WAIMAKARIRI
DISTRICT COUNCIL

Utilities and Roading Committee

Agenda

Tuesday 27 September 2022

3.30pm

Council Chamber
215 High Street
Rangiora

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

The Chairperson and Members
UTILITIES AND ROADING COMMITTEE

A MEETING OF THE UTILITIES AND ROADING COMMITTEE WILL BE HELD IN THE COUNCIL CHAMBER, RANGIORA SERVICE CENTRE, 215 HIGH STREET, RANGIORA ON TUESDAY 27 SEPTEMBER 2022 AT 3.30PM

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

BUSINESS

Page No

1 APOLOGIES

2 CONFLICTS OF INTEREST

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

3 CONFIRMATION OF MINUTES

3.1 Minutes of a meeting of the Utilities and Roading Committee held on Tuesday 23 August 2022

10-21

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Confirms** the circulated Minutes of a meeting of the Utilities and Roading Committee held on 23 August 2022, as a true and accurate record.

3.2 Matters arising

PUBLIC EXCLUDED MINUTES *(Refer to public excluded agenda)*

3.3 Minutes of the public excluded portion of the Utilities and Roading Committee Meeting Tuesday 19 July 2022

4 DEPUTATION/PRESENTATIONS

Nil.

5 REPORTS

5.1 Proposed Closure of Stockwater Race R4-2 – Dan Lewis (Land Drainage Engineer)

22-31

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** Report No. 220912157430.

AND

THAT the Utilities and Roading Committee recommends:

THAT the Council:

(b) **Approves** the closure of Stockwater Race R4-2.

(c) **Notes** there will be no financial or performance impact from this closure on the stockwater network.

(d) **Notes** the length of stock-water races is reported to the Utilities and Roading Committee; and Waimakariri Water Zone Committee each year.

5.2 Flood Mapping Freeboard and Floor Level Technical Practice Note – Gerard Cleary (General Manager Utilities and Roading) and Kelly LaValley (Project Delivery Manager)

32-107

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 200108001550.

AND

THAT the Utilities and Roading Committee recommends:

THAT the Council:

(b) **Endorse** the Flood Mapping Freeboard and Floor Level Technical Practice Note and associated process (Record No. 200106000520 and 220323042890).

(c) **Notes** that the processes and requirements in this Technical Practice Note will be used by staff when setting minimum floor levels in relation to building, subdivision and land development in the district.

(d) **Notes** that the General Manager Utilities and Roading, 3 Waters Manager and Project Delivery Manager will use discretion in applying the Technical Practice Note on a case by case basis.

(e) **Notes** that the Technical Practice Note may need to be revised once the Proposed District Plan is adopted to reflect the proposed changes to the natural hazards chapter.

(f) **Notes** that the Technical Practice Note is a living document and may be amended by the General Manager Utilities and Roading, 3 Waters Manager or Project Delivery Manager with any major changes to be brought to the Council for endorsement.

5.3 Solid Waste Services and Waste Data Update for 2021/22 – Kitty Waghorn (Solid Waste Asset Manager)

108-121

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** Report No. 220824146326.

(b) **Notes** that there continues to be a higher uptake of organics and rubbish bins than new recycling bins, but this higher uptake is gradually easing off.

(c) **Notes** that the non-financial KPI's for Solid Waste services will be included in the Policy and Business Unit's end-of-year KPI report.

(d) **Notes** that the introduction of the three-bin service has resulted in an increase in the total weights of both diverted and landfilled materials being collected by the Council, but that the percentage of diverted kerbside waste has not increased greatly over previous figures.

(e) **Notes** that recycling contamination levels decreased to below 10% as from part-way through September 2021, and as a result per-capita diversion and diversion figures have recovered sufficiently to meet Council's WMMP targets for the 2021/22 financial year.

(f) **Notes** that education services are still being provided where possible to schools, businesses and community groups, but that COVID-19 has continued to impact on the delivery of these programmes.

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

5.4 2021-2022 Flood Recovery: September Update – Kalley Simpson (3 Waters Manager) and Rob Kerr (Flood Recovery Programme Manager)

122-149

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No 220912157598.

