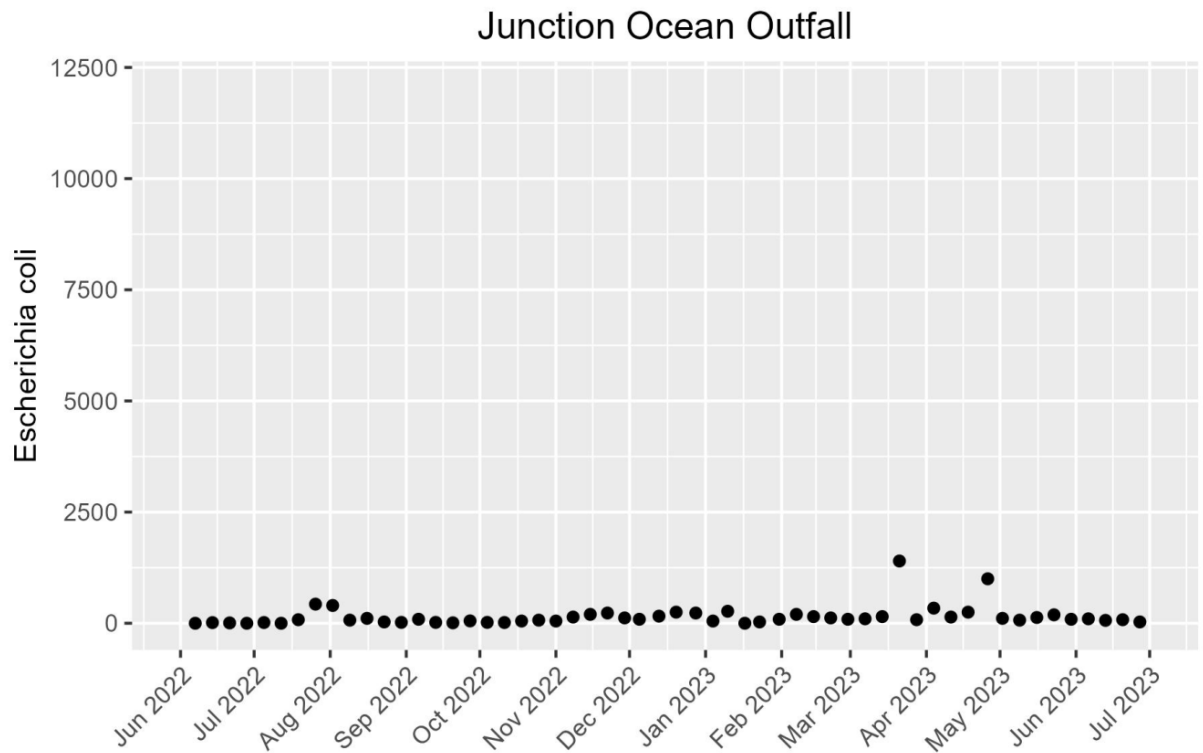


Figure 21. Escherichia coli in ocean outfall discharge between July 2022 and June 2023

Human pathogens

The results for the 2022/23 human pathogen tests are shown in Table 9 alongside results from the previous monitoring periods. Human enterovirus, adenovirus, *Campylobacter* and *Salmonella spp.* are required to be sampled annually, as the three-monthly sampling was only required for the first two years.

The human pathogen sampling requirements of Condition 9(d) were met in full in 2022/23. When sampled, human enterovirus and adenovirus were below their respective MDL during the 2022/23 monitoring period (see Appendix L). There are no consent limits for human pathogens.

Table 9: Human pathogens in ocean outfall discharge.

Pathogen	March 2023	March 2022	March 2021
Human enterovirus (pfu/10 L)	Not detected	Not detected	Not sampled
Human adenovirus (iu/10 L)	Not detected	Not detected	<10
Campylobacter	Detected	Not detected	Detected
Salmonella spp. (/500 mL)	Not detected	Not detected	Not detected

Note: Units: pfu = plaque forming units; iu = infectious units. * Pathogen monitoring during 2015 occurred over various dates.

2.3.7. Organochlorine pesticides, PCBs and PAHs

The annual monitoring for organochloride pesticides, polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) was undertaken in March 2023 (TRIM 230502061483). The full results are presented in Appendix A. There are no limits for organochloride pesticides, PCBs and PAHs, specified in the resource consent.

2.3.8. Summary

Overall, all requirements of conditions 9 – 12 have been met. The following are the main points from the outfall monitoring program:

- The plants are performing well, with monitoring showing the effluent quality comfortably meeting the consent requirements.
- The frequency of sampling was undertaken as required by the consent conditions.
- All organochlorine pesticide, PCB and PAH results were below their respective method detection limits.

2.4. Condition 13 – Woodend Beach, The Pines Beach and Waimakariri River mouth

2.4.1. Monitoring requirements

Condition 13 of CRC041162.2 requires weekly monitoring for faecal coliforms and enterococci at Woodend Beach and The Pines Beach. Woodend Beach is located to the north of the ocean outfall and The Pines Beach to the south. Both locations are north of the Waimakariri River mouth, as shown in Figure 1. The frequency of monitoring during the 2022/23 period at Woodend Beach and Pines Beach complied with these requirements. In addition to the weekly monitoring at Woodend Beach and Pines Beach, WDC also sampled at the Waimakariri River Mouth.

2.4.2. Microbiological monitoring results

The microbiological data measured at each site are shown in Figure 22 and Figure 23, and summarised in Table 10.

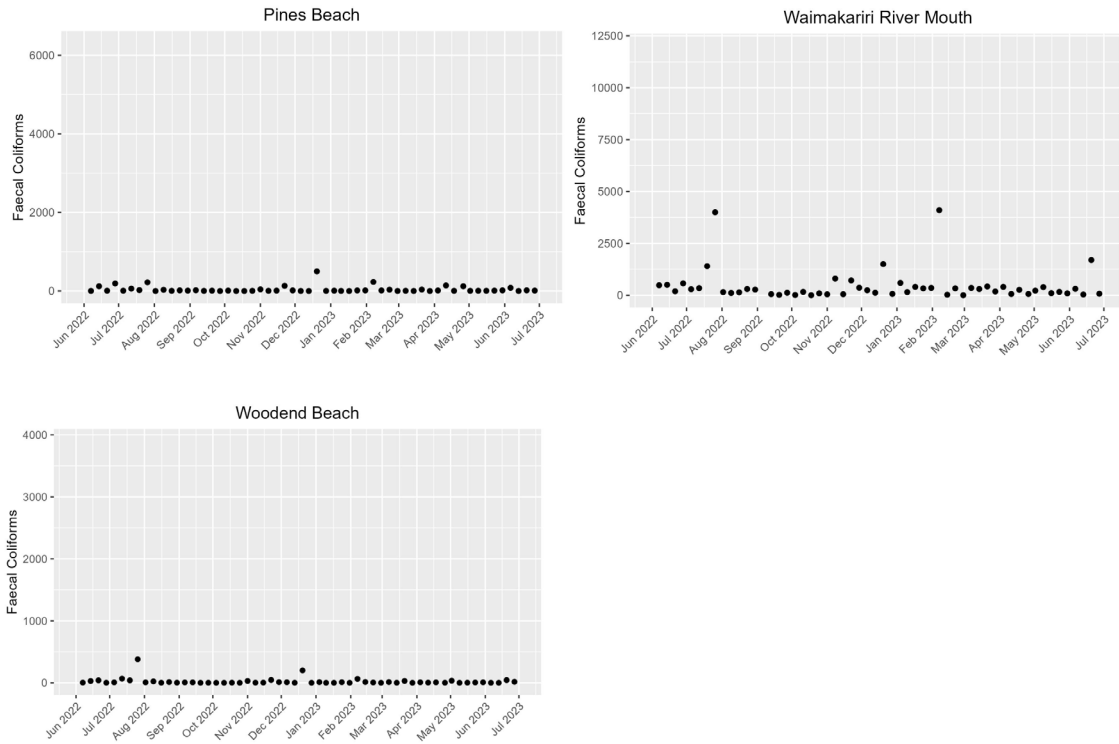


Figure 22: Faecal coliforms at Woodend Beach, The Pines Beach and the Waimakariri River Mouth between July 2022 and June 2023

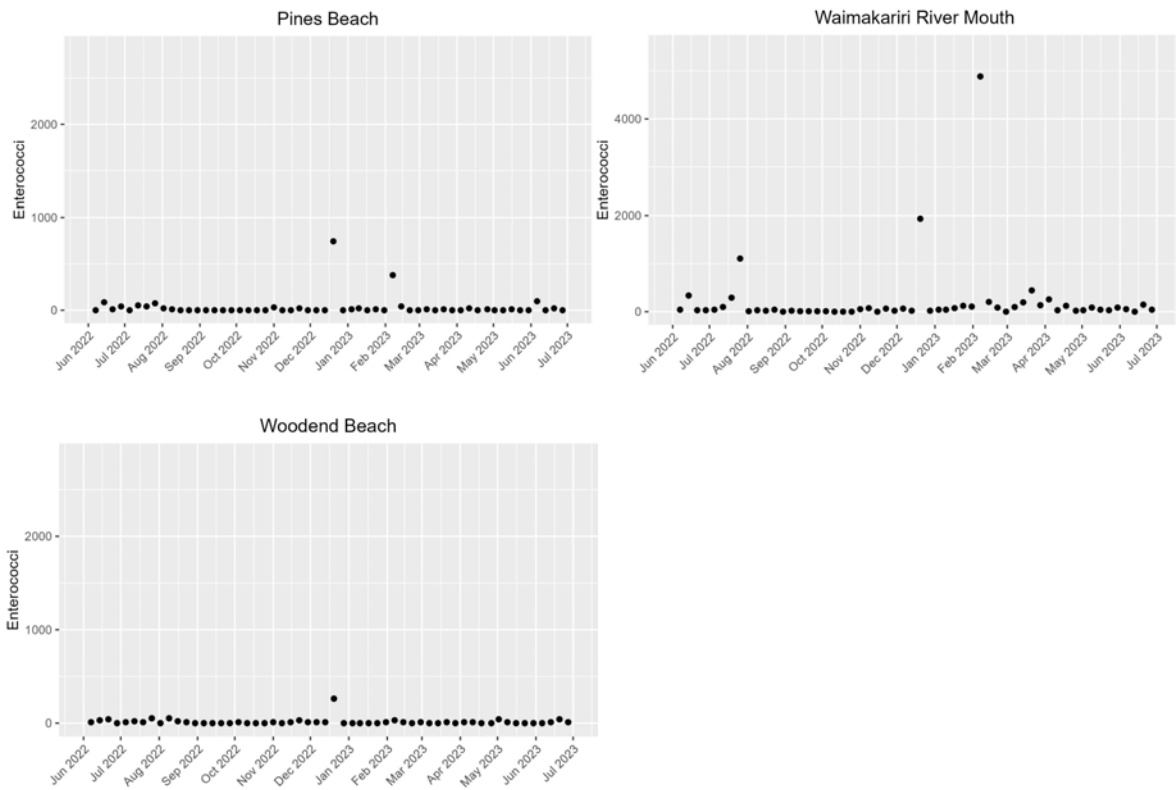


Figure 23: Enterococci at Woodend Beach, Pines Beach and Waimakariri River Mouth between July 2022 and June 2023

Table 10: Microbiological monitoring results for Woodend Beach, The Pines Beach and Waimakariri River Mouth July 2022 – June 2023

Indicator	Woodend Beach		The Pines Beach		Waimakariri River Mouth	
	N	Median (range)	N	Median (range)	N	Median (range)
Faecal coliforms (cfu/100 ml)	53	5	53	9	52	200
Enterococci (cfu/100 ml)	53	10	53	0* (Average '31')	53	41.3

Note: N: number of samples

*Average is also provided for comparison as a large proportion of Pines Beach samples did not detect enterococci

Median numbers of faecal coliforms and enterococci were highest at the Waimakariri River Mouth in all monitoring reported this year (Figures 22 and 23) and Table 10. These results could be due to a number of factors that differentiate the river mouth water quality from Woodend and The Pines Beach, such as catchment contaminant inflow from the lowland tributaries [Styx River and Kaiapoi River] entering near the mouth.

Further possible causes of the higher coliforms and enterococci at the river mouth include birdlife from Brooklands Lagoon or pigeons nesting below the Williams Street Bridge in Kaiapoi. A further factor is the short survival rate of faecal coliforms in marine waters.

2.4.3. Compliance summary – Beaches

The monitoring requirements in Condition 13 for sampling at Woodend Beach and The Pines Beach have been met in full during the 2022/23 monitoring period.

2.5. Condition 14 – Visual Observations

As required by Condition 14, WDC make visual observations at each sampling site to assess the presence of conspicuous oil or grease films, scums or foams or floatable materials. Wind speed and direction were also recorded and are available on request.

During the 2022/23 period, no conspicuous oil or grease films, scums or foams, or floatable materials were noted at either Woodend Beach or the Pines Beach on any of the weekly site visits during the monitoring.

2.6. Conditions 15 to 26 – Water Quality, Surface Sediments and Benthic Infauna

WDC was granted a variation to the conditions of consent, effective from 12 March 2009, relating to the sampling of mixing zone water quality, sediments and Benthic Infauna. Sampling is required after three years following commissioning of the ocean outfall and at five yearly intervals thereafter.

Water quality, surface sediments and Benthic Infauna sampling was undertaken in May 2022 and provided to Environment Canterbury with the 2021/22 Annual Compliance report. The next sampling under Conditions 15 – 26 is due in 2027.

2.7. Condition 30 – Complaints

Condition 30 states the following:

“The consent holder shall maintain and keep a complaints register for all aspects of all operations in relation to the discharge into the ocean. The register shall detail the date, time and type of complaint, cause of the complaint, and action taken by the Consent Holder in response to the complaint. The register shall be available to the Canterbury Regional Council at all reasonable times.”

WDC maintains a complaints register in accordance with the requirements of Condition 30 (see Appendix K).

There were no complaints received for the 2022/23 monitoring period.

2.8. WWTP Operations, Maintenance and Major Shutdowns

There were no major shutdowns of the ocean outfall in the 2022/23 monitoring period. The plants have performed well with no major issues.

2.9. Summary of Compliance – CRC041162.2

A summary of compliance with condition CRC041162.2 is presented in Table 11 below.

Table 11: Summary of compliance for 2022/23 for consent CRC041162.2.

Consent condition	Description	Compliance
Condition 2	Discharge volume and rate	Full compliance
Condition 9	Ocean outfall discharge quality	Full compliance
Condition 11	Discharge BODs, TSS, ammoniacal-N limits	Full compliance
Condition 12	Discharge microbiological limits	Full compliance
Condition 13	Woodend Beach and The Pines Beach	Full compliance
Condition 14	Visual observations	Full compliance
Condition 15 – 26	Water quality, surface sediments and benthic infauna	No testing was required this monitoring period – Full compliance
Condition 30	Complaints	Full compliance

3. CRC041049 – DISCHARGE FROM KAIAPOI WWTP

3.1. Condition 2 – Groundwater Quality Monitoring

Condition 2 states the following:

“The consent holder shall monitor on-site bores 1, 2, and 3 and two new monitoring bores within 200 metres of the site, on a monthly basis for a period of up to two years after the introduction of Rangiora effluent into the wetland, thereafter at three monthly intervals. Samples from the monitoring shall be analysed for faecal coliforms, E. coli, nitrate-nitrogen and ammoniacal-nitrogen.”

The locations of the groundwater quality monitoring bores are shown in Figure 24. The regional groundwater flow is assumed to be towards the east in the direction of the coast. Bore 1 (labelled as WDC1) and Bore A are considered ‘control’ bores as they are located up-gradient of the WWTP, whereas bores 2, 3 (labelled as WDC2 and WDC3, respectively) and B are ‘effects’ bores as they are down-gradient from the WWTP. Effects of the WWTP may be evident in groundwater quality through a comparison of the ‘control’ bores with the down-gradient bores’ water quality.



Figure 24: Location of Kaiapoi monitoring bores

Although the two-year period of monthly sampling required by Condition 2 was met as of February 2008, monthly sampling continued until February 2010 when three-monthly sampling commenced. Four samples were collected during the 2022/23 monitoring period (refer to Table 12). Therefore, the three-monthly sampling requirement was met.

3.2. Groundwater Monitoring Results

3.2.1. Nutrients

Nutrient concentrations in the five bores for the 2022/23 monitoring period are shown in Table 12. Nitrate nitrogen (nitrate-N) data is plotted in Figure 25 and ammoniacal-N data is plotted in Figure 26.

Data correction has been required for the 2022/23 year for WDC1 and WDC3 as results were inconsistent with previous sample data. A suspected “swap” of results in raw data had occurred due to a previous site map (now revised – see above) which did not clearly align with pre-set laboratory container labels. This has been subsequently corrected in the above revised site map, below table, graphs and supporting spreadsheet (Appendix F). Nitrate-N results show low detection levels in all monitored bores. Ammoniacal Nitrogen results show higher ammonia concentrations in the down-gradient “effects” bores.

Table 12: Nitrate-N and ammoniacal-N concentrations in Kaiapoi WWTP groundwater monitoring bores: 1 July 2022 until 30 June 2023

Bore	Nitrate-nitrogen (g/m ³)				Ammoniacal-nitrogen (g/m ³)			
	Aug 22	Oct 22	Jan 23	April 23	Aug 22	Oct 22	Jan 23	April 23
WDC1 (control)*	0.010	< 0.02	< 0.02	< 0.002	0.010	< 0.010	0.019	0.016
Bore A Ferry Road (control)	< 0.002	< 0.002	< 0.002	< 0.002	0.081	0.082	0.096	0.094
WDC2 (effect)*	< 0.002	< 0.002	< 0.002	< 0.002	-	12.9	12.7	12.9
WDC3 (effect)*	< 0.02	< 0.002	< 0.002	< 0.002	9.4	9.0	8.8	11.9
Bore B Clifford Road (effect)	< 0.02	< 0.02	0.008	< 0.002	6.2	5.4	6.7	7.4

*data correction has been applied to these items in the table and supporting Appendix F spreadsheet data for WDC1, WDC2 and WDC3 to reconcile bore locations with site maps and sample labels. Ongoing investigation and reconciliation of bore locations with data outputs is underway through improved mapping and on-site investigation.

Table 13: Lab Sheet, Container Label and Site Map Reconciliation Table.

Bore Index – Map	Lab Sheet and Container Label Reference
WDC1 (control)	Kaiapoi Bore 1
Bore A Ferry Road (control)	Ferry Road
WDC2 (effect)	Kaiapoi Bore 2
WDC3 (effect)	Kaiapoi Bore 3
Bore B Clifford Road (effect)	Clifford Road

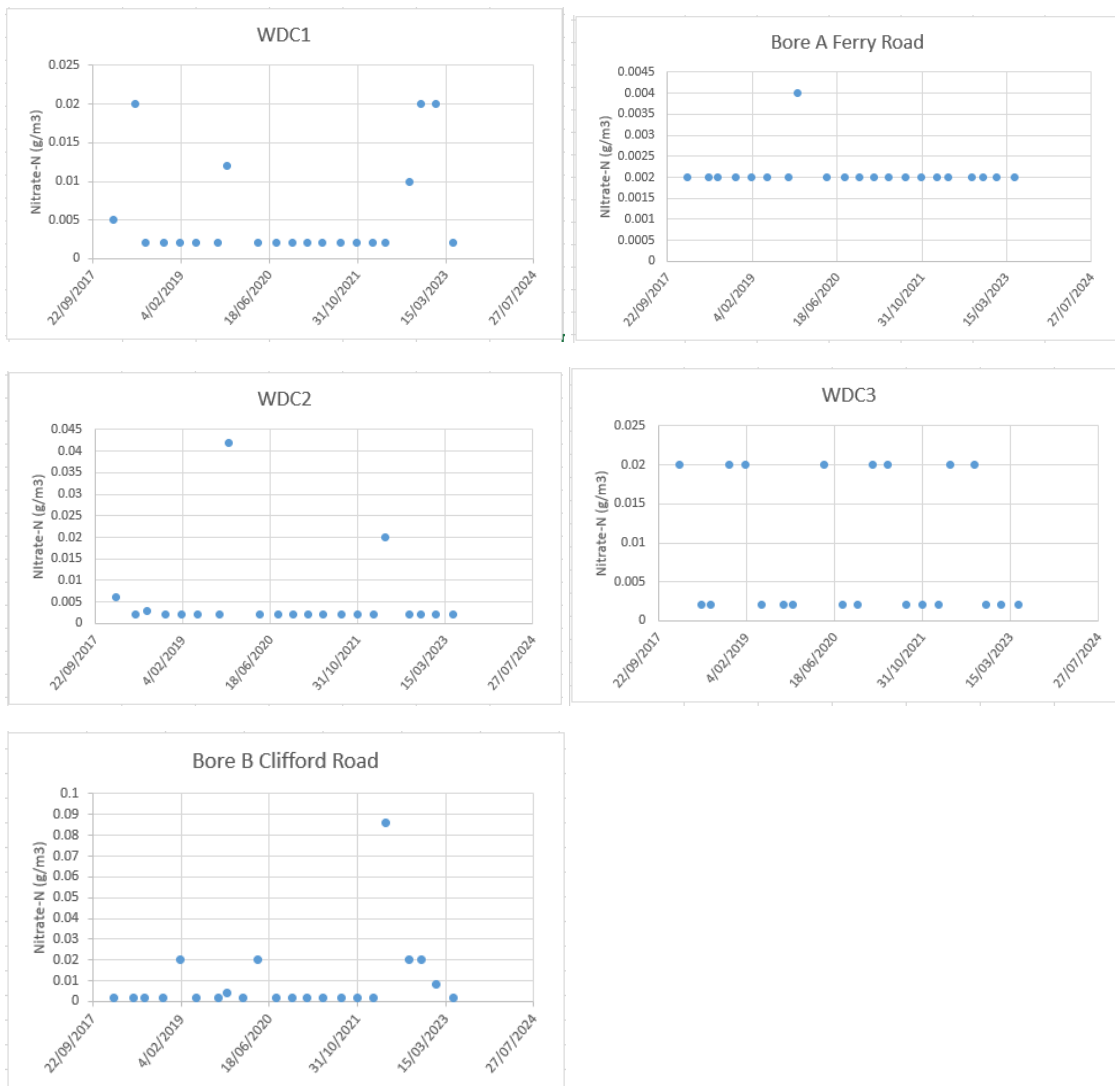


Figure 25: Nitrate-N concentrations in Kaiapoi WWTP monitoring bores between 2018 and 2023



Figure 26: Ammoniacal-N concentration in groundwater monitoring bores from 2018 – 2023 (includes raw data correction in 2022/23)

3.2.2. Faecal indicator bacteria

E. coli and faecal coliform numbers measured during sampling in 2022/23 are tabulated in Table 13 and shown on Figure 27 and Figure 28, respectively.

E. coli and faecal coliform numbers in groundwater were mostly not detected in either the control or effects bores. However there was a spike in both populations in the laboratory results for the April 2023 WDC1 bore, which is a control bore upgradient of the direction of groundwater flow through/beneath the plant. It is considered likely that results from the WDC 1 were swapped with WDC 3 therefore data correction of results has been undertaken in the graphs, table and spreadsheet. However, this observed spike was a unique “one-off” event. Any confusion over bore location will be resolved through future sampling now that the site map has been reconciled with container labels and staff have been provided additional details to clarify the bore locations.

Table 14: Escherichia coli and faecal coliforms in Kaiapoi WWTP groundwater monitoring bores.

Bore	Escherichia coli (cfu/100mL)				Faecal coliforms (cfu/100 mL)			
	Aug 22	Oct 22	Jan 23	April 23	Aug 22	Oct 22	Jan 23	April 23
WDC1 (control)*	<1	<1	<1	<1	2	<1	<1	<1
A Ferry Road (control)	<1	<1	<1	<1	<1	<1	<1	<1
WDC2 (effect)	<1	<1	<1	2	<1	<1	<1	2
WDC3 (effect)*	<1	<1	<1	3,800	<1	<1	<1	4,500
B Clifford Road (effect)	<1	<1	<1	4	<1	<1	<1	4

*Data correction has been applied to WDC1 (control) and WDC3 (effect) bores for the April 2023 result as discussed above.

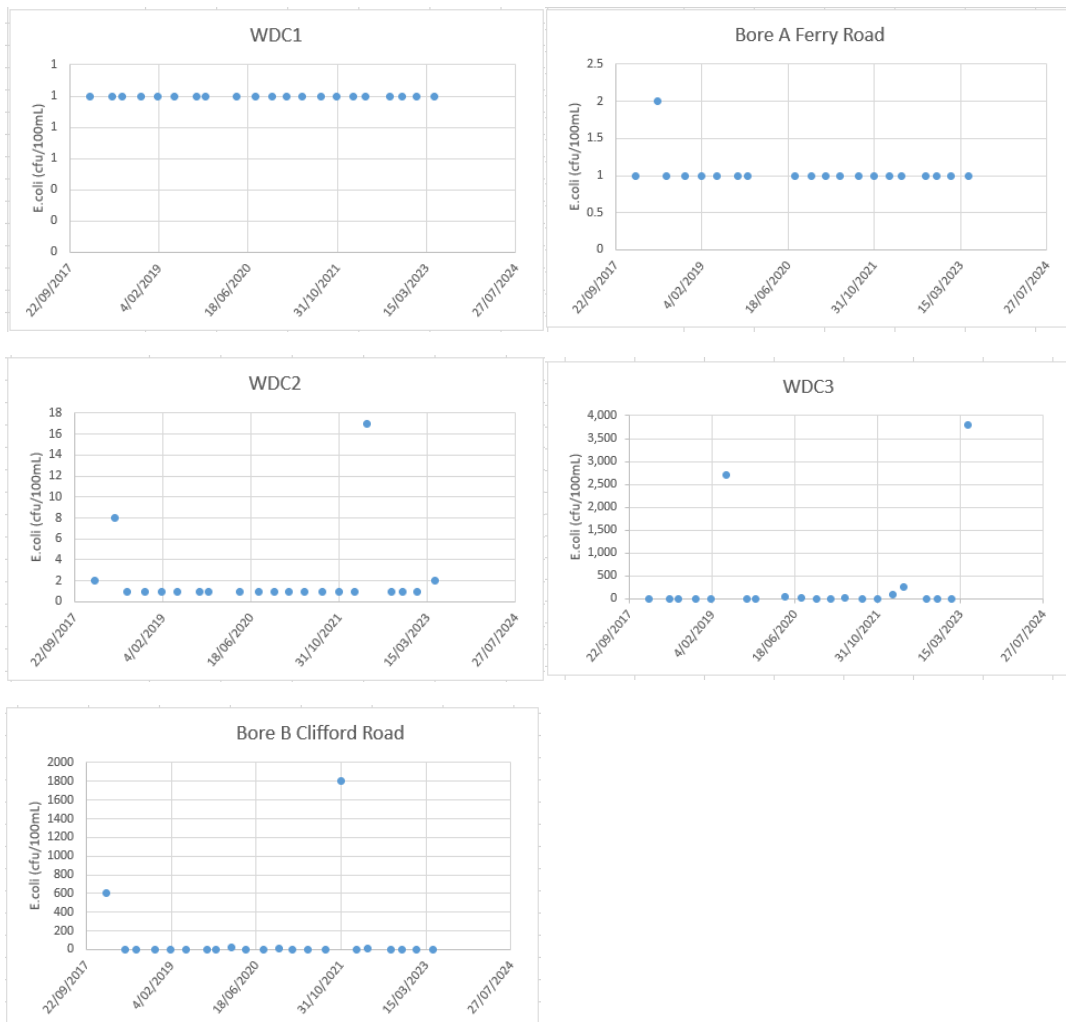


Figure 27: Escherichia coli in Kaiapoi WWTP monitoring bores between 2018 and 2023

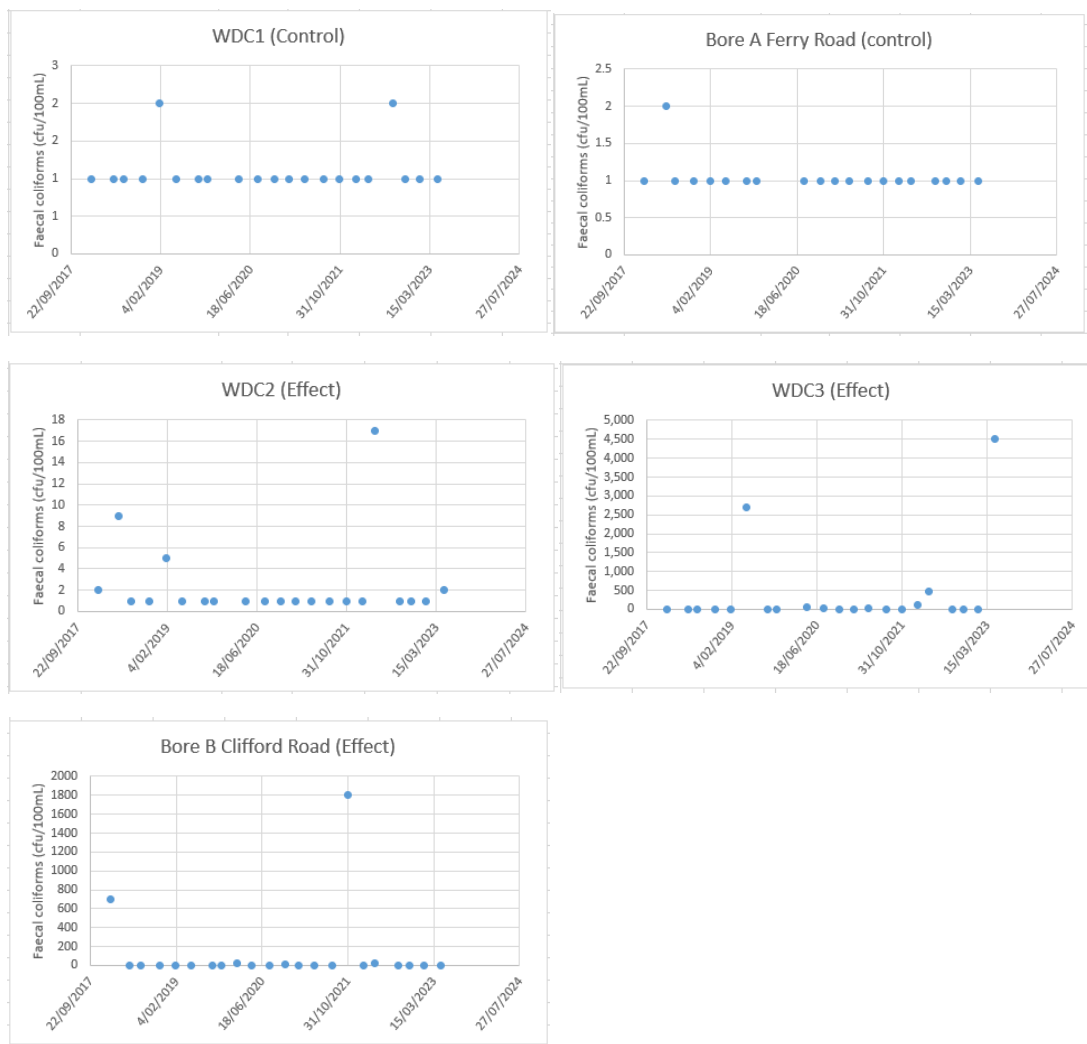


Figure 28: Faecal coliforms in Kaiapoi WWTP monitoring bores between 2018 and 2023

3.3. Condition 6 – Operating and Reporting

There were no major works undertaken at the Kaiapoi WWTP in the 2022/23 monitoring period.

3.4. Summary of Compliance – CRC041049

WDC has complied with the monitoring and reporting requirements of resource consent CRC041049 (Table 14). Groundwater monitoring of five bores in the vicinity of Kaiapoi WWTP in 2022/23 indicated that the WWTP influences groundwater quality down gradient with increasing levels of Ammoniacal-N in shallow groundwater, similar to that identified in previous monitoring periods.

Table 15: Summary of compliance for 2022/23 under CRC041049.

Consent condition	Description	Compliance
Condition 2	Groundwater monitoring	Full compliance
Condition 6	Annual reporting	Full compliance

4. CRC168391 – FROM WOODEND WASTEWATER TREATMENT PLANT

4.1. Overview

The Woodend WWTP is located approximately 23 km north of Christchurch (Figure 29) and receives wastewater from Woodend, Waikuku Beach, Pegasus, Tuahiwi and Woodend Beach. The WWTP consists of two inlet screens, three aeration basins, two settling ponds and a wetland. Treated wastewater passes through an ultraviolet (UV) disinfection system before being pumped to the ocean outfall in Pegasus Bay between The Pines Beach and Woodend Beach, north of the Waimakariri River mouth.



Figure 29: Location of Woodend WWTP and groundwater monitoring sites.

Resource consent compliance for the period 1 July 2022 to 30 June 2023 (the monitoring period) has been assessed using monitoring data provided by WDC. WDC undertakes additional monitoring at the WWTP which, although is not required by the consent, is included in this report where relevant.

4.2. Conditions 5 – 6: Seepage

4.2.1. Record keeping for daily volumes

The resource consent requires WDC to keep records of daily volumes received by the Woodend WWTP and daily volumes discharged to the ocean outfall. As shown in Figure 30, the Woodend WWTP receives influent wastewater from six wastewater pump stations. These are:

- Gladstone Road pump station
- Petries Road pump station
- Woodend Beach pump station
- Waikuku Beach WWTP
- Pegasus Main Street pump station
- Mary Ellen Street pump station
- Kesteven Place pump station

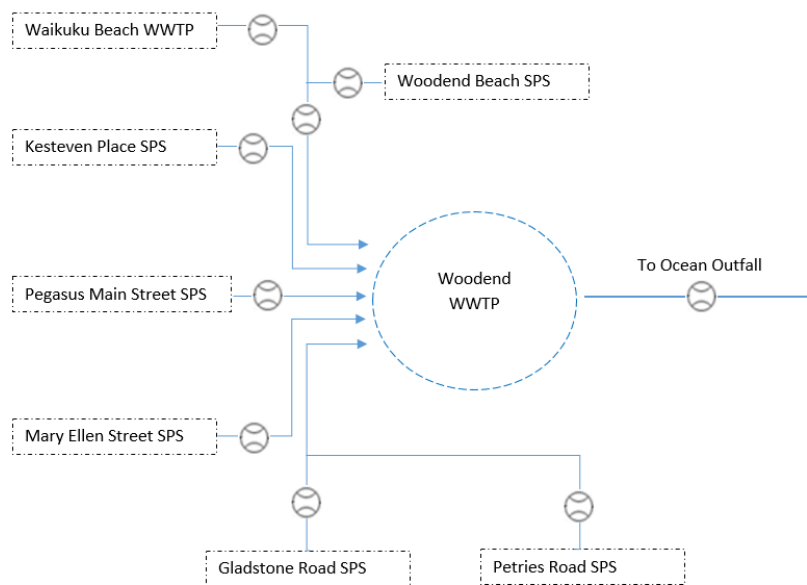


Figure 30: Schematic Woodend sewer network

Inflow records from the electromagnetic flow meters at Gladstone Road, Petries Road, Woodend Beach, Waikuku Beach WWTP, Pegasus Main Street, Mary Ellen Street and Kesteven Place for the monitoring period were recorded by the WDC SCADA system. These volumes are presented as the combined daily inflow volumes mapped alongside rainfall data from the Woodend, Gladstone weather station for the corresponding period on the same figure for comparison.

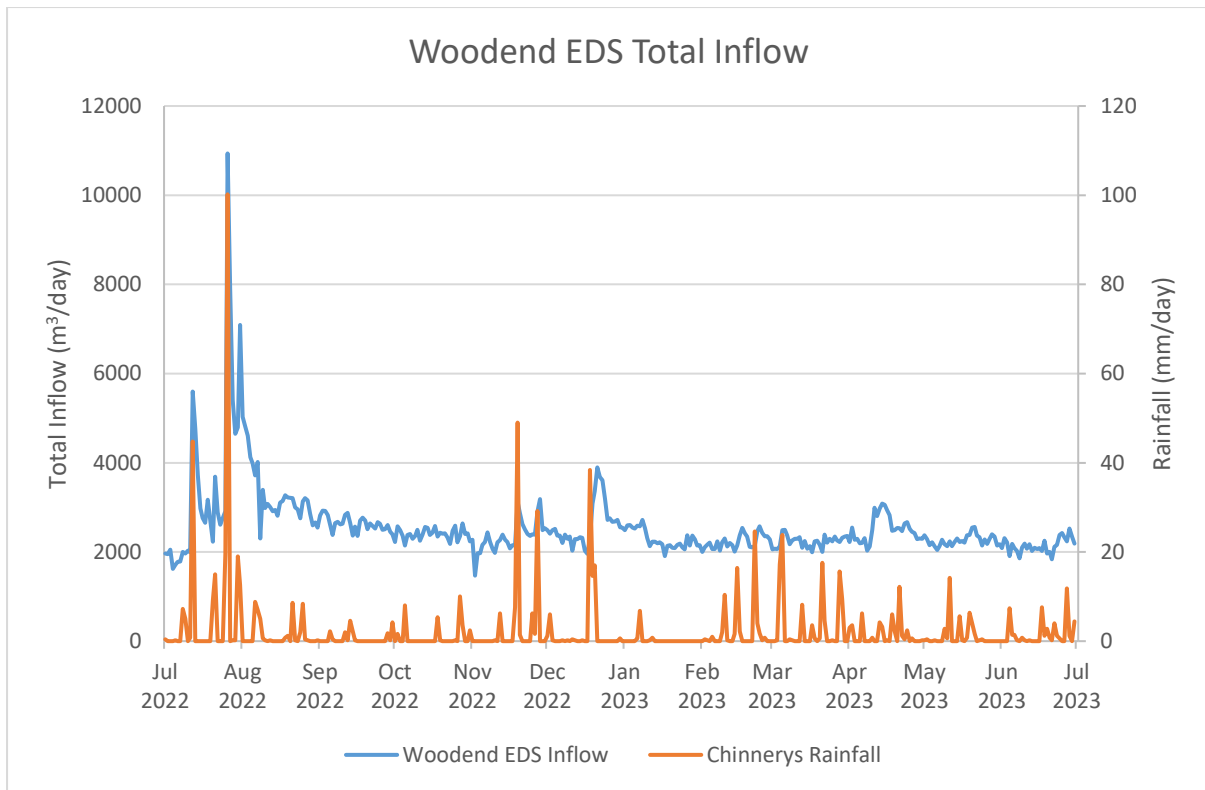


Figure 31: Daily inflow volumes July 22 – June 2023 plotted with rainfall at Woodend.

Outflow data is measured by an electromagnetic flow meter and logged via a SCADA system. Flows from Woodend WWTP to the ocean outfall for the 2022/23 monitoring period are shown in Figure 32. Flow data for the Woodend WWTP is available in TRIM 230719108975 (see Appendix C).

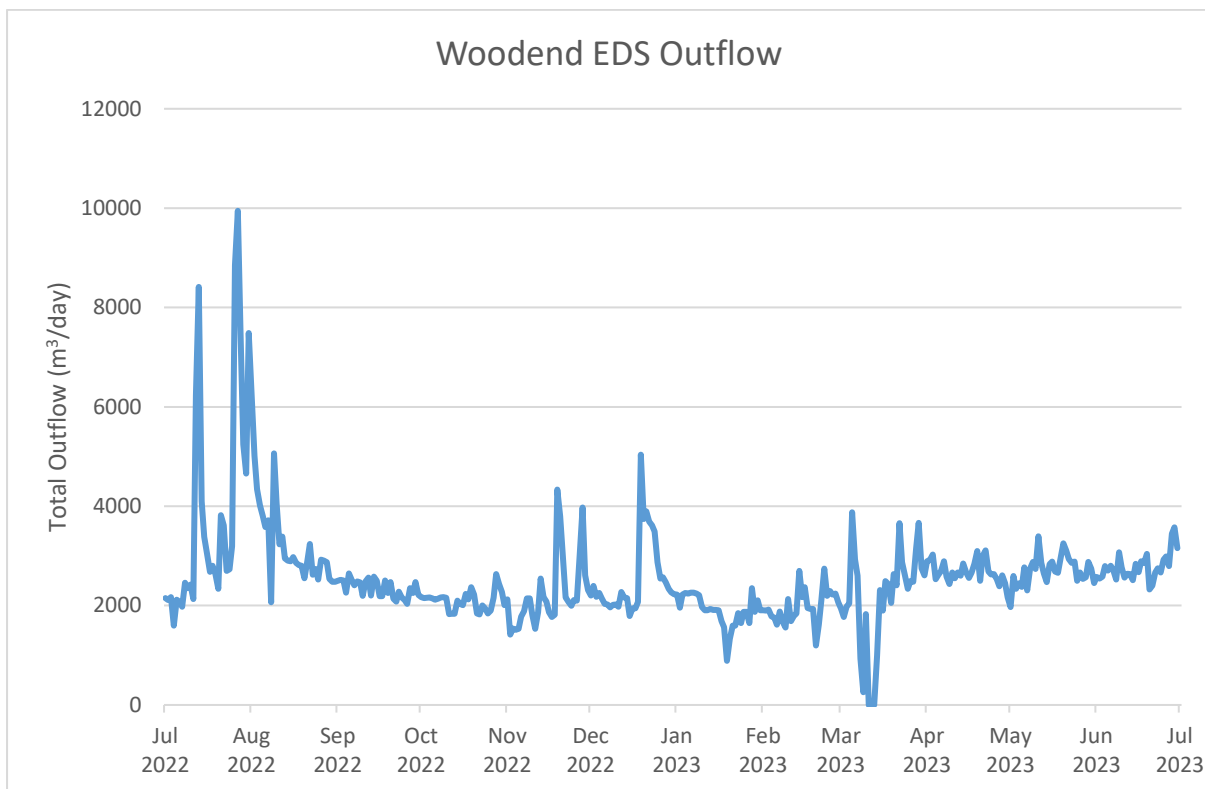


Figure 32: Daily outflow volumes (m³/day) from Woodend WWTP to ocean outfall July 2022 to June 2023

4.2.2. Daily seepage discharge volumes

The resource consent states that the volume of treated wastewater discharged via seepage should be calculated by subtracting the volume of wastewater discharged to the ocean outfall from the volume of wastewater received at the WWTP. Calculated seepage volumes for the monitoring period are shown in Figure 33. Please note seepage values will not be accurate when either inflow or outflow data is missing, such as during the period from 8 to 14 March 2023. During this short period it appears from the above “outflow” graph that the data “drops out”. The prescribed method for calculating the discharge via seepage also does not account for:

- Pond / Wetland attenuation and fluctuating water levels
- Rainfall
- Evaporation from pond/wetland water surfaces and evapotranspiration from wetland plants
- Pond buffering (this can be significant during changes in plant operation)

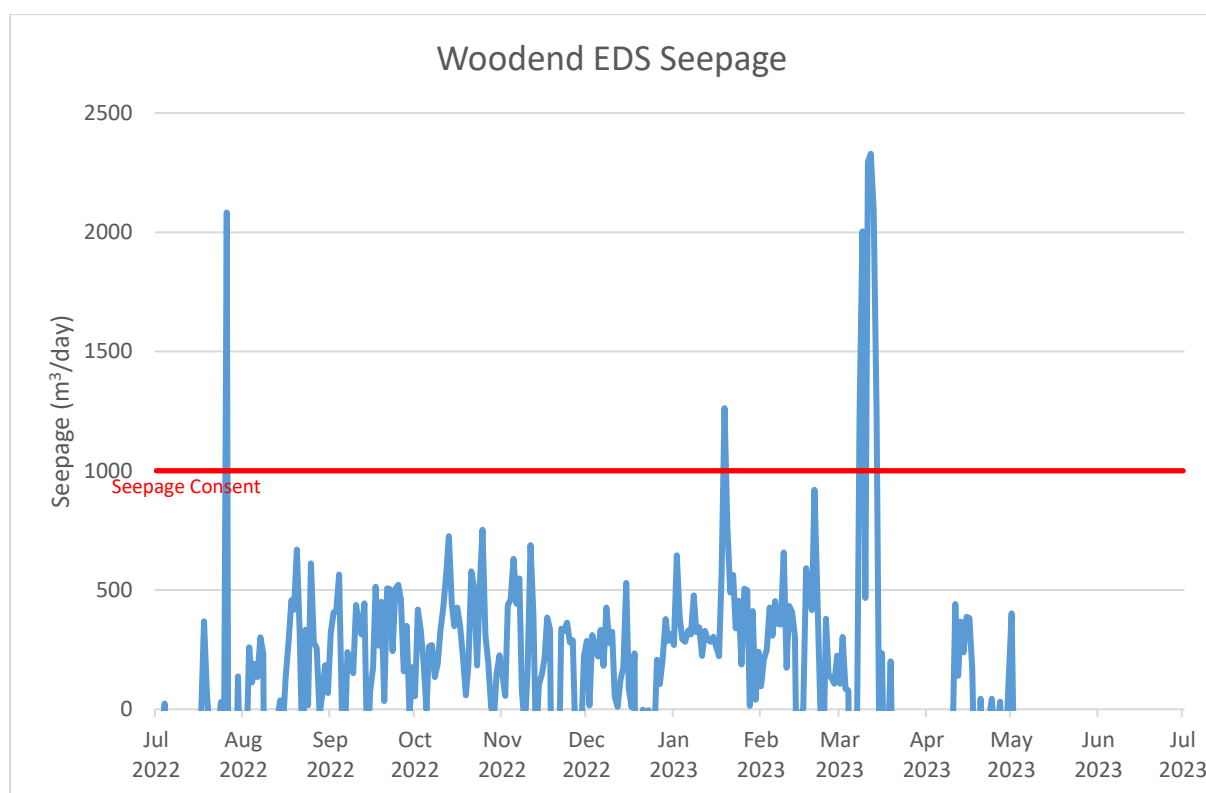


Figure 33: Calculated daily seepage volumes (m^3/day) July 2022 to June 2023

Condition 5 states that;

“the volume of treated effluent discharged to land via seepage shall not exceed 1000 cubic metres per day.”

The data shows that over the 2022/23 monitoring period WDC has generally complied with the daily seepage volume consent limit of 1,000 m^3/day . However, the calculated seepage volumes using the method prescribed in the consent exceeded the consented limit on one occasion on the 26 July 2022 (refer Figure 33). This occurred in a day with high inflow (26 July) followed immediately by high outflow on the subsequent day (27 July) (refer Figures 31 and 32). The difference between the inflow and outflow under these conditions is due to a temporary (around 24 hour) increase in storage levels within the ponds and wetlands rather than any actual discharge to land via seepage. The data indicates

the timeframe of conveyance of effluent through the plant between the inlet and outlet during the treatment process. The seepage data also shows the progression of effluent through the plant as the calculated seepage rates became very low over the days following the exceedance event.

The other seepage event on 19 January 2023 occurred during a sudden drop in discharge volume because of pump operation and pond water level buffering during that day. There was no corresponding variation of plant inflow from usual levels. This result is considered an outlier in terms of pump cycles and volume discharged and is considered unlikely to represent a material seepage to ground.

The apparent consent limit exceedance on 11 and 12 March 2023 occurred because of a water meter recording failure over the period from 8 March to 14 March (see raw data Appendix C). During this period the water meter did not accurately record, or ceased to record, the level of outflow from the plant. During this timeframe only the plant inflow was recorded, which means the inflow volume without subtracting the outflow was recording values higher than the consent limit. This is not a material consent breach but rather a meter recording error which has been subsequently corrected.

The data indicates that on average over the 2022/23 monitoring period verified, actual compliance with the daily seepage volume consent limit has been achieved.

4.3. Conditions 9 to 11 – Groundwater Monitoring

4.3.1. Monitoring requirements

Condition 9 of the resource consent requires two monitoring bores (south-east and west) to be sampled at three-monthly intervals. The south-east bore is located down-gradient of the WWTP and the west bore is located up-gradient (Figure 29 above).

In accordance with the Groundwater Monitoring Plan (WDC 2008), which is required under Condition 15, WDC began monitoring two domestic bores in February 2007, located on the Robinson and McKenzie properties directly to the west (up-gradient) of the WWTP (also shown in Figure 29 above). Although the bores on these properties are consented for domestic water supply, both properties have an alternative water source supplied by WDC where they now receive a restricted water supply (2 m³/day) from the Woodend water supply.

4.3.2. Depth to groundwater

Depth to groundwater was measured in the south-east and west bores on 4 occasions, as required, during the 2022/23 monitoring period (Table 15). Therefore, compliance with Condition 10 was met in full.

The reason for the absence of groundwater depth data results for the McKenzie and Robinsons bores is that these are private water supplies, not able to be readily accessed by Council.

4.3.3. Groundwater quality

Groundwater samples were collected and analysed for nitrate-N, ammoniacal-N and faecal coliforms, as per Condition 11. The results are shown in Figures 34 to 36 and summarised in Table 15 below. There are no consent limits for these parameters.

Table 16: Groundwater quality monitoring at Woodend WWTP from July 2022 to June 2023.