(b) **Notes** that 143 investigations and 321 maintenance actions have been triaged and prioritised from the drainage and sewers service requests from the flood events over 2021 and 2022.

(c) **Notes** that 16 of the 143 investigations are either complete, and the issue resolved, or incorporated into the Business as Usual (BAU) work and is being tracked as part of a maintenance or capital works programme.

(d) **Notes** that 42 of the 321 maintenance actions have been completed.

(e) **Notes** that a fortnightly report is being issued to elected members and published on the Council's website.

(f) **Notes** that drainage service request submitters have had initial contact where possible, and further holding contact is being made to those whom Council has electronic contact details.

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

5.5 Eastern Districts Sewer Scheme and Oxford Wastewater Treatment Plant Annual Compliance Monitoring Reports 2021 – 2022 – Kalley Simpson (3 Waters Manager) and Libica Hurley (Project Planning and Quality Team Leader)

150-310

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** Report No. 220816140839.

(b) **Notes** that monitoring of the Eastern Districts Ocean Outfall discharge presented administrative non-compliances due to sampling errors within the 2021-2022 monitoring period.

(c) **Notes** that the Eastern Districts Ocean Outfall discharge was compliant for all samples that were tested and there were no significant effects attributable to discharge from the Ocean Outfall.

(d) **Notes** that the Eastern Districts Sewer Scheme – Annual Compliance Monitoring Report 2021-2022 is currently being reviewed by Environment Canterbury.

(e) **Notes** that although not required, the Oxford Sewer Scheme - Annual Monitoring Report 2021-2022 was provided to Environment Canterbury in good practice. Non-compliances were observed by staff due to weather events. Environment Canterbury are currently reviewing the report.

(f) **Circulates** this report to Council for their information.

(g) **Circulates** this report to all Community Boards for their information.

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

5.6 Southbrook School Travel Plan – Kieran Straw (Civil Project Team Leader) and Joanne McBride (Roading and Transport Manager)

311-350

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 220808134686.

(b) **Approves** the Southbrook School Travel Plan (attachment i, Trim No. 220817141870).

(c) **Notes** that the current design of the Southbrook Rd traffic lights project (subject to a separate report to this committee) includes the removal of the existing Pick Up Drop Off (PUDO) area on Torlesse St, and the installation of a temporary pick-up drop-off area on Marshall St.

(d) **Authorises** staff to commence discussions with the school, and investigate design options to meet the recommendations from the School Travel Plan Report, which includes a long-term location for the existing pick-up drop-off area.

(e) **Approves** the establishment of a Southbrook School Travel Plan Working Group in accordance with the attached Terms of Reference (attachment iii, Trim No. 220914159775).

(f) **Notes** that elected members will be appointed by the Mayor after the coming election.

(g) **Notes** that additional funding will likely be required through the LTP process, and that the preferred option for the development of the new pick-up drop-off location in Marshall Street will be reported to Utilities and Roading to seek approval prior to implementation.

(h) **Notes** that alternate funding options such as Climate Emission Reduction (CERF) funding are being explored to fund the travel planning works.

(i) **Notes** that the new Setting of Speed Limit Rule 2022 requires Road Controlling Authorities to use reasonable efforts to reduce speed limits around all schools by 31 December 2027, with an interim target of 40 percent of schools by 30 June 2024. Staff are preparing advice on this and will be reporting to Council later in 2022.

(j) **Circulates** this report to the Rangiora-Ashley Community Board for their information

5.7 <u>Approval of Detailed Design – Southbrook / Torlesse Street Traffic Signals – Kieran Straw (Civil Project Team Leader), Don Young (Senior Engineering Advisor) and Joanne McBride (Roading & Transport Manager)</u>

351-371

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 220830149672.

(b) **Approves** the Southbrook Road Traffic Signals Detailed Design including works on Denchs Rd, Marshall St, Torlesse St, Coronation St, Buckleys Rd and Southbrook Rd as detailed in the Detailed Design Drawings (220913158764), and authorises staff to proceed with design and procurement.