Sample	Bore	Top Water Level (m)	Ammoniacal-N (g/m ³)	Nitrate-N (g/m ³)	Faecal coliforms (cfu/100ml)
19 August 2022	McKenzie (up-gradient)	N/A	<0.010	<0.002	<1
	Robinsons (up-gradient)	N/A	0.015	<0.002	80
	West (up-gradient)	3.6	0.94	<0.02	<1
	South-east (down-gradient)	3.2	<0.010	32	<1
27 October 2022	McKenzie (up-gradient)	N/A	<0.010	<0.002	<1
	Robinsons (up-gradient)	N/A	<0.10	0.04	<1
	West (up-gradient)	3.5	0.96	<0.002	<1
	South-east (down-gradient)	3.0	0.038	15.8	<1
17 January 2023	McKenzie (up-gradient)	N/A	<0.010	<0.002	<1
	Robinsons (up-gradient)	N/A	0.012	<0.002	<1
	West (up-gradient)	3.5	0.92	<0.02	<1
	South-east (down-gradient)	5.5	0.112	24	<1
28 April 2023	McKenzie (up-gradient)	N/A	<0.010	<0.002	<1
	Robinsons (up-gradient)	N/A	<0.010	<0.02	<1
	West (up-gradient)	3.5	0.99	<0.02	<1
	South-east (down-gradient)	2.8	0.13	29	<1

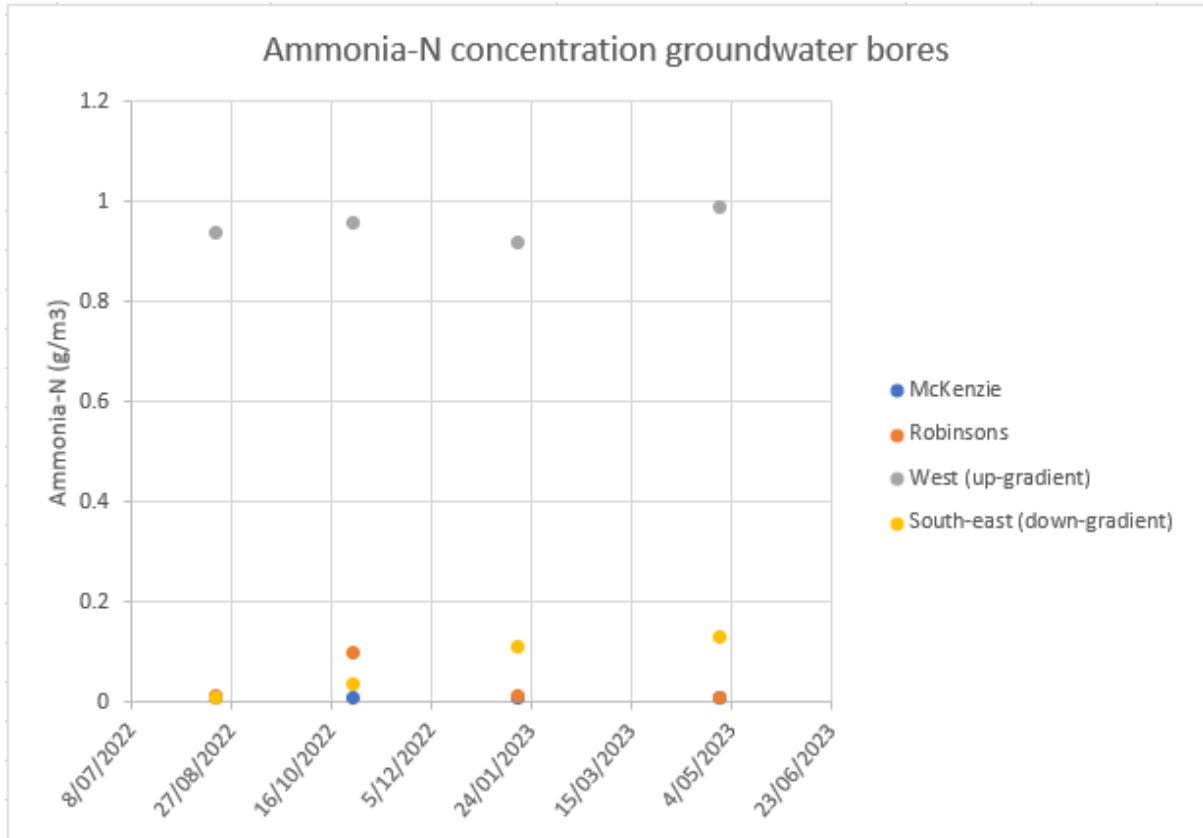


Figure 34: Ammoniacal-N concentration on groundwater monitoring bores from July 2022 to June 2023

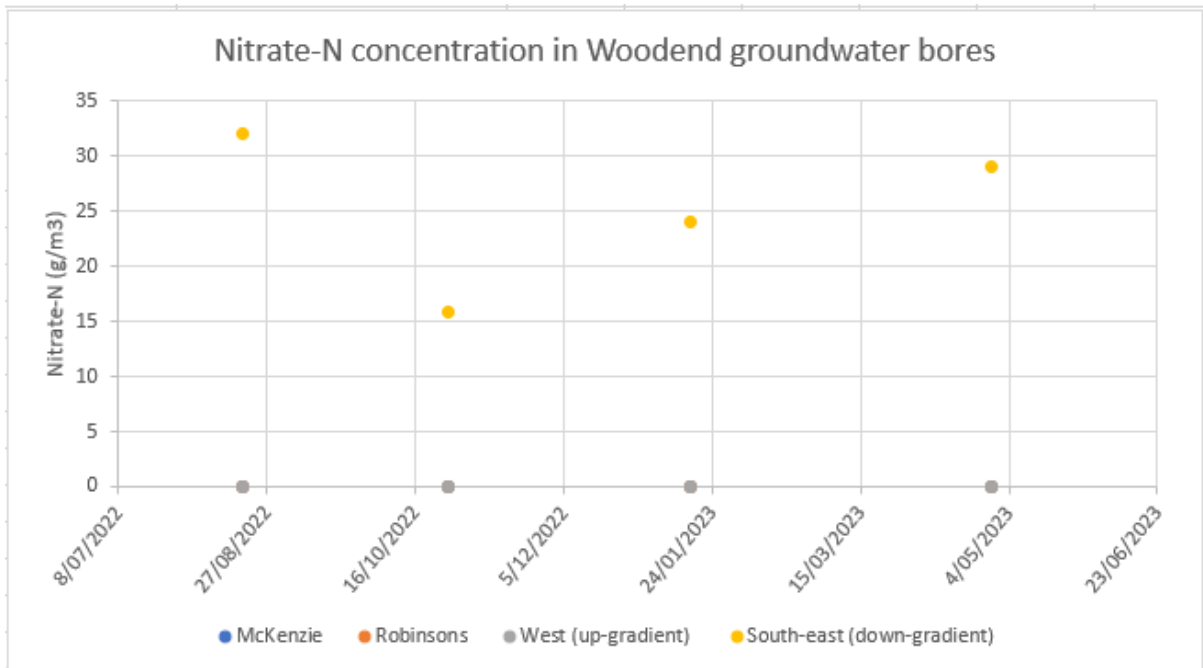


Figure 35: Nitrate-N concentration in groundwater monitoring bores from July 2022 to June 2023

As can be seen from these graphs and above table, Nitrate-N levels are elevated in the groundwater bore down-gradient of the Woodend WWTP, but mostly below detection in the other bores. Ammoniacal-N concentrations were only elevated in the west (up-gradient bores) in the past year,

which would likely have a different source than seepage from the Woodend WWTP discharge into groundwater.

Faecal coliforms were detected in only the Robinson bore (80 cfu/100 mL, August 2022). Any results lower than detection are graphed as one.

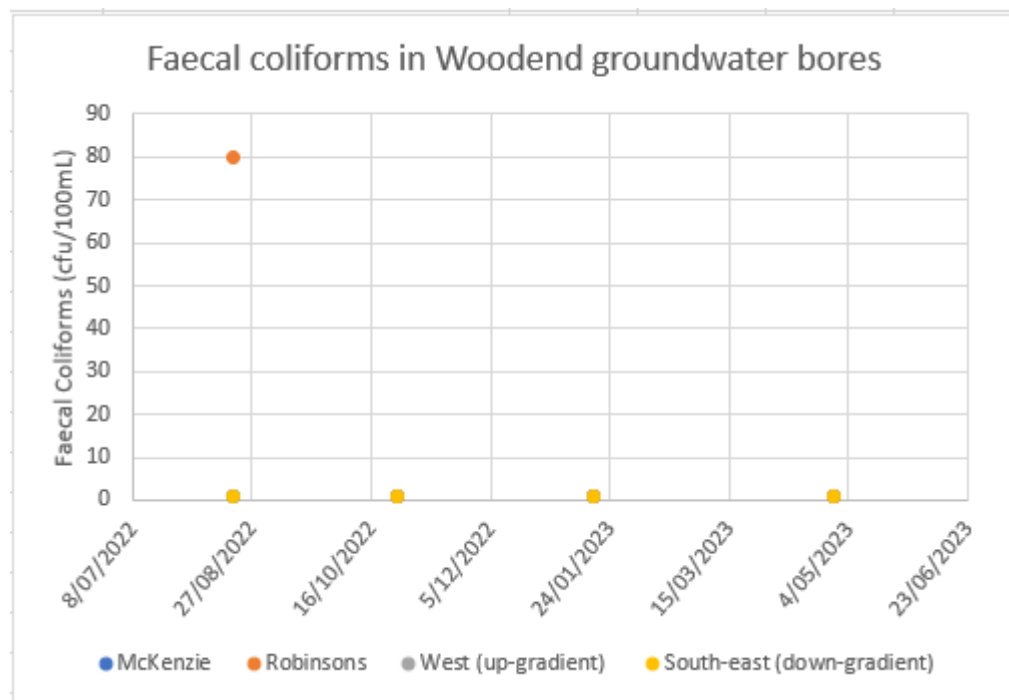


Figure 36: Faecal coliforms numbers in groundwater monitoring bores from July 2022 to June 2023

4.4. Operations and Maintenance

During the 2022/23 monitoring period there were no major capital works. The plant operation and maintenance has been standard with no significant unplanned maintenance required.

4.5. Summary of Compliance – CRC168391

Record keeping of wastewater volumes complied with the requirements of the resource consent and enabled seepage volumes to be calculated. Seepage volumes for the 2022/23 monitoring period met the requirements of Conditions 5 and 6.

Groundwater monitoring records for 2022/23 were complete, with groundwater levels (at the two bores where it is possible to take readings; some of the well heads are sealed) and water quality samples being collected on four occasions. Therefore, the requirements of Conditions 9, 10 and 11 were met in full.

The groundwater monitoring undertaken in 2022/23 indicates that:

- Ammoniacal-N concentrations in groundwater down-gradient of the Woodend WWTP were lower than that measured from the up-gradient west bore during the 2022/23 year. The Woodend WWTP has historically been a likely contributor to elevated ammoniacal-N concentrations in down-gradient groundwater. Elevated ammonia in the up-gradient west bore in the most recent monitoring year would likely have another source in the surrounding land use rather than the WWTP discharge. The results in the up-gradient west bore are

however within the historic range (<2 g/m³) (see Appendix G “Woodend WWTP Groundwater” for the long-term data history records).

- The long-term trend in Ammoniacal-N in the south east bore is for levels to fluctuate from “below detection” in some years to elevated above 2 g/m³ in other years. There is a long-term fluctuation tendency in this data rather than any notable increase or decrease trend over time (see Appendix G “Woodend WWTP Groundwater” for long-term data history records).
- Nitrate-N concentrations in the down gradient bore have elevated levels compared to the up-gradient bores. On review of data over a 14 year period the concentrations of Nitrate-N have reduced. Prior to 2009 levels were recorded at 95 g/m³. Concentrations in the down gradient bore have stabilised in the last 5 years (see Appendix G “Woodend WWTP Groundwater” for data history records).

Overall, WDC has achieved compliance with the conditions of resource consent CRC168391.

5. CRC031724 – DISCHARGE TO JOCKEY BAKER CREEK

5.1. Monitoring and Reporting Requirements

Resource consent CRC031724 was granted in 2004 to drain groundwater from subsoil drains and toe drains around the infiltration wetland into the coastal marine area of Jockey Baker Creek in the vicinity of Ferry Road, Kaiapoi.

In the event a discharge occurs into Jockey Baker Creek an alarm is raised in SCADA to inform the operators the event has occurred. If this occurs samples are to be taken as per Conditions 5 and 6.

The consent CRC031724 has been rarely exercised since the commissioning of the Ocean Outfall. During high rain events, the discharge via sub-surface drains to the Jockey Baker Creek has become effectively obsolete since the commissioning of the ocean outfall in 2006.

The consent has however been retained by the Council because it allows a discharge of any surplus stormwater from a ‘toe’ drain that surrounds the wetlands. This discharge occurs only during high rainfall events, when the toe drain flow exceeds 5 litres a second. This is expected to be a rare event and the discharge will be almost entirely storm run-off, not effluent.

Retention of the consent ensures the Council can continue to divert any surplus runoff away from the plant’s effluent treatment system so as to not overwhelm it and assist it to avoid any reduction in effectiveness of the wastewater treatment.

There was no discharge into Jockey Baker Creek during the 2022/23 monitoring period.

6. CRC145027 – DESLUDGING AT RANGIORA WASTEWATER TREATMENT PLANT

6.1. Monitoring and Reporting Requirements

Resource consent CRC145027 was granted in October 2014 to permit the discharge of dewatered sludge removed from wastewater Pond 1A at the Rangiora WWTP to land. Sludge is suction dredged, then piped via a closed system to geotextile bags for storage and dewatering.

The existing geotextile bags are slowly dewatering, Council will be assessing long term options for disposal of the biosolids in the future.

The monitoring requirements are set out in Conditions 16 and 17:

Condition 16

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

- a) Sampling the drainage water from the dewatering/dewatered sludge at six monthly intervals for the following parameters:
 - Arsenic
 - Copper
 - Cadmium
 - Chromium
 - Lead
 - Mercury
 - Nickel
 - Zinc, with all metals in the soluble form; and
 - Total Nitrogen
 - Ammoniacal Nitrogen
 - Dissolved Reactive Phosphorus; or
- b) A subsequent sampling regime and timeframe that has received written approval from the Chief Executive of the Canterbury Regional Council or delegate shall be undertaken.”

Condition 17

“The consent holder shall either:

- a) Monitor the downstream monitoring bore M35/9177 at six monthly intervals (generally September and April) for the following parameters:
 - pH
 - Ammoniacal Nitrogen
 - Total Nitrogen
 - Metals (Zinc, Copper and Arsenic in the soluble form); or
- b) A subsequent sampling regime and timeframe that has received written approval from the Chief Executive of the Canterbury Regional Council or delegate shall be undertaken.”

The reporting requirements are set out in Condition 20 and state that the annual report is to include the following details:

- The discharge point of drainage water.
- Findings of the three monthly inspections of the liner, bund and drainage.
- Results of laboratory analyses undertaken in the previous 12-month period.
- Details of any spills.

6.2. Monitoring Results

6.2.1. Drainage water discharge point

All discharge from the discharge chamber is currently pumped back into Pond 1A at the Rangiora WWTP. There is no intention to move the discharge of drainage water to land discharge. Drainage water will be permanently discharged to the treatment plant for further treatment.

6.2.2. Three monthly inspections

Inspections of the sludge pond are done on a weekly basis, which is more regular than the three-monthly frequency required by the resource consent. There have been no reports of any issues associated with the liner, pump, bund or drainage from the sludge pond during the 2022/23 monitoring period.

6.2.3. Laboratory analyses

Samples from the sludge pond pump chamber and M35/9177 were collected on the following dates:

- 30 August 2022
- 28 February 2023

If the discharge is below the trigger levels, the drainage water can be discharged direct to ground. Condition 16 of the resource consent requires two samples to be collected annually, at six monthly intervals, thus compliance with the monitoring requirements of Condition 16 was met during the 2022/23 monitoring period.

Table 17: Dewatering sample results and comparison with trigger values.

Parameter (gm/m ³)	30 August 2022	28 Feb 2023	Trigger Levels ¹
Arsenic	<0.02	<0.02	0.2
Cadmium	0.023	0.0196	
Chromium	<0.010	<0.010	
Copper	1.24	1.49	
Lead	0.01	0.011	
Mercury	<0.00008	<0.00008	
Nickel	0.139	0.142	1.6
Zinc	11.4	9.6	30
Total Nitrogen	42	37	224
Ammoniacal-N	19.1	5.3	30
Dissolved Reactive Phosphorus	0.043	0.019	

Condition 17 of the resource consent requires two samples to be collected annually, at six monthly intervals. Therefore, compliance with the requirements of Condition 17 were met in full during the 2022/23 monitoring period.

The results are shown in Table 17 and compared with 80% of the relevant maximum allowable value (MAV) reported in the New Zealand Drinking-Water Standards (NZDWS). Condition 14 states that should subsequent groundwater monitoring under Condition 17 show an upward trend extending

¹ If monitoring data is below the trigger level drainage from the liner can be discharged direct to ground.

over four consecutive sampling events, or a trigger level reaches 80% of the relevant MAV, then the discharge of dewatering water to land must cease and be returned to the treatment pond. All parameters recorded concentrations less than their respective 80% of MAV (where applicable), while pH was within the recommended range (MoH 2008). No trends are evident from review of the groundwater data in the below table.

It is noted that WDC is not discharging to land so groundwater quality will not be affected by the sludge pond.

Table 18: Groundwater monitoring results for Bore M35/9177.

Parameter	31 st August 2021	1 April 2022	30 th Aug 2022	28 th Feb 2023	80% of MAV ²
pH	7.1	7.5	7.5	7.3	7.0-8.52
Total Nitrogen	0.85	0.93	0.47	1.21	-
Ammoniacal-N	<0.010	<0.010	0.052	<0.010	1.2
Soluble Arsenic	<0.0010	<0.0010	<0.0010	<0.0010	0.008
Soluble Copper	<0.0005	<0.0005	<0.0005	<0.0005	1.6
Soluble Zinc	0.0021	<0.0010	<0.0010	<0.0010	1.2

6.2.4. Spills

There were no spills during the 2022/23 monitoring period.

6.3. Operations and Management

There have been no significant operational changes that have an effect on CRC145027. The long-term plan for the discharge is to continue to return the drainage water back to the treatment plant. Discharge to ground will not be undertaken. Options to obtain a variation to the consent need to be assessed to provide for final disposal of the dewatered sludge, if required in future.

6.4. Summary Compliance – CRC145027

The monitoring and sampling results completed during the 2022/23 monitoring period are fully comply with Conditions 16 and 17.

² Maximum Allowable Value as defined in the New Zealand Drinking Water Standards as at time of granting the consent.

7. CRC173124 – DISCHARGE CONTAMINANTS TO AIR - RANGIORA WASTEWATER TREATMENT PLANT

7.1. Monitoring and Reporting Requirements

The following is an extract from the consent that outlines the sampling requirements.

Condition 2

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

Condition 3

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

Condition 4

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

- The date and time the measurements were taken; and
- Water temperature at the time the measurements were taken; and
- Dissolved oxygen concentrations; and
- Identification of the pond in which the measurements were taken.

The graph on the following page shows Dissolved Oxygen in the Rangiora WWTP Ponds (Pond 1A, Pond 1B, Pond 2 and Pond 3), for which a minimum level of 2 mg/L is required to be maintained for the 10 percentile of annual results.

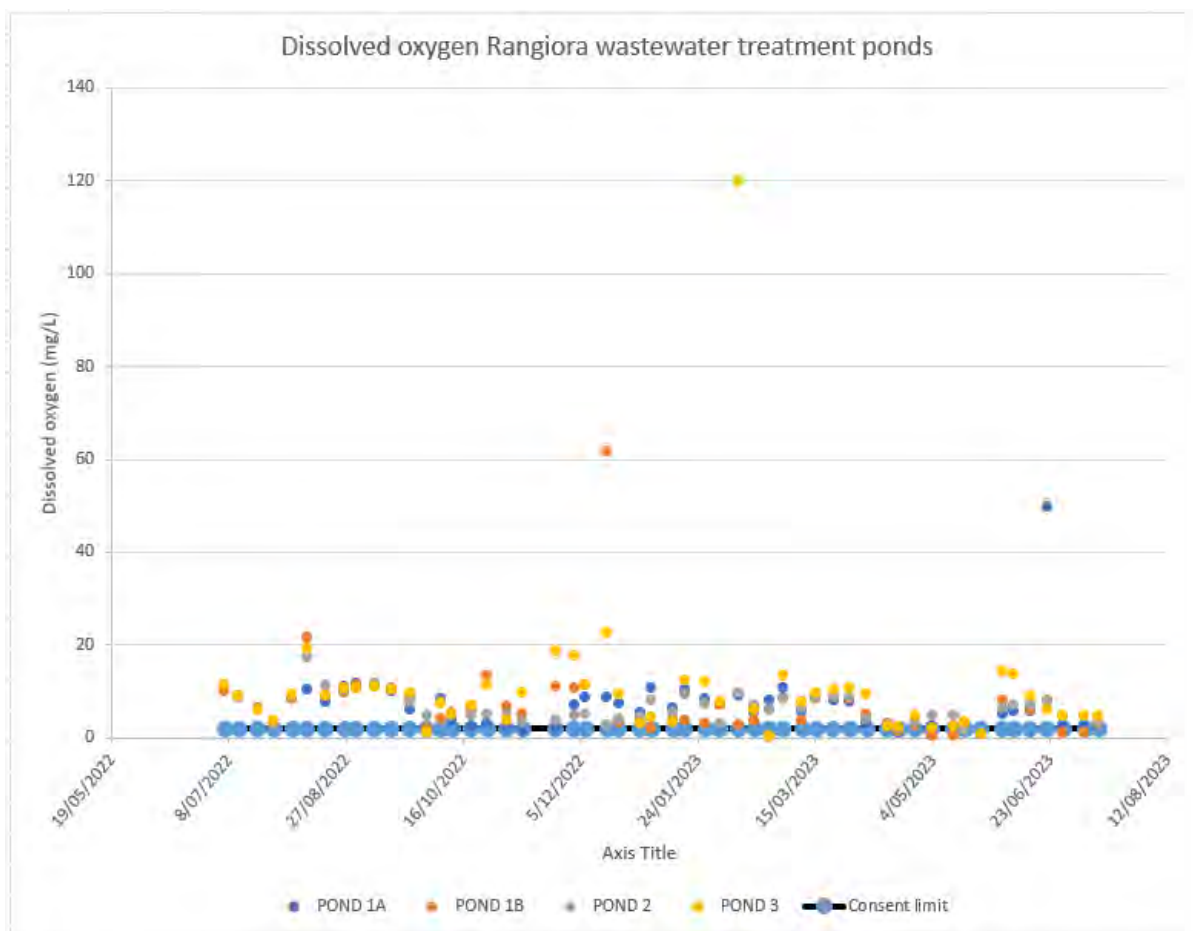


Figure 37: Dissolved Oxygen in Rangiora WWTP ponds July 2022 to June 2023

The 10 percentile of annual results is:

2.24mg/L	Pond 1A
1.23mg/L	Pond 1B
2.9mg/L	Pond 2
2.5mg/L	Pond 3

Results for Pond 1B were particularly low during some weeks in May and June 2023. However the 10th percentile for all annual data from all ponds combined is 2.3mg/L. Therefore the pond Dissolved Oxygen annual data combined met the 10 percentile for annual results measure of no less than 2mg/L (see Appendix I for raw data records).

The data shows Conditions 2 and 4 have been met and Condition 3 mostly met. The operators visit the sites weekly and record the data that is electronically recorded. This data has been forwarded to ECAN electronically and is available upon request. It is noted in recent years some of the samples were not taken within required timeframes. WDC has now put in place measures to ensure compliance with Condition 3 in the future, sampling within 11am until 2pm as far as achievable within available resources.

Note that Conditions 9, 10, 11, 12 are no longer applicable. These relate to the using of sprays that were used to remove NH4. These have been decommissioned.

7.2. Odour Complaints

There were no odour complaints for the 2022/23 monitoring period (see Complaints Register in Appendix K).

7.3. Summary of Compliance

Compliance has been fully met for CRC173124.



REPORT

**Oxford Sewer Scheme – Annual Compliance
Monitoring Report 2022 – 2023**

Waimakariri District Council

October 2023

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1. INTRODUCTION

1.1. Background

Waimakariri District Council (WDC) operates a wastewater treatment plant (WWTP) at Oxford, which serves approximately 900 properties. The WWTP is located on the north side of the Eyre River on High Street, while the irrigation disposal field is located on the south side of the Eyre River on Woodstock Road (refer Figure 1).

The WWTP was constructed in 1999 and has undergone a number of upgrades, including the addition of a wet weather flow holding pond in 2014 and modifications to the Modified Ludzack-Ettinger activated sludge process in 2018 to improve the aeration system.

The Oxford scheme is operated under a number of resource consents from Canterbury Regional Council (CRC) also known as Environment Canterbury (ECan), which are listed in Table 1 along with their respective reporting requirements and level of compliance for the 2022/23 monitoring year.

Table 1: Oxford Sewer Scheme Resource Consents

Consent	Activity	Reporting	Compliance
CRC961013	To discharge contaminants to air	Refer to Section 2.0 of this report	Fully compliant
CRC144561	Land use consent for the establishment of a sewage storage basin	Refer to Section 3.0 of this report	Fully compliant
CRC184787	To discharge contaminant into land to water	Refer to Section 4.0 of this report	Non-compliant, lack of SCADA data for irrigator 2 overstates the effluent to land application depth through Irrigator 1; high faecal coliform spikes in July and January during the 2022/23 year likely due to issues with the UV disinfection unit (one faulty unit was however replaced on 8/9/22).

1.2. Report Scope

The scope of this report is to summarise the annual compliance with the three consents that the Oxford sewer scheme is operated under, these include; CRC961013, CRC144561 and CRC184787. These consents do not require an annual monitoring report be submitted to Environment Canterbury, however this report has been prepared as good practice and will be submitted to Ecan for information purposes.



Figure 1 - Oxford Sewer Scheme

0 175 350 525 700
Metres
Scale 1:15000 @ A3

2. CRC961013 – DISCHARGE TO AIR

2.1. Overview

This consent covers the discharge of contaminants into air at or about map references L35:447-655 (i.e.: the irrigation disposal field on Woodstock Road) and L35:458-663 (i.e.: the WWTP on High Street) from a sewage effluent treatment and disposal system.

Consent compliance for the period 1 July 2022 through to 30 June 2023 ('the monitoring period'), has been assessed by WDC.

2.2. Condition 1 – Irrigation of Effluent

Condition 1 states:

“There shall be no spray irrigation of effluent onto land within 15 metres of a property boundary protected by a tree shelter belt, within 150 metres of a property boundary where there is no intervening tree shelter belt and within 150 metres of any dwelling house.”

The irrigation fields are located 40m from the closest property boundary to the east (refer Figure 2 below). There is a shelter belt on this eastern boundary therefore compliance with Condition 1 is achieved. The irrigation fields are located more than 150m from the western and southern boundaries. The northern property boundary is within the 150m buffer, however this is publicly owned river bed land that is managed and leased out by Environment Canterbury. The closest dwelling is located just over 400m away to the south of the irrigation fields as shown in Figure 2 below.

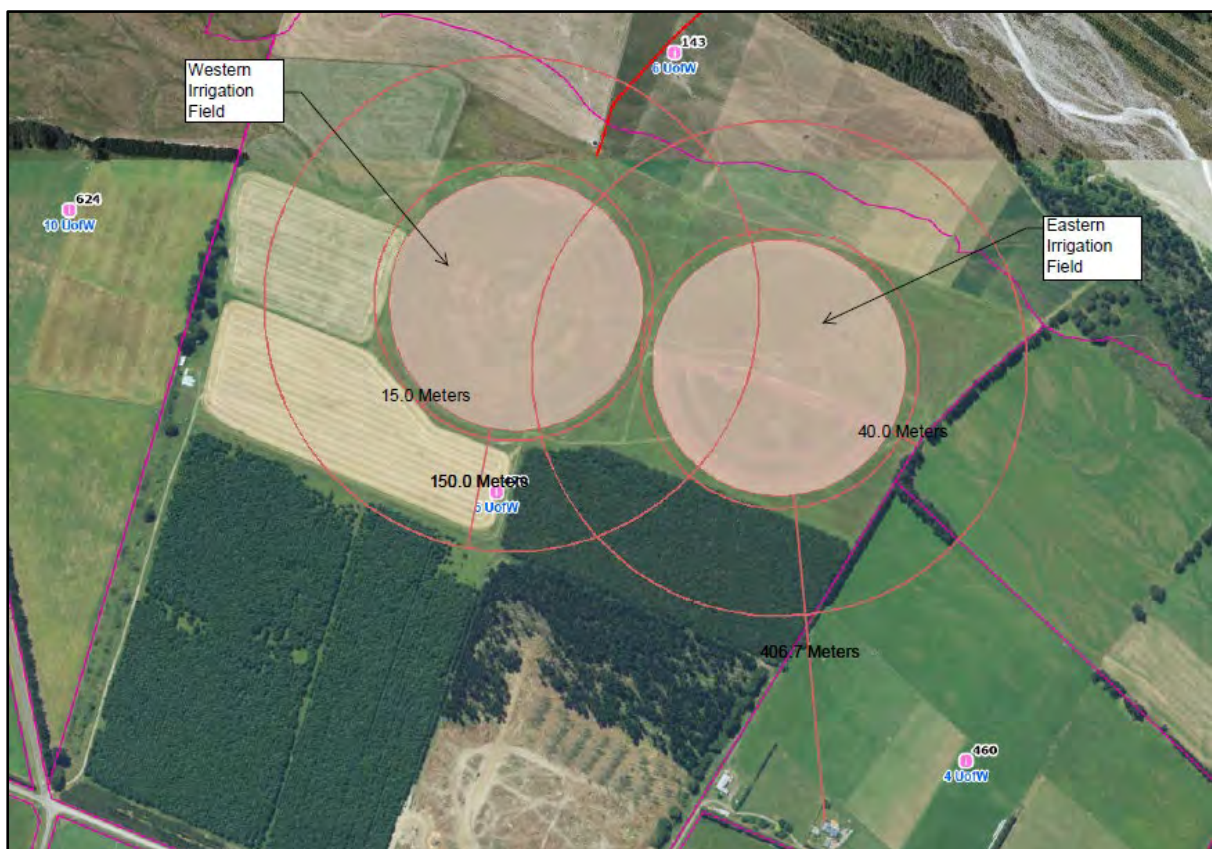


Figure 2. Irrigation disposal fields and required buffers

2.3. Conditions 2 – 5: Odour Management

Condition 2 states the following:

“All collection bins containing solids removed from the effluent shall be covered to prevent odorous emissions.”

All bins used for collection of screenings from the WWTP are covered to prevent odour emissions.

Condition 3 states the following:

“The sludge holding tank shall be mechanically aerated to minimise odorous emissions.”

The sludge holding tank is mechanically aerated to minimise odour emissions.

Condition 4 states the following:

“The discharge shall not cause an odour, which is determined to be objectionable or offensive by an enforcement officer of the Canterbury Regional Council, beyond the property boundary of the consent holder.”

No objectionable or offensive odours were observed during the 2022/23 monitoring period (refer Appendix B – sewer odour record 2022/23 which did not identify any odour complaints from the Oxford area during the 2022/23 year).

Condition 5 states the following:

“A record of complaints relating to odour emissions from the site shall be maintained, and shall include:

- (a) location of where odour detected by complainant;*
- (b) date and time when odour detected;*
- (c) a description of wind speed and wind direction when odour detected by complainant;*
- (d) the most likely cause of odour detected; and*
- (e) any corrective action undertaken by the consent holder to avoid, remedy or mitigate the odour detected by complainant.*

This record shall be provided to the Canterbury Regional Council on request.”

No complaints relating to odours from the Oxford plant were received during the 2022/23 monitoring period (refer Appendix B – sewer odour record 2022/23 which did not identify any odour complaints from the Oxford area).

2.4. Summary of Compliance – CRC961013

A summary of compliance with consent CRC961013 is presented in Table 2 below.

Table 2: Summary of compliance for 2022/23 for consent CRC961013

Consent condition	Description	Compliance
Condition 1	Irrigation of effluent	Fully compliant
Conditions 2-5	Odour management	Fully compliant

3. CRC144561 – HOLDING POND LAND USE

3.1. Overview

This land use consent covers the establishment of a storage basin to store sewage and for associated earthworks.

Consent compliance for the period 1 July 2022 through to 30 June 2023 ('the monitoring period'), has been assessed by WDC.

3.2. Conditions 1-4, 7-9, 10(b), 12(a), 15 and 16 – Holding Pond Construction

Conditions 1, 2, 3, 4, 7, 8, 9, 10(b), 12(a), 15 and 16, relate to the construction of the holding pond.

Condition 1 states:

"The use of land shall be only for:

- (a) excavation associated with the construction of a Wet Weather Holding Pond; and*
- (b) the collection, storage and treatment of municipal domestic wastewater and stormwater ('wastewater')."*

Excavation works for the holding pond were completed in 2014. The land use at the site is for the collection storage and treatment of municipal domestic wastewater and stormwater.

Condition 2 states:

"The Wet Weather Holding Pond shall be located as shown on Plan CRC144561A, which forms part of this consent."

The wet weather holding pond has previously been validated by Environment Canterbury to be located within the consented area as identified in CRC144561A (refer TRIM 220713119239).

Condition 3 states:

"The Wet Weather Holding Pond shall be sealed with a material of low permeability such that any seepage from these structures onto or into land does not exceed an average rate of one millimetre per day."

The holding pond is lined with a 1.5 mm thick High-Density Polyethylene (HDPE) membrane liner. The construction methodology report (refer TRIM 141121127984[v2]), provided as a requirement of Condition 4, demonstrated that the HDPE pond liner ensures that the average seepage rate from the pond does not exceed 1mm per day.

Condition 4 states:

"The consent holder shall provide to the Canterbury Regional Council a report on the method of construction of the Wet Weather Holding Pond that demonstrates compliance with the seepage rate referred to in condition (3). The report shall be supplied to Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, prior to the first use of the wastewater storage facility."

The construction methodology report (refer TRIM 141121127984[v2]) demonstrated compliance with the average seepage rate from the pond does not exceed an average rate of 1mm per day. The

report required by this condition was provided to Environment Canterbury on the 25th November 2014, which was prior to the storage pond first being used (refer TRIM 150112003139).

Condition 7 states:

“The Wet Weather Holding Pond shall not be located within:

- (a) 20 metres of any wetland, surface water body or artificial watercourse; or*
- (b) 50 metres up gradient in relation to groundwater flow and 30 metres in any other direction of a bore.”*

The holding pond is not located within 20m of a wetland surface water body or artificial watercourse. The nearest bore (L35 0668) is located more than 70m away. This bore is owned by Waimakariri District Council and is used for observation purposes.



Figure 3. Holding pond location

Condition 8 states:

“Construction works authorised by this consent shall:

- (a) be limited to the area defined on Plan CRC144561A; and*
- (b) not be carried out on Sundays or public holidays; and*
- (c) from Monday through to Friday only occur between the hours of 7.30am and 5.30pm inclusive; and*
- (d) on Saturdays only occur between the hours of 9am and 5pm inclusive.*

The construction works were completed in 2014 and the post-construction compliance monitoring report by Environment Canterbury confirmed compliance with this consent (refer TRIM 150112003139).

Condition 9 states:

“Within one month of the installation of the Wet Weather Holding Pond, the consent holder shall provide to the Canterbury Regional Council, Attention: RMA Compliance and Monitoring, a copy of the Odour Management Plan. The Odour Management Plan shall be incorporated into the Oxford Wastewater Treatment Plant's Operations Manual and shall include the specifications detailed in Appendix A.

The Odour Management Plan was provided to Environment Canterbury on the 19th December 2014 (refer TRIM 141219141903), as an amendment to the existing operations manual for the wastewater treatment plant.

Condition 10(b) states:

“The Wet Weather Holding Pond shall:

(b) be constructed in accordance with the specifications on Plan CRC144561B.”

The wet weather holding pond has previously been validated by Environment Canterbury to be constructed in accordance with the specifications on Plan CRC144561B (refer TRIM 150112003139).

Condition 12(a) states:

“The spillway incorporated into the design for the Wet Weather Holding Pond shall:

(a) be constructed in accordance with the design specifications on Plan CRC144561B page 2 of 2;”

The spillway from the wet weather holding pond has previously been validated by Environment Canterbury to be constructed in accordance with the design specifications on Plan CRC144561B (refer TRIM 220713119239).

Condition 14 states:

On the completion of works:

(a) All disturbed areas shall be stabilised and/or revegetated; and

(b) All spoil and other waste material from the works shall be removed from site.

The site was appropriately reinstated following completion of the works back in 2014.

Condition 15 states:

In the event of any discovery of archaeological material:

(a) the consent holder shall immediately:

i. Cease earthmoving operations in the affected area and mark off the affected area; and

ii. Advise the Canterbury Regional Council of the disturbance; and

iii. Advise the New Zealand Historic Places Trust of the disturbance.

(b) If the archaeological material is determined to be Koiwi Tangata (human bones) or taonga (treasured artefacts) by the New Zealand Historic Places Trust, the consent holder shall immediately advise the office of the appropriate runanga (office contact information can be obtained from the Canterbury Regional Council) of the discovery.

(c) If the archaeological material is determined to be Koiwi Tangata (human bones) by the New Zealand Historic Places Trust, the consent holder shall immediately advise the New Zealand Police of the disturbance.

(d) Work may recommence if the New Zealand Historic Places Trust (following consultation with runanga if the site is of Maori origin) provides a statement in writing to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager that appropriate action has been undertaken in relation to the archaeological material discovered. The Canterbury Regional Council shall advise the consent holder on written receipt from the New Zealand Historic Places Trust that work can recommence.

No archaeological material was encountered during the construction works back in 2014.

3.3. Conditions 10(a), 11, 12(b), and 13 – Holding Pond Operation

Conditions 10(a), 11, 12(b), and 13, relate to the operation of the holding pond.

Condition 10(a) states:

“The Wet Weather Holding Pond shall:

(a) be used for storage of excess flows relating to extreme weather events only when wastewater flows to the treatment facility exceed the rate of 16 litres per second;”

The holding pond was used on 15 occasions during the 2022/23 monitoring period (see Appendix C and Appendix D, Figures 4a and 4b). This is similar to the 18 occasions the pond was used in the 2021/22 monitoring period.

The pond is considered in use when the level is above 250mm.

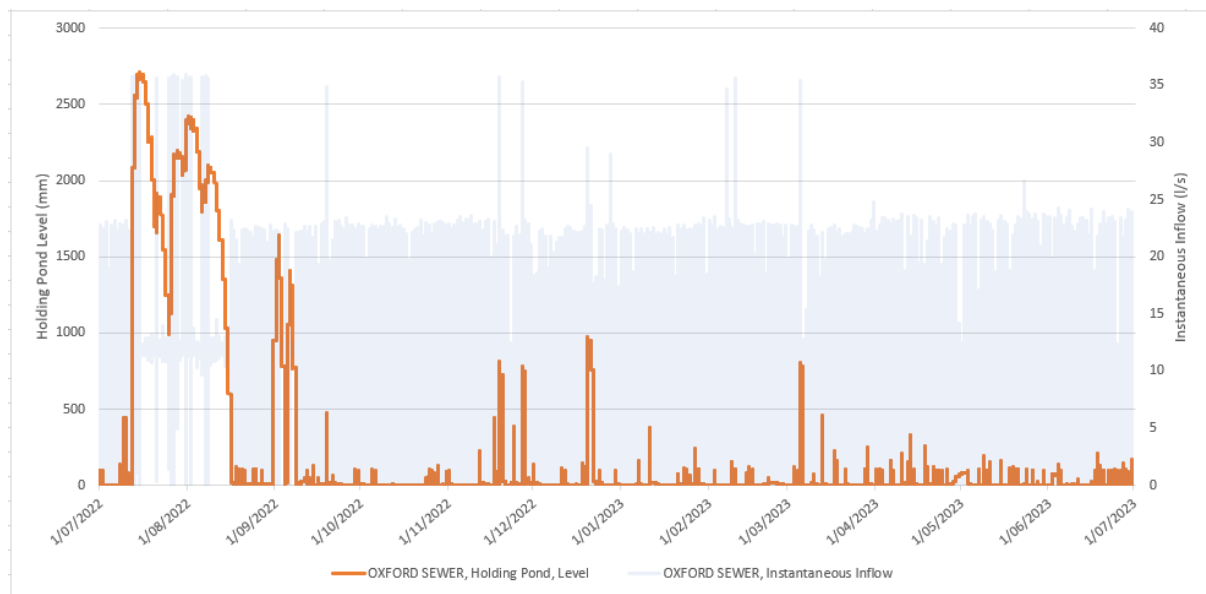


Figure 4(a): Holding Pond Level and Daily Inflow 2022/23

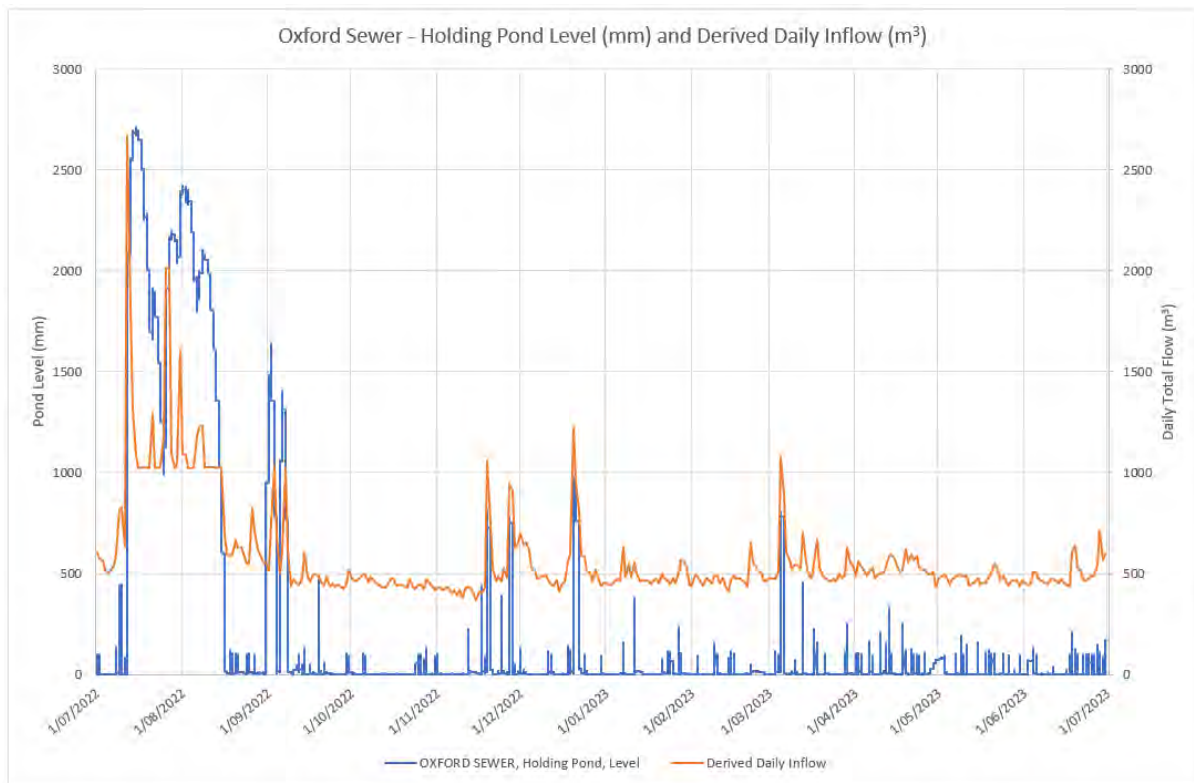


Figure 4(b): Rainfall and Daily Inflow 2022/23

Rainfall in the 2022/23 year was tracking slightly above the long term average for the Oxford area but is similar to the 2021/22 year (see APPENDIX E – Figure 4c, below).

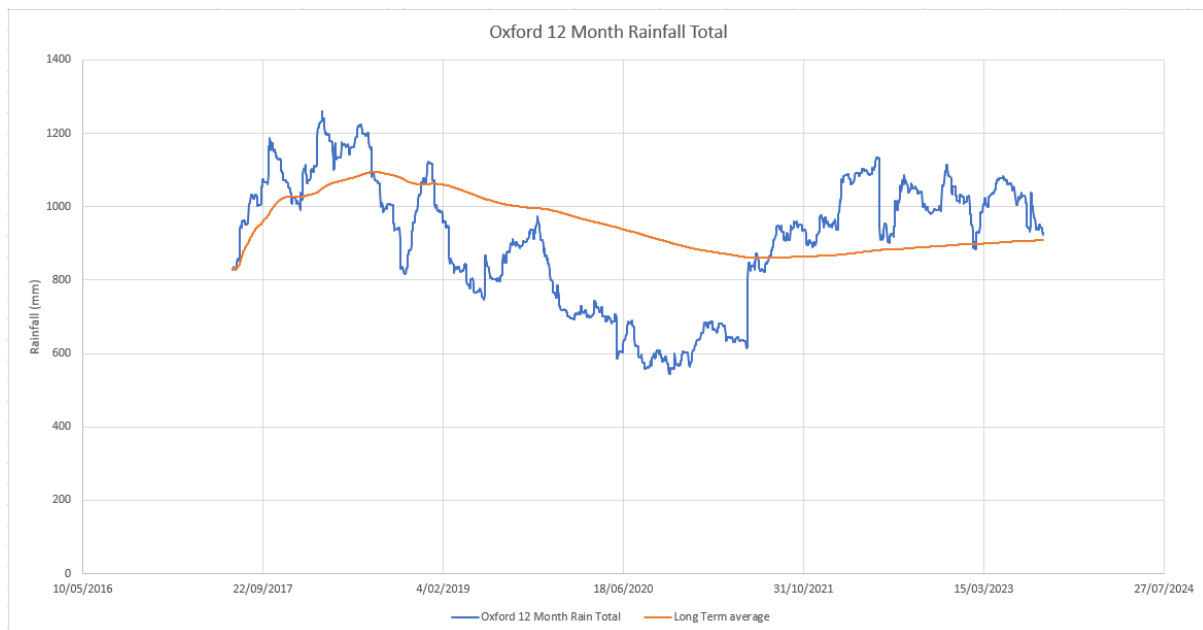


Figure 4(c): Long term average rainfall for Oxford and 12 month rainfall

Condition 11 states:

“All stored wastewater contained within the Wet Weather Holding Pond labelled on Plan CRC144561A shall be pumped back through the secondary treatment processes at the plant following temporary storage.”

The levels in the holding pond did not exceed the spillway level during the 2022/23 monitoring period (refer Appendix F - Figure 5(a) below). All stored wastewater was pumped back through the plant for treatment following temporary storage.

Condition 12(b) states:

*“The spillway incorporated into the design for the Wet Weather Holding Pond shall:
(b) be used only in the event of a catastrophic 1 in 100 year rainfall event.”*

The levels in the holding pond did not exceed the spillway level at any time during the 2022/23 monitoring period (refer Appendix F - Figure 5(a) below).



Figure 5(a): Holding pond level during 2022/23

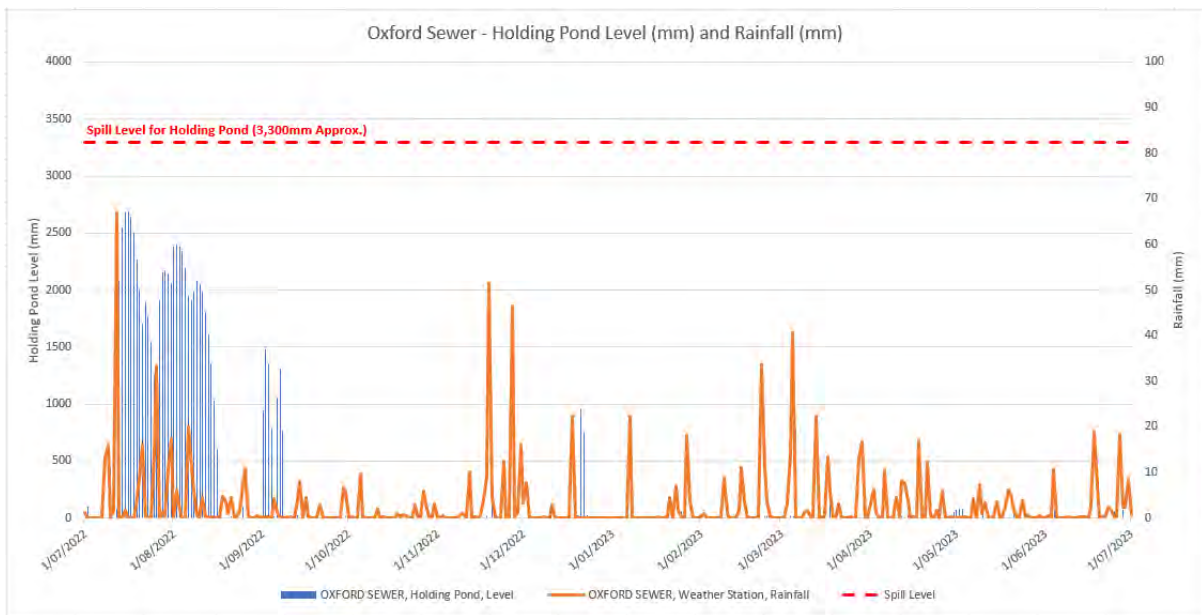


Figure 5(b): Holding pond level and rainfall during 2022/23

Condition 13 states:

“The Wet Weather Holding Pond labelled on Plan CRC144561A shall be used for storing diluted municipal wastewater and operated in accordance with the Site Management Plan (Appendix A) including, but not restricted to, the following requirements:

- (a) Wastewater held within the Wet Weather Holding Pond shall be drained back to the plant for secondary treatment as soon as practicable once influent flows recede to below 16 litres per second to the plant.*
- (b) The consent holder shall ensure that hydraulic retention times for wastewater stored within the Wet Weather Holding Pond shall not exceed 10 days as far as practicable. (Hydraulic retention times will vary with season, groundwater levels, precipitation events, and plant operational conditions).*
- (c) The Wet Weather Holding Pond shall be cleaned after each use to remove any accumulated solids.*

The wastewater stored in the holding pond was returned to the plant for treatment as soon as practical. The longest duration of overall ponding in the holding pond (when considering the cumulative effects of three rainfall events) was 35 days from mid-July to mid-August during the 2022/23 monitoring period, see Appendix G.

The holding pond fills while it is raining and doesn't start draining immediately after. Discharge only commences when inflow returns to usual levels. In July 2022 to August 2022 when the largest spike in storage is shown in Figure 5(b), there were three distinct rainfall events through this period in quick succession.

The hydraulic retention times as shown in Table 3 below were a maximum of 5 days each for two events in the July – August period, meeting the consent 10 day retention limit requirement.

Although the pond commenced draining between events it didn't drain fully, meaning that even though the events individually weren't overly significant, cumulatively the effect on the holding pond was that it contained ponding for more than 10 days. However the conveyance of stored water through the pond during each event did not exceed the 10 day retention limit (see Appendix H and Table 3, below).

Staff have indicated that temporary aerators can be dispatched to combat odour if/when the 10 days hydraulic retention limit is exceeded (or if excessive ponding occurs). However over the last monitoring period odour was not reported as an issue and this mitigation was not required.

Staff consider that going forward, with the effects of climate change, the system will be more likely to experience similar patterns where multiple events occur in close succession and the holding pond does not have time to drain back to 250mm (below 250mm is considered empty) before the next event occurs. This could lead to more likely future occurrences of extensive ponding and/or breaching the 10 day hydraulic retention period. The pond can't be drained any faster without having negative impacts on the wastewater treatment plant. Faster draining would also increase the risk of discharging contaminants.

Table 3: Holding pond hydraulic retention times during 2022/23

Event Date	Duration of Hydraulic Retention (days)
9/07/2022	2
12/07/2022	5
31/08/2022	5
5/09/2022	4
19/09/2022	1
17/11/2022	1
19/11/2022	2
20/11/2022	1
24/11/2022	1
27/11/2022	2
20/12/2022	3
11/01/2023	1
5/03/2023	2
13/03/2023	1
29/03/2023	1
13/04/2023	1
18/04/2023	1

The holding pond was cleaned down after each use in accordance with the site management plan.

3.4. Conditions 5, 6 and 14 – Holding Pond Maintenance and Monitoring

Conditions 5, 6 and 14, relate to the maintenance and monitoring of the holding pond.

Condition 5 states:

“At any time as requested by the Canterbury Regional Council, the consent holder shall have the average seepage rate of the Wet Weather Holding Pond tested and certified by a Chartered Professional Engineer (CPEng). The certificate shall be supplied to Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within one month of the completion of the testing.”

Environment Canterbury did not request that the seepage from the holding pond be tested during the 2022/23 monitoring period.

Condition 6 states:

“The Wet Weather Holding Pond and all associated tanks, pipes and channels shall be sealed and maintained to prevent the leakage or overflowing of wastewater onto or into land.”

The pond is inspected during wet weather events when the holding pond is in use. No leakage or overflow was observed during the 2022/23 monitoring period.

Condition 14 states:

“The Wet Weather Holding pond shall be:

(a) inspected at least annually and maintained in sound structural condition;

(b) maintained in accordance with the specifications in the Site Management Plan (Appendix A); and
 (c) monitored to ensure compliance with conditions (10) and (11).

Records of any complaints relating to odour effects shall be logged and submitted to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, on an annual basis."

The pond is inspected during wet weather events when the holding pond is in use. Annual walkover inspections are undertaken to confirm there are no signs of deterioration of the pond banks or the liner. The holding pond is maintained and cleaned following use as required by the site management plan.

The system is monitored via SCADA to ensure compliance with conditions 10 and 11 (refer Section 3.3 above).

3.5. Summary of Compliance – CRC144561

A summary of compliance with consent CRC144561 is presented in Table 4 below.

Table 4: Summary of compliance for 2022/23 for consent CRC144561

Consent condition	Description	Compliance
Conditions 1, 2, 3, 4, 7, 8, 9, 10(b), 12(a), 15 and 16	Holding Pond Construction	Fully compliant
Conditions 10(a), 11, 12(b), and 13	Holding Pond Operation	Fully compliant
Conditions 5, 6 and 14	Holding Pond Maintenance and Monitoring	Fully compliant

4. CRC184787 – DISCHARGE TO LAND

4.1. Overview

This consent covers the discharge of contaminants into land at 470 Woodstock Road (i.e.: the irrigation disposal fields).

Consent compliance for the period 1 July 2022 through to 30 June 2023 ('the monitoring period'), has been assessed by WDC.

4.2. Conditions 1-2 and 6-9 – Treatment Process

Conditions 1, 2, 6, 7, 8 and 9, relate to the design and construction of the treatment process at the WWTP.

Condition 1 states:

"The discharge shall be domestic sewage effluent treated in an aerated activated sludge plant and disinfected by ultraviolet light, as described in the Royds Consulting Report entitled "Waimakariri District Council Oxford Sewage Treatment and Disposal System: Assessment of Effects on the Environment and Technical Support Document, September 1995" submitted with the application for this consent."

The discharge consists only of domestic sewage effluent from the Oxford township and is treated in an aerated activated sludge plant and disinfected by ultraviolet light in accordance with the original

Assessment of Effects on the Environment and Technical Support Document (refer TRIM 091005030296).

Environment Canterbury (ECan) raised concern during 2022 that the use of chlorine was not explicitly allowed by the consent conditions and requested WDC to cease this practice, pending a further investigation of environmental effects. However the use of chlorine to control algae has always been used at this plant and was included in the original Operations & Maintenance Manual (dated 2004).

Subsequently in a meeting on 21 June 2023 ECan agreed that WDC can recommence chlorine dosing into the treatment plant effluent holding tank moving forward. During that meeting ECan confirmed its understanding that dosing with chlorine is a common procedural requirement of operating wastewater treatment plants.

WDC have agreed to undertake sampling of residual chlorine and Disinfection By Products during the summer of 2023/24 when chlorine dosing is recommenced. This will confirm whether or not there is chlorine residual or Disinfection By Products remaining in the effluent. It is noted that chlorine is only used during warmer summer months when algae growth occurs.

Condition 2 states:

“The treatment plant shall include an effluent storage facility that provides for the storage of wet weather flows as authorised by resource consent CRC144561. Effluent stored in the effluent storage facility shall receive secondary treatment via the aerated activated sludge plant and ultraviolet disinfection described in condition (1) post storage and prior to discharge.”

The holding pond provides storage of wastewater during wet weather events in accordance with CRC144561. After wet weather events, stored wastewater is pumped through to the plant for treatment in accordance with Condition 1 prior to discharge (refer Section 3.3 for further information on the holding pond operation).

Condition 6 states:

“The effluent holding pond shall be lined with an impermeable material such that there is no discharge of effluent into land through the base or walls of the pond.”

The holding pond has been constructed with a 1.5 mm thick High-Density Polyethylene (HDPE) membrane liner (refer Section 3.2 for further information on the holding pond construction and seepage rate testing).

Condition 7 states:

“Design plans for the sewage effluent treatment and disposal system shall be forwarded to the Canterbury Regional Council, prior to construction of the system. The design shall allow for samples of the effluent to be taken after treatment in the ultra-violet light disinfection unit and before discharge to the irrigation system.”

The design plans were issued to Environment Canterbury prior to 6 August 1998, as confirmed in the historical compliance report received for the original version of this consent (refer TRIM 050830031). The treatment process allows for samples to be taken post UV disinfection and prior to discharge to the irrigation disposal fields, for testing as required by Conditions 4 and 5 (refer Section 4.4).

Condition 8 states:

“A certificate signed by a registered civil engineer or environmental engineer to certify that the sewage treatment and disposal system is constructed in accordance with the design plans specified in condition (7) shall be provided to the Canterbury Regional Council within one month of the construction of the treatment and disposal system.”

A letter certifying that the treatment plant was constructed in accordance with the design plans, certified by Alan Hulley of MWH, was issued to Environment Canterbury on 23 May 2005 once the treatment plant had been fully commissioned. This was confirmed in the historical compliance report received for the original version of this consent (refer TRIM 050830031).

Condition 9 states:

“A management plan for the operation and maintenance of the sewage treatment and disposal system shall be provided to the Canterbury Regional Council prior to commencement of effluent discharge. The management plan shall specifically address the operational requirements for:

- (a) The aerated treatment plant;*
- (b) The ultra-violet light disinfection unit;*
- (c) Screening, storage and disposal of solids removed from the effluent;*
- (d) Drying and disposal of sludge;*
- (e). Irrigation of effluent onto land; and*
- (f) An emergency power source to be used during loss of electricity.”*

A copy of the Oxford Treatment Plant – Operations Manual (refer TRIM 150909129046), was issued to Environment Canterbury on 23 May 2005 as confirmed in the historical compliance report received for the original version of this consent (refer TRIM 050830031). An early version of the operations manual was developed during construction (refer TRIM 111110053282), but not issued as the modifications were undertaken to the plant during commissioning.

This manual was updated in 2009 (refer TRIM 090818024656) and also in 2014 to include the operation of the holding pond (refer TRIM 141219141903). A further update to the Oxford WWTP operations and maintenance manual is currently being undertaken and will be forwarded through to Environment Canterbury once finalised.

4.3. Conditions 3 and 10-16 – Plant Operation

Conditions 3, 10, 11, 12, 13, 14, 15 and 16, relate to the plant operation at the WWTP.

Condition 3 states:

“The volume of effluent discharged shall not exceed 1,382 cubic metres per day, and a maximum annual volume of 228,125 cubic metres between 1 July and the following 30 June.”

The daily volume discharged from the WWTP to the irrigation disposal field during the 2022/23 monitoring period is shown in Figure 6 below (see Appendix I for raw data).

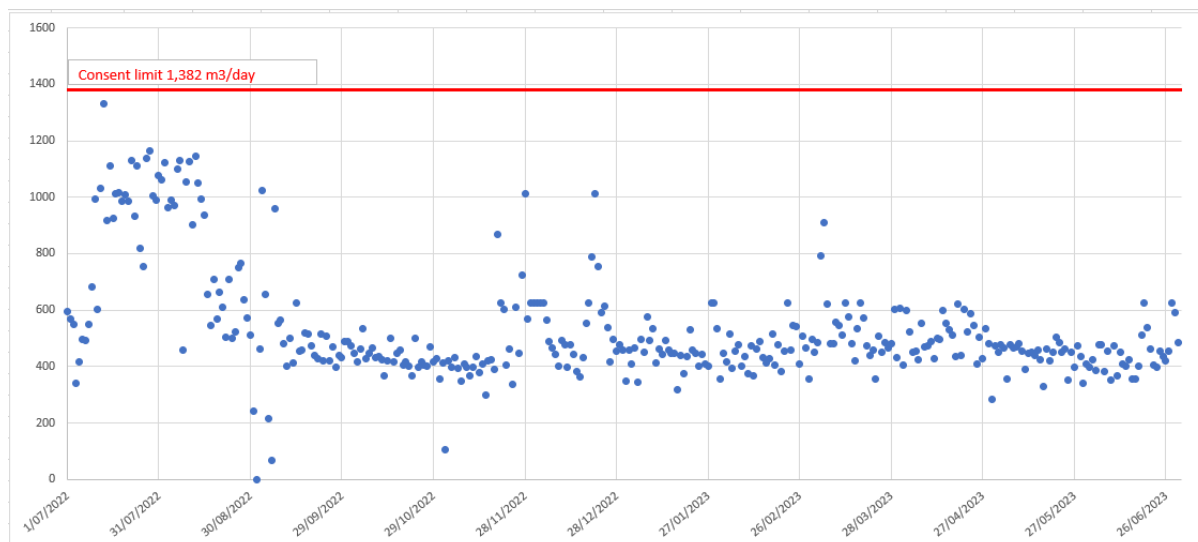


Figure 6: Daily volume (m3) discharged to the irrigation disposal field during 2022/23

The daily volume discharged did not exceed 1,382 m3/day at any time during the 2022/23 year. The annual volume discharged was 194,611.7 cubic metres (see Appendix I).

Condition 10 states:

“There shall be no discharge of effluent onto land within 20 metres of any surface water.”

There are no surface water bodies within 20meters of the irrigation disposal fields. The Eyre River is the closest surface waterbody which is approximately 215m from the discharge area.

Condition 11 states:

“Effluent shall not be spray irrigated directly onto land within the drainage channel depression identified on Plan CRC184787A attached to this consent.”

The drainage channel depression shown on Plan CRC184787A has been redirected to the south of the irrigation disposal fields, such that no treated effluent is discharged onto land within the drainage channel depression.

Condition 12 states:

“The rate at which effluent is applied onto land shall not exceed 200 kilograms of nitrogen per hectare per year.”

The average annual nitrogen concentration rate of 12.9g/m3 measured during the 2022/23 monitoring period (see Appendix A Summary of all lab data results – Total Nitrogen - Oxford tab) is similar to the average application rate result of 13.1g/m3 recorded in the previous 2021/22 year and less than the consent limit application rate of 14.1g/m3.

This equates to an annual application rate of 183 kg-N/ha in the 2022/23 year. This is less than the consent limit of 200 kilograms of nitrogen per hectare per year. The annual application rate is calculated as an estimated % of the consent limit maximum annual application rate, based on the average monthly application rate which is a corresponding % of the maximum monthly rate – a ratio comparison determines the annual rate.

The western irrigator (Irrigator 2) was not operational for 9 months of the previous 2021/22 monitoring period due to wind damage sustained in September 2021. That resulted in a higher

concentration of nitrogen being applied to the eastern field from approximately September 2021 until May 2022. The annual application rate for the previous 2021/22 year on the eastern field was therefore calculated to be 236 kg-N/ha, which was higher than the consent limit of 200 kg-N/ha. This exceedance has been demonstrably addressed (reduced) in the current year as the nitrogen application rate is on average less than the consent limit and has been applied to the distribution fields through both irrigators through most of the year.

It is noted that over the 2022/23 year the nitrogen concentration rate sampled was higher than the consent limit of 14.1 g/m³ in the July 2022 sample; and then again in the January and April 2023 samples (Appendix A – Total Nitrogen Oxford tab). This may correlate with higher levels of rainfall during these months.

As the replacement Irrigator 2 is now operating the nitrogen load is being evenly distributed across both irrigation fields. The eastern field which was solely irrigated during part of the previous reporting year could be rested at any time to reduce the nitrogen concentration applied to land on that field, if required. However this may not be required as the new irrigator has been online from spring 2022.

The on-going high application rate of nitrogen to the eastern irrigation field between May 2022 until September 2022 was mitigated by deploying a temporary irrigation system using k-lines on the western irrigation field. This better distributed the load across both fields until the new Irrigator 2 became operational in September 2022.

Condition 13 states:

“The depth of effluent application on the primary block identified on Plan CRC184787B, attached to this consent shall not exceed 22 millimetres per day. The depth of effluent irrigation on the secondary and tertiary blocks identified on plan CRC184787B shall not exceed 10 millimetres per day.”

The spreadsheet Appendix J data set shows the daily application rate calculated from the flow and irrigator’s positioning data. However there is still no SCADA data available for Irrigator 2 although it has been in operation from September 2022 onwards. WDC staff have been working with the irrigator supplier on getting Irrigator 2 connected to SCADA since the equipment was installed, however this process has dragged on longer than anticipated mostly due to the equipment supplier’s unresponsiveness. Due to equipment warranty considerations, staff had been unavailable to progress this with external suppliers. This will now be progressed as the warranty period is expired.

As there is no data for Irrigator 2, the Irrigator 1 data shown in the spreadsheet shows approximately double the actual application depth to land applied each day in mm. The data also overstates the depth applied because the movement of the irrigators over land is not consistent over time and SCADA does not record when this movement ceases at any time. The data therefore over-represents the amount discharged at times when the irrigator is moving.

SCADA data recording will be installed on the new irrigator 2 within coming months. This will ensure data for Irrigator 2 can be reported in the future and Irrigator 1 records will not continue to be overstated once this data is available.

A bucket test of the eastern irrigator discharge rate was most recently conducted in November 2021. This found that the approximate application rate is 17.93mm in any 24 hour period which is within the consent limit.

Condition 14 states:

“There shall be no ponding of effluent.”

Ponding was most recently observed by Environment Canterbury during the site inspection undertaken on the 9 March 2022 as shown in Figure 7 below.



Figure 7. Surface ponding observed on 9 March 2022 by Environment Canterbury

As both eastern and western irrigators have been operating since September 2022 there has been no further ponding observed in either field since the above photo record was taken. A k-line temporary irrigator was installed from May 2022 until September 2022 to spread effluent more widely across both fields to reduce ponding on the eastern field, in response to the above report of ponding of effluent.

Condition 15 states:

“There shall be no grazing of land by stock within 48 hours of irrigation of that land with effluent.”

The site was not used for grazing at any time during the 2022/23 monitoring period.

Condition 16 states:

“The hours and rate (in cubic metres per hour) of effluent discharged and the area of land to which effluent is applied shall be measured to within an accuracy of 10 percent and recorded daily in a log kept for that purpose. These records shall be provided to the Canterbury Regional Council, on request.”

The daily volume of effluent discharged is shown in Figure 8 below and the area of land to which the effluent was applied is tabulated in Appendix I. It is noted that SCADA information was not available on irrigator position and movement for Irrigator 2 so this information is incomplete.

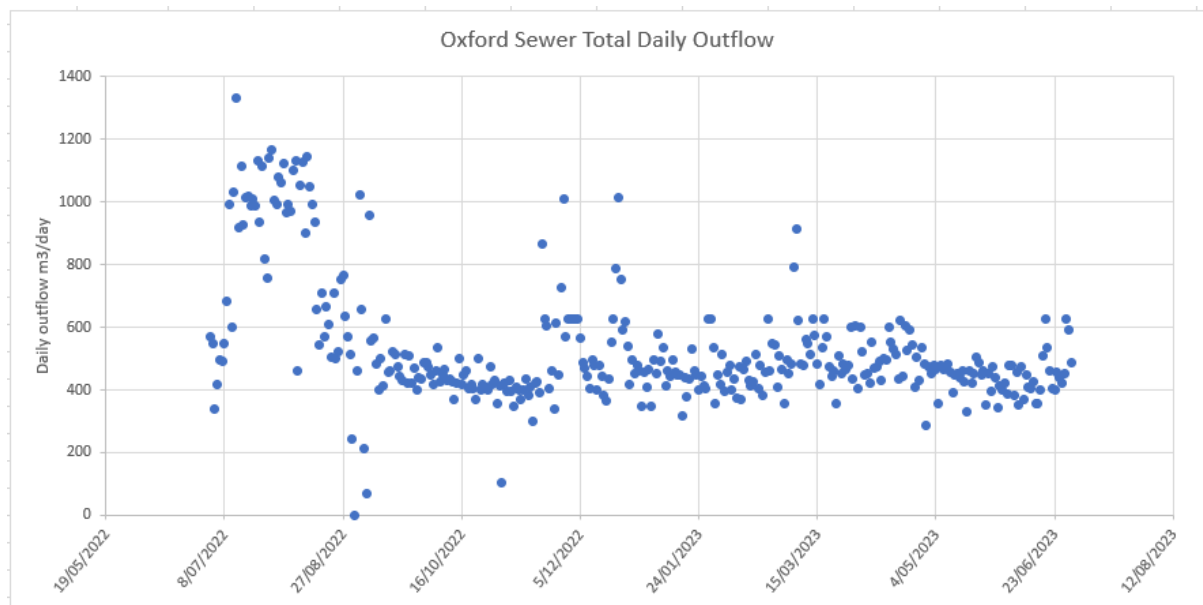


Figure 8: Daily volume of effluent discharged during 2022/23

4.4. Conditions 4 and 5 – Treatment Monitoring

Conditions 4 and 5, relate to the treatment monitoring at the WWTP.

Condition 4 states:

“The faecal coliform bacteria concentration in a representative sample of the effluent taken following ultra-violet light disinfection and before discharge to the irrigation system shall not exceed 500 per 100 millilitre sample.”

Condition 5 states:

“A representative sample of the discharge shall be taken at the sampling location specified in condition (4) within one month of the commencement of discharge and at least every six months thereafter. Each sample shall be analysed for faecal coliform bacteria (number per 100 millilitres) and total nitrogen concentration (grams per cubic metre). The laboratory carrying out the analyses shall be accredited to ISO Guide 25, for those analyses, either by TELARC or by an organisation with a mutual recognition agreement with TELARC established in accordance with ISO Guide 58. The results shall be provided to the Canterbury Regional Council within five working days of receipt of the results by the consent holder.”

Representative samples are taken from the plant, after UV disinfection and prior to discharge to the irrigation disposal fields, on a monthly basis. The samples are tested by Hill Laboratories who are accredited to ISO Guide 25, results from the daily volume discharge from the WWTP to the irrigation disposal field during the 2022/23 monitoring period are shown in Figure 9 and Figure 10 below (see Appendix A – FaecalColi Post UV Oxford tab for raw data).

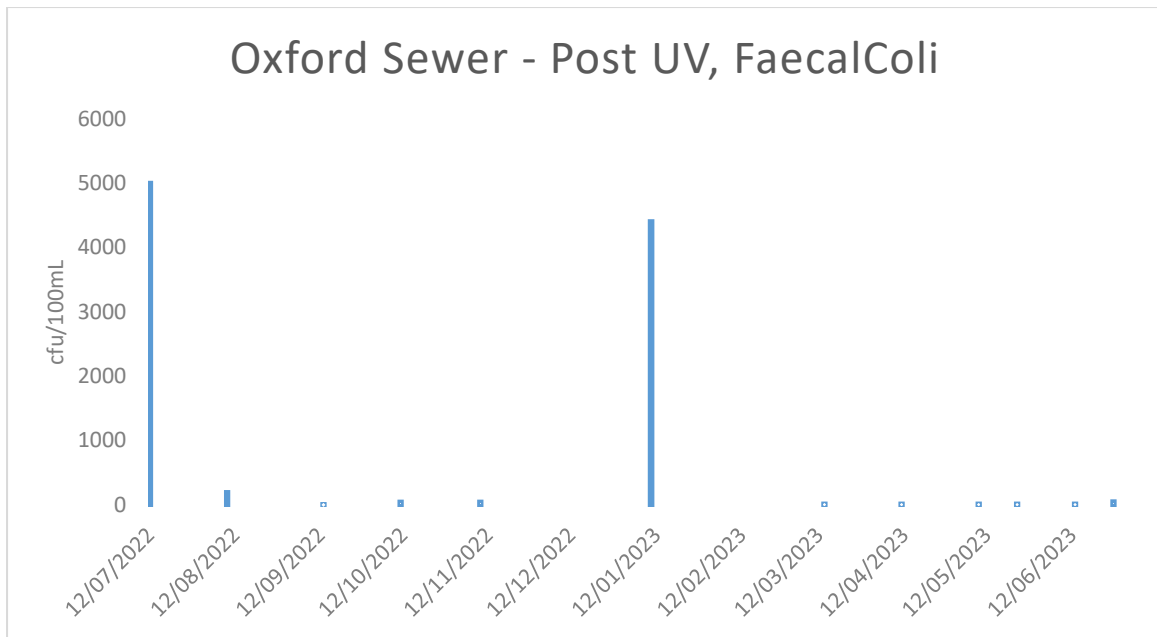


Figure 9: Monthly faecal coliform sample results during 2022/23 (cap at 5000cfu/100mL)

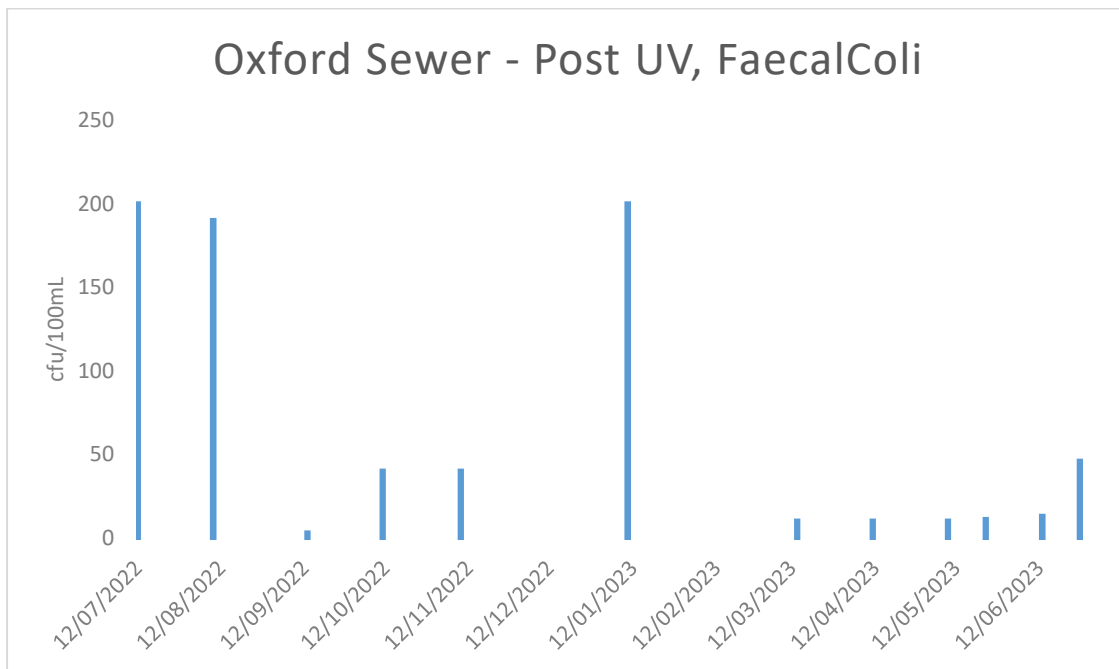


Figure 10: Monthly faecal coliform sample results during 2022/23 (cap at 200cfu/100mL)

These results were significantly higher than the consent limit of 500cfu/100mL in July 2022 (actual result was 2.5million cfu/100mL) and January 2023 (actual result was 4,400 cfu/100mL) (see Appendix A – FaecalColi Post UV tab).

Graph 10 is artificially capped at 200cfu/100mL due to these significantly higher values meaning other months with lower values did not have visible data in Figure 9. Measurements for the complying months ranged from 0 to 190cfu/100mL (Post UV).

The results show that the discharge was not compliant for the July 2022 and January 2023 samples. For the July sample this was due to operational issues with the UV units and the plant operators observed a poor quality of effluent at this time. One known faulty UV unit was replaced and recommissioned on 8/9/2022, therefore it is expected that higher compliance should be achieved from that date onwards. There were no clear operational issues causing the high January 2023 sample however results following the exceedance on that date were compliant.

Samples have been provided here on an annual basis, however Environment Canterbury have requested that these are sent through within 5 working days as per the consent condition. Systems have been put in place to ensure that these results are sent through to Environment Canterbury within 5 working days.

4.5. Summary of Compliance – CRC184787

A summary of compliance with condition CRC184787 is presented in Table 5 below.

Table 5: Summary of compliance for 2022/23 for consent CRC184787.

Consent condition	Description	Compliance
Conditions 1, 2, 6, 7, 8 and 9	Treatment Process	Fully compliant
Conditions 3, 10, 11, 12, 13, 14, 15 and 16	Plant Operation	Mostly compliant – no SCADA data connected yet for Irrigator 2 – western field, overstating the depth of effluent applied to land through Irrigator 1.
Condition 4 and 5	Treatment Monitoring	Non-compliant – Issues with the UV disinfection unit resulted in faecal coliform levels above the consent limit during July and January in the 2022/23 year. A faulty UV unit was replaced on 8/9/22.

WAIMAKARIRI DISTRICT COUNCIL**REPORT FOR INFORMATION****FILE NO and TRIM NO:** RDG-22-04, DRA-16-05 / 231005157963**REPORT TO:** UTILITIES AND ROADING COMMITTEE**DATE OF MEETING:** 17 October 2023**AUTHOR(S):** Jason Recker, Stormwater & Waterways Manager
Joanne McBride, Roding & Transportation Manager
Daryll Pinfold, Flood Team Lead**SUBJECT:** July 2023 Flood Recovery Progress Update**ENDORSED BY:**
(for Reports to Council,
Committees or Boards)

General Manager



Chief Executive

1. SUMMARY

- 1.1 This report provides a progress update on the July 2023 Flood Recovery work programme, including investigation work and maintenance actions, and provides an overview of the physical works programme recommended by the investigations.
- 1.2 A total of 351 service requests have been received related to the July 2023 storm event (including an additional 4 following the previous Utilities & Roding Committee meeting, refer TRIM 230907139945), which have been triaged and classified into a total of 80 investigations, 126 maintenance actions and 31 customer advice actions.
- 1.3 As at 5 October 2023, all investigations have been triaged, 40 are in the scoping phase, 32 are under investigation, 2 are in the approval stage, 5 in the implementation stage and 1 has been completed. There are three resources from the Flood Team allocated to undertaking the investigations and implementing any immediate works this financial year.
- 1.4 A further 126 maintenance actions were also identified from the service requests following the July 2023 event. As at 5 October 2023, 22 are yet to start, 95 have been started and are work in progress, 8 have been programmed, and 1 has been completed. There are two resources from the Flood Team allocated to undertaking the maintenance inspections and assigning actions to our maintenance contractors.
- 1.5 Work on the three key focus areas below has commenced, which will require more detailed assessment, investigation and community and stakeholder consultation:
- **Cam River / Ruataniwha** – breakout flow occurred from the main channel upstream of Bramleys Road causing road and property flooding.
 - **Tuahiwi** – experienced extensive flooding from the Tuahiwi Stream / Waituere.
 - **Waikuku Beach** – the Taranaki Stream back up behind the floodgates causing road, property and garage flooding.
- 1.6 The total cost of the flood recovery work is \$4.055 million (refer TRIM 230921147926). Subsequent reports to the Utilities & Roding Committee will provide an update on forecast expenditure versus the approved budget.

- 1.7 A communications strategy document is currently being prepared, which will cover the update of the website for the July 2023 event and regular fortnightly updates, phone call or email contact with the service request submitters to provide updates, residents meetings where appropriate, and close out correspondence when each investigation is complete.

Attachments:

Attachment i – Flood Recovery Detailed Tracking July 2023 Event – As at 5th October 2023 (Trim 231005158072).

Attachment ii - Flood Recovery Dashboard July 2022 Event – As at 5th October 2023 (Trim 231005158079).

2. **RECOMMENDATION**

2.1. **THAT** the Utilities and Roothing Committee:

- a. **Receives** Report No. 231005157963.
- b. **Notes** that works on the three key areas of Cam River / Ruataniwha, Tuahiwi and Waikuku Beach has commenced and will require more detailed assessment, investigation and community and stakeholder consultation.
- c. **Notes** that all 80 investigations have been triaged, 40 are currently being scoped, 32 are under investigation, 2 have works being reviewed for approval, 5 have works programmed, and 1 is complete.
- d. **Notes** that of the 126 maintenance actions 22 are yet to start, 95 have been started and are work in progress, 8 have been programmed, and 1 has been completed.
- e. **Notes** that the total cost estimate for the flood recovery work is \$4.055 million.
- f. **Notes** that future progress update reports to the Utilities and Roothing Committee will provide an update on the actual and forecast expenditure versus the approved budget.
- g. **Notes** that a communications strategy document will be presented to the next Utilities and Roothing Committee meeting for endorsement.
- h. **Circulates** this report to all Community Boards for information.

3. **BACKGROUND**

- 3.1 The district experienced a significant rainfall event over the weekend of 22-24 July 2023, with the coastal area around Woodend receiving approximately 150mm of the rainfall over a 48 hour period. The event was estimated to be more than a 50 year event for Woodend, yet less than a 10 year event for Summerhill and Oxford.
- 3.2 A total of 351 service requests related to the July 2023 storm event were received. Review of these service requests identified that there is a total of 80 investigations and 126 maintenance tasks that need to be undertaken (refer Table 2 below). There are also 31 service requests predominantly related to private drainage issues where advice is required to be provided to the customer.

Table 2 – Classification of Service Requests

Classification		No. SR	Investigations	Maintenance Tasks
Investigations	Recent (July 2022)	82	36	-
	Historical	54	30	-
	New	25	14	-
Maintenance		159	-	126
Customer Advised		31	-	-
TOTAL¹		351	80	126

¹Note that the total number of service requests is greater than the number of investigations and maintenance tasks as an investigation or maintenance task can have multiple service requests associated with the work.

- 3.3 It is noted that the total number of investigations may still change as additional areas related to the flooding in July 2023 are raised.
- 3.4 The Flood Team is currently involved in prioritising and assigning resources to the investigation work and has also begun acting on the most urgent ones where immediate works are required.
- 3.5 Progress updates will be provided on a fortnightly basis via an email to Councillors and Community Board members and monthly reporting formally to the Utilities and Roading Committee.

4. **ISSUES AND OPTIONS**

Key Focus Areas

- 4.1. The three key focus areas that experience extensive flooding that will require more detailed assessment, investigation and community and stakeholder are:
- **Cam River / Ruataniwha** – breakout flow occurred from the main channel upstream of Bramleys Road causing road and property flooding.
 - **Tuahiwi** – experienced extensive flooding from the Tuahiwi Stream / Waituere.
 - **Waikuku Beach** – the Taranaki Stream back up behind the floodgates causing road, property and garage flooding.
- 4.2. Staff are currently working through all of the services requests to identify the issues in these areas and to scope the more detailed assessment work required, such as modelling, in order to develop immediate and potential future improvement works that could be implemented. These areas will be addressed in more detail in a specific reports to the Utilities & Roading Committee or Council in the future.

Progress of Investigations

- 4.3. All of the 80 investigations have been triaged, 40 are in the scoping phase and 31 are under investigation, 2 are in the approval stage, 4 in the implementation stage and 3 have been completed. The current status of these are summarised in the following table.

Table 3 – Progress of Investigations

Phase	Previous Report	Current Status ⁴	Change
Triaging	-	0	-
Scoping	48	40	-8
Under investigation (Flood Team)	30	32	+2
Review and approval (Asset Manager)	-	2	+2
Maintenance / immediate works programmed ¹	-	5	+5
Improvement works proposed ²	-	0	-
Completed ³	-	1	+1
Total	78	80	+2

¹ For the current financial year.

² Subject to future year budget process.

³ Investigation complete, actions agreed, works programmed or budgeted, customer/s called back.

⁴ As at 5 October 2023.

- 4.4. While progress is being made on the 78 investigations, addressing the issues through physical works or changes to maintenance practice (if it is WDC's responsibility) is the outcome that is most sought by the affected residents. The following table provides a summary of the solutions identified by the investigations, which will be updated as the investigations are progressed to completion.

Table 4 – Outcome of Investigations

Implementation Solutions	Previous Report	Current Status	Change
Not yet determined	78	74	-4
Physical Works FY23/24	0	6	+6
Future year capex	0	0	-
O&M changes	0	0	-
No action/Customer Advice	0	0	-
Total	78	80	

Progress with Maintenance Actions

- 4.5. Of the 126 maintenance actions 95 have been inspected and 22 are yet to start. The current status of these are summarised in the following table.

Table 5 – Progress with Maintenance Actions

Phase	Previous Report	Current Status ²	Change
To be started	82	22	-60
Work in progress	44	103	+59
Completed ¹	0	1	+1
Total	126	126	

¹ Inspection complete, maintenance required programmed, customer/s called back.

² As at 5 October 2023.

Communications

- 4.6. A communications strategy document is currently being prepared and will be presented to the next Utilities & Roading Committee meeting for endorsement.

4.7. A programme of regular communications will be implemented to support the recovery programme. In particular, the following key activities will be undertaken, similar to the previous approach:

- A fortnightly dashboard and detailed tracking sheet published on the website.
- Personal phone calls or emails to submitters when investigation begins to understand the issue with follow up communications to confirm the outcomes.
- Residents meetings, either street meetings or at community halls, will be held where appropriate. A residents meeting has already been held in the West Eyreton Hall for the Washington Place flooding issue. Additionally, several street meetings have already been held for the Bramleys Road / Cam River flooding issue, the Threlkelds Road flooding issue and the Tram Road flooding issue.
- Close out emails or communications with submitters as appropriate when each investigation is complete.

Implications for Community Wellbeing

- 4.8. There are implications on community wellbeing by the issues and options that are the subject matter of this report.
- 4.9. Safe and reliable Roading and 3 Waters infrastructure is critical for wellbeing. 3 Waters infrastructure includes adequate drinking water, wastewater drainage and stormwater drainage for health and Roading infrastructure is required to provide safe egress and enable residents to access goods and services within the community.
- 4.10. The Management Team has reviewed this report and support the recommendations.

5. COMMUNITY VIEWS

Mana whenua

- 5.1. Te Ngāi Tūāhuriri hapū are likely to be affected by or have an interest in the subject matter of this report as it relates to impacts on waterways and rivers. Staff will update the Runanga at the executive meetings and where relevant on specific projects or consents engage with Mahaanui Kurataio Limited.

Groups and Organisations

- 6.2. A number of the issues in this report cross over with Environment Canterbury (Ecan) in terms of consenting, or in relation to rivers and natural waterways assets and services they maintain. Staff from Ecan and WDC are working to proactively coordinate where necessary.
- 5.3. There are some drainage related issues that also relate to water races and irrigation races. Where this is the case staff are coordinating with Waimakariri Irrigation Limited.

Wider Community

- 6.4. The wider community is likely to be affected by, or to have an interest in the subject matter of this report, as the wider community has been impacted by the recent flood event.

6. **OTHER IMPLICATIONS AND RISK MANAGEMENT**

Financial Implications

- 6.1. The Council has approved unbudgeted expenditure of up to \$4.04 million in the current (2023 / 2024) financial year for emergency and immediate works responding to and recovering from the flooding. A subsequent report was approved by Council in October to establish budgets and funding sources for this expenditure (refer TRIM 230921147926). This report also provided an updated total cost estimate for the flood recovery work of \$4.055 million.
- 6.2. Subsequent progress update reports to the Utilities & Roading Committee will include an overview of the actual financial spend versus the budget.

Sustainability and Climate Change Impacts

- 6.3. The frequency and severity of flood events is likely to increase due to the impacts of climate change.

Risk Management

- 6.4. There are risks arising from the adoption/implementation of the recommendations in this report.
- 6.5. A risk-based approach has needed to be adopted around the management of any improvements works. Whole of life cost will be considered when agreeing the extent of works and the residual risk due to further rainfall events.

Health and Safety

- 6.6. There are health and safety risks arising from the adoption/implementation of the recommendations in this report.
- 6.7. Physical works will be undertaken to repair flood damage and as per standard process for any physical works, the contractor will be required to provide a Site Specific Health & Safety Plan for approval prior to work commencing on site.

7. **CONTEXT**

Consistency with Policy

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

Authorising Legislation

- 7.2. The Land Transport Management Act is the relevant legislation in relation to Roading activities.

Consistency with Community Outcomes

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

7.4. This report considers the following outcomes:

There is a safe environment for all

- Harm to people from natural and man-made hazards is minimised.
- Our District has the capacity and resilience to quickly recover from natural disasters and adapt to the effects of climate change.
- Crime, injury and harm from road crashes, gambling, and alcohol abuse are minimised.

Transport is accessible, convenient, reliable and sustainable

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

Core utility services are sustainable, resilient, affordable; and provided in a timely manner

- Harm to the environment from sewage and stormwater discharges is minimised.
- Council sewerage and water supply schemes, and drainage and waste collection services are provided to a high standard.
- Waste recycling and re-use of solid waste is encouraged, and residues are managed so that they minimise harm to the environment.

Authorising Delegations

7.5. Relevant staff have delegation to authorise unbudgeted emergency works where needed.

FLOOD RECOVERY FORTNIGHTLY STATUS REPORT

As at Thursday, 5 October 2023



Fortnightly Report

Introduction

The district experienced a significant rainfall event over the weekend of 22-24 July 2023, with the coastal area around Woodend receiving approximately 150mm of the rainfall over a 48 hour period.

The purpose of this report is to update the Utilities and Roading Committee and Community Boards on the status of the drainage and sewer service requests and further investigations:

Report Format

This report will be prepared fortnightly and will include the following information

- This Dashboard showing:
 - General commentary
 - Dashboard metrics
 - Specific commentary on Key Focus Areas
- An attached traffic light report on all 78 investigations

General Update

There have now been 3 out of 80 investigations completed, 4 have works programmed for this financial year, 31 are under investigation and 40 are in the scoping phase (yet to start).

In the key focus areas which are reported on the right hand side of this page, all are progressing well. One is amber due to the tight delivery timeframe and the other investigations are close to completion.

The maintenance team have made good progress with 95 under work in progress, 8 works programmed, 1 completed, with 22 remaining to be started.



Image of Flood concept, Beach Crescent Waikuku Beach



Image of Tram road investigation progress

Key Metrics

Investigation Phase	As at 21 September	This report	Change
Triaging	0	0	0
Scoping	44	40	-4
Under investigation	29	32	3
Review & approval	0	2	2
Works programmed	5	5	0
Improvement works proposed	0	0	0
Completed	1	1	0
Total	79	80	

Implementation Solutions	As at 21 September	This report	Change
Not yet determined	78	74	-4
Physical Works FY23/24	0	6	6
Future year capex	0	0	0
O&M changes	0	0	0
No action/Customer Advice	0	0	0
Total	78	80	

Maintenance Actions Phase	As at 21 September	This report	Change
To be started	58	22	-36
Work in progress	68	95	27
Works programmed	0	8	8
Completed	0	1	1
Total	126	126	

Key Focus Areas

Location	Update	Status
Cam River	It has been identified that heavy maintenance and localised stopbank improvement works are required as immediate works to improve the upper Cam River / Ruataniwha system.	Under Investigation
Tuahiwi	A detailed site investigation is required to establish the extent of maintenance works required on the main channel of the Tuahiwi Stream / Waituere and the on the diversion channel from Greens Road to the Cam River / Ruataniwha.	Under Investigation
Waikuku Beach	Detailed assessment is required to determine the cause of flooding which was higher than expected. This work will look at factors such as the operation of the flood gate, upstream development, and the catchment hydrology, including any recharge from the Ashley River.	Under Investigation
Swindells Road, Waikuku Beach	Options memo currently being finalised. Construct planned in 2023/24. Amber due to tight timeframe to meet these dates.	Works Programmed
Broadway Avenue, Waikuku Beach	Complete. Flap gate to prevent backflow have been installed and lateral to property provided.	Completed
Stalkers Road, Woodend Beach	Issue with regular flooding during periods of high groundwater and causing issue with overloading the sewer. Investigations completed. Works have been tendered.	Works Programmed
Cust Road, Cust	New larger soakpits have been installed, but were overloaded in the July 2023 event. Solution to install overflow pipe to the lower terrace to be progressed.	Future year capex
Washington Place, West Eyreton	Residents meeting with landowners held at West Eyreton Hall. Confirm recommended works proposed for next financial year based on recent flooding. Evaluate and implement short-term works this financial year.	Works Programmed
Featherstone Ave, Kairaki	Issue with inflow and infiltration overloading the sewer. Urgent works to address main issues in campground completed. Additional remedial work on manholes and laterals in Featherstone Ave to be progressed.	Works Programmed
Cones Road, Ashley	Modelling work currently underway to confirm the proposed design. Weir has been modified. Proposed drain upgrading works are schedule for February-March 2024.	Works Programmed
Resurgence Flow, Mandeville	Consultation underway for the proposed Mandeville Resurgence Channel Upgrade/Diversion. The work is planned for the coming financial years. Investigation and service requests now closed with capital works project in coming years.	Future year capex
Beach Crescent, Waikuku Beach	Install sumps and pipework to connect existing low points to a new pump chamber in the campground and install a discharge main through to the sand dunes for the discharge from a portable pump.	Works Programmed
Cridland Street West, Kaiapoi	Review works proposed in future years based on recent flooding. Investigate if any interim improvements can be made.	Under Investigation
Tram Road, Clarkville	Upsize 375mm on north side of Tram Road to a 750mm culvert. Design approved and tender documents are being prepared	Works Programmed

Flood Recovery Detailed Tracking July 2023 Event

Project		Reporting					
As at 5th October 2023							
Work package	Location	Date this report last updated	Stage	%age complete of stage	Progress since last reported	Planned actions	Traffic light
23I-01	South Brook / Marsh Road, RANGIORA	4/10/2023	Scoping	10	Initial scoping has commenced.	Check capacity of Marsh Road culvert. Assess South Brook channel for maintenance requirements between the railway line and the confluence with the Cam River.	Green
23I-02	Pascoe Drive, WOODEND	7/09/2023	Scoping	0	-	CCTV pipework. Consider potential piped linkage through to Benjes.	Green
23I-03	Poyntz Road, CUST	4/10/2023	Under Investigation	30	Improvement options being considered in context of wider water race system	Evaluate potential improvements conceptually developed. Implement upgrades as immediate works.	Green
23I-04	Edmunds Road, CLARKVILLE	4/10/2023	Under Investigation	30	Alternative options being considered. Survey required.	Assess potential capacity improvements conceptually developed by Dan Lewis. Implement upgrades as immediate works.	Green
23I-05	Newnham Street, RANGIORA	7/09/2023	Scoping	0	-	Review previous advise (FT01, DR2101140). Investigate location of spring/s. Consider what improvement works can be undertaken.	Green
23I-06	Raddens Road, OHOKA	7/09/2023	Scoping	0	-	Investigate easement. Review BC (and RC) files. Consider if a bund is warranted. Ensure overflow to Ohoka Stream South Branch is maintained through property.	Green
23I-07	North Eyre Road, EYRETON	4/10/2023	Review & Approval	90	Proposed solution confirmed.	Implement upgrades as immediate works.	Green
23I-08	Jeffs Drain Road, CLARKVILLE	4/10/2023	Under Investigation	30	Site visit completed.	Evaluate if related to the new Butchers Road bridge. Consider if driveway culvert needs to be upgraded.	Green
23I-09	Tram Road / Whites Road, MANDEVILLE	7/09/2023	Scoping	0	-	Maintenance: Check Whites Road drain. Investigation: Check culvert capacity under Tram Road. Update Waimap.	Green
23I-10	Woodfields Road (Site 2), CUST	7/09/2023	Scoping	0	-	Assess potential capacity improvements conceptually developed by Dan Lewis. Consider is improvements should be implemented as part of the other immediate works in the Woodfields Road area.	Green
23I-11	Threlkelds Road, OHOKA	7/09/2023	Under Investigation	0	-	Check spill pipe under Threlkelds Road and outlet to Cust Main Drain. Consider options to improve access. Assess feedback from the street meeting held with residents.	Green
23I-12	Loburn Terrace Road (Site 1), LOBURN NORTH	4/10/2023	Under Investigation	50	Site visit completed. Investigation report being prepared.	Implement upsizing of culvert and drain cleaning planned for July 2023. Confirm with Roading if this work has been completed.	Green
23I-13	Terrace Road, CUST	7/09/2023	Scoping	0	-	Relates to drainage from a recent development. Subdivisions team to progress.	Green
23I-14	Waikuku Beach Road / Leggits Road, WAIKUKU BEACH	7/09/2023	Scoping	0	-	Confirm with Ecan that the Leggits Road flap gate has been cleared and was regularly checked prior, during and after the July 2023 rainfall event. Consider if culvert under Waikuku Beach Road is required. Assess excavation routes if flooding occurs.	Green
23I-15	Swannanoa Road, FERNSIDE	7/09/2023	Scoping	0	-	Evaluate if any interim localised improvements can be made. Ultimately implement the Lilly Road diversion that is proposed.	Green
23I-16	Loburn Terrace Road (Site 2), LOBURN	4/10/2023	Under Investigation	50	Site visit completed. Investigation report being prepared.	Complete upsizing of culvert and drain cleaning planned for July 2023 if not done so already. Check not related to 23I-12.	Green
23I-17	Siena Place, MANDEVILLE	7/09/2023	Scoping	0	-	Provide advice to customer. Consider if improvements to onsite sewer system or Council pressure system is required.	Green
23I-18	Collins Drive, WAIKUKU BEACH	4/10/2023	Under Investigation	50	Site visit completed. Investigation report being prepared.	Consider improvements suggested by Corde in SR. Review previous improvement works. May be due to high tailwater levels in Ashley River.	Green
23I-19	Park Terrace, WAIKUKU BEACH	7/09/2023	Scoping	0	-	Assess as part of the Taranaki Stream assessment. Refer 23I-20.	Green
23I-20	Taranaki Stream, WAIKUKU BEACH	7/09/2023	Under Investigation	0	-	Model the Taranaki Stream and simulate the July 2023 event. Assess impact of high levels in the Ashley River, upstream development (Pegasus and Ravenswood) and potential backflow or subsurface flow from the Ashley River.	Green
23I-21	Island Road, KAIAPOI	7/09/2023	Scoping	0	-	Check drain and culverts. Review modelling results. Consider if any improvements can be made and integrate as part of Roading intersection works.	Green
23I-22	Greigs Road, CLARKVILLE	7/09/2023	Scoping	0	-	Check capacity of driveway culvert. Link in with works to upgrade drainage system into properties off Heywards Road.	Green
23I-23	Woodfields Road (Site 3), CUST	7/09/2023	Scoping	0	-	Review previous assessment work. Consider improvements to upstream intersection pipework.	Green
23I-24	Cam River, TUAHIWI	3/10/2023	Under Investigation	50	Inspection of Cam River completed. Met with property owners and Environment Canterbury. Urgent maintenance works completed. Report to U&R prepared.	Assess potential improvements and work with Ecan to implement. Request Ecan to extend their Cam River Scheme Design review to include the section upstream of Bramelys Road maintained by WDC.	Green
23I-25	Reserve Road, WAIKUKU BEACH	7/09/2023	Scoping	0	-	Assess potential improvements. Partially related to Taranaki Stream Assessment project. Partially related to FT25.	Green
23I-26	Queens Avenue / Collins Drive, WAIKUKU BEACH	4/10/2023	Under Investigation	50	Site visit completed. Draft investigation report prepared.	Survey Queens Ave. Determine outlet from low point (may be a soakpit?). Assess potential improvements.	Green