(c) **Approves** the conversion of Denchs Road (Southbrook to Marshall) to one-way eastbound and Marshall St (Denchs to Torlesse St) to one-way southward.

(d) **Approves** the installation of “No stopping” at all locations noted within attachment ii, which includes both proposed new no-stopping lines, and existing no-stopping lines that are not currently included within the Parking Schedule.

(e) **Notes** that net effect of the design is an overall decrease in 32 number of on-street parking spaces (across Torlesse Street, Coronation Street, and Southbrook Road).

(f) **Authorises** staff to provide a Project Update notice to all affected residents and stakeholders.

(g) **Notes** that the current Project Estimate for the works is $1,896,824, and there is sufficient budget to proceed with this design, and subsequent tender.

(h) **Notes** that a workshop was held to brief the RACB on the detailed design on 14th September 2022, and that the RACB are supportive of the design. More detail in regards to feedback the board provided is included in section 5.3 of this report.

(i) **Notes** that some of the planned works in Marshall Street, and Torlesse Street are considered an “interim” only and will be revisited during the process to adopt the School Travel Plan, and develop the detailed design of the proposed cycleway in Torlesse Street., Physical works and priority controls are not considered “interim”, and “Interim works” relates to planned line marking layouts only.

(j) **Notes** that alternate funding sources are being explored for funding of works associated with the School Travel Plan as per report 220808134686, including the raised crossing points. Until such time funding is secured, the current temporary features from the innovating street project (such as planter boxes) will be retained.

(k) **Notes** that both of the roundabouts installed on Marshall Street (at Denchs Rd and Torlesse St) as part of the “Innovating Streets” trial will be removed, and the “Stop” controls at the Marshall Street / Torlesse Street intersection and the “Give Way” controls at Denchs Rd (East) / Marshall St will be reinstated.

(l) **Notes** that minor changes to the detailed design may continue as the design develops, and as a result of recommendations from the Design Phase Road Safety Audit. These are expected to be minor in nature and therefore it is not expected that these will be reported back to the Utilities and Roading Committee. Should any significant issues be identified then these would be reported.

(m) **Circulates** this report to the Rangiora-Ashley Committee Board for their information.

6 PORTFOLIO UPDATES

6.1 Roading – Councillor Paul Williams

6.2 Drainage and Stockwater – Councillor Sandra Stewart

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

6.4 Solid Waste– Councillor Robbie Brine

6.5 Transport – Mayor Dan Gordon

7 MATTERS FOR INFORMATION

7.1 Backflow Preventer Installations 2022/23– Request to Engage Water Unit – Claudia Button (Project Engineer) Colin Roxburgh (Water Asset Manager)

372-380

RECOMMENDATION

THAT the Utilities and Roading Committee

(a) **Receives** the information in Item 7.1.

8 QUESTIONS UNDER STANDING ORDERS

9 URGENT GENERAL BUSINESS

10 MATTERS TO BE CONSIDERED WITH THE PUBLIC EXCLUDED

Section 48, Local Government Official Information and Meetings Act 1987

RECOMMENDATION

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

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

Item No	Minutes/Report of:	General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under section 48(1) for the passing of this resolution
10.1	Minutes of the Public Excluded portion of the Utilities and Roading Committee Meeting Tuesday 23 August 2022.	Confirmation of Minutes	Good reason to withhold exists under Section 7	Section 48(1)(a)
REPORTS				
10.2	Report of C Roxburgh (Water Asset Manager)	Submission of Drinking Water Safety Plans and Residual Disinfection Exemptions for Rangiora, Kaiapoi, Waikuku Beach, Woodend-Pegasus and Oxford Urban	Good reason to withhold exists under Section 7	Section 48(1)(a)
10.3	Report of J McBride (Roading and Transport Manager) and G Cleary (General Manager Utilities and Roading)	Roading & Transportation Activity Update - June to August 2022	Good reason to withhold exists under Section 7	Section 48(1)(a)
10.4	Report from Management Team meeting	Report for Information	Good reason to withhold exists under Section 7	Section 48(1)(a)

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

Item Nº	Reason for protection of interests	Ref NZS 9202:2003 Appendix A
10.1 – 10.4	Protection of privacy of natural persons To carry out commercial activities without prejudice	A2(a) A2(b)ii

CLOSED MEETING

See Public Excluded Agenda (separate document)

OPEN MEETING

NEXT MEETING

This is the final meeting of the Utilities and Roading Committee for the 2019-22 electoral term.