Project		Reporting					
As at 5th October 2023							
Work package	Location	Date this report last updated	Stage	%age complete of stage	Progress since last reported	Planned actions	Traffic light
23I-27	Charles Street, RANGIORA	7/09/2023	Scoping	0	-	Investigate onsite drainage systems and the potential for an historical spring or capped well that has been damaged. Determine potential improvement works.	Green
23I-28	Browns Road, SWANNANOA	7/09/2023	Scoping	0	-	Consider potential improvements. Engage with Ecan regarding diversion. Prepare summary memo.	Green
23I-29	Ohoka Road, KAIAPOI	7/09/2023	Under Investigation	0	-	Review RC and BC. Determine if any improvements are required.	Green
23I-30	Rowse Street, RANGIORA	4/10/2023	Scoping	10	Initial scoping has commenced.	Investigate potential of an historical spring under house. Provide advice to property owner.	Green
23I-31	Eders Road / Parsonage Road, WOODEND	7/09/2023	Scoping	0	-	Consider potential improvements that can be implemented, either immediately or as part of development of the area.	Green
23I-32	Upper Sefton Road, SEFTON	4/10/2023	Under Investigation	70	Site visited. Investigation report being prepared. Hydraulic calculations underway.	Hold street meeting. Consider additional improvements to manage the distribution of flows and the debris load from the upstream catchment. Potentially upsize the downstream culvert from a tripple pipe to a box culvert.	Green
23I-33	Old North Road (Site 1), KAIAPOI	7/09/2023	Scoping	0	-	Undertake survey and consider improvements in the road reserve suggested in SR.	Green
23I-34	Sladdens Farm Road, COOPERS CREEK	7/09/2023	Scoping	0	-	Check with Ecan the status of the work. Consider need to install larger box culvert.	Green
23I-35	Old North Road (Site 2), KAIAPOI	7/09/2023	Scoping	0	-	Inspect outlet system for maintenance. Provide advice to customer on measure they can take when Cam River is flowing high.	Green
23I-36	Evans Place, KAIAPOI	7/09/2023	Scoping	0	-	Confirm source of flooding. Any issues in ROW? Check 225mm outlet to Dudley Drain. CCTV inspect.	Green
23I-37	Otaki Street, KAIAPOI	7/09/2023	Scoping	0	-	Call customer to determine source of flooding (from street or rear of property). Assess need to improve street drainage system from Cressy Ave to the new Otaki Street PS.	Green
23I-38	Alpine Lane, KAIAPOI	7/09/2023	Scoping	0	-	Consider if more effective alignment for sewer pipework is feasible.	Green
23I-39	Cam Road, KAIAPOI	7/09/2023	Scoping	0	-	Consider if more effective alignment for sewer pipework. Assess is related to historical investigation H10.	Green
23I-40	Kings PS, WAIKUKU BEACH	4/10/2023	Under Investigation	30	Investigation indicates likely related to the Kings Ave PS issues. Design finalised for Kings Ave PS.	Tender Kings Ave PS works. Implement upgrading works.	Green
23I-41	Pankhurst PS, WOODEND	7/09/2023	Scoping	0	-	Inspect PS with Water Unit to confirm no recent issues. Undertake CCTV of pipework. Consider if I&I investigations are warranted based on historical flows to PS and catchment area.	Green
23I-42	Revells Road, TUAHIWI	4/10/2023	Under Investigation	50	Site visit completed.	Liase with Ecan over spill locations. Investigate Revells Road Drain - survey likely to be required. Consider outlet pipe through old river meander.	Green
23I-43	South Eyre Road, EYREWELL	7/09/2023	Scoping	0	-	Appears that the Chicken Farm may have been built in the secondary flow path. Review BC and RC files. Discuss with Dan Lewis who has ideas on potential upgrades.	Green
23I-44	Lower Sefton Road, ASHLEY	4/10/2023	Under Investigation	10	Site visit completed. Draft report being prepared.	Investigate need for a bund on McGifferts Road @ Saltwater Creek. Check downstream culverts along Lower Sefton Road. Provide advice to property owner on onsite improvements.	Green
23I-45	Railway Street, SEFTON	4/10/2023	Scoping	10	Initial scoping has commenced.	Discuss potential improvement options (including bunding) with Ecan.	Green
FT04	Beach Road, KAIAPOI	7/09/2023	Under Investigation	10	-	CCTV inspect once the swale on the northside of Beach Road is connected to the Beach Road PS.	Green
FT10	Main North Road, KAIAPOI	7/09/2023	Under Investigation	10	-	Connect remaining lateral which was missed as part of previous works.	Green
FT17	Cridland Street West, KAIAPOI	4/10/2023	Scoping	10	Review of previous work has commenced.	Review previous works. Implement interim improvements for area closer to the motorway.	Green
FT24	Broadway Avenue, WAIKUKU BEACH	4/10/2023	Completed	100	Flap gate to prevent backflow have been installed and lateral to property provided.	Assess Taranaki Stream levels as part of 23I-20.	Green
FT25	Reserve Road, Kiwi Avenue, Cross Street, WAIKUKU BEACH	7/09/2023	Scoping	100	-	Consider need for flapgate. Part of Taranaki Stream Assessment project.	Green
FT27	Swindells Road	4/10/2023	Works Programmed	90	Meeting to decide on preferred option.	Commencing detailed design. Amber due to tight timeframe	Amber
FT31	Pegasus Main Street, PEGASUS	7/09/2023	Under Investigation	50	-	Install piezometer. Complete infiltration testing. Progress design. Implement upgrade.	Green
FT37	High Street, OXFORD	4/10/2023	Review & Approval	50	Design being updated.	Finalise design and tender physical works.	Amber
FT42	Wilson Drive, OHOKA	7/09/2023	Under Investigation	90	-	Design and build new pipeline.	Green
FT44	Main North Road SH1, WAIKUKU	4/10/2023	Works Programmed	10	Approvals being progressed.	Contract awarded. Obtaining final approvals prior to starting works.	Green
FT45	Macdonalds Lane, WAIKUKU	7/09/2023	Scoping	0	-	Review works undertaken. Consider options to provide secondary flow from soakpit.	Green
FT46	Stalkers Road, WOODEND BEACH	4/10/2023	Works Programmed	0	Preparation of tender documents.	Implement drainage upgrades currently being tendered. Undertake I&I investigations.	Green
FT49	Cust Road, CUST	7/09/2023	Scoping	0	-	Consider options to construction overflow to lower terrace.	Green

Project

Reporting

As at 5th October 2023

Work package	Location	Date this report last updated	Stage	%age complete of stage	Progress since last reported	Planned actions	Traffic light
FT50	Earlys Road & Cust Road, CUST	7/09/2023	Scoping	0	-	Scope localised drainage improvements and downstream grill modifications.	Green
FT56	Depot Road, OXFORD	7/09/2023	Under Investigation	0	-	Review previous investigation and assess if previous conclusions need to change.	Green
FT62	Featherstone Avenue, KAIRAKI	4/10/2023	Works Programmed	10	Works have been tendered.	Undertake I&I investigations in Featherstone Ave and campground. Complete remaining manhole and lateral repairs.	Green
H08	Belcher Street, KAIAPOI	7/09/2023	Under Investigation	10	-	Inspect and decide if any remedial works or further works are required.	Green
H14	Woodfields Road (Site 1), CUST	7/09/2023	Under Investigation	10	Refer July 2022 Event progress update.	Progress design. Discuss with landowners.	Green
H16	Cones Road / Fawcetts Road, ASHLEY	4/10/2023	Works Programmed	50	Catchment analysis being finalised. Design progressed.	Complete assessment to confirm size of diversion channel. Finalise design and tender works in Cones Road. Consider overflow pipe to Ashley River from end of Max Wallace Drive. Provide advice to landowners on maintenance of channel through private property.	Green
H18	Greens Road, TUAHIWI	4/10/2023	Under Investigation	50	Site visit completed. Survey proposed.	Implement culvert upsizing. Consider if wider scale upgrades of the diversion channel can be undertaken. Potentially consider as part of NSS.	Green
H21	Belmont Aveune, RANGIORA	7/09/2023	Scoping	0	-	Review previous works. Implement positive drainage to lower catchment.	Green
H24	Wetherfield Lane, MANDEVILLE	7/09/2023	Under Investigation	50	-	Assess as part of the Mandeville Resurgence Channel project.	Green
H27	Island Road / Silverstream, KAIAPOI	7/09/2023	Under Investigation	10	-	Meet with landowner and Ecan onsite. Discuss next steps / provide advice.	Green
H30	Resurgence Flow, MANDEVILLE	7/09/2023	Under Investigation	50	-	Part of the Mandeville Resurgence Channel Upgrade / Diversion Project to be deliver in future years	Green
H32	Washington Place, WEST EYRETON	7/09/2023	Scoping	0	-	Confirm proposed solutions from previous investigation are still appropriate. Consider any immediate improvement works that can be made based on feedback from the residents meeting held.	Green
H41	Burgesses Road and Tram Road, WAIMAKARIRI DISTRICT	4/10/2023	Under Investigation	80	Survey undertaken. Design being finalised.	Maintenance works include: Jet and CCTV inspect 375mm pipe north of Tram Rd, clean out downstream drain. Physical works which include: upsizing of 375 on north side of Tram Rd to a 600mm, installing additional duplicate 375mm pipe (or larger) on culvert north of Tram Rd, Coordinating with Ecan regarding silverstream stop banks and tree.	Green
N08	Fairweather Crescent / Kiln Place, KAIAPOI	7/09/2023	Under Investigation	50	-	Complete Kaikanui Stream modelling. Assess impacts of high stream levels on the street reticulation. Develop long term solution (note funding already in the LTP).	Green
N13	Beach Crescent, WAIKUKU BEACH	4/10/2023	Under Investigation	50	Scope of works being finalised.	Implement alternative interim solution.	Green
N18	Northside Drive, WAIKUKU BEACH	7/09/2023	Under Investigation	10	-	Consider as part of the Northside Bund Works. Budget has been approved for the 23/24 FY.	Green
N19	Church Bush Road, TUAHIWI	7/09/2023	Scoping	0	-	Review previous assessment work. Discuss potential options that local residents have considered.	Green
N30	Bramleys Road, TUAHIWI	7/09/2023	Scoping	0	-	Consider previous investigation works. Survey upstream bund and raise driveway. Install additional culvert under Bramleys Road.	Green
N32	Queens Avenue, WAIKUKU BEACH	12/09/2023	Under investigation	50	Site works complete. Investigation report currently being prepared.	Investigate options to give positive drainage from low property in Queens Ave.	Green
NS1	Percival Street, RANGIORA	7/09/2023	Scoping	0	-	Review against previous work. Consider if onsite venting is adequate.	Green
NS4	Mandeville Sewer, MANDEVILLE	7/09/2023	Scoping	0	-	Confirm this is one of the tanks that has been raised.	Green
NS5	Tuahiwi Sewer, FERNSIDE	7/09/2023	Under investigation	90	-	Confirm this is one of the tanks to fix	Green

WAIMAKARIRI DISTRICT COUNCIL**REPORT FOR INFORMATION**

FILE NO and TRIM NO: DRA-06-08-01 / 231005158212

REPORT TO: UTILITIES AND ROADING COMMITTEE

DATE OF MEETING: 17 October 2023

AUTHOR(S): Jason Recker, Stormwaters and Waterways Manager
Kalley Simpson, 3 Waters Manager

SUBJECT: Cam River / Ruataniwha Report

ENDORSED BY:
(for Reports to Council,
Committees or Boards)



General Manager



Chief Executive

1. SUMMARY

- 1.1 The purpose of this report is to:
- 1.1.1 Provide an overview of the maintenance and immediate works identified for the Cam River / Ruataniwha as a result of the breakout flooding experienced in the July 2023 rainfall event.
 - 1.1.2 Brief the Utilities and Roading Committee on Environment Canterbury's Cam River/ Ruataniwha Scheme Plan update proposed for the Cam River.
 - 1.1.3 Brief the Utilities and Roading Committee on development and stormwater management within the Cam River/ Ruataniwha catchment since 2000.
- 1.2 Extensive flooding occurred on the Cam River / Ruataniwha, where out of bank flow occurred at several locations from the July 2023 rainfall events. The Cam River / Ruataniwha, Tuahiwi Stream / Waituere and Taranaki Stream catchments have been identified by Council staff as key focus areas that require a more detailed assessment and investigation.
- 1.3 In early August 2023, an inspection was conducted along the Cam River / Ruataniwha, spanning from Marsh Road in Rangiora to the confluence with the Kaiapoi River (Attachment I), during which several areas requiring maintenance were identified.
- 1.4 Three locations were identified for immediate maintenance work that has been completed by Council maintenance contractors in early October. This maintenance work involved the removal of fallen trees that reduced the capacity of the upper Cam River/ Ruataniwha.
- 1.5 The remaining maintenance work is planned to be undertaken by Environmental Canterbury when they undertake maintenance on the lower section of the Cam River. Environment Canterbury have advised that this will be undertaken in November / December 2023. Note that the Waimakariri District Council is responsible to maintain the section of the Cam River from its source near Rangiora Woodend Road to Bramleys Road and by Environment Canterbury is responsible to maintain the section of the Cam River from Bramleys Road to the Kaiapoi River.
- 1.6 Environment Canterbury have advised that they are currently updating the Scheme Plans for the Cam River/ Ruataniwha and Cust River. This work includes re-survey of the rivers

(at the previous survey cross sections) to ascertain changes in both bed and bank level, and updating the hydrology and hydraulic modelling. The potential upgrading options will include:

- Build up stopbanks in isolated areas same level to return to original design capacity.
 - Raise stopbanks to a higher level, providing a higher design capacity.
- 1.7 Currently the scope of the Cam River/ Ruataniwha Scheme Plan extends to Bramleys Road, but Council staff have requested that this be extended to upstream of Bramleys Road (to at least Marsh Road). This will require additional funding from Council for the extent of the scheme plan to be revised, which was recently approved by Council (refer TRIM 230921147926). Environment Canterbury currently expect that the scheme plan will be updated by the end of this calendar year and be available early 2024.
- 1.8 There is a need to undertake immediate works at the following locations on the Cam River/ Ruataniwha:
- Bramleys Road, Tuahiwi - Localised stopbank improvement works, including raising of the bund on the true right bank immediately upstream of the Bramleys Road bridge and improvements to the culverts under Bramleys Road - \$100,000.
 - Upper Cam River/ Ruataniwha - Heavy maintenance work on the section above Bramleys Road. Stopbank improvement works on the true left bank downstream of the confluence of the South Brook and bunding on the Topito Road drain above the confluence of the South Brook - \$150,000.
- 1.9 The total cost of immediate works on rivers is estimated to be \$250,000, which was recently approved by Council (refer TRIM 230921147926).
- 1.10 It's important to note that while Environment Canterbury are taking the lead on a portion of the maintenance as well as extending their Scheme Plan, Council will continue to retain responsibility for the Cam River/ Ruataniwha north of Bramleys Road at this time. There is potential for transferring responsibility of the Cam River/ Ruataniwha north of Bramleys Road to Environment Canterbury in the future, and discussions on this matter will be ongoing to ensure the most effective and efficient management of the Cam River/ Ruataniwha.
- 1.11 There has been significant development in Rangiora over the past couple decades. As catchments are urbanised, much of the vegetation is replaced by impervious surfaces, thus reducing the area where infiltration to groundwater can occur.
- 1.12 To counteract this, Council requires the development to achieve “stormwater neutrality” up to the 50 year storm event to ensure any discharges to surface water match pre-development flows to mitigate the impact on the downstream river system.
- 1.13 In larger events, greater than a 50 year event, there is the potential for higher flows in the downstream system. This will be investigated and assessed as part of the Environment Canterbury led Cam River Scheme Design Review.
- 1.14 This report summarises the development in the Cam River/ Ruataniwha catchment, and the immediate improvement works that have been identified along the Cam River/ Ruataniwha. A subsequent report will be submitted to Council upon completion of the Environment Canterbury Scheme Plan that will provide a recommendation on the Council's future strategy for the Cam River/ Ruataniwha.
- 1.15 Attachments:

Attachment I - August 2023 Cam River/ Ruataniwha Inspection - Marsh Road to Kaiapoi River (TRIM 231005158219).

2. **RECOMMENDATION**

2.1. **THAT** the Utilities and Roading Committee:

- a. **Receives** Report No. 231005158212
- b. **Notes** that there were immediate maintenance works identified and those works were completed by Council maintenance contractors in early October.
- c. **Notes** that the remaining maintenance works will be undertaken by Environment Canterbury with Council funding the upper section maintenance works above Bramleys Road. Environment Canterbury have advised that this will be undertaken in November / December 2023.
- d. **Notes** that the immediate works are proposed in the vicinity of the Bradleys Road bridge to address a section of low bunding along the Cam River/ Ruataniwha.
- e. **Notes** the funding of \$250,000, which was recently approved by Council (refer TRIM 230921147926) is sufficient to undertake the immediate works along the Cam River/ Ruataniwha.
- f. **Notes** that the Cam River/ Ruataniwha scheme design is being updated by Environment Canterbury, which will consider the impact of development in Rangiora and the potential need to raise the existing stopbank system.
- g. **Notes** that a subsequent report will be submitted to Council upon completion of the Environment Canterbury Scheme Plan that will provide a recommendation on the Council's future strategy for the Cam River/ Ruataniwha.
- h. **Circulates** this report to all Community Boards for information.

3. **BACKGROUND**

- 3.1 The Cam River / Ruataniwha is within the Rangiora catchment and its main tributaries, referred to as the Three Brooks, are the spring-fed South Brook, Middle Brook and North Brook. The river and its tributaries also receive stormwater runoff from Rangiora and other surrounding farmland.
- 3.2 Environment Canterbury (Ecan) maintain the lower section of Cam River/ Ruataniwha from Bramleys Road to the confluence of the Kaiapoi River, the upper section above Bramleys Road is maintained by the Waimakariri District Council (WDC).
- 3.3 The district experienced a significant rainfall event over the weekend of 22-24 July 2023, with Rangiora receiving approximately 122mm of the rainfall over a 48 hour period.
- 3.4 Extensive flooding occurred on the Cam River/ Ruataniwha, where out of bank flow occurred at a number of locations. It has been identified that heavy maintenance and localised stopbank improvement works are required as immediate works to improve the upper Cam River/ Ruataniwha system (above Bramleys Road).
- 3.5 **Maintenance**
- 3.6 Due to the reported break outs and flooding an inspection of the Cam River/ Ruataniwha from Marsh Road to the Kaiapoi River was undertaken in early August 2023. From this inspection several locations were identified that required maintenance (Attachment I).
- 3.7 Three locations were identified for immediate maintenance work (see Figures 1-4). This maintenance work was completed by Council maintenance contractors in early October. The maintenance work involved the removal of fallen trees and debris that were significantly reducing the capacity of the upper Cam River/ Ruataniwha.

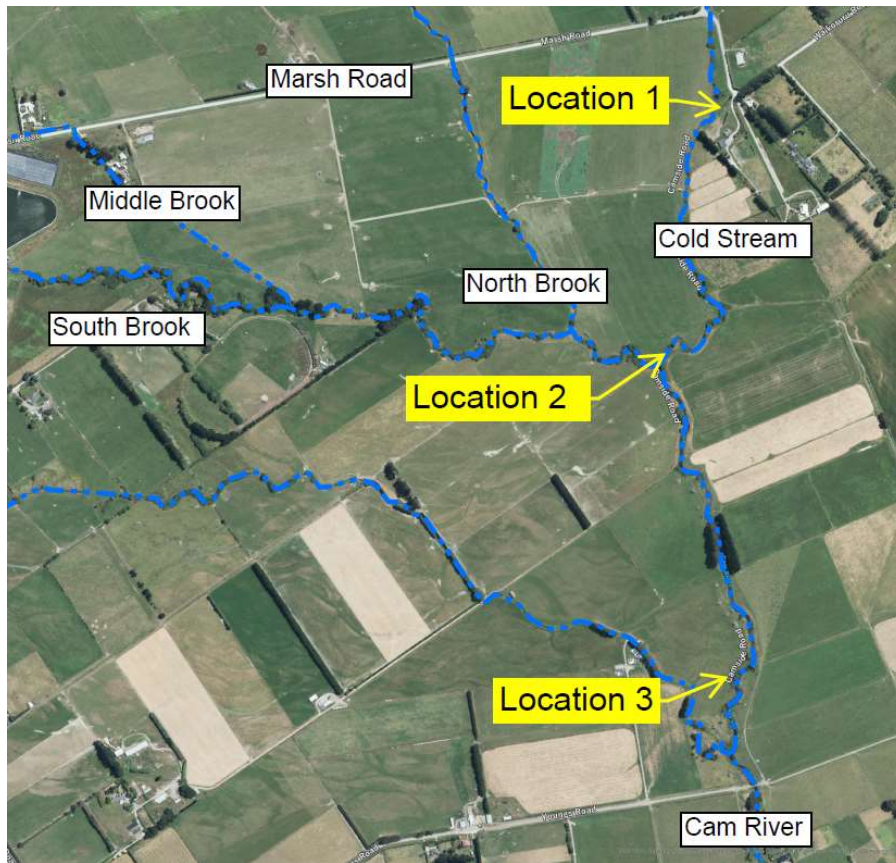


Figure 1- Map of Immediate Maintenance Works undertaken by WDC.

3.8 **Immediate Maintenance undertaken by WDC - Location 1**



Figure 2- Fallen Tree observed from maintenance inspection.

3.9 **Immediate Maintenance undertaken by WDC - Location 2**



Figure 3 - Dead tree debris observed from maintenance inspection.

3.10 **Immediate Maintenance undertaken by WDC - Location 3**



Figure 4 - Fallen tree debris observed on maintenance inspection.

- 3.11 In August 2023, Council staff met with Ecan river engineers to discuss Cam River maintenance works identified from the inspection.
- 3.12 It was agreed that the remaining maintenance works will be undertaken by Ecan with WDC funding the upper section maintenance works above Bramleys Road. Ecan have advised that this will be undertaken in November / December 2023, after the end of the whitebait season.
- 3.13 North of the confluence of the South Brook and the Cam River maintenance will be undertaken by Council maintenance contractors, as shown in Figure 5 below. This has been programmed for November 2023.

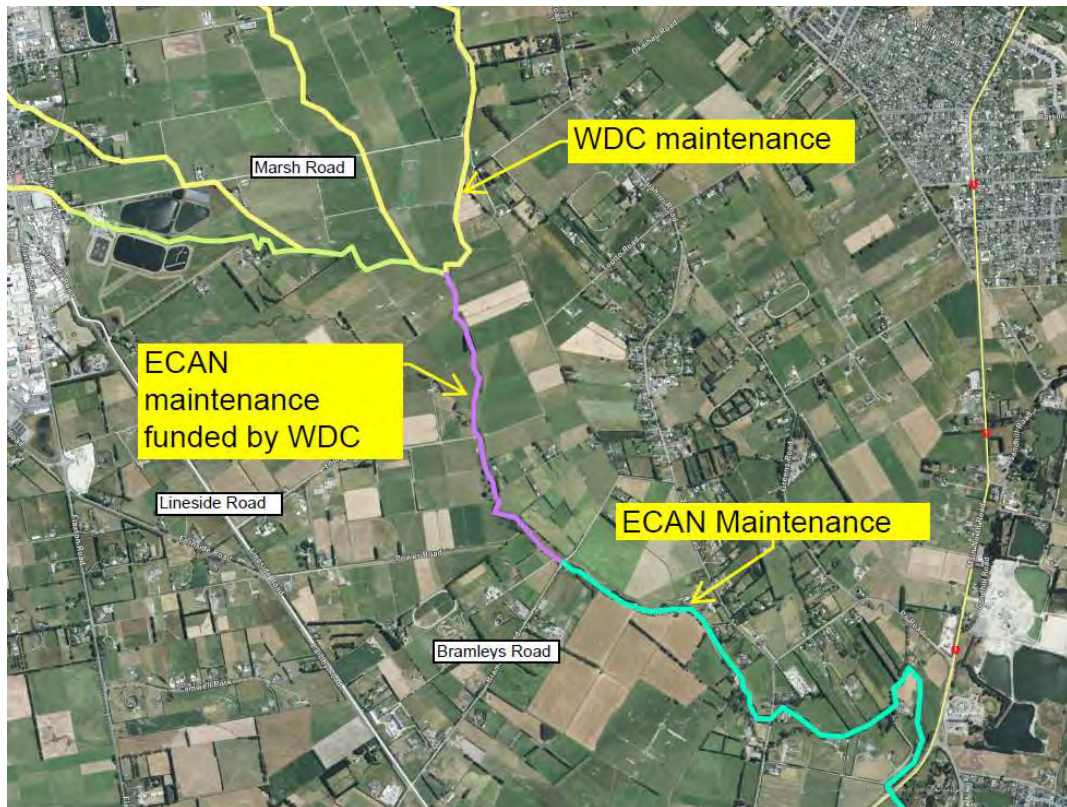


Figure 5 - WDC and ECAN Maintenance Map

3.14 The Ecan led maintenance of the upper and lower sections of the Cam River will include:

- Tree trimming up to stopbank height.
- Removal of any heavy leaning and/or trees from channel and stopbank
- Removal of any dead trees and grey willows as required.
- Glyphosate mix stump painting to prevent regrowth.
- Removal of weeds

3.15 **Cam River Scheme Plan Update**

3.16 Environment Canterbury have advised that they are currently updating the Scheme Plans for the Cam River/ Ruataniwha and Cust River. The current scheme plans date back to 1983 and have not been fully dated in the last 40 years.

3.17 The scope of the scheme review includes re-survey of the rivers (at the previous survey cross sections) to ascertain changes in both bed and bank level and updating the hydrology and hydraulic modelling. The potential upgrading options will include:

- Build up stopbanks in isolated areas same level to return to original design capacity.
- Raise stopbanks to a higher level, providing a higher design capacity.

3.18 Currently the scope of the Cam River/ Ruataniwha Scheme Plan extends to Bramleys Road, but Council staff have requested that this be extended to upstream of Bramleys Road (to at least Marsh Road). This will require additional funding from Council for the extent of the scheme plan to be revised, which was recently approved by Council (refer TRIM 230921147926). Environment Canterbury currently expect that the scheme plan will be updated by the end of this calendar year and be available early 2024.

- 3.19 The cost of extending the Cam River/ Ruataniwha Scheme Plan work to include the upper reaches of the Cam River/ Ruataniwha above Bramleys Road is estimated to be \$50,000.
- 3.20 **Immediate Works**
- 3.21 The following river projects have been identified that need to be investigated further, progressed by WDC as immediate works or undertaken by Ecan (see Figure 6):
- Investigate options to reduce the likelihood of breakout flow from the true left bank of the Cam River/ Ruataniwha above Bramleys Road, including the need for a low bund on upper Topito Road and raising low sections of the stopbank adjacent to Topito Road,
 - Investigate options to raise the stopbank on the lower reaches of the Cam River in the vicinity of Revells Road (Ecan).
 - Raise bund on the true right bank immediately upstream of the Bramleys Road bridge and upgrade culvert at Bramleys Road (WDC).
 - Raise the low section of stopbank in the vicinity of Tuahiwi Road (Ecan).
 - Install a new outlet pipe with a non-return valve to the historical drain located downstream of the Revells Road bridge (WDC).
- 3.22 Additionally, heavy maintenance work on the section above Bramleys Road. Stopbank improvement works on the true left bank downstream of the confluence of the South Brook and bunding on the Topito Road drain above the confluence of the South Brook.
- 3.23 The total cost of immediate works on rivers, including the heavy maintenance works, is estimated to be \$250,000 which was recently approved by Council (refer TRIM 230921147926).

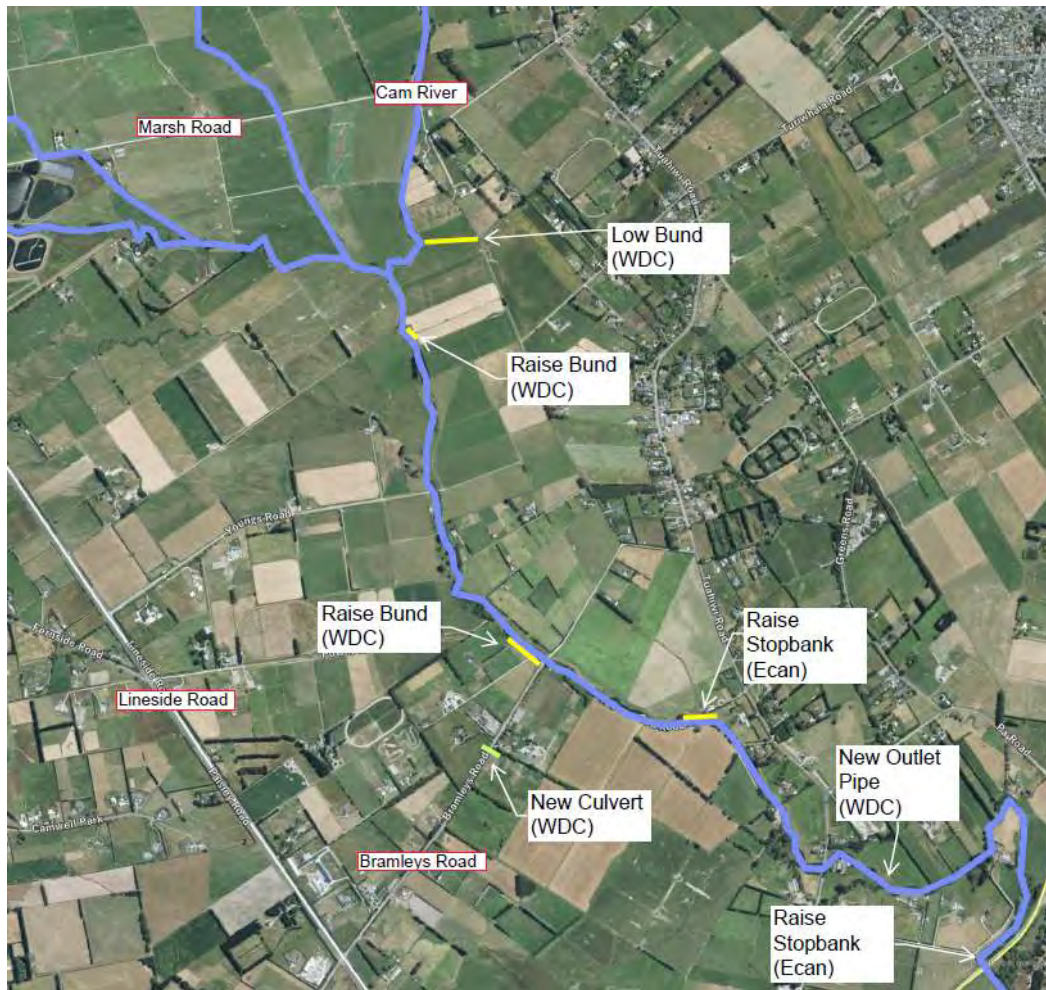


Figure 6 - Immediate works to be undertaken by Ecan and WDC.

- 3.24 It's important to note that while Ecan are taking the lead on a portion of the maintenance as well as extending their Scheme Plan, Council will continue to retain responsibility for the Cam River/ Ruataniwha north of Bramleys Road at this time. There is potential for transferring responsibility of the Cam River/ Ruataniwha north of Bramleys Road to Ecan in the future, and discussions on this matter will be ongoing to ensure the most effective and efficient management of the Cam River/ Ruataniwha.
- 3.25 **Development in the Cam River/ Ruataniwha Catchment**
- 3.26 The Rangiora urban stormwater network predominantly discharges to the three brooks (namely the North Brook, Middle Brook and South Brook), which form part of the extended tributaries of the Cam River/ Ruataniwha catchment. The Cam River/ Ruataniwha flows into the Kaiapoi and Waimakariri Rivers. The northern part of the town discharges into the "North Drain", which flows into the Ashley River.
- 3.27 Rangiora has experienced considerable growth over the last couple decades which has led to new development (See Figure 7 and 8). Ongoing urban development increases the area of impermeable surfaces within the catchment. As catchments are urbanised, much of the vegetation is replaced by impervious surfaces, thus reducing the area where infiltration to groundwater can occur. This is offset through requiring attenuation (including discharges to land) to ensure any discharges to surface water match pre-development flows and achieve "stormwater neutrality".



Figure 7. - Rangiora Aerial Photo (2000)



Figure 8. - Rangiora Aerial Photo (2022)

- 3.28 The Council requires all new (greenfield) developments to consider flood capacity and projected flows in the downstream network and receiving environments when designing their stormwater system. This requires attenuation of peak flows and peak velocities to match pre-development levels up to the 50 year storm event (i.e. to achieve stormwater neutrality).
- 3.29 Stormwater systems in new development areas must be designed to meet the “Minimum Protection Standards for New Developments” in the Engineering Code of Practice : Part 5. These are set out in Table 5.1, copied here for reference:

Table 1 - Minimum Protection Standards

System or Infrastructure	AEP
Primary reticulation system- general	20%
Primary reticulation – Rangiora and Kaiapoi CBD	10%
Secondary flowpaths	2%
Culvert	10%
Bridge	1%

- 3.30 The Code of Practice states that post-development peak flows for all intensity events shall be less than pre-development flows. It requires minimum floor levels to be specified as set out in the District Plan. New development stormwater infrastructure must be designed in accordance with Code of Practice requirements in order to be accepted for future vesting in Council.
- 3.31 All the basins within the network provide a water quantity function of managing flows, reducing/maintaining flow peaks, managing flood water levels and reducing erosion. In addition, some of these basins are also designed as infiltration/first flush basins which, in addition to attenuating flows, are designed to treat stormwater by discharging contaminants to land and filtering contaminants across grass.
- 3.32 Figure 3 and Table 2, demonstrates in detail the sub-catchments of the network which are currently serviced by attenuation / treatment basins or wetlands. The plan shows only basins and does not include low impact design features such as swales, or riparian improvements such as bank stabilisation or planting that benefits aquatic habitat by increasing shade and reducing erosion.

Table 2 - Rangiora Urban Stormwater Management Map Legend

	Unchanged – Existing Urban areas after 2000 that have not been attenuated or treated for stormwater
	Greenfield Catchment Untreated – these are areas previously consented in the 1990s that did not require stormwater attenuation or treatment but were developed after 2000.
	Existing Catchment Treated – these are existing urban areas that were retrofitted with treatment after 2000 either in conjunction with greenfield development or as a stand along project.
	Greenfield Catchment Treated and Attenuated – these areas are greenfield development areas that have been subject to both treatment and attenuation to achieve stormwater neutrality

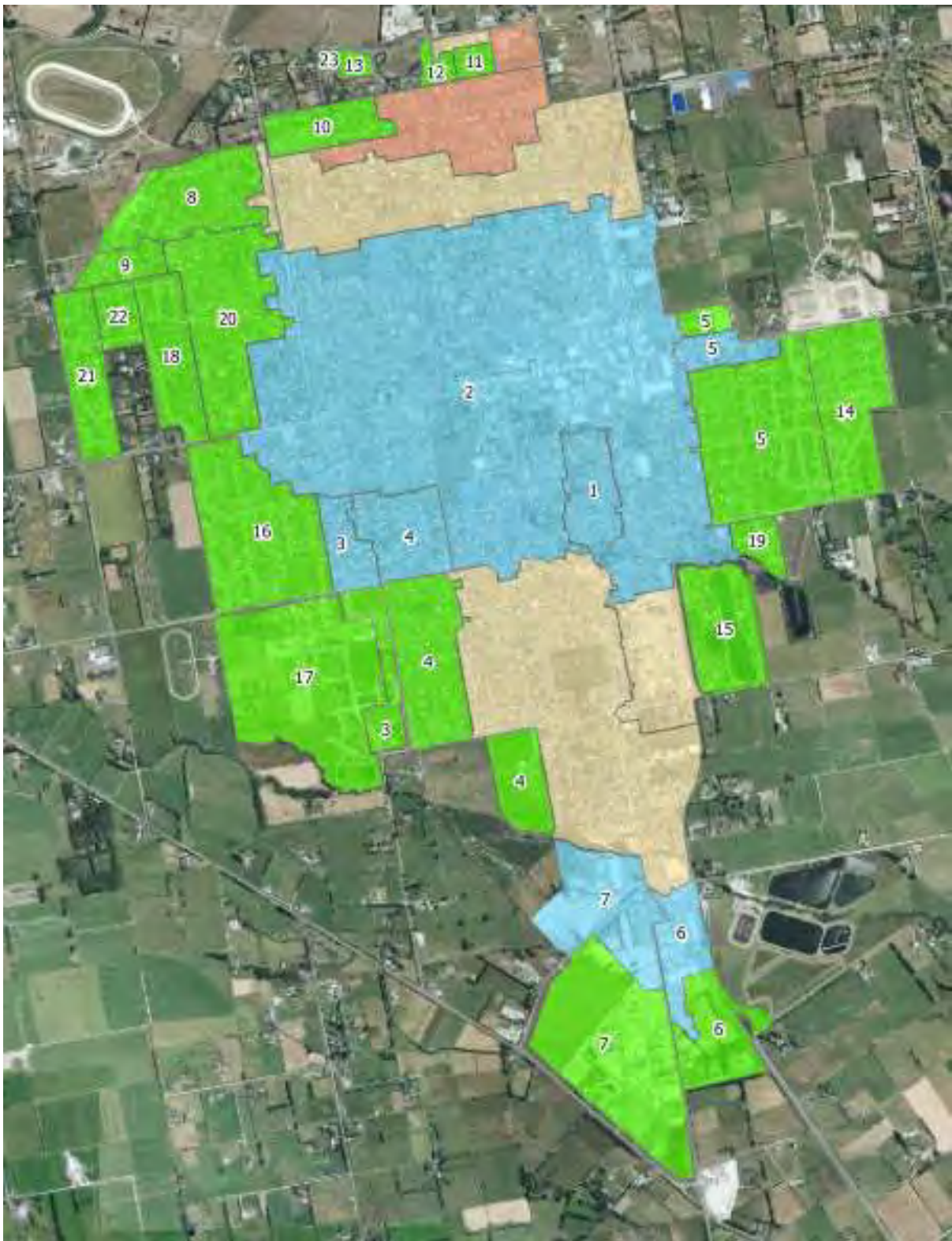


Figure 8 – Rangiora Urban Stormwater Management Map

The numbers on the map refer to the Stormwater Management Areas / Ponds in Table 3 below.

Table 3 - Stormwater Management Areas / Ponds

1	Lillybrook Basin	13	Enverton Drive Pond
2	Northbrook Wet Ponds	14	Kippenberger SMA
3	Pentecost Road SMA	15	Northbrook Waters SMA
4	Southbrook Park Pond	16	Oxford Park Ponds
5	Rangiora East SMA	17	Townsend Fields Ponds
6	Lineside Road Pond	18	Charles Upham Drive Pond
7	Flaxton Road Pond	19	Springbrook Pond
8	Arlington Ponds	20	The Oaks Pond
9	Belmont Ave Pond	21	Westpark Ponds
10	Sloan Ave SMA	22	Chatsworth SMA
11	Awa Place Pond	23	River Road SMA
12	Chesterfield Place Ponds		

3.33 **Recent Development - Bellgrove Subdivision**

- 3.34 The Bellgrove subdivision is a five stage residential greenfield development that is within the Cam River/ Ruataniwha catchment. The wider development is located on the eastern outskirts of Rangiora between Northbrook Road to the south and Coldstream Road to the north and is approximately 100 hectares in area.



Figure 2 - Bellgrove Northern Site Plan

3.35 **Bellgrove Stormwater Discharge Consent Requirements**

3.36 The stormwater management system for the Bellgrove subdivision has been designed to align with the WDC Rangiora Global Stormwater Discharge Consent (CRC184601). Key objectives from Condition 14 of the global consent are outlined in Table 4 below:

Table 4 – Bellgrove Stormwater Discharge Consent Requirements

Management Feature	Requirements
Condition 14 - Design & Construction Standards	<p>All stormwater systems for sites that discharge stormwater under this consent, which are constructed after the date of this consent being issued, shall be designed and constructed using the best practicable option to meet the requirements detailed in this condition and the receiving environment objectives in condition (8). Requirements include, but are not limited to:</p> <ul style="list-style-type: none"> • Water quality and quantity mitigation facilities and devices shall be designed and constructed in accordance with the best practicable option and: • The Christchurch City Council's Waterways, Wetlands and Drainage Guide, WDC's Engineering Code of Practice and the Stormwater Drainage and Watercourse Protection Bylaw 2018 or their respective successor document(s); or other national and international best practice.
Condition 14 - Stormwater Quality Management	<p>The consent holder shall ensure that the stormwater system for each site connected or connecting to the reticulated stormwater system meets the following requirements (as applicable) so that the receiving environment objectives set out in condition (8) can be achieved:</p> <p>Greenfield Sites</p> <ul style="list-style-type: none"> • Each greenfield site connecting into the system after the commencement of this resource consent shall provide one or more of: • An onsite treatment system designed and constructed to treat the first flush from the development; or a contribution as required by the WDC towards the provision of a new treatment system which includes capacity to treat the first flush from that development; or • A contribution as required by the WDC towards the cost of existing stormwater treatment infrastructure previously developed and which has capacity to treat the first flush from the additional development.
Condition 14 - Stormwater Quantity Management	<p>The consent holder shall ensure post-development discharge rates do not exceed predevelopment discharge rates for a critical duration twenty percent and two percent Annual Exceedance Probability event within the receiving waterway when taking into account any greenfield or redeveloped site; and the Rangiora reticulated stormwater system shall be managed by the consent holder so that there is no increase in the peak network discharges for the two percent Annual Exceedance Probability (AEP) event that is caused by additional urban hardstand area discharges resulting from either:</p> <ul style="list-style-type: none"> • Any District Plan zone change or resource consent; or • Any urban infill or redevelopment within an existing zone that does not meet applicable plan rules or consent conditions.
Waterway Design	<p>Accommodate the design freeboard including the required factor of safety. Provide access along at least one side of any waterway for maintenance.</p>

3.37 **Bellgrove Stormwater Management**

- 3.38 The proposed stormwater management system for the Bellgrove development is a piped network that discharges runoff from sumps within the kerb and channel and reticulates it to on-site stormwater basins for treatment and detention/infiltration.
- 3.39 A minimum stormwater detention volume will be provided equal to the 5 year storm event and any additional flow up to the 50 year post-development scenario will be discharged entirely to ground via a rapid soakage area constructed within the detention basin. Stormwater runoff exceeding the first flush volume will discharge to the detention storage via a spillway constructed between the two basins.
- 3.40 The stormwater basin facilities will comprise of a first flush infiltration basin, with a spillway through to a rapid soakage basin. Spillways will be constructed on both Facility 1 & 2 soakage basins to discharge into the Cam/ Ruataniwha River during extreme events.
- 3.41 The primary stormwater treatment will be provided by first flush infiltration basins to treat the initial 25mm in accordance with WWDG section 6. Stormwater runoff greater than this will bypass the first flush basin and enter the rapid soakage basins.
- 3.42 Rapid soakage is proposed within the detention basins to discharge stormwater runoff entering the basins. The soakage areas have been sized to soak to ground the stormwater volume (less any basin storage) from the 50 year storm event. Soakage rates have been designed in accordance with WWDG chapter 6.5.

3.43 **Development Summary**

- 3.44 There has been significant development in Rangiora over the past couple decades. As catchments are urbanised, much of the vegetation is replaced by impervious surfaces, thus reducing the area where infiltration to groundwater can occur.
- 3.45 To counteract this, Council requires developments to achieve “stormwater neutrality” up to the 50 year storm event to ensure any discharges to surface water match pre-development flows to mitigate the impact on the downstream river system.
- 3.46 Stormwater attenuation basins (including discharges to land) play a crucial role in managing flows, reducing peaks, controlling flood levels, and filtering contaminants, contributing to effective stormwater management in the area.
- 3.47 In larger events, greater than a 50 year event, there is the potential for higher flows in the downstream system. This will be investigated and assessed as part of the Ecan led Cam River/ Ruataniwha Scheme Design Review.
- 3.48 Environment Canterbury currently expect that the Cam/ Ruataniwha River scheme plan will be updated by the end of this calendar year and be available early 2024.

4. **ISSUES AND OPTIONS**

- 4.1. Maintenance and immediate works have been identified for the Cam River / Ruataniwha as a result of the breakout flooding experienced in the July 2023 rainfall event.
- 4.2. Remaining maintenance works will be undertaken by Environment Canterbury with Council funding the upper section maintenance works above Bramleys Road. Environment Canterbury have advised that this will be undertaken in November / December 2023.
- 4.3. Immediate works are proposed in the vicinity of the Bradleys Road bridge to address a section of low bunding along the Cam River/ Ruataniwha.

- 4.4. The Cam River/ Ruataniwha Scheme Design is being updated by Environment Canterbury, which will consider the impact of development in Rangiora and the potential need to raise the existing stopbank system.
- 4.5. There is potential for transferring responsibility of the Cam River/ Ruataniwha north of Bramleys Road to Environment Canterbury in the future, and discussions on this matter will be ongoing to ensure the most effective and efficient management of the Cam River/ Ruataniwha.
- 4.6. This report summarises the development in the Cam River/ Ruataniwha catchment, and the immediate improvement works that have been identified along the Cam River/ Ruataniwha. A subsequent report will be submitted to Council upon completion of the Environment Canterbury Scheme Plan that will provide a recommendation on Council's future strategy for the Cam River/ Ruataniwha.

5. **IMPLICATIONS FOR COMMUNITY WELLBEING**

- 5.1. There are implications on community wellbeing by the issues and options that are the subject matter of this report.
- 5.2. Safe and reliable Rooding and 3 Waters infrastructure is critical for wellbeing. 3 Waters infrastructure includes adequate drinking water, wastewater drainage and stormwater drainage for health and Rooding infrastructure is required to provide safe egress and enable residents to access goods and services within the community.
- 5.3. The Management Team has reviewed this report and support the recommendations.

6. **COMMUNITY VIEWS**

Mana whenua

- 6.1. Te Ngāi Tūāhuriri hapū are likely to be affected by or have an interest in the subject matter of this report as it relates to impacts on waterways and rivers. Staff will update the Runanga at the executive meetings and where relevant on specific projects or consents engage with Mahaanui Kurataio Limited.

Groups and Organisations

- 6.2. Several of the issues in this report cross over with Environment Canterbury (Ecan) in terms of consenting, or in relation to rivers and natural waterways assets and services they maintain. Staff from Ecan and WDC are working to proactively coordinate where necessary.

Wider Community

- 6.4. The wider community is likely to be affected by, or to have an interest in the subject matter of this report, as the wider community has been impacted by the recent flood event.

7. **OTHER IMPLICATIONS AND RISK MANAGEMENT**

Financial Implications

- 7.1. There are no financial implications of the decisions sought by this report. The budget for the immediate works and the extension of ECAN's scheme plan update were requested in the 3 October 2023 "July 2023 Flood Event Response & Recovery – Forecast Costs and Funding Sources" Report to Council (TRIM 230921147926).

Sustainability and Climate Change Impacts

- 7.4. The frequency and severity of flood events is likely to increase due to the impacts of climate change.

Risk Management

- 7.5. There are risks arising from the adoption/implementation of the recommendations in this report.
- 7.6. A risk-based approach has needed to be adopted around the management of any improvements works. Whole of life cost will be considered when agreeing the extent of works and the residual risk due to further rainfall events.

Health and Safety

- 7.7. There are health and safety risks arising from the adoption/implementation of the recommendations in this report.
- 7.8. Physical works will be undertaken to repair flood damage and as per standard process for any physical works, the contractor will be required to provide a Site Specific Health & Safety Plan for approval prior to work commencing on site.

8. CONTEXT

Consistency with Policy

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

Authorising Legislation

- 8.2. The Land Transport Management Act is the relevant legislation in relation to Roading activities.

Consistency with Community Outcomes

- 8.3. The Council's community outcomes are relevant to the actions arising from recommendations in this report.
- 8.4. This report considers the following outcomes:

There is a safe environment for all

- Harm to people from natural and man-made hazards is minimised.
- Our District has the capacity and resilience to quickly recover from natural disasters and adapt to the effects of climate change.
- Crime, injury and harm from road crashes, gambling, and alcohol abuse are minimised.

Transport is accessible, convenient, reliable and sustainable

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

Core utility services are sustainable, resilient, affordable; and provided in a timely manner

- Harm to the environment from sewage and stormwater discharges is minimised.
- Council sewerage and water supply schemes, and drainage and waste collection services are provided to a high standard.

- Waste recycling and re-use of solid waste is encouraged, and residues are managed so that they minimise harm to the environment.

Authorising Delegations

- 8.5. The Utilities and Roading Committee has the authority to receive this report.



Debris in base and main flow area of stream



Tree cuttings dumped in stream



Tree down in main flow area



Debris in base and main flow area of stream



Tree down in main flow area - significant blockage



Debris in base and main flow area of stream



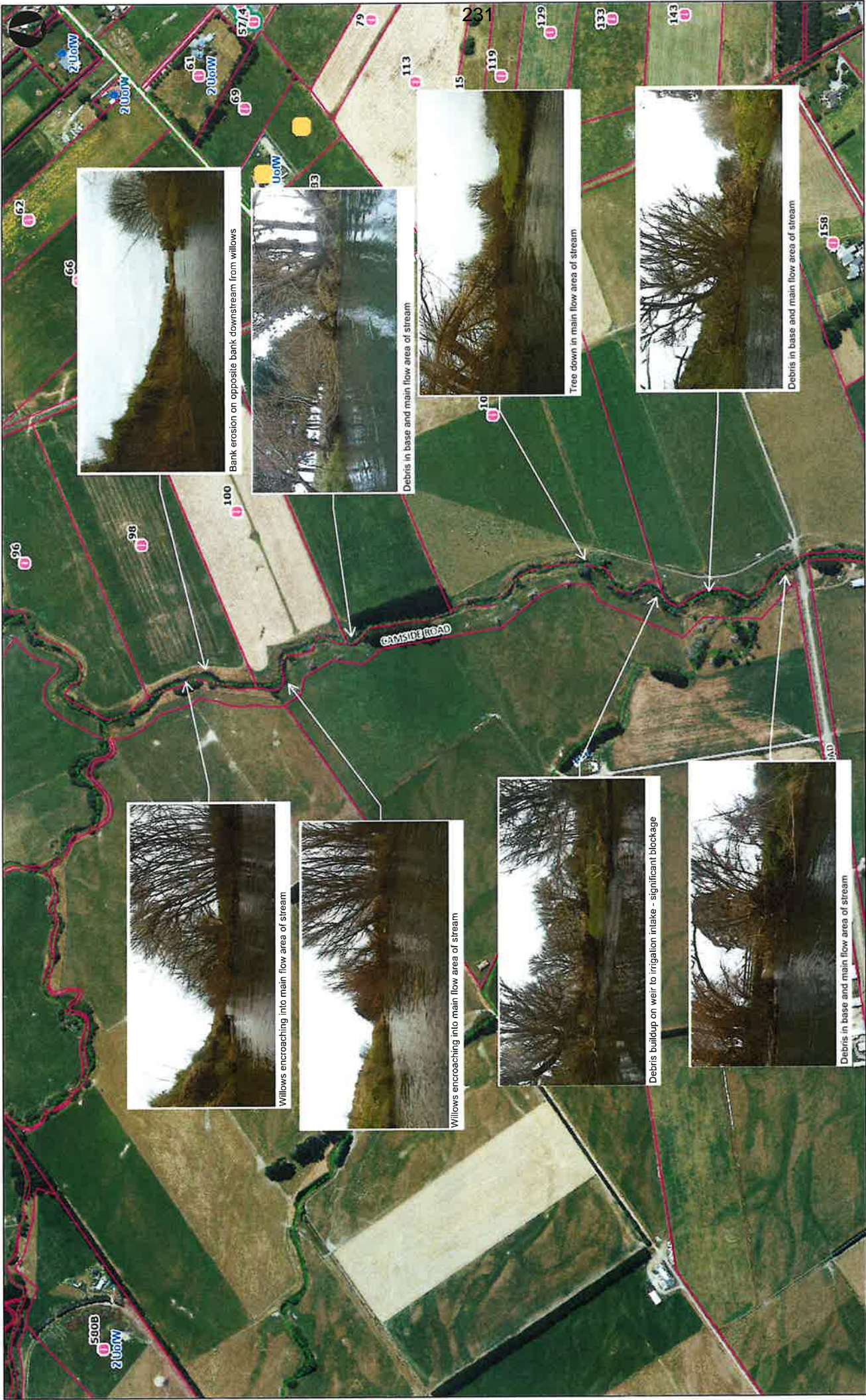
Debris in base and main flow area of stream



Tree cuttings dumped in stream - significant blockage



Tree cuttings dumped in stream - significant blockage



kalley.simpson@wmk.govt.nz
 Waimakariri District Council

Date: 17/08/2023

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Metres

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WAIMAKARIRI DISTRICT COUNCIL

Cam River Inspection - South Brook to Youngs

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WAIMAKARIRI DISTRICT COUNCIL

Cam River Inspection - Youngs to Bramleys



Debris on banks and main flow area of stream



Debris on banks and main flow area of stream



Trees down in main flow area of stream



Trees down on banks of stream



Trees down on banks of stream



Debris in base and main flow area of stream



Debris in base and main flow area of stream



Debris in base and main flow area of stream



Debris in on banks



WAIMAKARIRI DISTRICT COUNCIL

Cam River Inspection - Bramleys to Revells

kalley.simpson@wmk.govt.nz
 Waimakariri District Council
 Date: 17/08/2023

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Debris on banks and into main flow area



Trees down on banks of stream



Tree down over the stream



Debris on banks and into main flow area



Debris in base and main flow area of stream



Whitebaiter stand, couch and fencing in main flow area



Debris in base and main flow area of stream



Debris in base and main flow area of stream

WAIMAKARIRI DISTRICT COUNCIL

Cam River Inspection - Revells to Motorway

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Debris in base and main flow area of stream



Tree partially down in main flow area



Tree partially down in main flow area - significant blockage



Debris in base and main flow area of stream

WAIMAKARIRI DISTRICT COUNCIL

Cam River Inspection - Motorway to Old North

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Waimakariri District Council

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Tree partially down in main flow area



Tree partially down in main flow area

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Cam River Inspection - Old North to Dale

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Cam River Inspection - Dale to Kaiapoi

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WAIMAKARIRI DISTRICT COUNCIL**REPORT FOR DECISION**

FILE NO and TRIM NO: CMS 06-03 / 230802117283


REPORT TO: UTILITIES & ROADING COMMITTEE

DATE OF MEETING: 17 October 2023

AUTHOR(S): Peter Daly, Road Safety Co-ordinator/Journey Planner
Joanne McBride, Roading & Transport Manager

SUBJECT: Adoption of Road Safety Action Plan 2023/24

ENDORSED BY:
(for Reports to Council,
Committees or Boards)


General Manager


Chief Executive

1. SUMMARY

- 1.1. This report seeks the Utilities and Roading Committee's adoption of the Waimakariri Road Safety Action Plan 2023/24 (refer attachment)
- 1.2. The Road Safety Action Plan 2023/24 has been developed in collaboration with key stakeholders including Police, Waka Kotahi, Students Against Drink Driving (SADD), ACC, Automobile Association (AA), NZ Heavy Freight Representatives and Waimakariri Youth Council.
- 1.3. The Plan summarises the road safety activities that will be carried out in the District for the coming year. It provides a focus for the work of the various agencies and organisations that have a responsibility for improving road safety in the District, and for partners involved in road safety activities.
- 1.4. The Plan records the activities of the various partners as advised through the Road Safety Working Group. Through the Waimakariri Road Safety Working Group, there are opportunities for collaboration on local, regional, and national road safety initiatives.
- 1.5. The plan focuses on the high-risk issues in the District that have been identified by analysing local crash data and information obtained from the Waka Kotahi Communities At Risk Register. The plan is aligned to the Governments "Road to Zero" Strategy to 2030 and follows the principles of the "Safe System" approach.
- 1.6. Feedback on the Road Safety Action Plan has been sought from stakeholders through the Waimakariri Road Safety Working Group and has been incorporated into the Plan.

Attachments:

- i. Waimakariri Road Safety Action Plan 2023/24 (Doc. 221207211732)

2. **RECOMMENDATION**

THAT the Utilities & Roading Committee:

- (a) **Receives** Report No. 230802117283;
- (b) **Adopts** the Road Safety Action Plan 2023/24 (Doc 190529076366);
- (c) **Circulates** this report to the Community Boards and all stakeholders of the Road Safety Working Group
- (d) **Requests** that staff arrange a workshop to socialise this plan with All Boards.

3. **BACKGROUND**

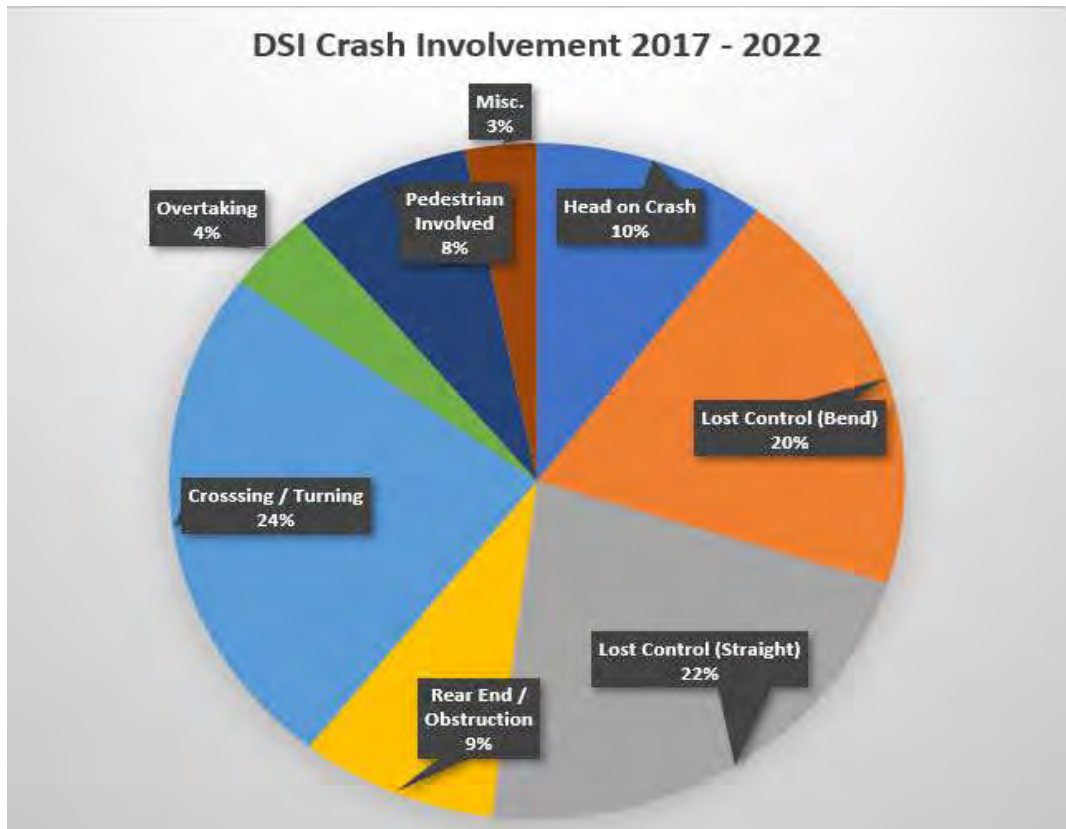
- 3.1. On average, one person dies on New Zealand's roads every day, and another is injured every hour of every day. In the Waimakariri District deaths and serious injuries from road crashes have fluctuated over the past five years.
- 3.2. Road Safety Action Plans are a primary mechanism for coordination of education, engineering, and enforcement approaches to road safety at a district, sub-regional and regional level. Local Government are well placed to lead Road Safety Action Plan's as they own and maintain the land transport infrastructure assets and have statutory objectives to promote community wellbeing and improve the performance of the land transport system.
- 3.3. Road Safety Action Plans have proven to be a useful tool to bring together the Councils road safety partners into one plan. Reporting on the key focus areas at each Road Safety Working Group meeting provides an opportunity for discussion and monitoring of the issues affecting our district. Having an effective Road Safety Action Plan is considered a key element in reducing deaths and serious injuries in our District.
- 3.4. This plan is aligned to the Government's Road to Zero road safety strategy.
- 3.5. Road to Zero is an ambition that nobody should be killed or seriously injured on our roads. It was first launched in Sweden in 1997 and has grown into a global movement, adopted in Norway and Denmark, as well as major cities such as New York, London and Toronto.
- 3.6. The Road Safety Action Plan is updated and endorsed on a bi-monthly basis, following each Road Safety Working Group meeting. Information as to partners work in road safety in Waimakariri District arising from those meetings is recorded within the Road Safety Action Plan, to form an up-to-date record of actions and intended actions going forward.
- 3.7. A Road Safety Action Plan brings all stakeholders together who have a stake in managing all parts of the roading system. The Road Safety Action Plan sits under the Council's Transport Activity Management Plan.

4. **ISSUES AND OPTIONS**

- 4.1. Determining a single cause for road crashes is difficult, however, we know that unforgiving road infrastructure, speed, alcohol, failing to give way or stop, and distraction continue to be the main contributing factors in fatal and serious injury crashes. Everyone makes mistakes and we have a road system that is unforgiving of human error.

Analysis of road safety risk areas is carried out through a review of CAS Data and the Communities at Risk Register 2022.

- 4.2. The following graph shows data for the Waimakariri District relating to fatal and serious injury crashes for the 5-year period 1 July 2017 to 30 June 2022, a total of 133 crashes.



- 4.3. Key priority areas in our district have been identified as “Young drivers, Intersections (rural and urban), Rural run off road/head on (including speed), Motorcyclists, Impaired road users, Older and Vulnerable road users.
- 4.4. The Road Safety Action Plan does not contain an exclusive list of activities as there are additional safety management systems in place related to road safety under various Council Strategy, policies and procedures, however does outline key areas of focus and opportunities for collaboration.
- 4.5. The following options are available for the Utilities and Roading Committee:
- 4.5.1. Option One – Adopt the Road Safety Action Plan 2023/24:
This is the recommended option as it will allow road safety work to progress in the district with clear direction.
- 4.5.2. Option Two – Recommend further work be done to refine the plan.
This option is not recommended as evidence from relevant stakeholders and data sources has been used to inform the target areas identified and inform the activities as outlined in the plan.
- 4.5.3. Option Three – Declines to Adopt
This option is not recommended.

Implications for Community Wellbeing

There are implications on community wellbeing by the issues and options that are the subject matter of this report. Road safety impacts everyone who uses the roads as part of their daily lives.

Road safety and minimising harm for crashes is a key community outcome for Council. Crashes impose intangible, financial and economic costs to society. These costs include reduced quality of life for survivors; reduced economic productivity; and medical and other resource costs. They have direct and indirect impacts on our Community.

This Road Safety Action Plan also assists with wider community safety initiatives.

5. COMMUNITY VIEWS

5.1. Mana whenua

Te Ngāi Tūāhuriri hapū are likely to be affected by or have an interest in the subject matter of this report, as it effects their hapu. Any element of this plan which directly effects MR873 will be specifically consulted on.

5.2. Groups and Organisations

5.2.1. The Council has engaged with stakeholders including New Zealand Police, ACC, Council roading contractors and Waka Kotahi to review and update the Road Safety Action Plan 2023/24.

5.2.2. The Road Safety Working Group which consists of a number of partners who work collaboratively to implement the plan, including, New Zealand Police, New Zealand Transport Agency, AA New Zealand, NZ Trucking Association, New Zealand Road Transport Association, Environment Canterbury ACC and SADD have provided positive feedback on this plan.

5.3. Wider Community

The wider community is likely to be affected by, or to have an interest in the subject matter of this report.

While there has been no specific wider community engagement or consultation on this Road Safety Action Plan, the Actions from the Road Safety Action Plan will have positive benefits for the wider community. The Plan is published to the Council website once endorsed.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

6.1. Financial Implications

There are no financial implications of the decisions sought by this report.

Funding for Waimakariri District Council related activities covered under the Road Safety Action Plan are included in the Long Term Plan under relative specific categories for infrastructure and related activities, as well as funding of \$105,000 (including 51% NZTA subsidy) for educational and promotional activities.

Funding for activities within partner organisations sits with that partner.

6.2. Sustainability and Climate Change Impacts

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

6.3 Risk Management

There are no risks arising from the adoption/implementation of the recommendations in this report.

This Road Safety Action Plan has been circulated at the Waimakariri Road Safety Working Group for feedback, and feedback received has been incorporated into the Plan.

6.3 **Health and Safety**

There no health and safety risks arising from the adoption/implementation of the recommendations in this report.

7. **CONTEXT**

7.1. **Consistency with Policy**

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

7.2. **Authorising Legislation**

There is no legislative impact arising from the decision sought in this report.

7.3. **Consistency with Community Outcomes**

The Council's community outcomes are relevant to the actions arising from recommendations in this report, as the Road Safety Action Plan seeks to influence activities in road safety in this District. The relevant Community Outcomes include:

There is a safe environment for all

- Harm to people from natural and man-made hazards is minimised.
- Crime, injury and harm from road crashes, gambling, and alcohol abuse are minimised.

Transport is accessible, convenient, reliable and sustainable

- The standard of our District's roads is keeping pace with increasing traffic numbers.

7.4. **Authorising Delegations**

The Utilities and Roading Committee has the authority to receive information and adopt this Road Safety Action Plan.



Waimakariri District Council



Road Safety Action Plan 2023-24



Introduction

Improving road safety makes our towns and cities more accessible, connected and liveable, helping people to feel safer in their neighbourhoods, and making those neighbourhoods better places to live. For many decades, transport has focussed on the efficient movement of people and goods between places. In recent years, the focus has moved to one of ensuring that people and goods can move both safely and efficiently between and within our communities.

Historically private motor vehicle use has been the predominant choice of transport mode, as the roading network was designed primarily for use by private motor vehicles. Active and public transport modes were given little attention compared to that given to motorised transport. However, recent changes to national transport strategies have given more priority to active and public transport modes to provide people choices as to how to go about their lives within their communities.

A safer road network would encourage parents to let their children walk or cycle to school, promoting greater independence, and improve accessibility for the elderly and mobility-challenged people. Walking and cycling trips support healthier lifestyles, improve mental health, and have long term positive influence on health outcomes. An added benefit is that children who cycle become better road users when older, as they become aware of the dynamics of traffic interaction.

Improving road safety can also support environmental sustainability. More people walking and cycling reduces emissions, reduces noise, and improves air quality. Well designed and safer roads support productive economic activity, resulting in fewer crashes and more reliable travel times.

Loss of life or serious injury from crashes has a significant impact on society and can have inter-generational impacts. We have a responsibility to help the users of our transport network to be able to travel safely no matter what mode of travel they use, both for themselves and their whanau.

Purpose

The purposes of the Waimakariri Road Safety Action Plan are to:

- support and align with the National Road Safety Strategy – Road to Zero 2020-2030
- identify the crash risks for the Waimakariri community
- identify the work being done by the parties to the RSAP to address the crash risks in order to reduce the number of deaths and serious injuries
- improve the wellbeing of members of our communities by providing active transport options
- facilitate delivery and implementation of the Waimakariri Walking & Cycling Network Plan
- enable and encourage collaboration between partners on road safety initiatives
- monitor the progress of the work being done

The programmes of work in the Road Safety Action Plan will be discussed and monitored at the Road Safety Working Group. One of the key functions of the Road Safety Working Group is to share information between the Road Safety Partners and provide opportunities for collaboration.

National Road Safety Strategy – [Road to Zero](#)

Road to Zero 2020-2030, the national road safety strategy, outlines a vision where “No one is killed or seriously injured in road crashes”.

The Road to Zero guiding principles are:

- We promote good choices but plan for mistakes
- We design for human vulnerability
- We strengthen all parts of the transport system
- We have a shared responsibility for improving road safety
- Our actions are grounded in evidence and evaluated
- Our road safety actions support health, wellbeing and liveable places
- We make safety a critical decision-making priority

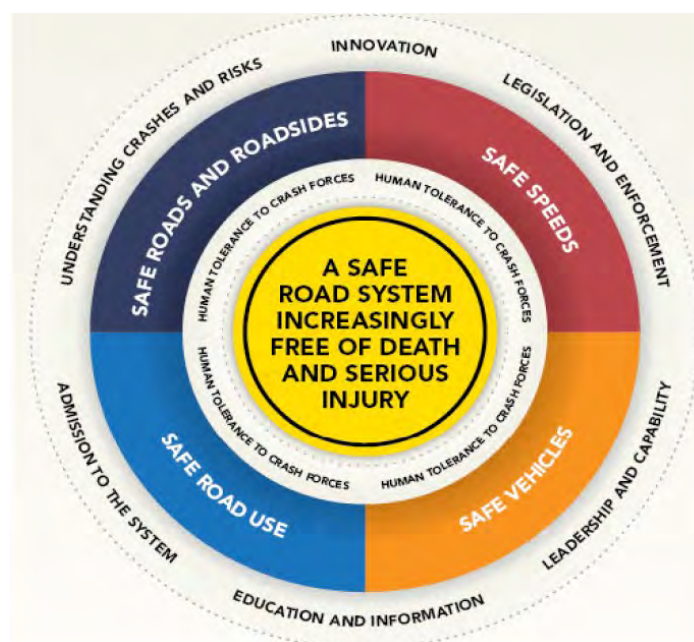


Road to Zero is founded on the safe system approach that says that while we all have a responsibility to make good choices, it also recognises that people make mistakes (such as lapses in attention or judgement), so we need to build a more forgiving road system that protects people from death and serious injury when they crash.

The Safe System Approach

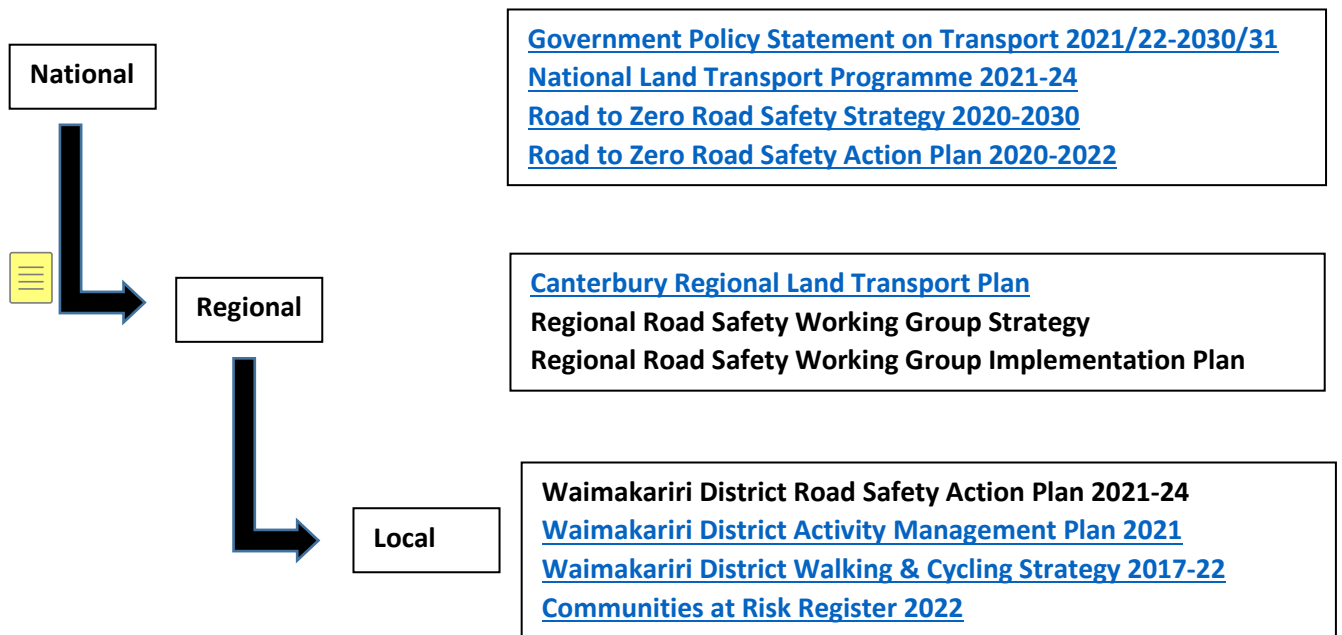
The Safe System approach is about acknowledging:

- human beings make mistakes and crashes are inevitable
- the human body has a limited ability to withstand crash forces
- system designers and system users must all share responsibility for managing crash forces to a level that does not result in death or serious injury
- it will take a whole-of-system approach to implement the Safe System in New Zealand



Policy framework for road safety

Several relevant documents at national, regional and local level influence this Action Plan.



Focus areas for Waimakariri:

Waka Kotahi provides analysis of road safety crash risk through the [Communities at Risk Register 2022](#).

The Communities at Risk Register was developed by Waka Kotahi to identify communities of road users and crash factors that are over-represented in terms of road safety risk in Districts across the country. The register highlights personal risk to road users by ranking communities by local authority area based on areas of concern.

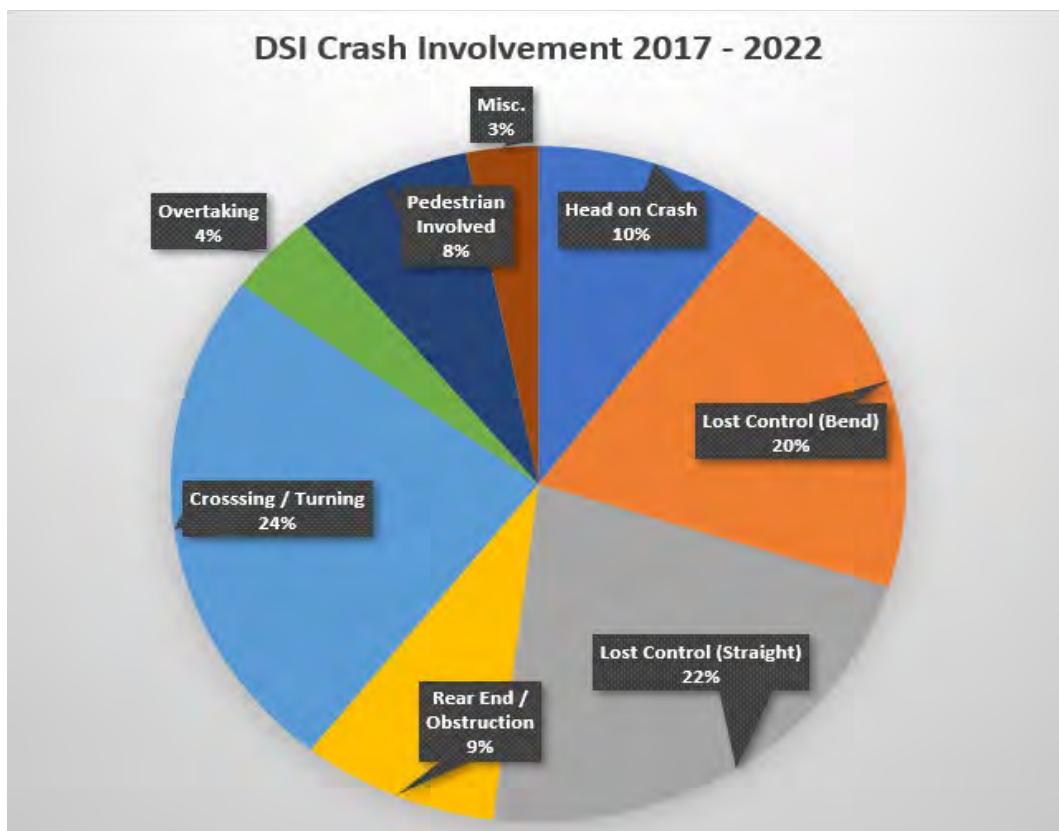


CAS Crash Data:

Crash Data is sourced from the Crash Analysis System. Waka Kotahi NZ Transport Agency manages the Crash Analysis System (CAS); New Zealand's primary tool for capturing information on where, when and how road crashes occur. The system provides tools to analyse and map crashes.

<https://www.nzta.govt.nz/safety/partners/crash-analysis-system>

The graph following shows data for the Waimakariri District relating to fatal and serious injury crashes for the 5-year period 1 July 2017 to 30 June 2022, a total of 133 crashes.



What are we doing to address the issues in our District?

Addressing road safety in our District requires us to use a system approach, acknowledging that should people make a mistake on the roads, that another part of the transport system will help prevent death or serious harm. The Activities/Interventions below are designed within the system approach to address the risks within our District.

In a Safe System approach, road safety is typically treated by considering the interaction of several parts of the transport system, rather than by implementing individual countermeasures in relative isolation. This means that the full range of solutions; infrastructure, speed management, vehicle safety standards and road user behaviour, all need to be addressed.

In some areas of the safe system approach, other Agencies or Government entities take the lead (e.g., vehicle safety), however Council has a role to support national initiatives wherever they can.

Activities / Interventions

Safe Road Use:

Organisation	Action	Activities
Waimakariri District Council	<p>The Waimakariri Road Safety Promotion programme (as shown in the Activity List in Transport Investment Online), includes the following components to address issues in our District by providing road safety education and promotion of good road user behaviours</p> <ul style="list-style-type: none"> • Promotion of safe speeds, • Supporting young drivers through training • Supporting older drivers with refresher courses • Promotion of safe driving habits at intersections (rural and urban) • Promoting safe behaviour around impaired driving • Promoting motorcycle rider training • Promotion of safety around cyclists and cyclist behaviour. 	<p>Various advertising initiatives throughout the year using print, radio, social media targeting focus areas, aligned with the Waka Kotahi Road Safety Marketing Calendar 2022/23.</p> <p>Programmes to deliver education to target areas – e.g.</p> <ul style="list-style-type: none"> • Young drivers, introducing the RYDA programme into Rangiora High School in May 2023 • Staying Safe courses, delivered by Age Concern • The extensive Cycle Sense programme in primary schools • Kickstart, motorcycle event promoting Ride Forever motorcycle training. <p>Collaborating with Road Safety Coordinators in the Region in the promotion of Police enforcement of RIDS. Progress is being made on this through a proposal to form a cross-District partnership to deliver consistent messaging across Canterbury.</p> <p>21/6/23 Update</p> <p>2000 winter ice scrapers and windscreen cloths distributed through the Council Service Centres.</p> <p>Advertising around driving in winter done via local newspapers, and social media.</p>

		A cross-Canterbury series of motorcycle coffee stops is planned for Motorcycle Awareness Month in September. The Waimakariri event is in Woodend on 23 September, at the Canterbury Honda motorcycle store.
Organisation	Action	Activities
Waka Kotahi	Providing support and guidance for initiatives in the District	<p>Regular attendance at Council Road Safety Working Group meeting.</p> <p>Providing updates on national road user campaigns where relevant.</p> <p>Supporting creation of local campaigns/initiatives targeting focus areas.</p> <p>Support the Road Safety Coordinator with programme guidance, and implementation of the Canterbury Driver Safety Partnership.</p> <p>12/4/23 Update</p> <p>The NLTP 2024-27 Programme is being prepared, in which the District works with Waka Kotahi to develop a programme of activities to support safe road use.</p> <p>21/6/23 Update</p> <p>New national media campaign “Would You Rather”.</p>

<p>Police</p>	<p>Focus on the RIDS concept i.e., enforcement of</p> <ul style="list-style-type: none"> • Restraints • Impairment / Fatigue • Distraction • Speed 	<p>Regular attendance at Council Road Safety Working Group meeting;</p> <p>Providing feedback on emerging areas of concern in regard to observed driver behaviour;</p> <p>Collaboration with Council on road safety education and promotion initiatives;</p> <p>Reporting on the level of enforcement done in RIDS i.e., delivery of enforcement.</p> <p>12/4/23 Update</p> <p>Police advise that an additional FTE is being added to Road Policing in North Canterbury, in addition to those already on the STU and Highway Patrol.</p> <p>21/6/23 Update</p> <p>Police advise of a change to roadside impairment testing to include a broader range of substances, including legal and illegal drugs.</p>
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<p>Students Against Dangerous Driving</p>	<p>The goal of SADD is to go to high schools and get students to create their own SADD groups where they peer support each other on safer driving practices on the roads.</p> <p>By setting up these groups it was intended that the students would design and undertake activities to positively reinforce safer driving habits, rather than focus on the horrors of what could happen in an accident.</p>	<p>Lincoln High School SADD group had recently produced a key chain and bumper stickers to make people more aware of the dangers of driving.</p> <p>SADD partners with RYDA in high schools, and will be working with Rangiora High School and Kaiapoi High School on their RYDA programmes in 2024.</p>
<p>Organisation</p>	<p>Action</p>	<p>Activities</p>
<p>ACC</p>	<p>Collaboration and providing support and guidance for motorcyclist and young driver safety initiatives including Ride Forever and Drive.govt.nz</p>	<p>Regular attendance at Council Road Safety Working Group meeting;</p> <p>Collaboration with Council on road safety education and promotion initiatives focusing on young drivers and motorcyclists</p>



Safe Speeds:

<p>Organisation</p>	<p>Action</p>	<p>Activities</p>
<p>Waimakariri District Council</p>	<p>Develop a Speed Management Plan for the District including undertaking a prioritisation process of schools in the District for speed management initiatives</p>	<p>Development of an Interim Speed Management Plan for the District by mid-2023, to include a reduction in speed adjacent to at least 40% of the District's schools.</p>

		<p>Completion of a Speed Management Plan to see speed limits updated across the District in the 24-27 NLTP period.</p> <p>Ongoing speed limit reviews across the District.</p> <p>Pending public engagement and consultation on speed limit reviews.</p> <p>21/6/23 Update</p> <p>Progress is being made on the SMP through the elected member structure.</p>
Waka Kotahi	<p>Commitment to collaboration with Council on State Highway speed limit reviews within the Waimakariri District</p> <p>Support development of a Speed Management Plan for the District</p>	<p>Regular engagement and communication is provided on State Highway projects that interact with local roads in the District;</p> <p>Provide guidance and feedback on proposed speed limit reviews and the Speed Management Plan</p>
Police	<p>Enforcement of speed limits and collaboration on any speed related education and promotion initiatives.</p>	<p>Provide feedback on proposed speed limit reviews</p> <p>21/6/23 Update</p> <p>Anecdotal feedback that traffic speeds on Flaxton Road, Johns Road and Fernside Road has reduced over time with the reduction in speed limits.</p>

Safe Roads:

Organisation	Action	Example activities
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Waimakariri District Council	Projects to be progressed to design stage 	<ul style="list-style-type: none"> • Fernside Rd / Todds Rd Intersection - Safety Improvement • Walking & Cycling Programme, Transport Choices • Island Rd / Ohoka Rd Intersection Improvements
Waimakariri District Council	Projects approved by Waka  Kotahi	<ul style="list-style-type: none"> • Bradleys Rd / Tram Rd / McHughs Rd roundabout (design only in 2023/24) • Skewbridge Rd / Mulcocks Rd Right Turn Bay • River Road Upgrade in conjunction with Park & Ride • Mulcocks & Fernside Rail Crossing Investigation • Southbrook Rd / Coronation St / Torlesse St
Waka Kotahi	Provide support to Council in relation to the Safe Network programme infrastructure improvements	<p>Ongoing collaboration between Waka Kotahi and Council staff to develop and agree programme of work to support Road to Zero.</p> <p>21/6/23 Update</p> <p>Working with contractors on the traffic signals and paving to be completed at the Tram Road offramp from SH1.</p>
Police	Provide feedback where applicable on any observed deficiencies observed in the transport network and road environment	<p>Report any signage that may have been damaged as a result of a crash attended;</p> <p>Provide feedback of any observed driver behaviour that could be addressed with improved signage/infrastructure.</p>

Safe Vehicles:

Organisation	Action	Example Activities
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Waimakariri District Council	Promotion of Rightcar.govt.nz website to encourage purchase/use of the highest rated safety vehicle where possible, particularly for young drivers.	Share national advertising around vehicle safety ratings through local channels; Support initiatives that promote vehicle safety.
Waka Kotahi	Collaborate on opportunities to promote vehicle safety	Co-ordinate use of the “Decepta” vehicle in the District where possible with other areas
Police	Enforcement of vehicle related offences, encouragement of compliance through the infringement compliance regime.	
Canterbury / West Coast AA	Evolving from being a motorist’s organisation to one that supports all mobility modes.	Distributing sets of front/rear cycle lights to young cycle riders through a partnership with Police., programme named “ <i>Be Safe, Be Seen</i> ”

Updates To This Road Safety Action Plan

The RSAP will be updated with the actions advised by the Road Safety Partners at each Road Safety Working Group Meeting.

In this way, it will become a current record of those actions happening across the Road Safety environment in Waimakariri District.

WAIMAKARIRI DISTRICT COUNCIL**REPORT FOR INFORMATION**

FILE NO and TRIM NO: EXT-04-385 / 230904136693

REPORT TO: UTILITIES AND ROADING COMMITTEE

DATE OF MEETING: 17 October 2023

AUTHOR(S): Sophie Allen – Water Environment Advisor

SUBJECT: Rangiora Stormwater Monitoring Report 2021-22

ENDORSED BY:(for Reports to Council,
Committees or Boards)_____
General Manager_____
Chief Executive**1. SUMMARY**

- 1.1. This report summarises the key findings of the 2021-22 stormwater monitoring programme for Rangiora under the consent CRC184601, and presents the full report as Attachment i.
- 1.2. There were exceedances (i.e. non-compliance) during wet weather events of dissolved zinc, dissolved copper, dissolved reactive phosphorus, total suspended solids (one site only) and E. coli in some Rangiora waterways, in particular the Middle Brook and North Brook. Guideline values for water quality were generally met during dry weather. These results are consistent with findings from baseline monitoring undertaken in Rangiora from 2014-17.
- 1.3. Follow-up investigations are recommended for issues such as; improving the functioning of Pond C (corner of Flaxton and Fernside Roads); sources of elevated E. coli in the Middle Brook, No.7 Drain and North Brook during dry weather; and establishing the proportion of dissolved inorganic nitrogen and dissolved reactive phosphorus in Rangiora waterways from rural sources.
- 1.4. These monitoring results, alongside other information will feed into the production of a Rangiora Stormwater Management Plan 2025-2040. In this Plan, water quality improvement projects will be prioritised, costed and budget allocation proposed. The aim is to meet all water quality guideline values set under consent CRC184601 by 2040.

Attachments:

- i. Rangiora Stormwater Monitoring Programme Annual report 2021-22 CRC184601 (TRIM 220512075696)

2. RECOMMENDATION**THAT** the Committee:

- (a) **Receives** Report No. 230904136693.
- (b) **Notes** that there were exceedances (non-compliances) during wet weather events of dissolved zinc, dissolved copper, dissolved reactive phosphorus, total suspended solids (one site only) and E. coli in some Rangiora waterways, in particular the Middle Brook and North Brook.
- (c) **Notes** that follow-up investigations are recommended in this report, which will be carried out by 3 Waters staff under existing budgets.

- (d) **Notes** drafting is underway of a Rangiora Stormwater Management Plan 2025-2040, which will incorporate these monitoring results and other information.
- (e) **Circulates** this report to the Waimakariri Water Zone Committee and the Rangiora-Ashley Community Board.

3. **BACKGROUND**

- 3.1. A Stormwater Network Discharge Consent for Rangiora township (CRC184601) was granted in May 2021.
- 3.2. The Rangiora stormwater monitoring programme commenced in the second quarter of 2021-22. The Rangiora stormwater monitoring programme report is the first annual water quality monitoring report prepared under CRC184601. A monitoring report was prepared for Rangiora for baseline sampling undertaken in 2014 as part of the consent application for CRC184601.
- 3.3. The Rangiora stormwater monitoring report 2021-22 was circulated in August 2023 to Environment Canterbury and Ngāi Tūāhuriri Rūnanga as per consent requirement Condition 35. There was a delay with submission of this report from the original date due to setting up processes for the first annual monitoring report. This is anticipated to be more streamlined for future annual reports.

4. **ISSUES AND OPTIONS**

- 4.1. 3 Waters team members will follow up on the recommended investigations in 2023-24 or 2024-25. This investigation work will be carried out under existing budgets. Some further investigation work has commenced already, such as assessing the impact of the inflow of groundwater beside the sampling point on the North Brook at Lilybrook Park, which has likely led to lower dissolved oxygen readings.
- 4.2. The recommendations from the Rangiora stormwater monitoring report 2021-22 are:
 - 4.2.1. Improvements to the functioning of Pond C (corner of Fernside and Flaxton Roads) to reduce discharge of TSS, Zinc, Copper and faecal bacteria (as indicated by E. coli), particularly during rain events.
 - 4.2.2. Investigate sources and carry out actions in Rangiora waterways (except North Drain and the Cam River) to reduce copper levels, particularly the Middle Brook and North Brook.
 - 4.2.3. Investigate sources and carry out actions in the North Brook and Middle Brook to reduce zinc levels.
 - 4.2.4. Identify where faecal contamination is coming from urban sources. Reducing sources of faecal contamination is recommended in all Rangiora catchments except the Cam River. Dry weather stream health sampling indicates that a focus should be placed on the Middle Brook, No. 7 drain and North Brook.
 - 4.2.5. Identify where Dissolved Reactive Phosphorus is coming from urban sources. Reduce DRP levels for the Middle Brook and other Rangiora waterways sampled, except the Cam River, particularly sources of DRP during wet weather events.
 - 4.2.6. Investigate the Middle Brook catchment for any possible cross-connections with wastewater, regular vehicle passage of cattle trucks, or other point sources of faecal bacteria.
 - 4.2.7. Investigate sources of DIN, regarding whether this contaminant is primarily urban or rurally sourced, such as the measurement of DIN levels in spring inflows and from headwaters of catchments with rural inflows.

- 4.2.8. Investigate if low dissolved oxygen levels in the North Brook at Lilybrook Park (RRNB036) are due to high groundwater inflows directly upstream of low oxygenated water.
- 4.2.9. Investigate if high conductivity is a due to natural background levels or urban inputs at RRSB046 (South Brook at Townsend Road) and RRSR025 (Rangiora South downstream of the Flaxton/Fernside intersection).
- 4.3. The Water Environment Advisor role is leading the development of a Rangiora Stormwater Management Plan 2025-2040, with support from within 3 Waters and other teams across Council. In this Plan, water quality improvement projects will be prioritised, costed and budget allocation proposed. The aim is to meet Canterbury Land and Water Regional Plan water quality guideline values, which have been set as compliance values under consent CRC184601 by 2040.
- 4.4. Although non-compliant with CRC184601 consent values for a range of contaminants, Environment Canterbury is aware that this non-compliance will take time for the Council to rectify. 2040 is the date by when the Council proposed in the consent application for CRC184601 to be fully compliant. A report about the Rangiora Stormwater Management Plan 2025-40 is anticipated to be presented to the Utilities and Roding Committee by February 2024 which will address budget requirements and process for prioritising stormwater water improvement projects.
- 4.5. Reporting of Rangiora stormwater monitoring results for the 2022-23 year onwards will change from spreadsheets to dashboards within software called Infrastructure Data (ID). This software allows easy of data sharing with Environment Canterbury and more real-time analysis of trends. The 2022-23 report is anticipated to be prepared by the end of the 2023, after historical data has been added to ID.

Implications for Community Wellbeing

There are no direct implications on community wellbeing by the issues and options that are the subject matter of this report. The implementation of the Stormwater Management Plan will improve the water quality in waterways which will benefit community wellbeing.

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

5. COMMUNITY VIEWS

5.1. Mana whenua

Te Ngāi Tūāhuriri hapū are likely to be affected by, or have an interest in the subject matter of this report. The report has been circulated to the hapū and discussed at the Rūnanga – WDC meeting on 7 September 2023.

5.2. Groups and Organisations

There are groups and organisations likely to be affected by, or to have an interest in the subject matter of this report, such as the Waimakariri Water Zone Committee.

5.3. Wider Community

The wider community is not likely to be affected by, or to have an interest in the subject matter of this report. The implementation of the Stormwater Management Plan will improve the water quality in waterways which will benefit the wider community.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

6.1. Financial Implications

There are no financial implications of the decisions sought by this report.

The budget for Rangiora stormwater monitoring and follow-up investigations are already included in the Annual Plan/Long Term Plan.

Budgets for stormwater improvements to meet consent CRC184601 conditions are allocated in the Long Term Plan, commencing in 2027-28. A budget of \$20 million has been allocated for the District for all stormwater network discharge consents, of which \$9.4 million is for improvements to Rangiora.

6.2. Sustainability and Climate Change Impacts

The recommendations in this report do have sustainability and/or climate change impacts. Improvements to stormwater will aid the sustainability of our waterways for uses such as mahinga kai and recreation.

6.3 Risk Management

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

6.3 Health and Safety

There are not health and safety risks arising from the adoption/implementation of the recommendations in this report. Health and Safety risks are actively identified and managed for stormwater monitoring fieldwork.

7. CONTEXT

7.1. Consistency with Policy

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

7.2. Authorising Legislation

The Local Government Act 2002 sets out Council roles in managing stormwater infrastructure. The Resource Management Act 1991 sets out consenting requirements for stormwater discharges.

7.3. Consistency with Community Outcomes

The Council's community outcomes are relevant to the actions arising from recommendations in this report, particularly to create a safe and healthy environmental for all.

7.4. Authorising Delegations

Not applicable as this report is for information only.



Rangiora Stormwater Monitoring Programme Annual Report 2021-22

Prepared by Waimakariri District Council for CRC184601
25 July 2023



Prepared for: Regional Leader - Monitoring and Compliance, Environment Canterbury and Ngāi Tūāhuriri Rūnanga, for consent CRC184601

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1. Executive Summary

This report summarises the results and provides analysis and discussion for stormwater sampling in Rangiora as per the consent CRC184601 from 1 July 2021 – 30 June 2022. Stormwater sampling commenced in the second quarter of the year, due to the preparation time required to meet implementation requirements after issuing of the consent.

As per the monitoring programme, there are 21 visual discharge inspection outlets (6 of which are also sampled for Total Suspended Sediment), 13 sites in receiving waters for urban contaminants, and 6 sites for stream health sampling.

Visual discharge inspections of outlets did not raise any issues such as odour or hydrocarbons present, except site RRSR026A (Pond C outlet on the corner of Flaxton and Fernside Roads), which exceeded the guideline threshold for Total Suspended Solids (TSS). Other outlets measured were compliant for TSS. RRSR026A also had elevated levels for Dissolved Zinc and Dissolved Copper, Dissolved Reactive Phosphorus (DRP), and E. coli, but with no baseline level for comparison.

Guideline values for 'Urban Impact', which are compliance points under the Rangiora Stormwater Monitoring Programme), were exceeded for TSS (only one site during a moderate rain event), Dissolved Copper, Dissolved Zinc, Dissolved Reactive Phosphorus (DRP) and E. coli. Guideline values were not exceeded for Total Ammoniacal Nitrogen (TAN). Urban Impact sampling was undertaken during a moderate wet weather event, which was larger than a first flush rainfall event. This likely led to higher values for the contaminants. It is recommended that WDC continues endeavours to sample during first flush conditions. This will be more achievable now that first flush criteria have been made more flexible.

For dry weather 'Stream Health' sampling, guideline values were not exceeded for TSS, pH, temperature, TAN, DRP, and dissolved oxygen (except a low value at the North Brook at Lilybrook Park (RRNB036) possibly due to low oxygen in groundwater inflows).

Recommendations to address particular contaminants and waterways are presented in this report. Investigations into contaminants in groundwater inflows, and further characterisation of rural versus urban sources is also recommended. It is believed that some exceedances of E. coli, DRP and DIN in particular, could be due to rural inputs, beyond the scope of the Council.

Long term or site-specific trends in water quality are difficult to conclude, due to the 2014 baseline monitoring for Rangiora carried out at fewer sites, and not all sites were identical. However comparisons have been made where possible.

No annual stream sediment deposition sampling was carried out in 2021-22 due to staff oversight. Stream health ecological sampling (every 3 years) and stormwater management area sediment sampling programmes (every 5 or 10 years depending on the basin) are due to be carried out in 2023-24.

There were no spills over 5L into the Rangiora stormwater network reported to WDC staff in 2021-22. There was a diesel spill into a private drain which flows into the Middle Brook which WDC staff responded to in August 2021.

2. Introduction

Resource consent CRC184601 requires Waimakariri District Council to submit an annual report to both to the Canterbury Regional Council and Te Ngāi Tūāhuriri Rūnanga which details compliance with the most recent Rangiora Stormwater Monitoring Programme and other consent requirements.

This report is required to detail results of the monitoring carried out for each section of the monitoring programme for a 12-month period.

This report also includes:

- A summary and discussion of results from each section of the monitoring programme.
- Interpretation of any long term or site-specific trends in surface water quality, stormwater quality, ecology, or soil quality where data was available.
- Interpretation of the significance and possible reasons for any change in long term or site-specific trends where data was available.
- Discussion of compliance with the “urban impact” Receiving Environment Objectives.
- Documentation of, and possible reasons for exceedances, and further action taken in response to exceedances.
- A report on any spills that occurred exceeding 5 litres that discharged via the reticulated stormwater system into the receiving environment.

Although included within the Rangiora stormwater monitoring programme as a part of the consent, the stream health component is not assessed as a compliance component of the Rangiora Stormwater Network Discharge Consent. The stream health water quality results have been included in this annual report to provide context and allow for the analysis of trends over time.

This annual report does not include results from ecological surveys in Rangiora streams, stormwater basin monitoring or stream sediment monitoring as these were not required in the 2021/2022 year.

2.1. Rangiora Stormwater Monitoring Programme

The Rangiora Stormwater Monitoring Programme focuses on the Rangiora urban stormwater discharge impact on waterways. The programme covers monitoring of discharge points, receiving waters and stormwater ponds within the Rangiora urban limits.

Within the Rangiora urban limits there are seven main natural streams; North Brook, South Brook, Middle Brook, Cam River, Crayfish (Kōura) Creek, the South-South Brook, and the No.7 Drain. These waterways

receive stormwater discharge from the Rangiora urban stormwater network (other than Crayfish (Kōura) Creek which receives no stormwater discharges and is entirely spring flow) and are therefore considered to be receiving waters. The receiving waters have yearly baseflow, apart from the upper North Brook which is ephemeral. All the streams provide habitat for aquatic ecology.