The new Council will be sworn into office late October 2022, with Council and Committee meetings resuming from mid-November 2022. Further information will be advertised and listed on the Council's website.

WAIMAKARIRI DISTRICT COUNCIL

MINUTES OF A MEETING OF THE UTILITIES AND ROADING COMMITTEE HELD IN THE COUNCIL CHAMBER, RANGIORA SERVICE CENTRE, 215 HIGH STREET, RANGIORA ON TUESDAY 23 AUGUST 2022 COMMENCING AT 4PM

PRESENT

Councillor R Brine (Chairperson), Mayor D Gordon (until 4.30pm), Councillors A Blackie (remotely), S Stewart, J Ward and P Williams.

IN ATTENDANCE

Councillors W Doody, N Atkinson (from 4.20pm to 5.03pm).
J Millward (Acting Chief Executive) (from 4.50pm), K LaValley (Project Delivery Manager), G Cleary (remotely via Zoom), J McBride (Roading and Transport Manager), K Simpson (Three Waters Manager), G Kempton (Project Engineer), A Mace-Cochrane (Graduate Engineer) and A Smith (Governance Coordinator).

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1 APOLOGIES

Moved Councillor Williams Seconded Councillor Ward

THAT an apology be received and sustained from Mayor Gordon for early departure.

CARRIED

2 CONFLICTS OF INTEREST

There were no conflicts of interest recorded.

3 CONFIRMATION OF MINUTES

3.1 Minutes of a meeting of the Utilities and Roading Committee held on Tuesday 19 July 2022

Moved: Councillor Ward Seconded: Councillor Williams

THAT the Utilities and Roading Committee:

(a) **Confirms** the circulated Minutes of a meeting of the Utilities and Roading Committee held on 19 July 2022, as a true and accurate record.

CARRIED

3.2 Matters arising

Councillor Williams asked if there had been a date set for a joint meeting with the Drainage Advisory Boards. It was advised that this joint meeting was being scheduled for September 2022, with the date still to be determined. Mayor Gordon suggested it take place after the Council briefing on 13 September.

PUBLIC EXCLUDED MINUTES

3.3 Minutes of the public excluded portion of the Utilities and Roading Committee Meeting Tuesday 19 July 2022

Refer to Public Excluded minutes.

4 DEPUTATION/PRESENTATIONS

There were no deputations or presentations.

5 REPORTS

5.1 Request Approval for Youngs Road Seal Extension – J McBride (Roading and Transport Manager) and C Grabowski (Roading Operations Team Leader)

J McBride presented this report, which sought approval to undertake a seal extension on Youngs Road under the Private Funding of Seal Extensions Policy. The length of seal requested was 210 metres from the existing seal on Lineside Road to the north boundary of the property at 135 Youngs Road. The businesses operating at this address, North Canterbury Cremations Ltd and Gulliver and Tyler Funeral Directors Ltd, had experienced significant increase in business over recent years, which had subsequently increased the volume of traffic accessing their premises and had requested the private sealing.

Councillor Stewart enquired if there had there been any approach made to landowners further down Youngs Road, to indicate if there was interest in sealing further. J McBride said there had been an approach to other landowners and there was not much desire for further sealing. Any future subdivision would trigger sealing and the current traffic volumes on this part of Youngs Road did not warrant sealing at present.

Moved: Mayor Gordon Seconded: Councillor Williams

THAT the Utilities and Roading Committee:

(a) **Receives** Report No. 220810137462.

(b) **Approves** the sealing of Youngs Road under the Private Funding of Seal Extensions Policy, for a length of 210m from the existing seal on Lineside Road.