Using the requirements in the Canterbury Land and Water Regional Plan (CLWRP), the WDC Rangiora stormwater monitoring programme includes:

“Urban Impact” Component:

1. **Visual Discharge Inspections** - to check for water clarity, oil, grease films, scums, foams, suspended materials, odour and erosion at the major discharge points.
2. **Major Discharge Inspections** – to sample TSS discharges from selected major discharge points.
3. **Urban Impact Inspections**- where dissolved metal samples, pH, Dissolved Reactive Phosphorus (DRP), E.coli and Total Ammoniacal Nitrogen are retrieved from the receiving waters, and sent to a laboratory for testing. For dissolved metals, this enables direct compliance assessment against the Schedule 5 water quality standards of the CLWRP and allow the effects of the discharges on the ecological health of the urban streams to be understood. For DRP, E.coli and Total Ammoniacal Nitrogen, these provides an indication of the rate of reduction of wastewater overflows during the consent term in association with the wastewater capacity upgrades which are currently underway.
4. **Stormwater Basin Monitoring** – This was not carried out in 2021-22, as it is required only every 5 or 10 years (industrial and residential basins respectively).
5. **Stream Sediment Monitoring** - This was not carried out in 2021-22 due to staff oversight.

In addition to the specific monitoring of urban stormwater impacts, the WDC also monitors stream health.

“Stream Health” Component:

1. **Stream Health Inspection** - Water quality samples of dissolved oxygen, pH, temperature, Total Suspended Solids (baseline purposes), Total Ammoniacal Nitrogen, Dissolved Inorganic Nitrogen, E.coli, Dissolved Reactive Phosphorous and Specific Conductance (portable probe) sampled within the Rangiora streams.
2. **Ecological surveys in Rangiora streams**- This was not carried out in 2021-22, as it is required only every 3 years before 2025.

2.2. Sampling Sites

2.2.1. Discharge Inspections

All practicable major discharge points from the WDC stormwater network into the receiving waters are visually monitored.

21 observation points for discharge inspections are presented in the following list and Figure 1.

RRND012: North Drain, Coldstream Road.
 RRNB057: North Brook, at Oxford Road.
 RRNB049: North Brook, at Geddis Street.
 RRNB045: North Brook, at Dudley Park, White Street pipe outlet.
 RRNB039: North Brook, at Ward Park, drain inflow from Fraser Place
 RRNB038: North Brook, at Ward Park, drain inflow from Ward Place
 RRNB035: North Brook, drain inflow into eastern side of Lilybrook Park
 RRNB033: Northern branch of the North Brook, west side Kowhai Avenue

RRNB015: Northern branch of the North Brook pipe outlet, Cotter Lane
RRNB009: North Brook, outlet of the North Brook Ponds
RRER006: Goodwins (Horncastle) Stormwater Pond Outlet, Northbrook Road
RRWR013: Oxford Park East SMA basin outlet (West Rangiora) on Johns Road
RRMB026: Middle Brook, at King Street.
RRMB022: Middle Brook, at Clearbrook Lane
RRMB017A: Middle Brook at Gefkins Road
RRSB046A: South Brook, at Townsend Fields Stormwater Management Area outlet.
RRSB035: South Brook, pipe outlet off Coronation Street.
RRSB032: South Brook at Southbrook Road (west side at pipe outlet)
RRSB030: South Brook, pipe outlet on west side of Railway Road.
RRSS026: South South Brook Stormwater Pond Outlet, Lineside Road
RRSR026A: South Rangiora, Stormwater Pond C Outlet, Flaxton Road
RRSR025: South Rangiora, Outlet of Fernside/Flaxton Intersection SMARRSR025: South Rangiora, Outlet of Fernside/Flaxton Intersection SMA

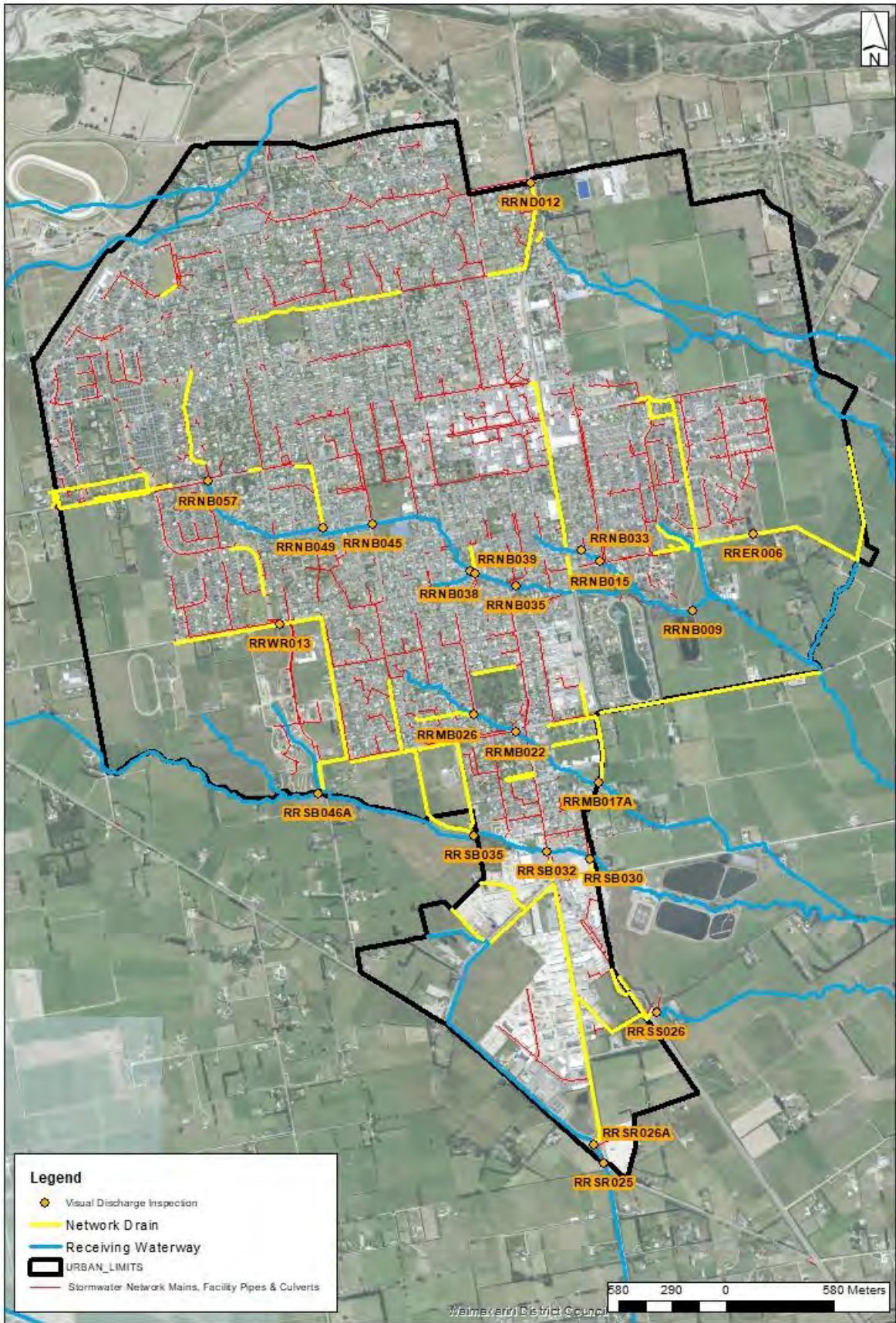


Figure 1: Discharge Inspection Locations

2.2.2. Major Network Outlets

Six Major Network Outlet total suspended solids (TSS) sample locations are presented in the following list and Figure 2. Sample site RRSR026A (outlet to Pond C, major Rangiora industrial discharges) which has an extended sampling regime is included in this list.

RRNB009: North Brook, outlet of the North Brook and East Rangiora SW Basins

RRNB033: Northern branch of the North Brook, west side Kowhai Avenue

RRNB045: North Brook, at Dudley Park, White Street (discharge from 600mm diameter pipe on White St)

RRMB017A: Middle Brook, Gefkins Road (sample Railway Drain discharge from Hegan Reserve bank)

RRSB030: South Brook, pipe outlet on west side of Railway Road (discharge from 525mm diameter pipe into stream)

RRSR026A: South Rangiora, Stormwater Pond C Outlet, Flaxton Road

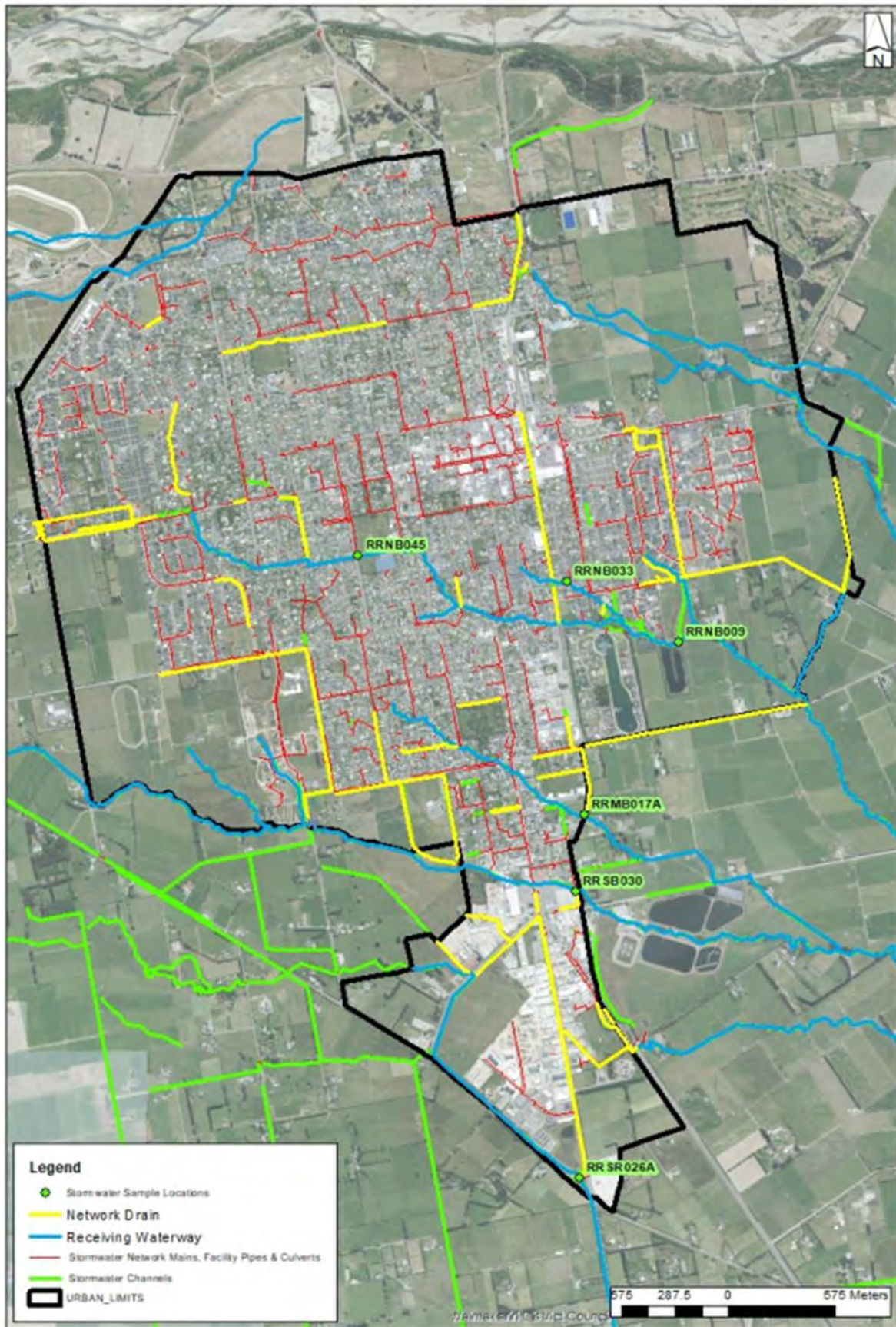


Figure 2: Sample Locations for TSS and Sample site RRSR026A at Selected Major Discharge Points

2.2.3. Urban Impact

The sample locations for urban impact monitoring are situated at either the beginning of the urban limits or the stream source, and a sample point at the downstream urban limit.

The Surface Water sample locations are listed and shown in Figure 3:

RRND012: North Drain, near Ashley River stop-bank

CRCR120: Cam River, on the southern side of Kippenberger Avenue

RRNB017: North Brook, on the northern side of Boys Road

RRNB033: North branch of the North Brook, on the western side of Kowhai Avenue

RRNB036: North Brook, Lilybrook Park

RRNB044: North Brook, on Church St across from Dudley Park

RRNB055: North Brook, at Aspen Street Park

RRMB017: Middle Brook, Gefkins Road east of the Railway, upstream side of the bridge

RRMB029: Middle Brook, on the western side of Bush Street

RRSB030: South Brook, on the west side of Railway Road

RRSB046: South Brook, on the east side of Townsend Road

RRSS026: South-South Brook, on the east side of Lineside Road

RRSR026: South Rangiora, No. 7 Drain immediately south of Fernside Road (allows for mixing zone).

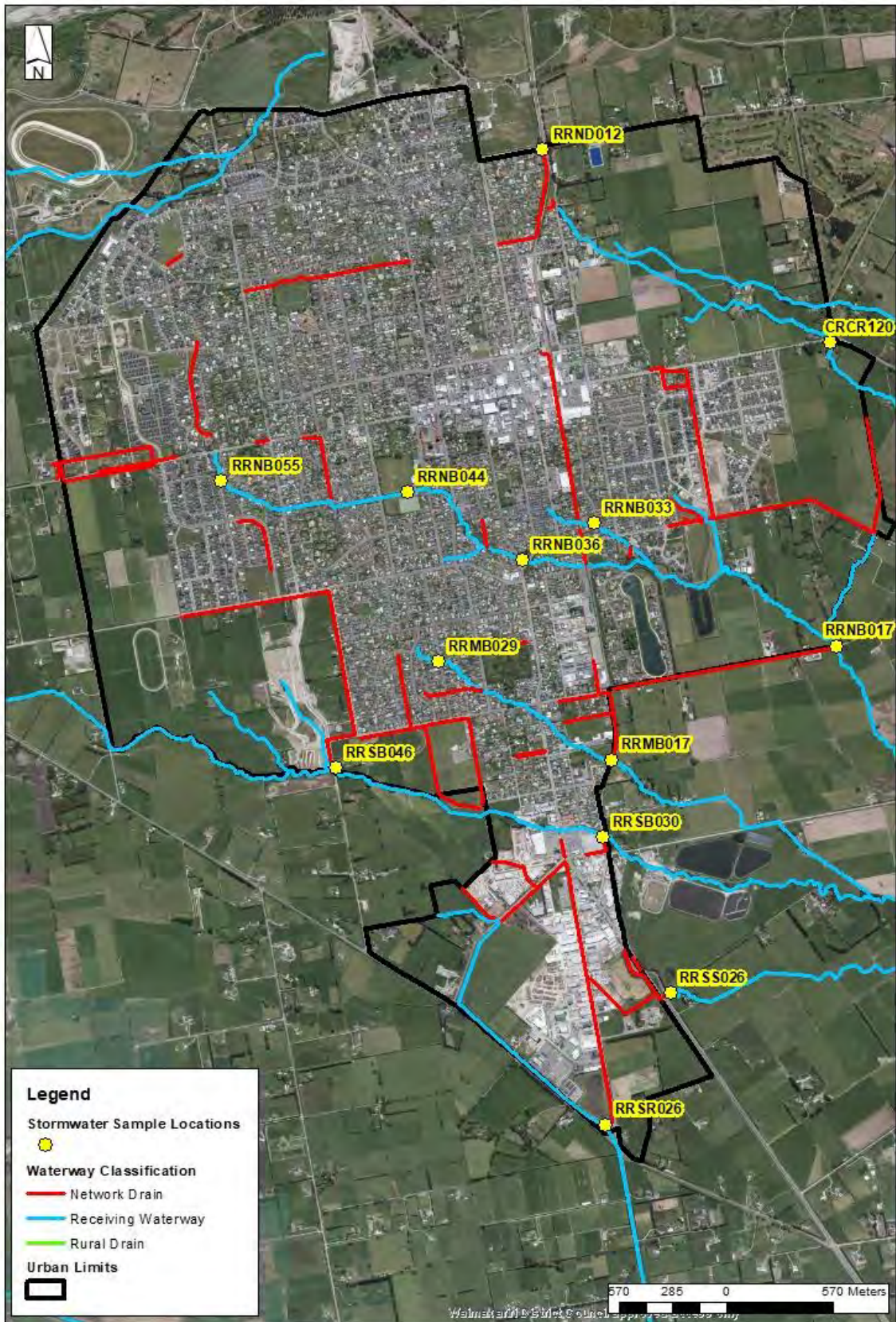


Figure 3: Sample locations for Urban Impact monitoring

2.2.4. Stream Health

The Stream Health monitoring component is for information and context only, with results unlinked to compliance conditions for the Rangiora Stormwater Network Discharge Consent.

The sample points are situated near either the beginning of the urban limits or the stream source, and a sample point near the downstream urban limit. The Stream Health sample locations are listed below and shown in Figure 4:

RRSR025: South Rangiora, downstream of Fernside / Flaxton Intersection SMA outlet

RRSB030: South Brook, on the west side of Railway Road

RRSB046: South Brook, on the East side of Townsend Road

RRMB017: Middle Brook, Gefkins Road, east of the Railway Line on upstream side of bridge

RRNB017: North Brook, on northern side of Boys Road

RRNB036: North Brook, Lilybrook Park

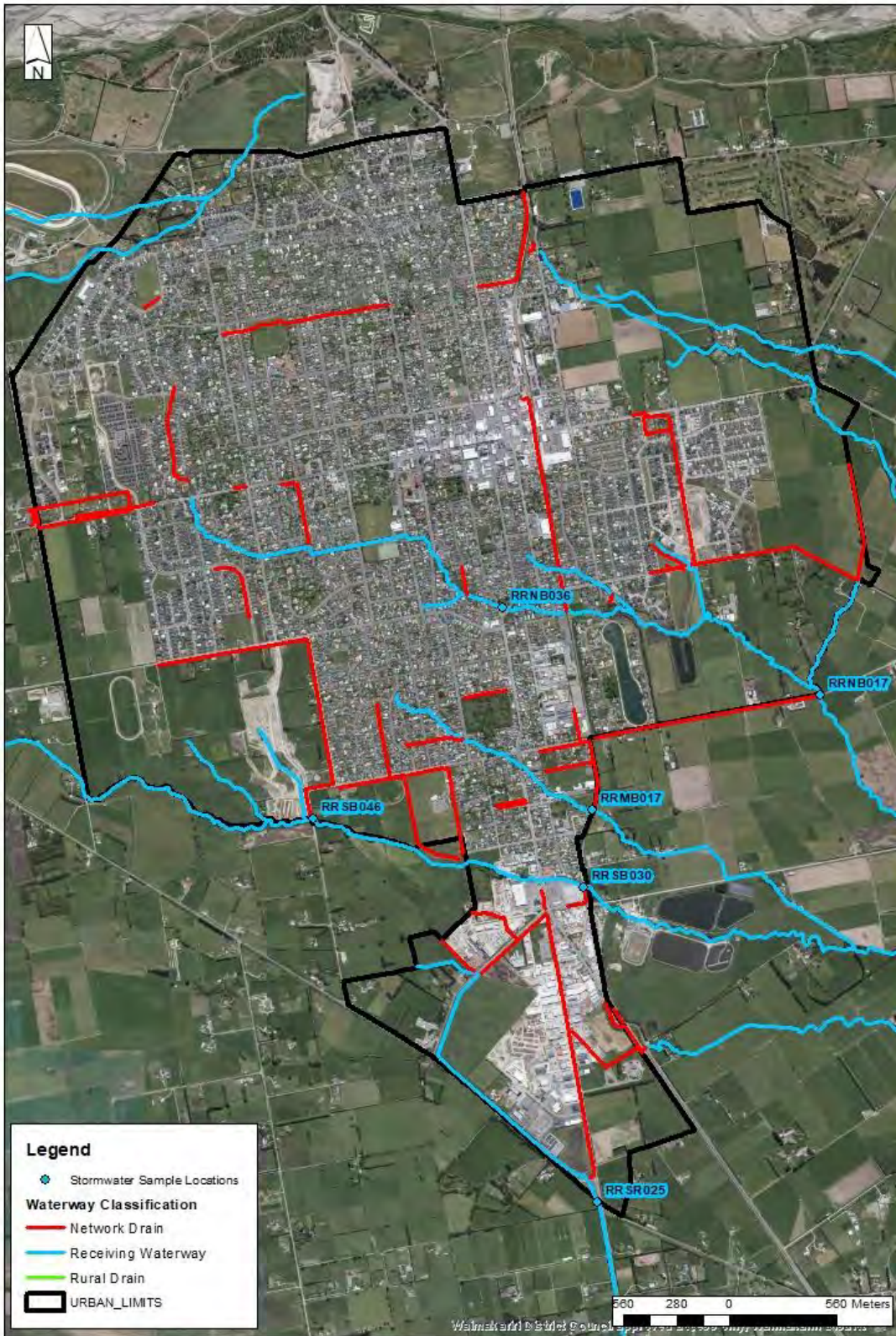


Figure 4: Sample locations for Stream Health

3. Methods

An overview of sampling methods is provided in the CRC184601 Rangiora Stormwater Network Discharge Consent monitoring programme, and therefore is not repeated here for brevity.

A summary of sampling activity is provided in Table 1. Due to staff shortage and consent implementation issues, some scheduled sampling events did not occur during 2021/2022. Due to implementation lead-in time, the sampling programme was not commenced until the second quarter of 2021-22.

Table 1: Summary of Rangiora CRC184601 sampling undertaken in 2021-22:

	Q1	Q2	Q3	Q4
Visual discharge inspections (quarterly)	Monitoring programme had not commenced	15-16/12/2021	Not undertaken	Not undertaken
Major network outlet discharge (four times per year until 2025)	Monitoring programme had not commenced	15-16/12/2021	Not undertaken - lack of first flush	Not undertaken - lack of first flush
Urban Impact (twice per year)	Monitoring programme had not commenced		10/02/2022	Not undertaken - lack of first flush
Stream Health (quarterly)	Monitoring programme had not commenced	18/11/2021	31/03/2022	13/05/2022
Stream fine sediment deposition (annually)	Not undertaken in 2021-22			

Table 2: Summary of Rangiora CRC184601 rain events when sampling occurred

Sampling event	Event Description	Date and time sampling commenced	Length of dry weather before rain event (hours)	Precipitation from rain event (mm) when sampling commenced	Duration of rain event (hours, minutes) when sampling commenced
Major network outlets (Urban impact)	Moderate-large rain event (first flush not met)	16/12/2021 08:40am	72 hours (nominal 1mm of rainfall fell)	50 mm (Ayers St Rangiora rain gauge (SCADA DATA))	32 hours, 40minutes
Visual discharge inspections -	Moderate rain event	15/12/2021 02:00pm	72 hours (nominal	24.40mm (Ayers St Rangiora rain	14 hours

(Urban Impact)	(first flush* met)		1mm of rainfall fell)	gauge (SCADA DATA)	
Urban Impact	Moderate rain event (first flush* not met)	10/02/2022 08:50am	72 hours	38.60mm (Ayers St Rangiora rain gauge SCADA DATA)	16 hours, 50 minutes (rain started 4pm on 9/02/2022)

* First flush conditions are defined as a rainfall event with rainfall no less than 10 mm and no greater than 25 mm, over 24 hours (CCC, waterways wetlands and drainage guide). Antecedent precipitation conditions should be considered, where a first flush storm needs to have a period of at least 72 hours of no measurable precipitation (Otago Regional Council).

4. Results

4.1. Guideline values

Results for the 2021/2022 reporting year have been compared to the CLWRP guidelines, for relationship to the size of the rainfall event, and for trends within each waterway. This is the first year of sampling for CRC184601, however comparison has been made to baseline sampling results for Rangiora from 2014 (TRIM 140728079529) or other sampling results where possible. In the next reporting year (2022/2023) the results will be analysed for trends over time.

The Rangiora stormwater monitoring programme specifies that the Urban Impact and Major Discharge Outlet sampling should be undertaken in a first flush event. However, meeting first flush sampling criteria was difficult, resulting in sampling in conditions larger than first flush events.

Guideline values from the CLWRP are presented in Table 3. Hardness and Dissolved Organic Carbon were not measured in 2021-22, as are only required every 5 years for adjustment of results.

The following sections of this report look at each of the tested contaminants separately.

Table 3: Urban Impact monitoring surface water guideline values

Contaminant	Guideline	Guideline Source
Total Suspended Solids	<50 gm ³	CLWRP
Dissolved Copper	< 0.0018 mg/L	CLWRP <i>spring fed – plains – Urban Water</i> 90% of the
Dissolved Zinc	< 0.015 mg/L	CLWRP <i>spring fed – plains – Urban Water</i>
pH	Shall be between 6.5 - 8.5	CLWRP, <i>section 16, schedule 5</i>
Dissolved Reactive Phosphorus	< 0.016mg /L	CLWRP, <i>section 16, schedule 5</i>
E. coli	95% of the samples should have less than 550 E. coli per 100 mL	CLWRP, <i>section 16, schedule 5</i>
Total Ammoniacal Nitrogen	Depends on pH level	CLWRP, <i>Table S5C, Schedule 5</i>

Hardness	5 yearly adjustment of Guideline Value	
Dissolved Organic Carbon	To characterise the waterway – adjust Guideline Value	

4.2. Visual discharge inspections

4.2.1. Colour and Suspended Sediment

There were instances in the 2021/2022 year that colour or suspended sediment from outlets was identified as elevated during the discharge inspections; the discharge from RRSR026A (Pond C outlet on Flaxton Road) contained an elevated level of sediment in particular. Other sites identified to have elevated levels of sediment were RRMB022 (outlet into the Middlebrook at Clearbook Lane), RRSB032 (outlet into the South Brook at Southbrook Road), and RRSB035 (outlet into the South Brook at Coronation St).

4.2.2. Hydrocarbons

There was one instance in the 2021/2022 year that hydrocarbons (oil, grease or other) were observed during the discharge inspections. The outlet into the North Brook at White St (Dudley Park) had a minor oil sheen that was thought to be likely sourced from a vehicle leak.

4.2.3. Visible contaminants

There were minor instances in the 2021/2022 year that visible contaminants, such as rubbish, vegetation or debris, were observed during the discharge inspections. None of the instances required immediate action such as grill cleaning.

4.2.4. Odour

There were no instances in the 2021/2022 year that odour from outlets was identified as unusual during the discharge inspections.

4.2.5. Stream bed and bank erosion

No stream bed or bank erosion was observed in the 2021/2022 reporting year.

4.2.6. Additional information

Observing the discharge pipe outlet on Coronation Street (site RRSB035) was difficult as the banks of the South Brook were flooded over the outlet.

4.3. Major network outlets

4.3.1. Total Suspended Solids (TSS)

Figure 5 shows the TSS sampling results for the major network outlets in the 2021/2022 reporting year. RRNB033 (Northern branch of the Northbrook) and RRSB030 (South Brook west of Railway Road) were found to be below the default detection limit of 3 g/m³ and have been shown in the graph as half the default detection limit (1.5 g/m³).

All major network outlets except for RRSR026A (South Rangiora, Stormwater Pond C Outlet, Flaxton Road) met the guideline value of 50 g/m³. This indicates that TSS concentrations are generally not elevated at these sites. Therefore TSS levels are not thought to be adversely affecting aquatic life.

RRSR026A measured 55 g/m³. This site was not sampled in 2014 for baseline monitoring to be able to provide comparison, however was sampled five times during rain events five 2015-17, with exceedance of the guideline for four of those events (80%). Sediment discharge from the Pond C outlet therefore has previously been identified to regularly exceeded the guideline value. It is likely that TSS from Pond C is affecting the ecology of the No. 7 Drain below the pond. Improvements to the functioning of Pond C are recommended to be carried out.

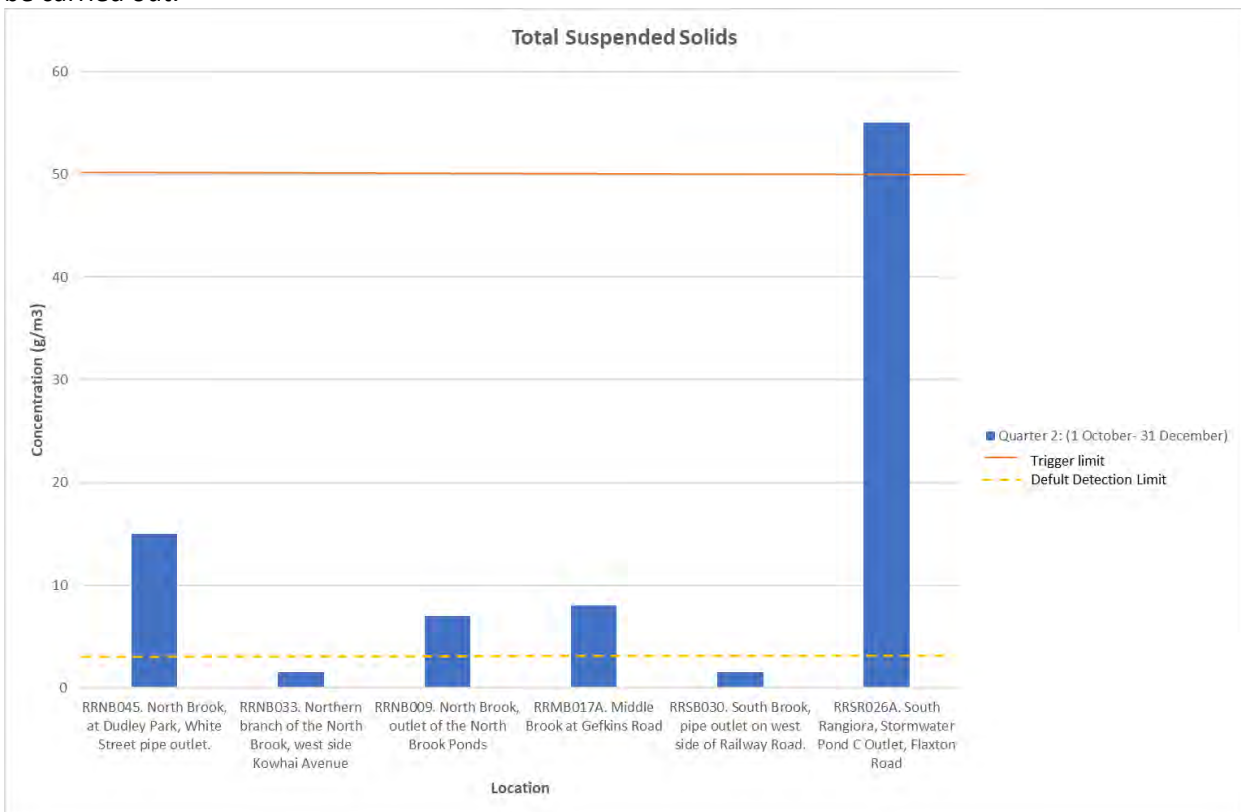


Figure 5: Total suspended solids for the Major Network Outlets 16/12/2021, Quarter 2 of 2021/2022

4.3.2. Pond C Outlet

4.3.2.1. Dissolved copper (Pond C Outlet)

Sampling was undertaken in 2015, 2016, and 2017 for the Pond C outlet below a mixing zone (RRSR026) during rain events, where the average Dissolved Copper value was 0.00495 mg/L. This sampling site is below the Pond C outlet after mixing with the No. 7 Drain, and therefore can only be used as an indication of historic levels, but is not a true baseline. Sampling at the Pond C outlet itself (RRSR026A) was above this historic level with a value of 0.0193 mg/L. A trend (comparative to a baseline) is unable to be determined. Reduction of Dissolved Copper levels are likely required to provide ecosystem health in the No. 7 Drain.

4.3.2.2. Dissolved Zinc (Pond C Outlet)

Sampling was undertaken in 2015, 2016, and 2017 for the Pond C outlet below a mixing zone (RRSR026) where the average Dissolved Zinc value was 0.008 mg/L. This sampling site is below the Pond C outlet after mixing with the No. 7 Drain, and therefore can only be used as an indication of historic levels, but is not a true baseline. Sampling at the Pond C outlet itself (RRSR026A) was above this historic level, with a value of 0.0199 mg/L. A trend (comparative to a baseline) is unable to be determined. Reduction of Dissolved Zinc levels are likely required to provide ecosystem health in the No. 7 Drain.

4.3.2.3. Total Ammoniacal-N (Pond C Outlet)

The Total Ammoniacal – N value of the Pond C outlet (RRSR026A) was found to be below the default detection limit of 0.01 mg/L (10 µm/L). Total Ammoniacal Nitrogen from the Pond C Outlet was far below the guideline value required for 90% species protection, and therefore does not require further action.

4.3.2.4. Dissolved Reactive Phosphorus (Pond C Outlet)

Sampling was undertaken in 2015, 2016, and 2017 at the Pond C outlet below a mixing zone (RRSR026) where the average Dissolved Reactive Phosphorus value was below the detection level. This sampling site is below the Pond C outlet after mixing with the No. 7 Drain, and therefore can only be used as an indication of historic levels, but is not a true baseline. A trend (comparative to the baseline) is unable to be determined. Pond C Outlet itself (RRSR026A) was above this historic level with a value of 0.146 g/m³ in Quarter 2 of the 2021/2022 reporting year. Reduction of DRP levels are likely required to provide ecosystem health in the No. 7 Drain.

4.3.2.5. Escherichia coli (Pond C Outlet)

A reducing trend (comparative to the baseline) for Pond C outlet (RRSR026A) is unable to be determined due to only one sample in the 2021/2022 reporting year. Pond C Outlet was above the maximum laboratory limit value of 2420 MPN / 100 ml in Quarter 2 of the 2021/2022 reporting year. The guideline value for E. coli is 550 MPN / 100 ml. Reduction of E.coli levels are required to provide ecosystem health in the No. 7 Drain.

4.4. Urban impact

4.4.1. Dissolved Copper

This contaminant is likely to be from urban sources, such as car brake pads and copper roofing.

Figure 6 shows the Dissolved Copper sampling results for the Urban Impact Sampling in the 2021/2022 reporting year. A reducing trend (comparative to the baseline) is unable to be determined due to only one sample round in the 2021/2022 reporting year.

All sites were over the CLWRP guideline value of 0.0018 mg/L except for RRND012 (North Drain, Coldstream Road) and CRCR120 (Cam River, Kippenberger Ave). Sites that were over the guideline likely require action to reduce copper levels, particularly sites on the Middle Brook and North Brook.

The North Brook shows decreasing levels downstream, which is assumed to be due to dilution from spring water. The significant level of dissolved copper from the sample site at Aspen Street indicates an urban source of copper is entering the stream from a residential area that has been recently developed. The source of copper could include runoff from the Oxford Road catchment, where high vehicle traffic could be contributing high copper levels into the head of the waterway.

Likewise, there is more elevated copper in the Middle Brook at Bush Street than Gefkins Street, indicating there is a significant residential source of dissolved copper. It is anticipated the main source of dissolved copper could be heavy vehicle use on Johns Road which, similarly to Oxford Road, has heavy vehicle traffic.

The Middle Brook and North Brook also had copper levels over the guideline value during a rain event that was larger than a first flush in May 2014, and in the upper catchments during additional sampling during rain events in 2015 and 2016. This indicates consistent hot spots in these catchments.

RRND012 (North Drain, Coldstream Road) was also below the guideline value in the 2014 baseline sampling, indicating this site does not need action to reduce copper levels. Sample Site CRCR120 (Cam River, Kippenberger Ave) was below the laboratory default detection limit of 0.0005 g/m³ and has been shown in Figure 6 as half the default detection limit (0.00025 g/m³). CRCR120 was not sampled in 2014 to be able to indicate any trend, however it is likely that this site does not need action to reduce copper levels due to the low result in 2022.

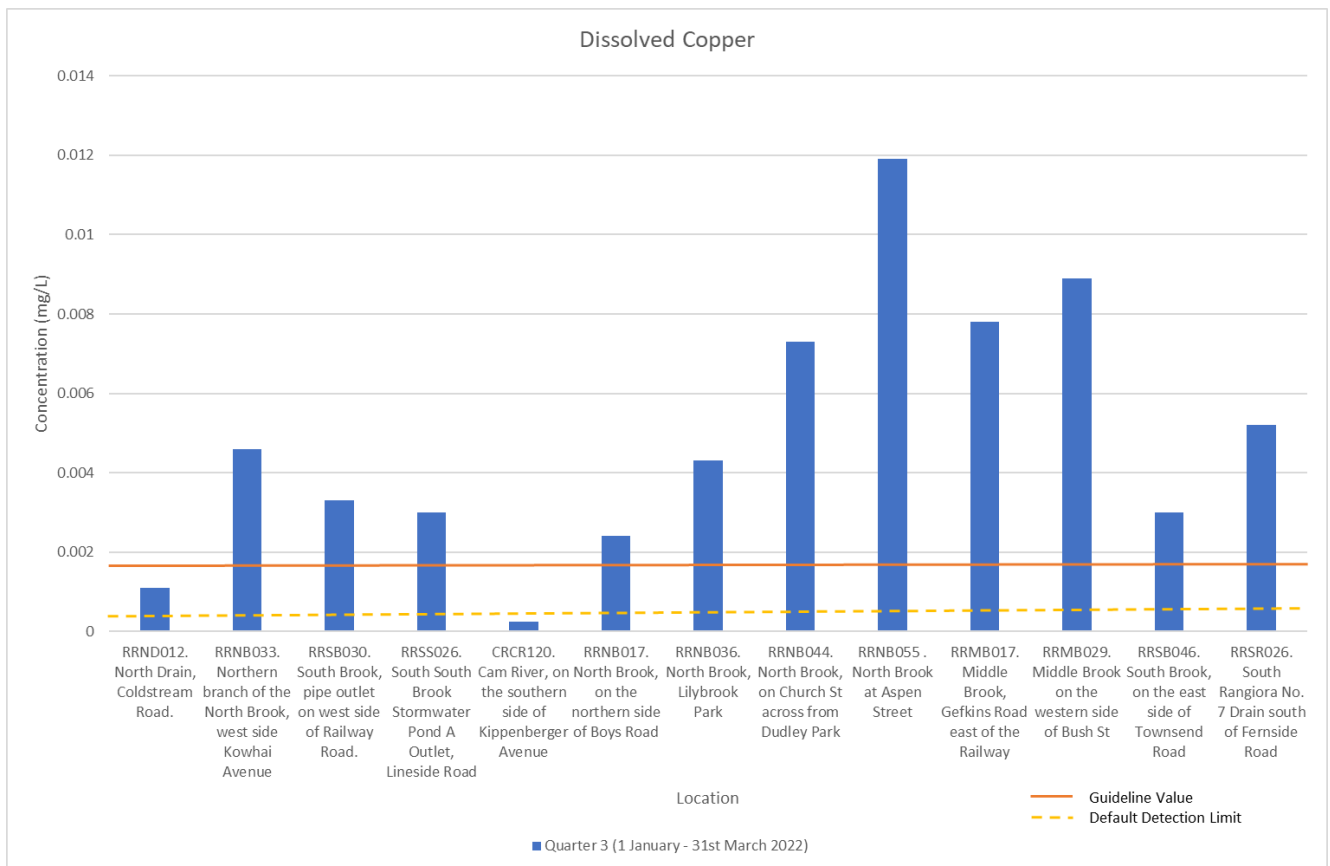


Figure 6: Urban Impact - Dissolved Copper sample results for 10/02/2022, Quarter 3 of 2021/2022.

4.4.2. Dissolved Zinc

Zinc is an urban contaminant, from sources such as car tyres and galvanised roofs.

Figure 7 shows the Dissolved Zinc sampling results for the Urban Impact sampling in the 2021/2022 reporting year. A reducing trend (comparative to the baseline) is unable to be determined due to only one sample round being taken in the 2021/2022 reporting year.

The toxicant guideline value derived from the CLWRP for Dissolved Zinc is < 0.015 mg/L. Sampling sites on the North Brook, Middle Brook and the South South Brook site (RRSS026) were over the CLWRP guideline value. In particular North Brook sites, and the two Middle Brook Sites RRMB017 and RRMB029 were elevated. Middle Brook was also found to be elevated in the 2014 baseline sampling, and both the North Brook and Middle Brook were elevated in sampling in 2015 and 2016. As the peak inputs of zinc in the North Brook and Middle Brook streams appear from sampling to be from predominantly older residential catchments which have a prevalence of older iron roofing materials, the link between older roofing material and zinc inputs into the streams should be further investigated. This report recommends that the North Brook and Middle Brook should be targeted in particular for actions to reduce zinc levels.

North Drain, Cam River, South Brook and No. 7 Drain sites were below the guideline value. RRND012 (North Drain) and RRSB030 (South Brook, Railway Road) were above the guideline value in some of the 2014 baseline sampling events and in 2015-2016 sampling, however further sampling is required to see if there is a decreasing trend at these sites.

Sample Site CRCR120 (Cam River, Kippenberger Ave) was below the laboratory default detection limit of 0.001 mg/L, so is shown as 0.0005 mg/L. This site is unlikely to require further action to reduce zinc levels.

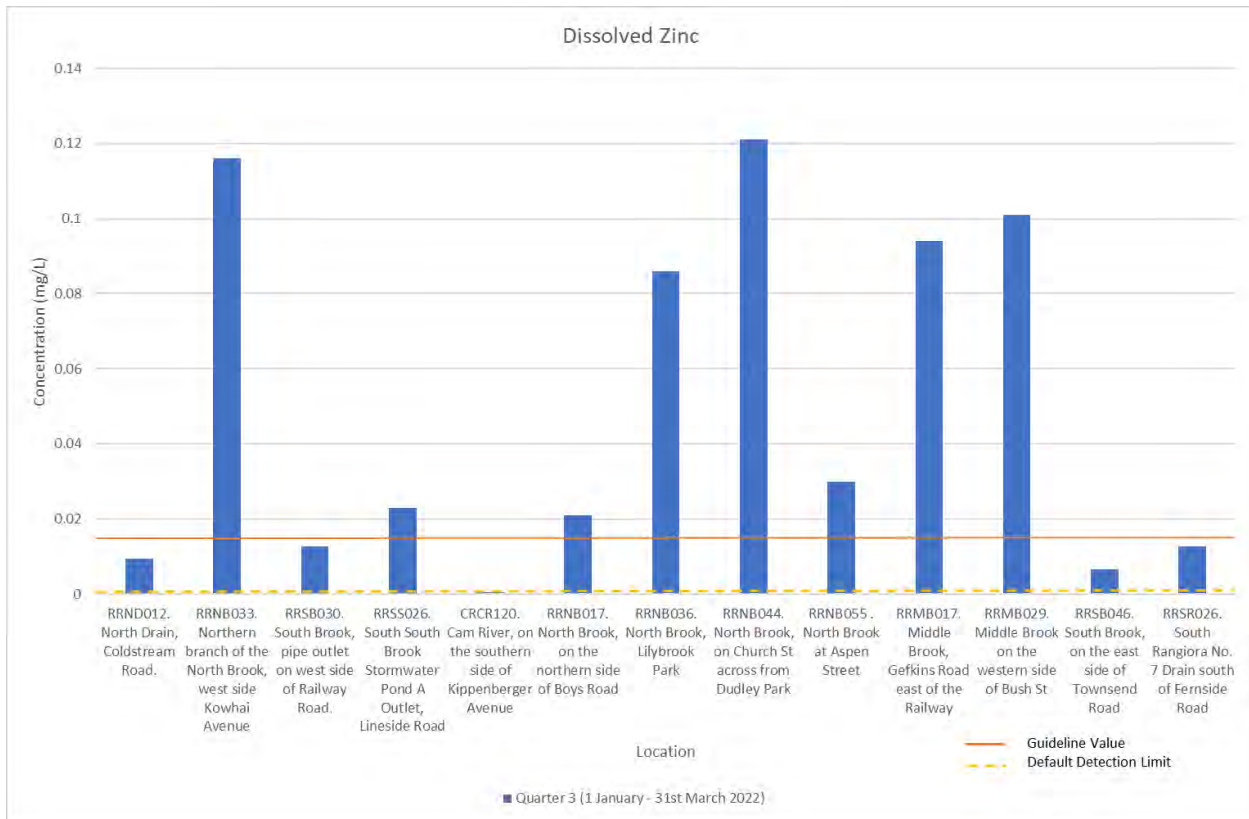


Figure 7: Urban Impact - Dissolved Zinc sample results for 10/02/22 - Quarter 3 of 2021/2022

4.4.3. Hardness

Hardness samples are required periodically every 5 years. Samples were not taken in the 2021-22 year.

4.4.4. Dissolved organic carbon

Dissolved Organic Carbon samples are required periodically every 5 years. Samples were not taken in the 2021-22 year.

4.4.5. pH

All sites were within the guideline pH range of 6.5-8.5. See Figure 8 for results. These results indicate that no actions are required to manage pH, however diurnal fluctuations of pH maybe not be captured with the sampling protocol.

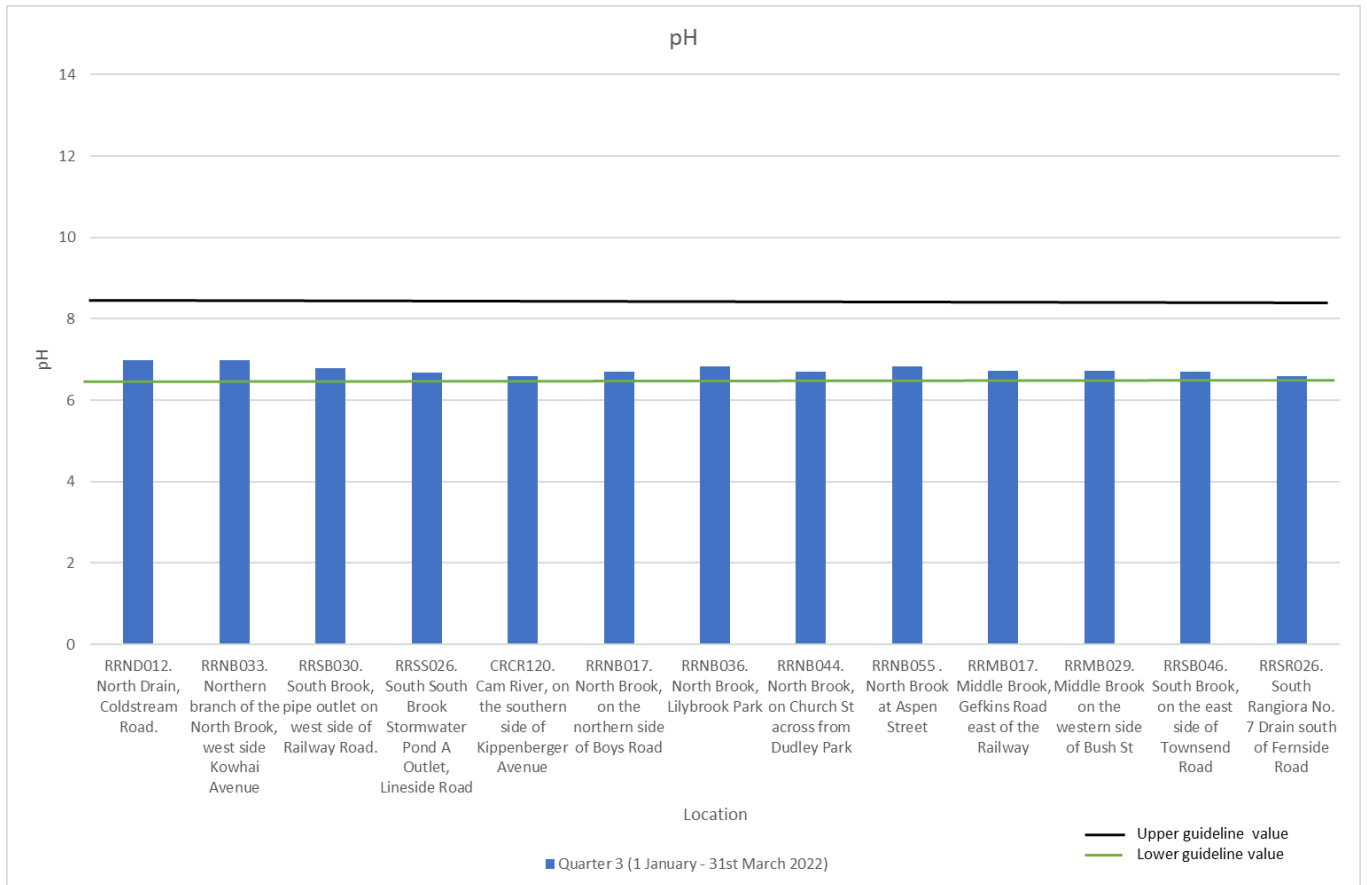


Figure 8: Urban Impact – pH sample results for 10/02/23 - Quarter 3 of 2021/2022

4.4.6. Escherichia coli (E. coli)

Figure 9 shows the E. coli results for the Urban Impact sampling in the 2021/2022 reporting year. A reducing trend (comparative to the baseline) is unable to be determined due to only one sample round being taken in the 2021/2022 reporting year, however comparison can be made for some sites to the baseline sampling for E. coli in 2014.

The guideline value derived from the CLWRP for E. coli is < 550 MPN / 100 ml. All sites apart from CRCR120 (Cam River, Kippenberger Avenue) were above the guideline value and the maximum laboratory limit of 2420 MPN / 100 ml. Therefore, actions to reduce sources of faecal contamination are likely to be required in all Rangiora catchments except the Cam River. Sources of faecal contamination could be rural as well as urban in catchments with headwaters in rural areas.

In 2014, sites on the North Drain, North Brook, Middle Brook and South Brook also exceeded the guideline of <550 MPN / 100 ml in most samples, with a clear trend of elevated E. coli levels in larger rain events.

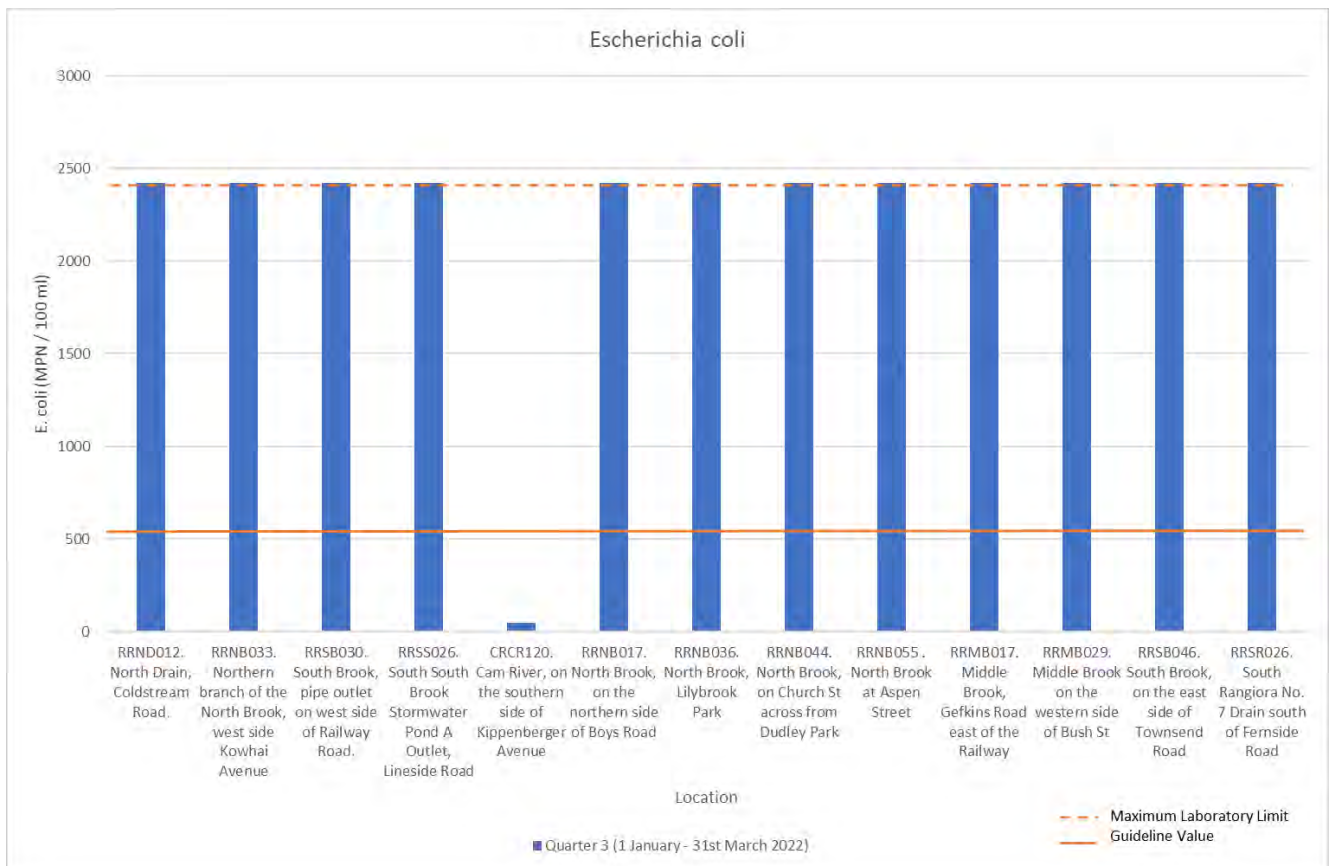


Figure 9: Urban Impact E. coli sample results for the 2021/2022 reporting year.

4.4.7. Dissolved Reactive Phosphorus

Figure 10 shows the Urban Impact Dissolved Reactive Phosphorus sample results for the 2021/2022 reporting year.

The Cam River sample site (CRCR120) had the lowest concentration with 0.009 g/m³. The Cam River sample site was below the CLWRP guideline value of 0.016 g/m³, all other urban impact sample sites were above the guideline value for dissolved reactive phosphorus. The Cam River was not sampled during baseline sampling in 2014.

Sampling sites on the Middle Brook had the highest concentrations with site RRMB017 at 0.28 mg/L and site RRMB029 at 0.33 mg/L respectively. Actions to reduce DRP levels are likely required for the Middle Brook and other waterways sampled, except the Cam River. Actions could focus on reducing any point sources identified (such as wastewater cross-connections), and reducing sediment inputs during wet weather, a key mechanism where phosphorus is transported into a waterway.

Sources of DRP could be attributed to use of residential garden fertilisers, wastewater overflows, in groundwater inflows, and from airborne particulates settled onto impermeable surfaces during (e.g. from rural land west of Rangiora) and released as surface runoff during subsequent rainfall.

DRP levels in the North Brook appear to decline moving downstream. This may also be the case for the South Brook and Middle Brook, but there are only two sample locations for comparison. This may be due to dilution with spring water.

More sampling is required to determine trends. Levels of DRP over the guideline value were detected for the Middle Brook, North Brook, North Drain, and South Brook in the baseline sampling in 2014, particularly for the rain event in May that was greater than first flush conditions.

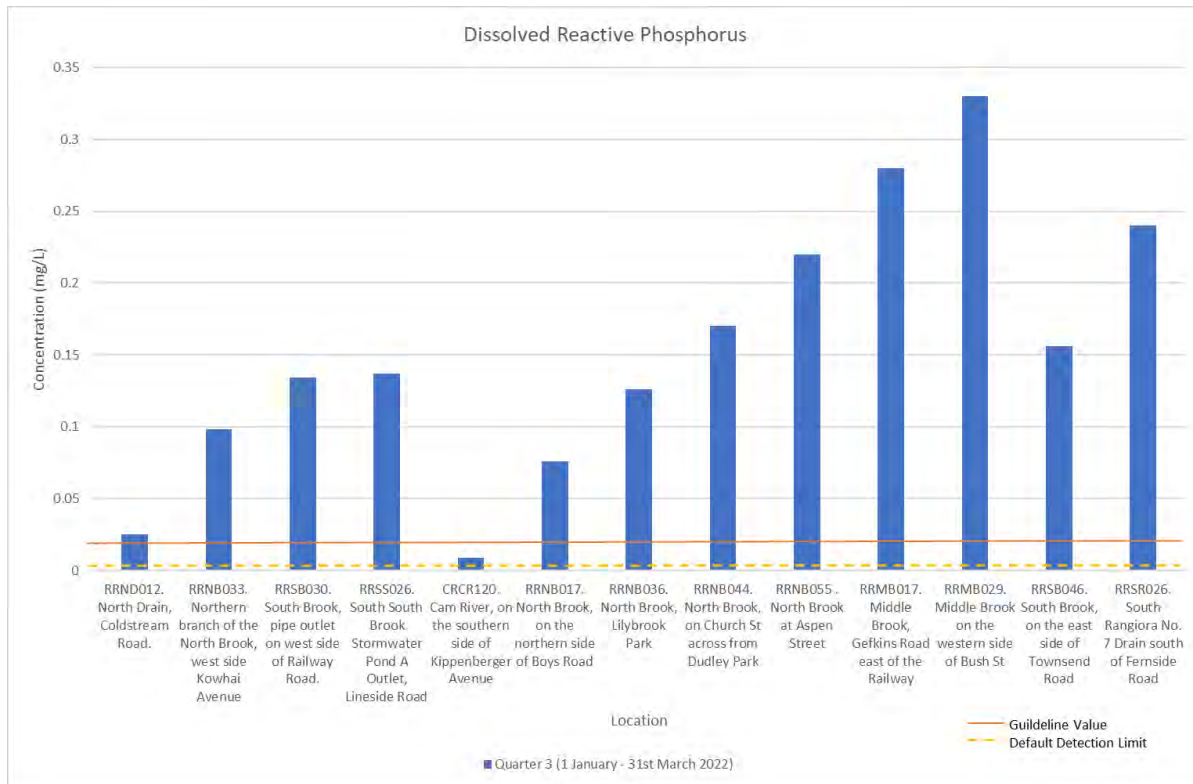


Figure 10: Urban Impact Dissolved Reactive Phosphorus sample results for the 2021/2022 reporting year.

4.4.8. Total Ammoniacal Nitrogen

The highest value for Total Ammoniacal Nitrogen was site RRNB055 (North Brook at Aspen St). Refer to Figure 11 for results.

Sample site CRCR120 (Cam River, Kippenberger Ave) was below the default detection limit of 0.01 g/m³ therefore the value presented is half the detection limit. The CLWRP guideline value for Total Ammoniacal Nitrogen depends on pH levels. At a pH of 7.2 or below, there is a guideline value of 1.990 mg/L, which all sites were well below. No actions are proposed to further reduce TAN levels due to the current levels that are two orders of magnitude lower than the guideline value. The results suggest that there are limited wastewater overflows during rain events or other similar sources of TAN.

Total Ammoniacal Nitrogen was not measured in the 2014 baseline sampling, so no trend comparison can be made.

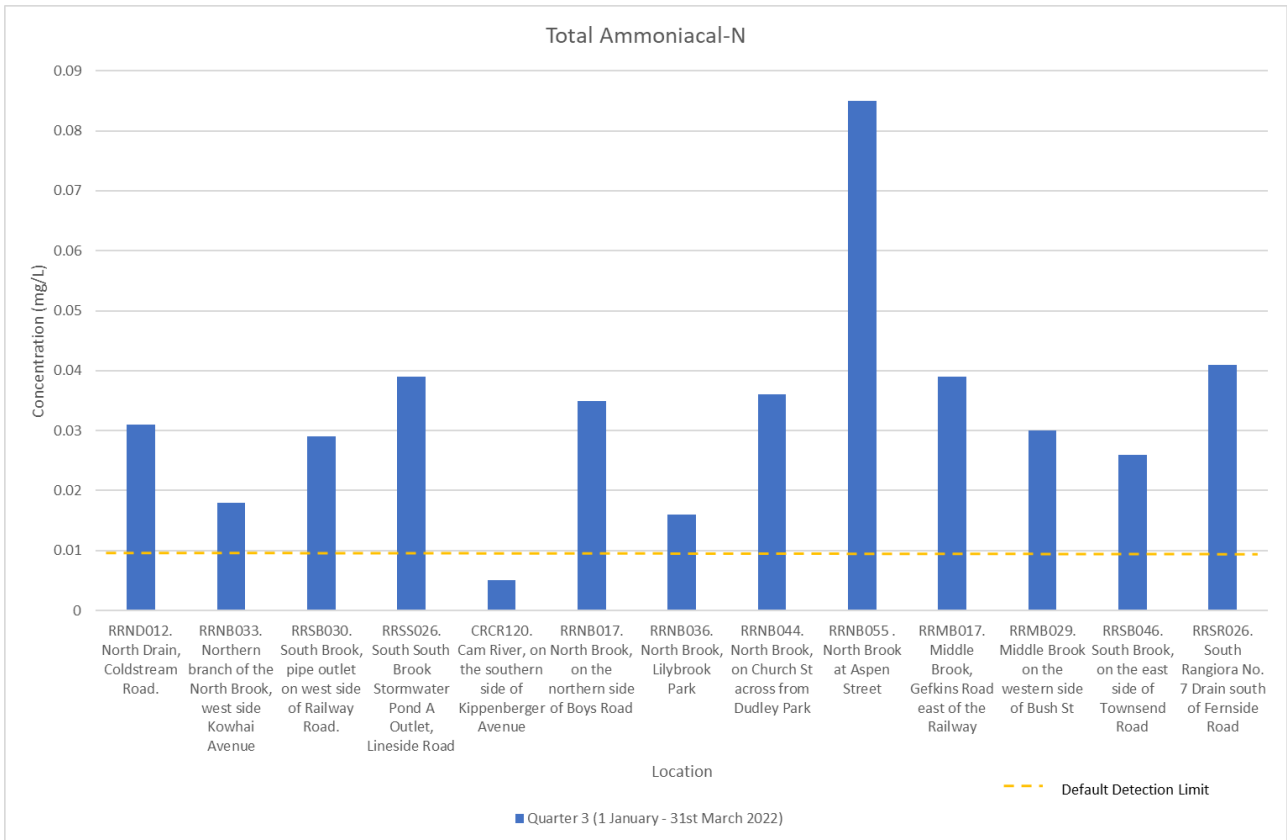


Figure 11: Urban Impact - Total Ammoniacal Nitrogen sample results for 10/02/2022 in 2021/2022

4.5. Stream Health

Although Stream Health monitoring is to provide context only, with no compliance in relation to consent CRC184601, it is helpful to compare results to established guideline values for surface water in New Zealand (see Table 4).

Table 4: Stream Health monitoring surface water guideline values

Contaminant	Guideline	Guideline Source
Dissolved Oxygen	>70%	CLWRP, <i>Spring-fed-Plains(Urban)</i>
pH	Shall be between 6.5 - 8.5	CLWRP, <i>section 16, schedule 5</i>
Temperature	<20 °C	CLWRP, <i>Table 1A, Spring-fed-Plains(Urban)</i>
Specific Conductance	< 175 $\mu\text{S cm}^{-1}$	Biggs (1988, 2000)
Dissolved Inorganic Nitrogen	< 1.5 mg/L	CLWRP, <i>section 16, schedule 5</i>
Total Ammoniacal Nitrogen	Depends on pH level	Refer CLWRP, Table S5C, Schedule 5
Dissolved reactive phosphorus	< 0.016 mg/L	CLWRP, Schedule 5
E. coli	< 550 MPN/100mL	CLWRP, Schedule 5
Total Suspended Solids	<50 gm ³	CLWRP

4.5.1. Dissolved Oxygen

The Dissolved Oxygen sample results are presented in Figure 12. The North Brook at Lilybrook Park (RRNB036) had the lowest readings for Dissolved Oxygen, however by Boys Road (RRNB017) the Dissolved Oxygen in the North Brook was above the guideline value. The low Dissolved Oxygen could be caused by the large inflow of spring water just above RRNB036 (presumably groundwater with lower oxygen levels). If this is verified, then this is a natural phenomenon, and no action is required to reduce oxygen fluctuations.

The North Brook at Lilybrook (RRNB036) was also below the guideline value in the 2014 baseline sampling in dry weather, but was above the guideline value during a moderate rain event. This supports the theory of reduced oxygen levels due to groundwater inflows.

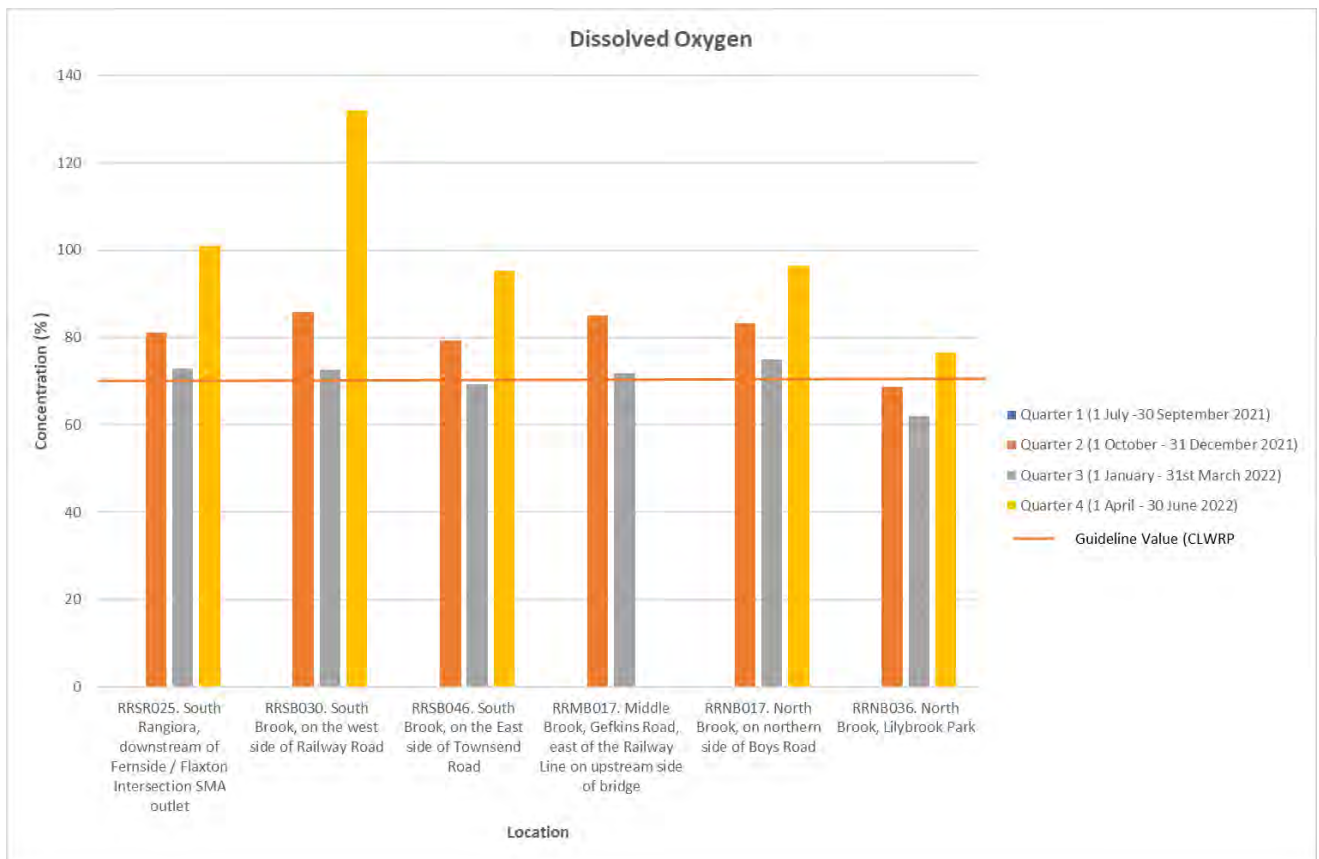


Figure 12: Stream Health - Dissolved Oxygen sample results for the 2021/2022 reporting year

4.5.2. Temperature

The temperature sample results are presented in Figure 13. All samples were below the CLWRP guideline limit of 20°C.

The highest temperature (15.3°C) recorded was at site RRMB017 (Middle Brook at Gefkins Road). The lowest temperature (9.9°C) was recorded at site RRSR025 (South Rangiora downstream of the Fernside / Flaxton intersection). There is no evidence of stormwater discharges affecting temperature, so therefore no actions are recommended to reduce temperature in the waterways sampled.

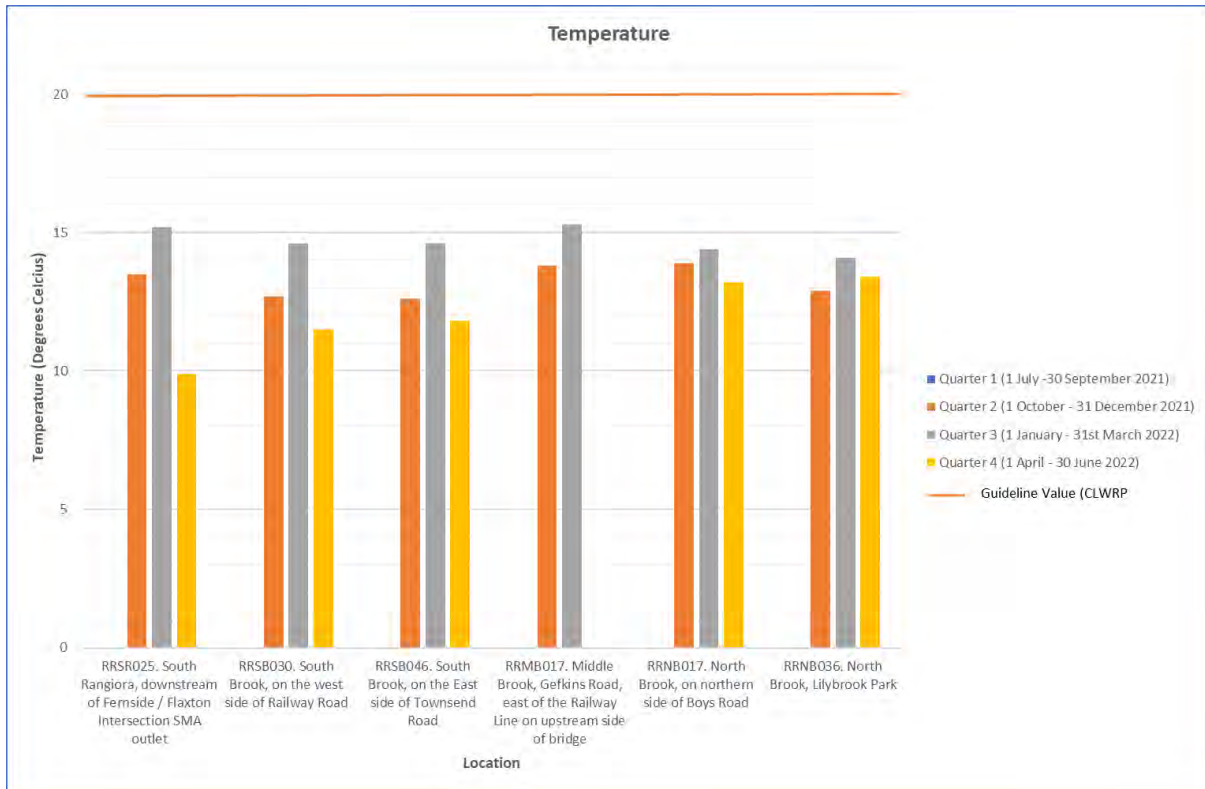


Figure 13: Stream Health - Temperature results for the 2021/2022 reporting year.

4.5.3. pH

All pH results were within the guideline limits of between 6.5 – 8.5 (Figure 14), though tended to be slightly more acidic. This is in line with findings from the 2014 baseline sampling that also found all samples to meet pH guidelines. No actions are recommended, as no evidence of negative effects of stormwater discharges on pH have been found. It is noted the pH can vary substantially diurnally, and that grab sampling may not have captured the fluctuations of pH values in the waterways.

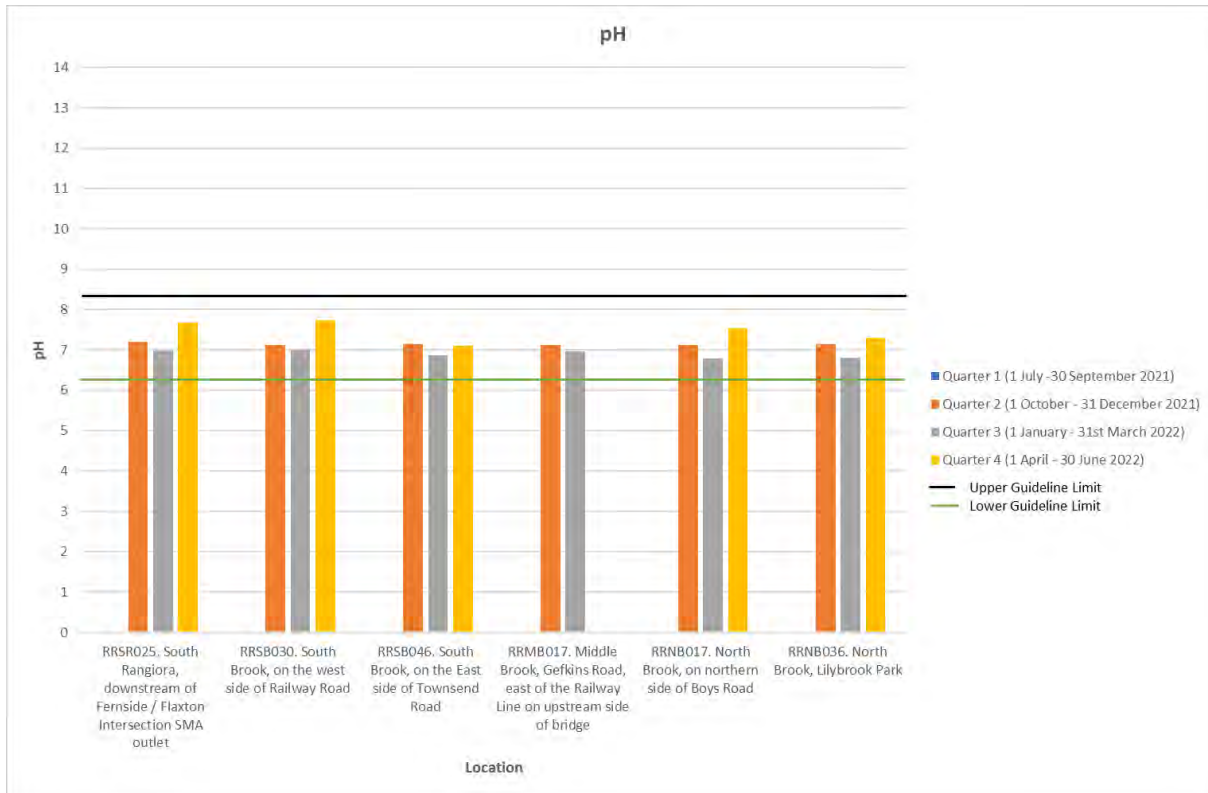


Figure 14: Stream Health - pH results for the 2021/2022 reporting year.

4.5.4. Specific conductance

Significant increases in conductivity may be an indicator that polluting discharges have entered the water.

The highest specific conductance recorded was in 188 $\mu\text{S}/\text{cm}$ at RRSB046 (South Brook at Townsend Road) and 177 $\mu\text{S}/\text{cm}$ was also recorded at RRSR025 (Rangiora South downstream of the Flaxton/Fernside intersection), which are above the guideline limit of 175 $\mu\text{S}/\text{cm}$ (Figure 15). Conductance results have been adjusted to 25°C.

Although some sites were over the guideline limit, more investigation is required before any action, as some waterways have naturally higher conductivity due to geology of the catchment, and it is not necessarily a sign of a polluting discharge. An analysis of trends over time is more useful. Baseline monitoring in 2014 found a similar range of conductivity, with an unexplained spike of higher conductivity noted interestingly in all waterways during the March 2014 sampling round, than other sampling rounds.

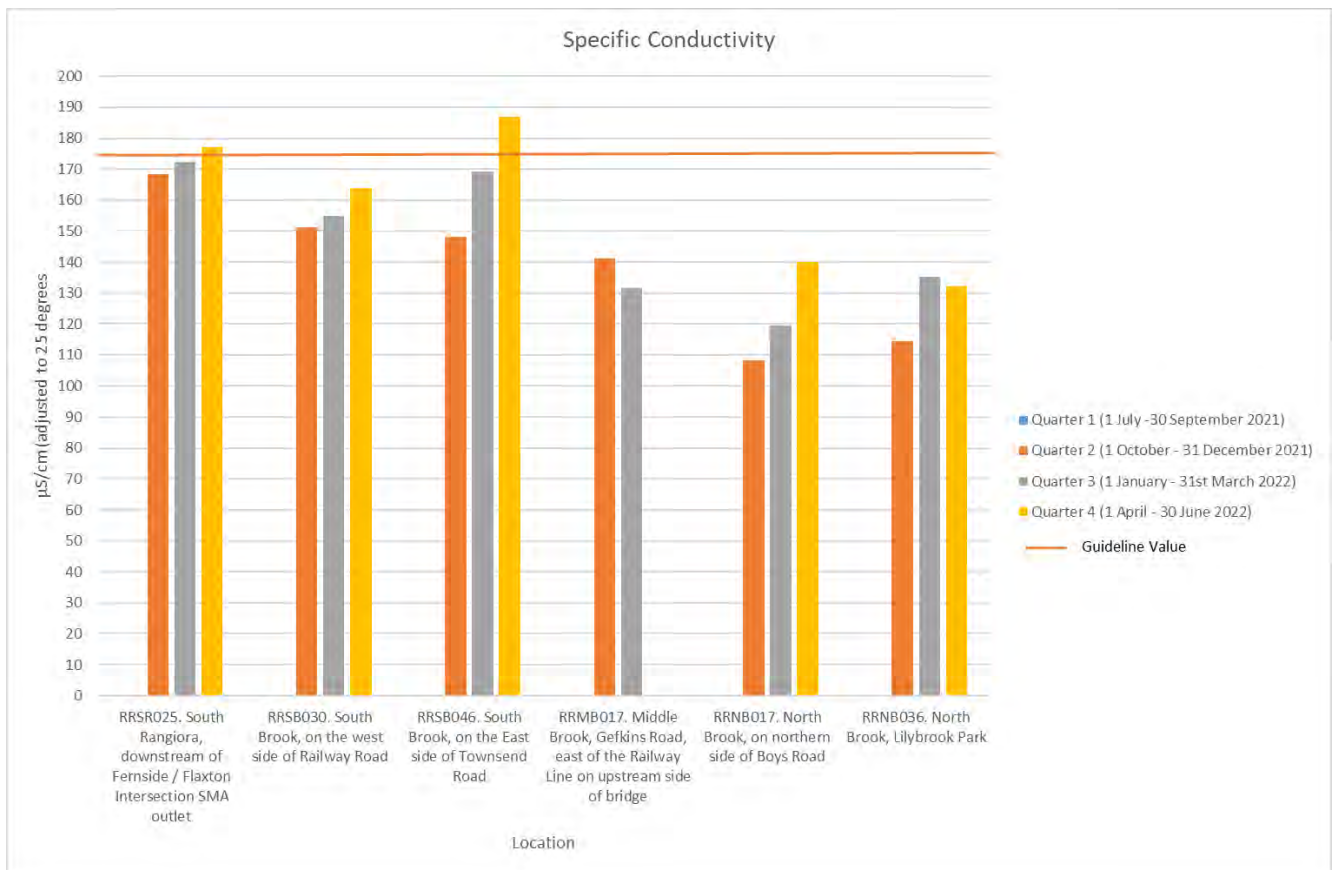


Figure 15: Stream Health - specific conductance sample results for the 2021/2022 reporting year.

4.5.5. Dissolved Inorganic Nitrogen

Most sites, except RRNB017 (North Brook at Boys Road) had exceedances of the guideline value of 1.5mg/L Dissolved Inorganic Nitrogen (DIN), see Figure 16. Action is required to reduce DIN levels, however it is likely that DIN sources are both rural (direct discharge and via groundwater inflows) and urban. It is recommended to further characterise sources of DIN to target treatment appropriately.

No baseline monitoring for DIN was carried out in 2014, so no comparative data is available.

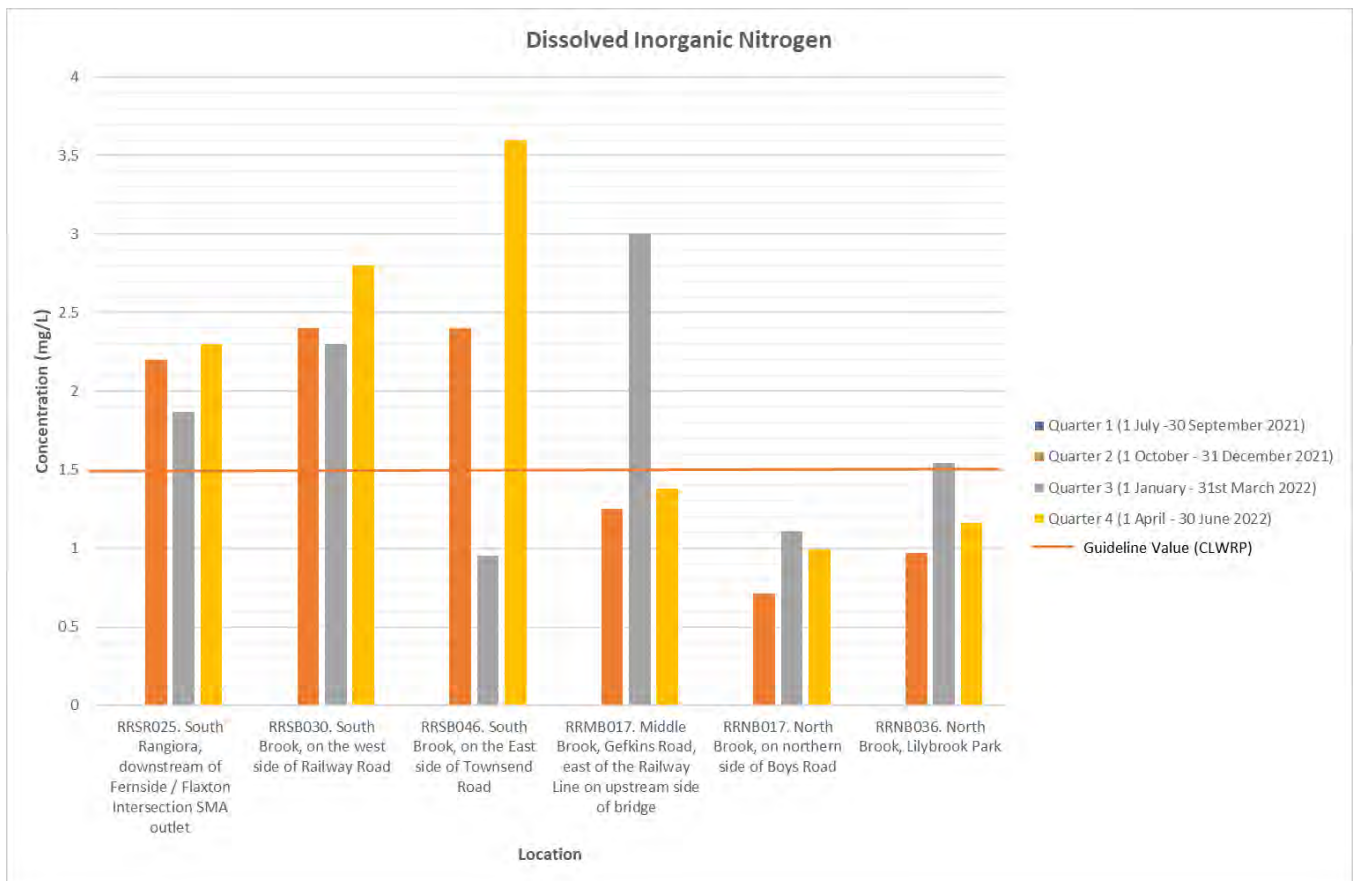


Figure 16: Stream Health - Dissolved Inorganic Nitrogen sample results for 2021/2022

4.5.6. Total ammoniacal nitrogen

The Total Ammoniacal Nitrogen (TAN) value that provides 95% species protection is adjusted for pH. As adjusted per schedule/table S5C of the CLWRP, all TAN values were two orders of magnitude below the guideline of 1.99 mg/L for a pH of 7.2 or below (Figure 17).

All sites except for RRSR025 (Quarters 3 and 4), RRSB046 (Quarters 3 and 4) and RRMB017 (Quarter 4) were found to be below the default detection limit of 0.01 g/m³ and therefore have been presented as half the detection limit (0.005 g/m³).

Due to the low levels of TAN found, no actions are recommended. Baseline monitoring in 2014 did not measure TAN, to allow for any comparison of results.

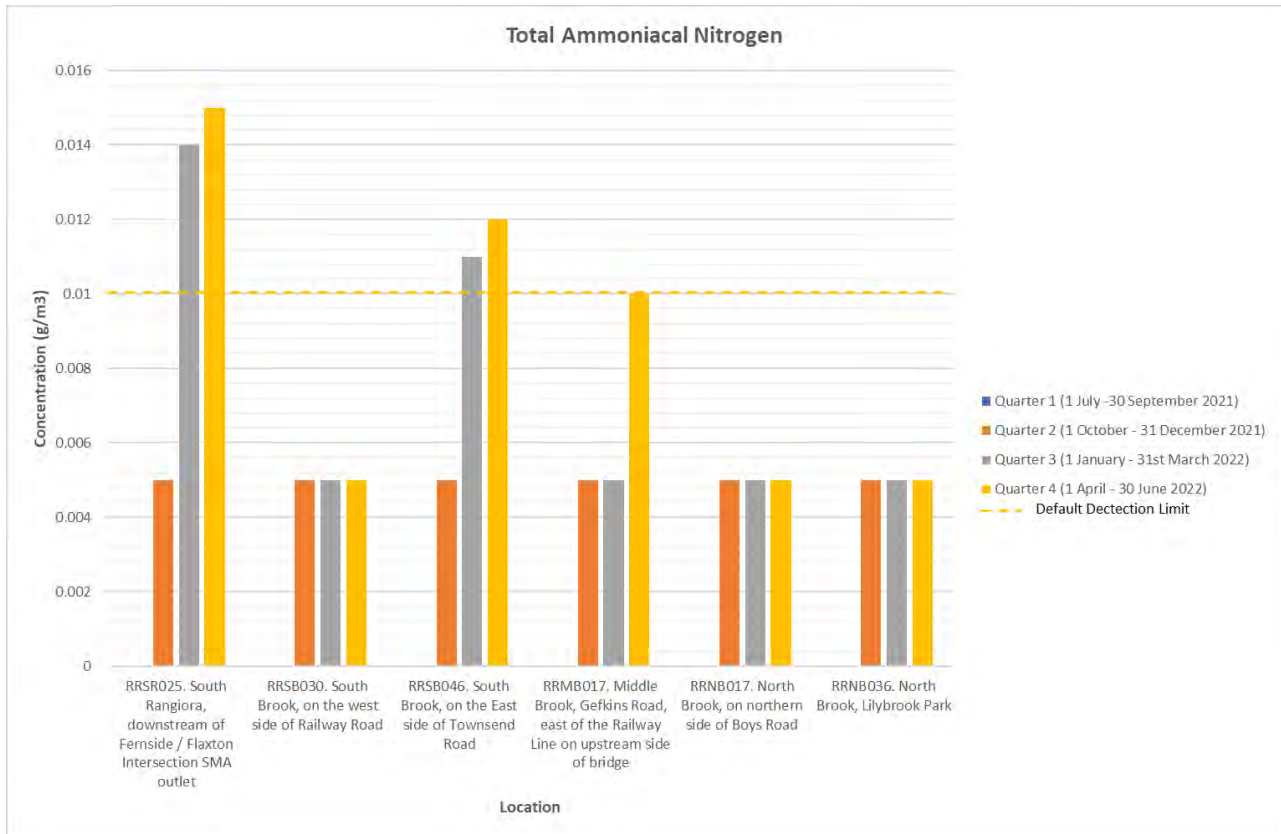


Figure 17: Stream Health Total Ammoniacal Nitrogen sample results for 2021/2022

4.5.7. Total Suspended Solids

All Stream Health sites were well below the guideline value of 50 g/m³ (Figure 18). All sites except for RRSB046 (South Brook, east of Townsend Road, Quarter 4) were found to be below the default detection limit of 3 g/m³ and therefore have been presented as half the detection limit (1.5 g/m³). Due to an error TSS was not analysed for Quarter 2 samples, and no sampling occurred in Quarter 1.

Baseline sampling in 2014 did not identify any sites over the guideline value, even during rain events, therefore it is likely that no action is required for except for the discharge from Pond C on Flaxton Road, as reported in the Urban Impact section.

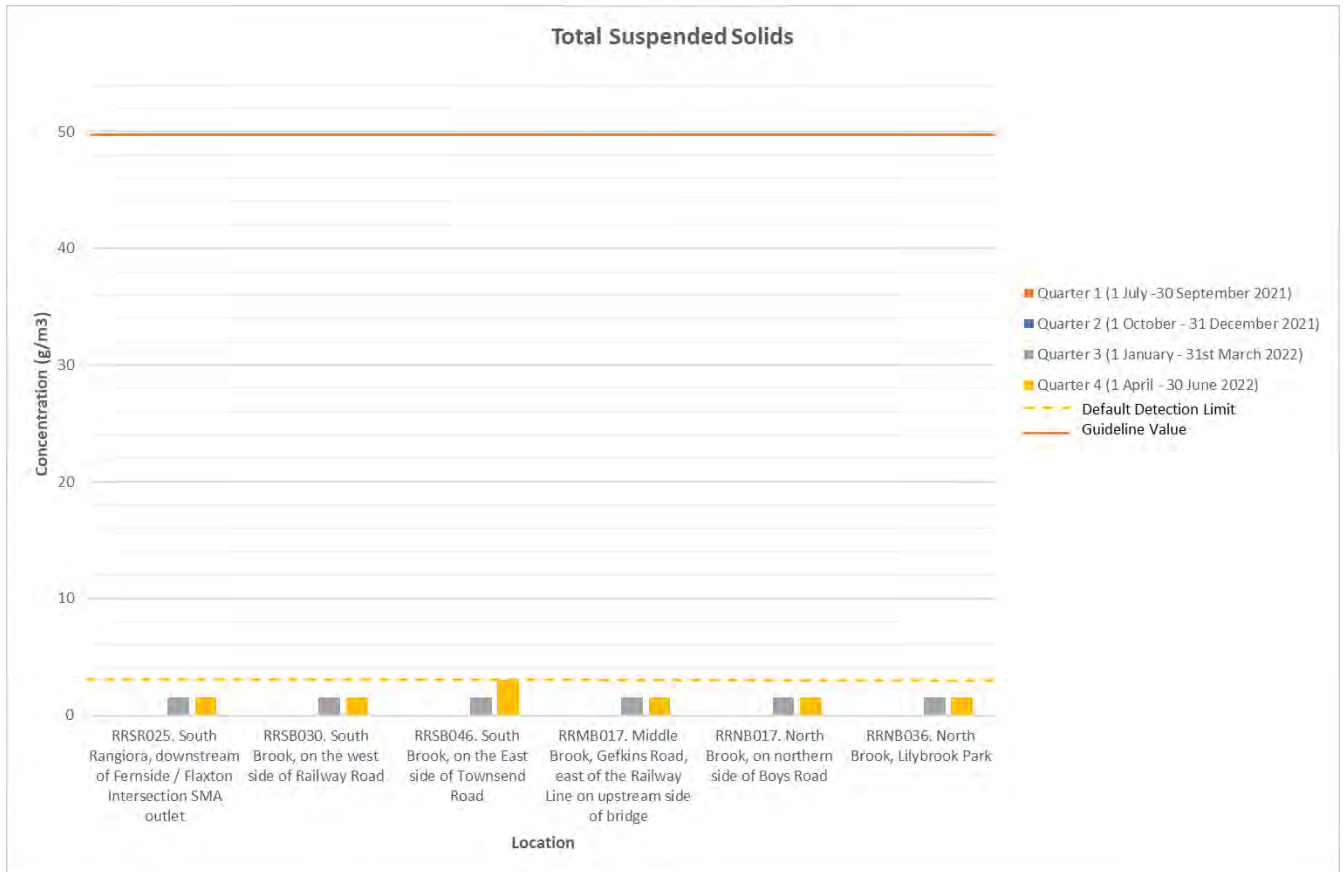


Figure 18: Stream Health - Total Suspended Solids sample results for 2021/2022

4.5.8. Dissolved Reactive Phosphorus

All sites were below the guideline value for Dissolved Reactive Phosphorus (Figure 19). Baseline sampling in 2014 also found all samples to be below the guideline value during dry weather. Although no sites were above the guideline value during dry weather, DRP guidelines were exceeded during wet weather sampling, therefore actions are still recommended to be undertaken to reduce DRP.

RRSB030 was found to be below the default detection limit of 0.004 g/m³ and therefore has been presented as half the detection limit (0.002 g/m³).

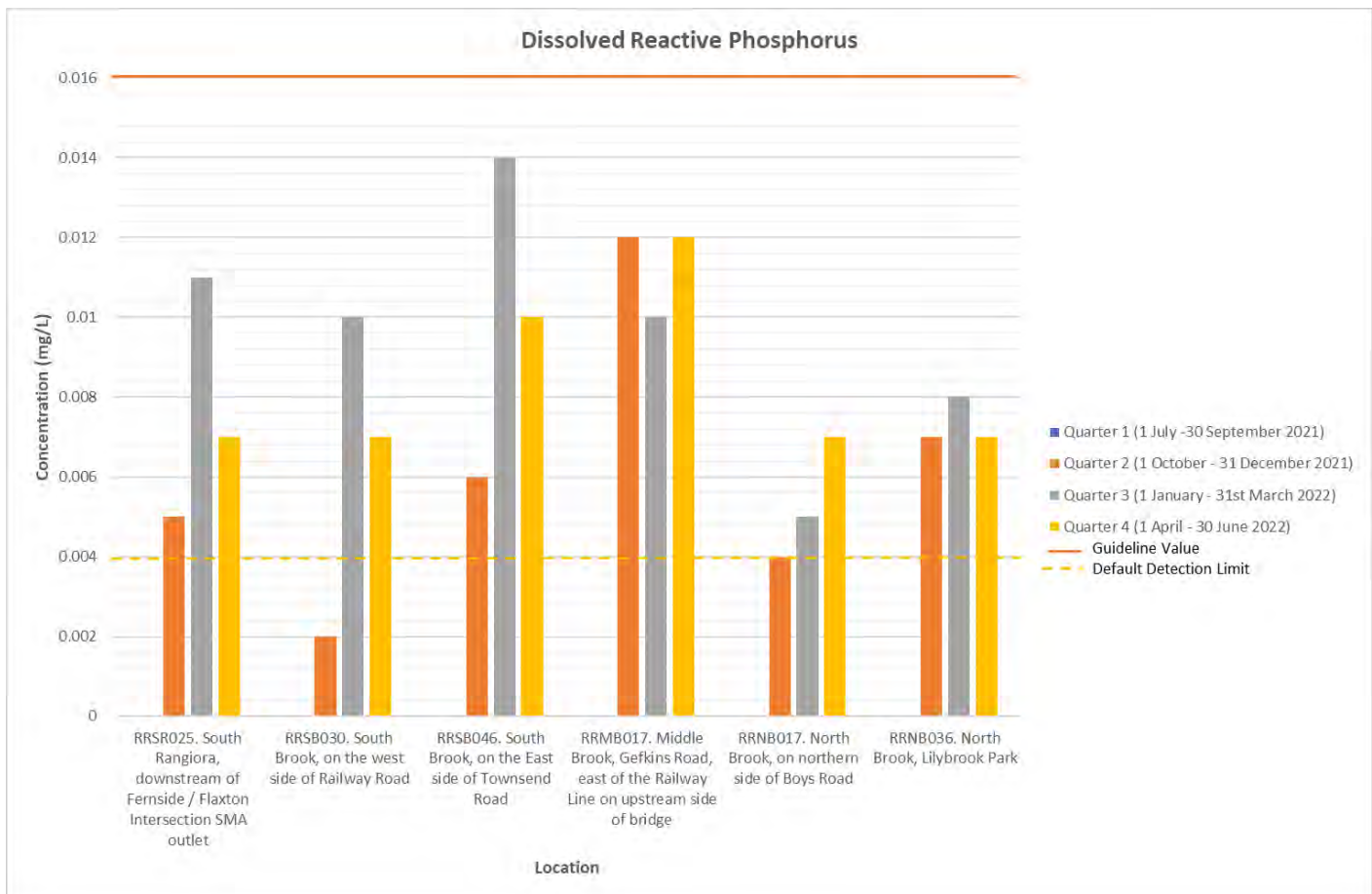


Figure 19: Stream Health - Dissolved Reactive Phosphorus sample results for 2021/2022

4.5.9. E. coli

E. coli is used as an indicator of possible sewage contamination as E. coli is commonly found in human and animal faeces.

The site RRMB017 (Middle Brook at Gefkins Road) had high exceedances of E. coli during fine weather above the guideline value (Figure 20). Other sites that also exceeded the guideline value were RRSR025 (No 7 Drain on Flaxton Road) and RRNB017 (North Brook, Boys Road). The Middle Brook is spring-fed with urban headwaters, which suggests urban sources of the E. coli. It is possible for some rural as well as urban inputs of E.coli for the No.7 Drain and North Brook. It is recommended that action is taken to reduce faecal contamination to all three waterways, particularly the Middle Brook. It is recommended that the Middle Brook catchment is checked for any possible cross-connections with wastewater, passage of cattle trucks, or other point sources of faecal bacteria.

In the 2014 baseline sampling, rural inputs of E. coli were also indicated. In general, there were levels below the guideline value during dry weather, but exceedances during rain events. An exception was the North Brook at Lilybrook (RRNB036) which saw an unusual spike during dry weather.

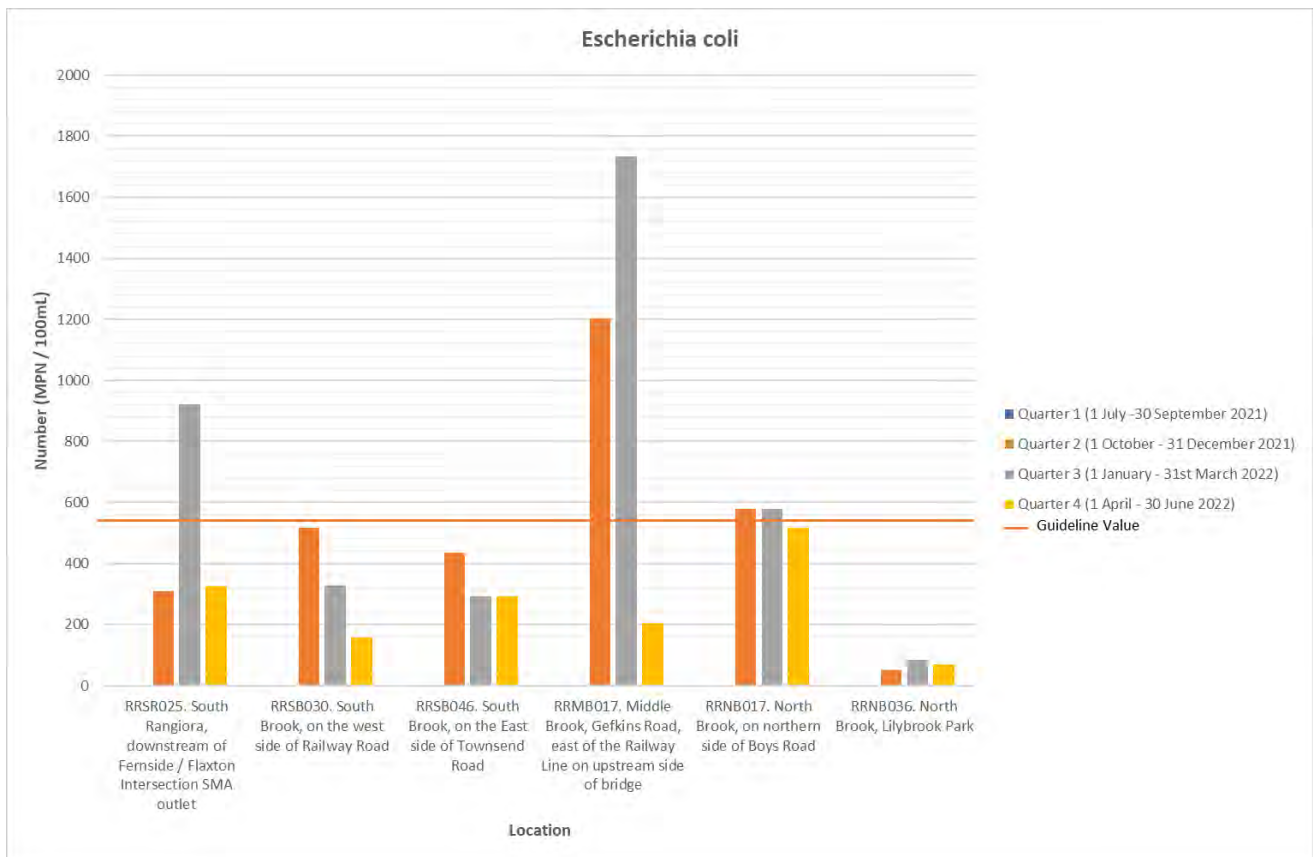


Figure 20: Stream Health - E. coli sample results for 2021/2022

4.6. Spills reported

There were no spills over 5L into the Rangiora stormwater network reported to WDC staff in 2021-22. There was a diesel spill into a private drain which flows into the Middle Brook which WDC staff responded to in August 2021.

5. Discussion

Table 5: Summary of compliance with CRC184601 guideline values in 2021-22

Contaminant		Notes
Total Suspended Solids	Non compliance	Only one major discharge outlet during a moderate rain event was non-compliant. Compliance met for all stream health sites (dry weather sampling)
Dissolved copper	Non compliance	
Dissolved zinc	Non compliance	
Dissolved Reactive Phosphorus	Non compliance	Compliance met for all for stream health (dry weather sampling)
E. coli	Non compliance	
Dissolved Inorganic Nitrogen	Guideline value not met	Not used for compliance – stream health (dry weather) only
pH	Compliance	
Temperature	Guideline value met	
Total Ammoniacal Nitrogen	Compliance	

Dissolved oxygen	Guideline value met*	* if one low oxygen value is confirmed to be due to large groundwater inflows at the site - North Brook at Lilybrook Park (RRNB036)
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There was difficulty in 2021-22 obtaining wet weather samples that met first flush criteria. This resulted in sampling of rain events larger than the specified 25mm of rain within 24 hours. From baseline sampling results in 2014 during dry weather, first flush and two larger rain events, there was a correlated increase in contaminants such as E. coli, DRP, Dissolved Copper and Dissolved Zinc from increased size of the rain event. Therefore, wet weather results that exceed guideline values in this 2021-22 report should be re-sampled during first flush conditions, ideally before the Rangiora Stormwater Management Plan is drafted. It is theorised that some samples with exceedances during 2021-22 would meet guideline values under first flush conditions. From 2022-23, new first flush criteria enable rain events above 3mm in 24 hours to be sampled as first flush conditions.

A contaminant load model for zinc, copper and TSS has also been developed for Rangiora, which is able to provide additional context for where stormwater treatment should be focused.

As identified in the 2014 baseline monitoring report for Rangiora, contaminants such as DIN, DRP and E.coli have likely rural, as well as urban sources. The proportion of each source can be difficult to establish because of the upstream rural catchments present in some waterways, and the groundwater inflows into all catchments sourced from primarily rural recharge zones. Therefore any actions to reduce these contaminants requires further investigations to identify urban sources first. E. coli and other faecal bacterial levels diminish after time underground, but nitrogen and phosphorus compounds can be carried long distances from where they have been leached from soils, depending on levels of denitrification for example.

Likely rural inputs for E. coli include from stock (sheep and cattle) and birds. Urban inputs could be from dogs, birds and human sources. No wastewater overflows were reported to have occurred during the sampling events. Cross-connections of wastewater to stormwater discharge outlets is a possibility but has a low occurrence.

Options for stormwater treatment will be examined in the Rangiora Stormwater Management Plan, to be drafted before 1 January 2025.

6. Recommendations

A summary of recommendations:

- Carry out improvements to the functioning of Pond C (corner of Fernside and Flaxton Roads) to reduce discharge of TSS, Zinc, Copper and faecal bacteria (as indicated by E. coli), particularly during rain events.
- Investigate sources and carry out actions in Rangiora waterways (except North Drain and the Cam River) to reduce copper levels, particularly the Middle Brook and North Brook.
- Investigate sources and carry out actions in the North Brook and Middle Brook to reduce zinc levels.
- Identify where faecal contamination is coming from urban sources. Reducing sources of faecal contamination is recommended in all Rangiora catchments except the Cam River. Dry weather stream health sampling indicates that a focus should be placed on the Middle Brook, No. 7 drain and North Brook.
- Identify where Dissolved Reactive Phosphorus is coming from urban sources. Reduce DRP levels for the Middle Brook and other Rangiora waterways sampled, except the Cam River, particularly sources of DRP during wet weather events.

- Investigate the Middle Brook catchment for any possible cross-connections with wastewater, regular vehicle passage of cattle trucks, or other point sources of faecal bacteria.
- Investigate sources of DIN, regarding whether this contaminant is primarily urban or rurally sourced, such as the measurement of DIN levels in spring inflows and from headwaters of catchments with rural inflows.
- Investigate if low dissolved oxygen levels in the North Brook at Lilybrook Park (RRNB036) are due to high groundwater inflows directly upstream of low oxygenated water.
- Investigate if high conductivity is a due to natural background levels or urban inputs at RRSB046 (South Brook at Townsend Road) and RRSR025 (Rangiora South downstream of the Flaxton/Fernside intersection).

7. Acknowledgements

Thank you to the WDC Water Unit (Darryn Williams, Susan Dalzell and Josh Palmer) for sampling assistance.

WAIMAKARIRI DISTRICT COUNCIL**REPORT FOR DECISION**

FILE NO and TRIM NO: RC205229-05 / 230905137573

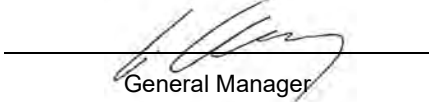

REPORT TO: OXFORD-OHOKA COMMUNITY BOARD

DATE OF MEETING: 4 October 2023

AUTHOR(S): Allie Mace-Cochrane – Transportation Engineer
Shane Binder – Senior Transportation Engineer

SUBJECT: Approval to Install No-stopping Restrictions Along the Frontage of no. 20 Main Street, Oxford

ENDORSED BY:
(for Reports to Council, Committees or Boards)

General Manager
 Chief Executive

1. SUMMARY

- 1.1. This report seeks approval to establish no-stopping restrictions along the frontage of no. 20 Main Street, Oxford.
- 1.2. The no-stopping restrictions are to be installed between the existing vehicle crossing of no. 20 and a secondary vehicle crossing to the same property. The extent of the no-stopping restriction is approximately 4.0 m.
- 1.3. Staff have received several service requests around on-street parking impeding access to the two driveways, due in part to the short distance between vehicle crossings, created by incorrect siting of the installation of a secondary vehicle crossing.
- 1.4. It is acknowledged that there is insufficient width between the two vehicle crossings, and whilst this issue has been created by the incorrect installation of the vehicle crossing from what was approved in the resource consent, the recommended option is to install no-stopping restrictions to prohibit parking at this location.

2. RECOMMENDATION

THAT the Oxford-Ohoka Community Board:

- (a) **Receives** Report No. 230905137573.

AND

THAT the Oxford-Ohoka Community Board recommends:

THAT the Utilities and Roading Committee:

- (a) **Approves** the installation of no-stopping restrictions at the following location:
 - i. On the north side of Main Street between the two vehicle crossings of no. 20 Main Street (approximately 4.0 m long).

3. BACKGROUND

- 3.1. Main Street is a strategic road in Oxford that provides the main east-west connection through the town and the main shopping area. The property, 20 Main Street, is located on the fringe of the town centre and opposite the Oxford Seventh Day Adventist Church, as is shown below in Figure 1.



Figure 1. Locality of the property.

- 3.2. Due to the property's proximity to the town centre and the church across the street, on-street parking demand can be high at times. A service request has been received from the property owner regarding on-street parking impeding access to their two vehicle crossings, as drivers are attempting to park in a space which is insufficient to fit a vehicle and therefore overhangs the driveways.

4. ISSUES AND OPTIONS

- 4.1. There is approximately 4.0 m between the two vehicle crossings of no. 20 Main Street. The Waimakariri District Plan requires a minimum width of 5.0 m for an unobstructed parallel carpark and an additional 1.0 m clearance is required from each vehicle crossing, as per the *Land Transport (Road User) Rule 2004*. This means that a total width of 7.0 m is required between the two vehicle crossings for a standard vehicle to legally park.
- 4.2. The property owner of no. 20 Main Street applied for a resource consent in 2020. The approved plan indicated that the secondary vehicle crossing would be installed 8.56 m from the existing vehicle crossing, which allows for one on-street carpark. Within the site, on-site manoeuvring for this length was also provided.
- 4.3. During construction however, the vehicle crossing was not installed as per the consent plan (approximately 4.0 m from the existing crossing). Staff inspected the vehicle crossing for compliance; however, did not identify that it was in the wrong location.
- 4.4. Whilst the vehicle crossing is not in the correct location, on-site manoeuvring is still achievable, so a vehicle does not need to reverse onto Main Street, meeting the non-reversing rule for an arterial road.
- 4.5. Since its construction, staff have received multiple service requests from the property owner regarding poor parking compliance (i.e., vehicles overhanging the two vehicle crossings).
- 4.6. It is acknowledged that there is insufficient width between the two vehicle crossings, and whilst this issue has been created by the incorrect installation of the vehicle crossing, staff are recommending that no-stopping restrictions are installed for the extents shown in Figure 2 on the next page.

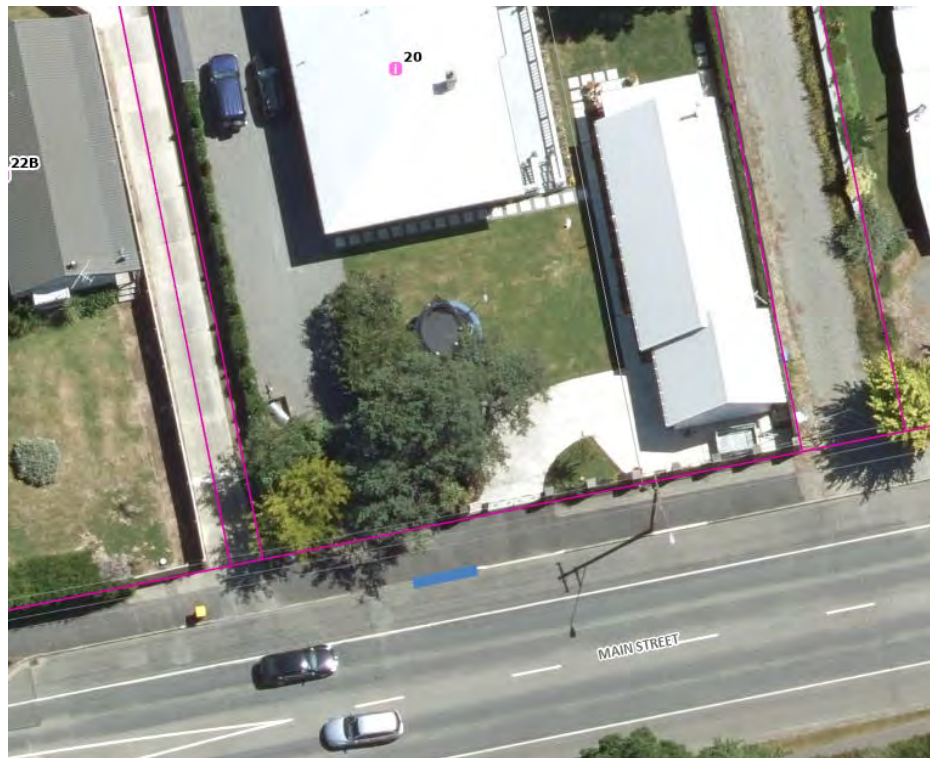


Figure 2. Extent of no-stopping restrictions.

- 4.7. The Oxford-Ohoka Community Board have the following options available to them:
- 4.8. Option One: Approve the installation of no-stopping restrictions.
- 4.8.1. This option involves the Oxford-Ohoka Community Board recommending that the Utilities and Roading Committee approve the installation of no-stopping restrictions for approximately 4.0 m on Main Street, as shown in Figure 2.
- 4.8.2. This is the recommended option.
- 4.9. Option Two: Change the location of the vehicle crossing.
- 4.9.1. This option requires the property owner to construct a new vehicle crossing, in which, the internal driveway will need to be altered and a section of the fence will need to be removed. The vehicle crossing was not installed at the location approved in the resource consent; however, this was not picked up when the vehicle crossing was inspected by the Council. As such, this is not the recommended option.
- 4.10. Option Three: Retain the status quo.
- 4.10.1. This is not the recommended option because vehicles overhang the vehicle crossings when they park in this space, which then impedes the use of the vehicle crossing. Furthermore, whilst the installation of the vehicle crossing is in the wrong location, this was not picked up at the time of checking the installation location.
- 4.11. Implications for Community Wellbeing
- 4.11.1. There are implications on community wellbeing by the issues and options that are the subject matter of this report.
- 4.11.2. The installation of no-stopping restrictions improves safety at the two vehicle crossings; however, it also removes one car park from the on-street supply (noting that the existing kerb length is insufficient for legal parking).

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

5. **COMMUNITY VIEWS**

5.1. **Mana whenua**

5.1.1. Te Ngāi Tūāhuriri hapū are not likely to be affected by or have an interest in the subject matter of this report.

5.2. **Groups and Organisations**

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

5.2.2. The property owner at no. 20 Main Street has requested that no-stopping restrictions are considered between their two vehicle crossings.

5.3. **Wider Community**

5.3.1. The wider community is not likely to be affected by, or to have an interest in the subject matter of this report.

6. **OTHER IMPLICATIONS AND RISK MANAGEMENT**

6.1. **Financial Implications**

6.1.1. There are financial implications of the decisions sought by this report and this budget is included in the Annual Plan/Long Term Plan.

6.1.2. There are minimal costs associated with installing no-stopping lines in this location, as all it involves is line marking. These costs can be accommodated within the Road Maintenance budgets.

6.2. **Sustainability and Climate Change Impacts**

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

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

6.4. **Health and Safety**

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

6.4.2. These risks are associated with the physical works required to install the no-stopping restrictions. Physical works will be undertaken through the Road Maintenance Contract, in which, the contractor has a Health and Safety Plan, and a SiteWise score of 100.

7. **CONTEXT**

7.1. **Consistency with Policy**

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

7.2. **Authorising Legislation**

7.2.1. Section 2 of the *Land Transport Rule: Traffic Control Devices 2004* requires a Road Controlling Authority to "authorise and, as appropriate, install or operate traffic control devices".

7.3. **Consistency with Community Outcomes**

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

7.3.2. There is a safe environment for all:

- Harm to people from natural and man-made hazards is minimised.
- Crime, injury and harm from road crashes, gambling, and alcohol abuse are minimised.

7.3.3. Transport is accessible, convenient, reliable and sustainable:

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

7.4. **Authorising Delegations**

7.4.1. As per Part 3 of the WDC *Delegations Manual*, the Community Board has the delegated authority to approve traffic control and constraint measures on streets within its ward area.

7.4.2. The Utilities and Roding Committee is responsible for roading and transportation activities, including road safety, multimodal transportation, and traffic controls.

WAIMAKARIRI DISTRICT COUNCIL**REPORT FOR DECISION**

FILE NO and TRIM NO: RDG-28 / 230718108142

REPORT TO: RANGIORA-ASHLEY COMMUNITY BOARD

DATE OF MEETING: 11 October 2023

AUTHOR(S): Allie Mace-Cochrane – Transportation Engineer
Shane Binder – Senior Transportation Engineer

SUBJECT: Approval to Install No-stopping Restrictions at Multiple Locations in Rangiora

ENDORSED BY:

(for Reports to Council, Committees or Boards)	General Manager	Chief Executive
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1. SUMMARY

- 1.1. The purpose of this report is to seek approval from the Rangiora-Ashley Community Board to install no-stopping restrictions at the locations listed below.
- High Street, between the vehicle crossings of 2A Ayers Street and 364B High Street.
 - Charles Upham Drive at the following locations:
 - 17m north of the Salisbury Avenue intersection on the west side,
 - 28m north and 14m south of the Valour Drive intersection on the east side,
 - Between Salisbury Avenue and Chatsworth Avenue intersections on the west side,
 - Between Elm Drive and Chatsworth Avenue intersections on the east side,
 - 30m south of the Chatsworth Avenue intersection on the east side.
- 1.2. Staff have received a service request around on-street parking impeding access to the High Street vehicle crossing of 2A Ayers Street.
- 1.3. As part of the north-western Rangiora development, the intersections of Chatsworth Avenue/Charles Upham Drive and Valour Drive/Salisbury Avenue/Charles Upham Drive have been designed for construction. To ensure there is sufficient sight distance at the Valour Drive/Salisbury Avenue/Charles Upham Drive intersection and to allow for a pedestrian refuge island to be constructed at the Chatsworth Avenue/Charles Upham Drive intersection, no-stopping restrictions are proposed for various extents.
- 1.4. To ensure safe traffic movements at the intersections along Charles Upham Drive and the High Street vehicle crossing of 2A Ayers Street, it is recommended that the installation of no-stopping restrictions is approved for the extents indicated in this report.

Attachments:

- i. Salisbury Avenue and Charles Upham Drive Intersection Layout Plan (TRIM No. 230718108147)
- ii. Chatsworth Avenue and Charles Upham Drive Intersection Layout Plan (TRIM No. 230718108145)

2. **RECOMMENDATION**

THAT the Rangiora-Ashley Community Board:

- (a) **Receives** Report No. 230718108142.

AND

THAT the Rangiora-Ashley Community Board recommends:

THAT the Utilities and Roading Committee:

- (a) **Approves** the installation of the following no-stopping restrictions:
- i. On the north side of High Street between the vehicle crossings of 2A Ayers Street and 364B High Street.
 - ii. Charles Upham Drive at the following locations:
 1. 17 metres north of the Salisbury Avenue intersection on the west side.
 2. 28 metres north and 14 metres south of the Valour Drive intersection on the east side.
 3. Between Salisbury Avenue and Chatsworth Avenue intersections on the west side.
 4. Between Elm Drive and Chatsworth Avenue intersections on the east side.
 5. 30 metres south of the Chatsworth Avenue intersection on the east side.

3. **BACKGROUND**

- 3.1. High Street is a strategic road in Rangiora that provides the main east-west connection through the town and to the main shopping area. The property, 2A Ayers Street, is on the corner of High Street and Ayers Street and is serviced by a vehicle crossing on High Street, as is shown below in Figure 1.



Figure 1. Locality of the property

- 3.2. Stages of the development on the north-western corner of Rangiora are nearing completion. As such, Salisbury Avenue and Chatsworth Avenue are due to be connected with Charles Upham Drive. Refer to Attachment i and Attachment ii for the design of the two intersections.

4. ISSUES AND OPTIONS

- 4.1. Service requests have been received from the property owner of 2A Ayers Street regarding on-street parking impeding access to their vehicle crossing on High Street.
- 4.2. There is approximately 4.0 m between the vehicle crossing of 2A Ayers Street and 364B High Street. The Waimakariri District Plan requires a minimum width of 5.0 m for an unobstructed parallel carpark and an additional 1.0 m is required from each vehicle crossing to the start of the carpark as per the *Land Transport (Road User) Rule 2004*. This means that a total width of 7.0 m is required between the two vehicle crossings for a vehicle to park there without obstructing the use of the vehicle crossing and the driver sight lines. Given the higher on-street parking demand in this area, the space often has a vehicle parked in it, partially obstructing the two adjacent driveways.
- 4.3. As there is insufficient width available at this location, it is recommended that no-stopping restrictions are installed for the extent shown in blue in Figure 2.



Figure 2. Proposed extents of no-stopping restrictions, High Street

- 4.4. To ensure sufficient sight lines are available at the intersection of Valour Drive/Salisbury Avenue/Charles Upham Drive, it is proposed that no-stopping restrictions are installed as indicated in Attachment i. The extents proposed are required due to the off-set nature of this intersection.
- 4.5. To allow for the installation of a pedestrian refuge island north of the Chatsworth Avenue/Charles Upham Drive intersection, it is proposed that no-stopping restrictions are installed as indicated in Attachment ii. These are required to ensure parked vehicles do not impede the sight lines of through traffic to pedestrians using the crossing point. The refuge island will be installed in this location to allow pedestrians to safely cross Charles Upham Drive while only crossing one direction of traffic at a time.
- 4.6. The Rangiora-Ashley Community Board has the following options available to them:

- 4.7. Option One: Approve the installation of no-stopping restrictions at the various locations in Rangiora.
- 4.7.1. This option involves the Rangiora-Ashley Community Board recommending that the Utilities and Roding Committee approve the installation of no-stopping restrictions at the location shown in Figure 2, and the locations shown in Attachment i and Attachment ii.
- 4.7.2. This is the recommended option because it allows for safe use of the vehicle crossing at 2A Ayers Street, and for appropriate sight lines to be available at the intersections of Chatsworth Avenue/Charles Upham Drive and Valour Drive/Salisbury Avenue/Charles Upham Drive.
- 4.8. Option Two: Approve an ad-hoc installation of no-stopping restrictions.
- 4.8.1. This option involves the Rangiora-Ashley Community Board recommending that the Utilities and Roding Committee approve the installation of no-stopping restrictions at either the location shown in Figure 2, locations in Attachment i, or the location in Attachment ii.
- 4.8.2. This is not the recommended option because there are safety implications of not installing no-stopping restrictions at all of the sites proposed in this report.
- 4.9. Option Three: Retain the status quo.
- 4.9.1. This is not the recommended option because there are safety implications of not installing no-stopping restrictions at all of the sites proposed in this report.
- 4.10. Implications for Community Wellbeing
- 4.10.1. There are implications on community wellbeing by the issues and options that are the subject matter of this report.
- 4.10.2. The installation of no-stopping restrictions improves safety at all of the proposed locations.
- 4.11. The Management Team has reviewed this report and support the recommendations.

5. **COMMUNITY VIEWS**

5.1. **Mana whenua**

- 5.1.1. Te Ngāi Tūāhuriri hapū are not likely to be affected by or have an interest in the subject matter of this report.

5.2. **Groups and Organisations**

- 5.2.1. There are groups and organisations likely to be affected by, or to have an interest in the subject matter of this report.
- 5.2.2. The property owner at 2A Ayers Street has requested that no-stopping restrictions are considered between the High Street vehicle crossing of 2A Ayers Street and the vehicle crossing of 364B High Street.
- 5.2.3. There is currently no connection between Salisbury Avenue and Valour Drive/Charles Upham Drive. Given the no-stopping restrictions are closely associated with the extents of the new intersection, it is assumed there will be no resultant loss of parking due to their installation.

5.2.4. The installation of no-stopping restrictions for the extents shown in Attachment ii will result in the loss of approximately 16 carparks. As there are no properties which directly access Charles Upham Drive via a vehicle crossing or a footpath extending to any, it is assumed that there will be little effect on on-street parking and this can be accommodated at the southern end of Charles Upham Drive, on Chatsworth Avenue or on Elm Drive.

5.3. **Wider Community**

5.3.1. The wider community is not likely to be affected by, or to have an interest in the subject matter of this report.

6. **OTHER IMPLICATIONS AND RISK MANAGEMENT**

6.1. **Financial Implications**

6.1.1. There are financial implications of the decisions sought by this report and this budget is included in the Annual Plan/Long Term Plan.

6.1.2. There are minimal costs associated with installing no-stopping lines along these streets, as all it involves is line marking. These costs can be accommodated within the Road Maintenance budgets.

6.2. **Sustainability and Climate Change Impacts**

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

6.3. **Risk Management**

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

6.4. **Health and Safety**

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

6.4.2. These risks are associated with the physical works required to install the no-stopping restrictions; if desired following public consultation.

6.4.3. Physical works will be undertaken through the Road Maintenance Contract, in which, the contractor has a Health and Safety Plan, and a SiteWise score of 100.

7. **CONTEXT**

7.1. **Consistency with Policy**

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

7.2. **Authorising Legislation**

7.2.1. Section 2 of the *Land Transport Rule: Traffic Control Devices 2004* requires a Road Controlling Authority to "authorise and, as appropriate, install or operate traffic control devices".

7.3. **Consistency with Community Outcomes**

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

7.3.2. There is a safe environment for all:

- Harm to people from natural and man-made hazards is minimised.
- Crime, injury and harm from road crashes, gambling, and alcohol abuse are minimised.

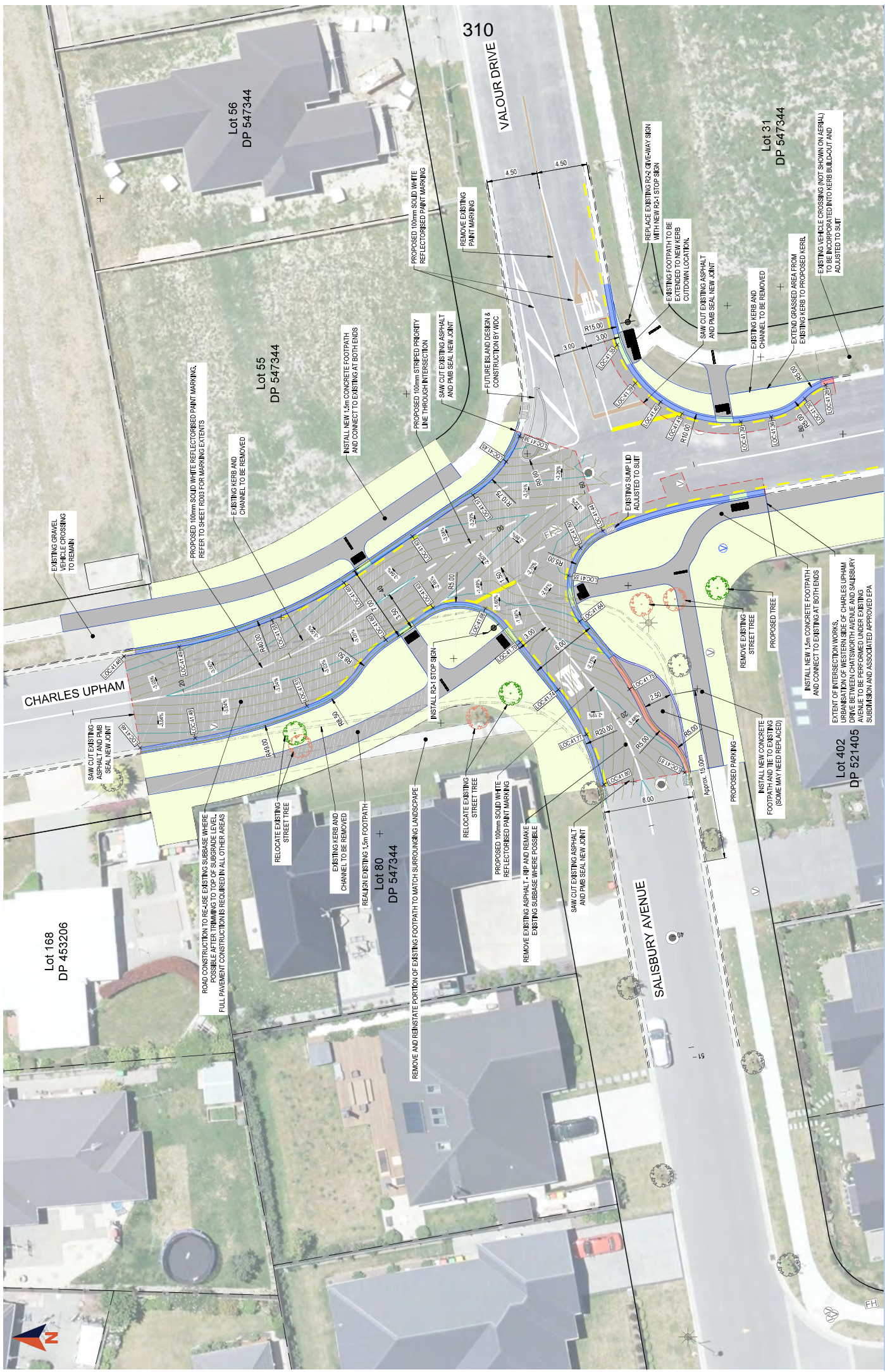
7.3.3. Transport is accessible, convenient, reliable and sustainable:

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

7.4. **Authorising Delegations**

7.4.1. As per Part 3 of the WDC *Delegations Manual*, the Community Board has the delegated authority to approve traffic control and constraint measures on streets within its ward area.

7.4.2. The Utilities and Roading Committee is responsible for roading and transportation activities, including road safety, multimodal transportation, and traffic controls.



CLIENT	PROJECT	SHEET TITLE	SCALE (B/A)
FARMLANDS DEVELOPMENT TRUST	NEW INTERSECTIONS - CHARLES UPHAM DRIVE	SALISBURY AVE & CHARLES UPHAM DR - INTERSECTION LAYOUT PLAN	1:150
DATE	SURVEYED	JOB NUMBER	6011
	DENIED		
	DRAWN		
	DRAWING CHECK		
	DESIGN CHECK		
	APPROVED		

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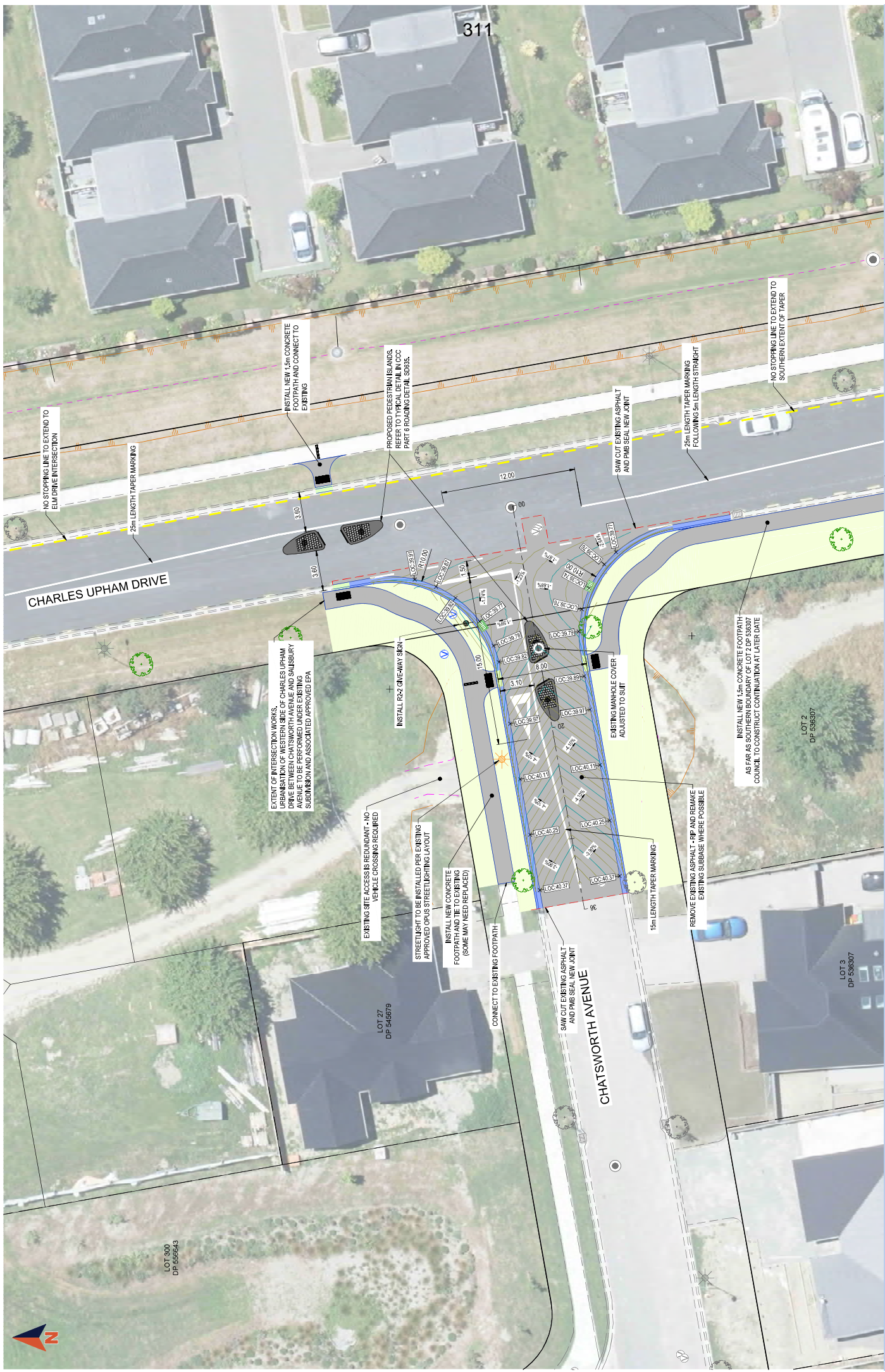
LOT 300
DP-5565643

LOT 27
DP-545579

LOT 3
DP-536307

LOT 2
DP-536307

311



NO STOPPING LINE TO EXTEND TO
ELM DRIVE INTERSECTION

25m LENGTH TAPER MARKING

INSTALL NEW 15m CONCRETE
FOOTPATH AND CONNECT TO
EXISTING

PROPOSED PEDESTRIAN ISLANDS
WITH 1.5m CONCRETE
PART & ROUNDING DETAIL 300x300

SAW CUT EXISTING ASPHALT
AND PAVE SEAL NEW JOINT

25m LENGTH TAPER MARKING
FOLLOWING 5m LENGTH STRAIGHT

NO STOPPING LINE TO EXTEND TO
SOUTHERN EXTENT OF TAPER

EXTENT OF INTERSECTION WORKS.
URBANISATION OF WESTERN SIDE OF CHARLES UPHAM
DRIVE BETWEEN CHATSWORTH AVENUE AND SALISBURY
AVENUE TO BE PERFORMED UNDER EXISTING
SUBMISSION AND ASSOCIATED APPROVED EPA

INSTALL 1522 GIVEWAY SIGN

EXISTING SITE ACCESS IS REDUNDANT - NO
VEHICLE CROSSING REQUIRED

STREETLIGHT TO BE INSTALLED PER EXISTING
APPROVED OPUS STREETLIGHTING LAYOUT

INSTALL NEW CONCRETE
FOOTPATH AND TIE TO EXISTING
(SOME MAY NEED REPLACED)

CONNECT TO EXISTING FOOTPATH

SAW CUT EXISTING ASPHALT
AND PAVE SEAL NEW JOINT

CHATSWORTH AVENUE

15m LENGTH TAPER MARKING

REMOVE EXISTING ASPHALT - RIP AND REMAKE
EXISTING SUBBASE WHERE POSSIBLE

INSTALL NEW 15m CONCRETE FOOTPATH
AS FAR AS SOUTHERN BOUNDARY OF LOT 2 DP-536307
COUNCIL TO CONSTRUCT CONTRIBUTION AT LATER DATE

EXISTING MANHOLE COVER
ADJUSTED TO SUIT

DATE	SURVEYED:	SUB	DWG	JOB NUMBER	SCALE (B/A)
	DESIGNED:	SJC	Jun 2021	6011	1:150
	DRAWN:	RED	Jul 2022		
	DRAWING CHECK:	BMS	Jul 2022		REV.
	DESIGN CHECK:	CW	Jul 2022	R002	E
	APPROVED:	CW	Jul 2022		

REV	REVISION DETAILS
A	FOR COUNCIL COMMENT
B	AMENDED FOR COUNCIL
C	UPDATED - FOR STAKEHOLDER FEEDBACK
D	FOR ENGINEERING PLAN APPROVAL
E	FOR ENGINEERING PLAN APPROVAL RPH1

CHATSWORTH AVE & CHARLES UPHAM DR
- INTERSECTION LAYOUT PLAN

SHEET TITLE



NEW INTERSECTIONS - CHARLES UPHAM DRIVE

CLIENT

FARMLANDS
DEVELOPMENT
TRUST

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WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR DECISION

FILE NO and TRIM NO: RDG-30 / 230707102697

REPORT TO: RANGIORA-ASHLEY COMMUNITY BOARD

DATE OF MEETING: 11 October 2023

AUTHOR(S): Allie Mace-Cochrane – Transportation Engineer
Shane Binder, Senior Transportation Engineer

SUBJECT: Approval to Install Stop Controls at Various Intersections along Seddon Street, Rangiora

ENDORSED BY:

(for Reports to Council, Committees or Boards)	_____	_____
	General Manager	Chief Executive

1. SUMMARY

- 1.1. The purpose of this report is to seek approval from the Rangiora-Ashley Community Board to install stop controls at the following intersections in Rangiora:
- On Seddon Street at the intersection with Ayers Street;
 - On Seddon Street at the intersection with White Street;
 - On Seddon Street at the intersection with Kinley Street;
 - On Seddon Street at the intersection with Ashgrove Street; and
 - On Seddon Street at the intersection with West Belt.
- 1.2. The intersection of Seddon Street, with Ayers Street, White Street, Kinley Street and Ashgrove Street are 90-degree crossroad intersections. Ayers Street, White Street, Kinley Street, and Ashgrove Street are all priority roads running north-south, with the minor approaches of Seddon Street running east-west.
- 1.3. The intersection of Seddon Street and West Belt is a 90-degree T-intersection. West Belt is the priority road running north-south, with the minor approach of Seddon Street intersecting from the east.
- 1.4. A review of all the intersections along this street has been undertaken, following concerns being raised about safety at the intersections and visibility on the approaches. As none of the intersections meet the required sight distance for a Give Way control, it is recommended that all are changed to 'Stop' controls.
- 1.5. In all situations sight visibility at the intersections are blocked by features within private property (such as fences or vegetation) which cannot be easily removed.

2. RECOMMENDATION

THAT the Rangiora-Ashley Community Board:

- (a) **Receives** Report No. 230707102697.
- (b) **Approves** the intersection control changes shown in Table 1, pursuant to Section 2 of the *Land Transport Rule: Traffic Control Devices 2004* and with effect from the date of installation of the appropriate signage.

Table 1. Details of intersection control changes.

Side Road to be Controlled	Road to Remain Uncontrolled	Type of Control to be Imposed	Type of Control to be Revoked
Seddon Street	Ayers Street	Stop / Stop	Give Way
Seddon Street	White Street	Stop / Stop	Give Way
Seddon Street	Kinley Street	Stop / Stop	Give Way
Seddon Street	Ashgrove Street	Stop / Stop	Give Way
Seddon Street	West Belt	Stop	Give Way

- (c) **Circulates** this report to the Utilities and Roading Committee for their information.
- (d) **Notes** the existing road with priority will remain unchanged to avoid confusion, and it is the control only at the intersection which is to be changed.

3. BACKGROUND

3.1. The intersection of Seddon Street and Ayers Street is a slightly off-set crossroads intersection. Ayers Street is the priority road running north-south, while Seddon Street intersects on both the east and west side, as is shown below in Figure 1. Vegetation located within the northern and southern property boundaries limits visibility in both directions, when approaching the intersection on the eastern leg. On the western leg, the established hedgerow of the northern property and the impermeable fence of the southern property limits visibility on approach to the intersection.



Figure 1. Available sight distance at the intersection of Seddon Street and Ayers Street.

3.2. The intersection of Seddon Street and White Street is a crossroads intersection. White Street is the priority road running north-south, while Seddon Street intersects on both the east and west side, as is shown below in Figure 2. Vegetation located within the northern and southern property boundaries, and impermeable fences of both properties' limits visibility in both directions, when approaching the intersection on the eastern leg. On the western leg, the impermeable fences of both properties' limits visibility on approach to the intersection.



Figure 2. Available sight distance at the intersection of Seddon Street and White Street.

- 3.3. The intersection of Seddon Street and Kinley Street is a crossroads intersection. Kinley Street is the priority road running north-south, while Seddon Street intersects on both the east and west side, as is shown below in Figure 3. An established hedgerow to the southern property limits visibility to the south when approaching the intersection on the eastern leg. On the western leg, the established vegetation of the southern property and the impermeable fence of the northern property limits visibility on approach to the intersection.



Figure 3. Available sight distance at the intersection of Seddon Street and Kinley Street.

- 3.4. The intersection of Seddon Street and Ashgrove Street is a crossroads intersection. Ashgrove Street is the priority road running north-south, while Seddon Street intersects on both the east and west side, as is shown below in Figure 4. Vegetation located within the northern property boundary limits visibility to the south, when approaching the intersection on the eastern leg. On the western leg, the impermeable fences of both properties' limits visibility on approach to the intersection.



Figure 4. Available sight distance at the intersection of Seddon St and Ashgrove St

- 3.5. The intersection of Seddon Street and West Belt is a T-intersection. West Belt is the priority road running north-south, while Seddon Street intersects on the east side, as is shown below in Figure 5. Vegetation located within the southern property boundary and the impermeable fences of both properties' limits visibility in both directions, when approaching the intersection.



Figure 5. Available sight distance at the intersection of Seddon Street and West Belt.

4. **ISSUES AND OPTIONS**

- 4.1. As per the *Traffic Control Devices Manual Part 4 Section 4.1.2*, a stop control should be implemented at intersections “where at a point 9 m from the limit line on a controlled approach to the intersection, a lack of visibility means that, at an approach speed of more than 10 km/h, a driver could not see a vehicle on an uncontrolled approach at a distance (in metres) of 1.2 times the numeric value of the speed (in km/h) exceeded by 15% of vehicles approaching on the main road”.
- 4.2. Furthermore, as per the Waka Kotahi *Guidelines for the implementation of traffic control at crossroads* (RTS 1), the use of different controls (e.g., stop control, etc.) on opposite approaches of a crossroads should be avoided to minimise driver confusion. It is therefore considered best practice to have the same traffic control on both of the minor legs of the intersection, unless other safety considerations take higher priority.
- 4.3. In February 2023, the Board approved stop control being installed at the Seddon Street/King Street T-intersection. Following this, further concerns have been raised about visibility at intersections along Seddon Street and staff have completed a review of the other give-way controlled intersections on Seddon Street.
- 4.4. Traffic and speed counts were undertaken in 2022 on each of the major roads associated with the Seddon Street intersections. Shown in Table 2 is the 85th percentile speed for each major road and the subsequent sight distance that is required on Seddon Street to retain a give way control.

Table 2. Required sight distance on Seddon Street as a result of the 85th percentile operating speed on the major roads.

Road	85 th Percentile Speed (km/h)	Required Sight Distance (m)
Ayers Street	49.7	60
White Street	53.9	65
Kinley Street	55.3	66
Ashgrove Street	54.0	65
West Belt	56.3	68

- 4.5. As is shown in Figure 6 to Figure 14, the minimum sight distance is not achieved, in at least one direction, at each approach to the major roads. The approximate sight distance available from Seddon Street, based on Figure 1 to Figure 5, is shown in Table 3.

Table 3. Sight distance available at each of the Seddon Street intersections.

Road	Approximate Sight Distance Available on Eastern Approach (m)	Approximate Sight Distance Available on Western Approach (m)
Ayers Street	22.1	19.5
White Street	28.4	33.7
Kinley Street	31.6	35.3
Ashgrove Street	45.9	31.6
West Belt	35.9	N/A



Figure 6. Visual of sight distance available at the Seddon Street/Ayers Street intersection on the western approach.



Figure 7. Visual of sight distance available at the Seddon Street/Ayers Street intersection on the eastern approach.



Figure 8. Visual of sight distance available at the Seddon Street/White Street intersection on the western approach.



Figure 9. Visual of sight distance available at the Seddon Street/White Street intersection on the eastern approach.



Figure 10. Visual of sight distance available at the Seddon Street/Kinley Street intersection on the western approach.



Figure 11. Visual of sight distance available at the Seddon Street/Kinley Street intersection on the eastern approach.



Figure 12. Visual of sight distance available at the Seddon Street/Ashgrove Street intersection on the western approach.



Figure 13. Visual of sight distance available at the Seddon Street/Ashgrove Street intersection on the eastern approach.



Figure 14. Visual of sight distance available at the Seddon Street/West Belt intersection on the eastern approach.

- 4.6. The following options are available to the Rangiora-Ashley Community Board:
- 4.7. Option One: Approve all changes to the intersection controls along Seddon Street.
- 4.7.1. This option involves approving the change of the intersection controls along Seddon Street from 'give way' controls to 'stop' controls.
- 4.7.2. The availability of sight distance at each intersection is constrained by property fences and vegetation within property boundaries. As such, Council does not have the power to remove these fences or to request that vegetation be trimmed.
- 4.7.3. This is the recommended option because the required sight distance to retain a give way control is not available, in at least one direction, and at all of the approaches to the major roads along this route.
- 4.8. Option Two: Retain the existing intersection controls.
- 4.8.1. This option involves retaining the existing give way intersection controls at each of the intersections along Seddon Street.
- 4.8.2. This is not the recommended option because there is insufficient sight distance, in at least one direction, on the approaches to the intersections along Seddon Street. It is therefore a traffic safety issue because the control type does not imply to motorists that there is insufficient visibility.
- 4.9. Implications for Community Wellbeing
- 4.9.1. There are implications on community wellbeing by the issues and options that are the subject matter of this report.
- Setting appropriate intersection controls help reduce the risk of harm for a crash.
- 4.10. The Management Team has reviewed this report and support the recommendations.

5. **COMMUNITY VIEWS**

- 5.1. **Mana whenua**
- 5.1.1. Te Ngāi Tūāhuriri hapū are not likely to be affected by, or have an interest in the subject matter of this report.
- 5.2. **Groups and Organisations**
- 5.2.1. There are not groups and organisations likely to be affected by, or to have an interest in the subject matter of this report.

5.3. **Wider Community**

- 5.3.1. The wider community is not likely to be affected by, or to have an interest in the subject matter of this report.
- 5.3.2. The impact of intersection control changes are considered to be localised at the intersection.
- 5.3.3. Given the currently available sight distance at each of the intersections, it is assumed that most drivers will already be coming to a stop before manoeuvring through the intersection.

6. **OTHER IMPLICATIONS AND RISK MANAGEMENT**

6.1. **Financial Implications**

- 6.1.1. There are financial implications of the decisions sought by this report and this budget is included in the Annual Plan/Long Term Plan.
- 6.1.2. There are minimal costs associated with installing stop controls at these intersections, as all it involves is line marking and new signs. These costs can be accommodated within the Road Maintenance budgets.

6.2. **Sustainability and Climate Change Impacts**

- 6.2.1. The recommendations in this report do not have sustainability and/or climate change impacts.
- 6.2.2. Whilst a change to a stop control will increase emissions from vehicles coming to a complete stop and then accelerating, this increase is considered to be inconsequential.
- 6.2.3. It is also assumed that the majority of drivers will already be undertaking this manoeuvre due to the existing sight distance available at each intersection.

6.3. **Risk Management**

- 6.3.1. There are not risks arising from the adoption/implementation of the recommendations in this report.
- 6.3.2. There is currently a risk that a motorist could travel through any of these intersections without seeing a conflicting vehicle due to limited visibility. The recommendations within this report will indicate to motorists that there is not sufficient visibility at the intersection, and therefore they will be inclined to abide by the law and stop at the intersection.

6.4. **Health and Safety**

- 6.4.1. There are health and safety risks arising from the adoption/implementation of the recommendations in this report.
- 6.4.2. This directly relates to the physical works that need to be undertaken at the intersection to change the control type. These works will be undertaken through the Road Maintenance Contract, in which, the contractor has a Health and Safety Plan, and a SiteWise score of 100.

7. **CONTEXT**

7.1. **Consistency with Policy**

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

7.2. **Authorising Legislation**

7.2.1. Section 2 of the *Land Transport Rule: Traffic Control Devices 2004* requires a Road Controlling Authority to “authorise and, as appropriate, install or operate traffic control devices”.

7.3. **Consistency with Community Outcomes**

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

7.3.2. There is a safe environment for all:

- Harm to people from natural and man-made hazards is minimised.
- Crime, injury, and harm from road crashes, gambling, and alcohol abuse are minimised.

7.4. **Authorising Delegations**

7.4.1. As per Section 3 of the Waimakariri District Council’s *Delegation Manual*, the Rangiora-Ashley Community Board has the delegated authority to approve intersection control signs (e.g., stop, give way, etc.) on the roads within its ward area.