(c) **Notes** that the estimated cost of sealing was $43,000 excluding GST, of which the Council share will be 50% or $21,500 excluding GST and the property owner share will be $24,725 including GST.

(d) **Notes** that funding was available within the Subdivision Contribution budget area for the Council's share of the required funding.

(e) **Notes** that written agreement would be sought from the property owner prior to any work being undertaken on site.

CARRIED

Mayor Gordon noted that he had visited the site with Council staff, and the private sealing had been a desire of the business owners for some time. With the private contribution, Mayor Gordon acknowledged his full support of this resolution.

5.2 Waka Kotahi Procedural Audit Report May 2022 – J McBride (Roading and Transport Manager) and G Cleary (General Manager Utilities and Roading)

J McBride and G Cleary presented this report, which informed the Committee of the results of the Waka Kotahi's Procedural Audit, which was carried out in May 2022. The final report was received on 30 June 2022.

The purpose of the audit was to provide assurance that Waka Kotahi's investment in the Council's land transport programme was being well managed and delivered value for money. There were three recommendations and three suggestions that resulted from the audit. Staff had developed an action plan and were progressing through the recommendations from the audit. The most urgent of these were closing out safety audit reports and the work was nearly complete with all decisions being documented and audits being signed off.

In noting the overall rating of this audit being categorised as "some improvement needed", Councillor Stewart questioned how serious the breaches were and why these breaches were not picked up in previous audits. J McBride said the areas identified for improvement were not considered to be serious breaches, but agreed that they definitely needed some improvement. Referring to previous audits, there had been some changes required and combined with a new Auditor this year who had identified the improvements required.

G Cleary added that the audit showed that a good result for the Council, which had good processes and practices in place, but the audit had also shown areas where some improvements were needed.

Moved: Mayor Gordon Seconded: Councillor Ward

THAT the Utilities and Roading Committee:

(a) **Receives** Report No. 220725126300.

(b) **Notes** the Waka Kotahi Procedural Audit Report provided an in depth report focused around four subject areas with two being assessed as "Effective" and two as "Some Improvement Needed", resulting in an overall rating of "Some Improvement Needed".

(c) **Notes** the report made three recommendations for improvement, one relating to the financial processes, one for procurement procedures and the last related to contract management along with four suggestions which are more minor in nature.

(d) **Notes** that an Action Plan had been developed and implemented with work being undertaken to address all issues by December 2022.

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

CARRIED

5.3 2021-2022 Flood Events – Service Requests and Further Investigations Update – E Klopper (Flood Team Lead) C Fahey (Water Operations Team Leader) and K Simpson (Three Waters Manager)

K Simpson presented this report, which provided an update to the Committee on the status of the drainage service requests and further investigations related to the recent flooding events. These events had been put into two chronological groups, Group 1 for the 29 – 31 May 2021, 15 December 2021 and 12 February 2022 periods and Group 2 for 12 July 2022, 20 July 2022, 26 July 2022 and 30 July 2022 periods.

With the work of the Flood Team relating to Group 1 rainfall events, almost all the work had been completed and the team was being disestablished. The Team's work had been extended to work through the additional service requests and further investigations relating to Group 2. There were a further 685 drainage service requests received relating to the rainfall events in Group 2.

There was now an additional 77 investigations to be undertaken, which took the total to 138. It would potentially take six months to respond back on all the areas.

Councillor Stewart asked how many of Group 1 service requests were repeated in Group 2 or were these all completely new issues that had come up. K Simpson confirmed that these were all new investigations in Group 2, though some related to areas that had previously flooded and required further investigation from the past (2014). These were not part of the 61 investigations identified in Group 1.

Councillor Ward asked if the current high water table was impacting on the ability of the Council to complete some of these requests. K Simpson said there were issues with the high groundwater levels, especially in the coastal areas of Waikuku Beach, Woodend Beach and Pegasus. Staff were monitoring these areas. The other challenging area was Mandeville with under currents flowing, which had generated many of the service requests during the four events in July 2022.

Councillor Williams requested an update on Ranui Mews. K Simpson said the contract had been awarded, and a further update would be sourced by staff and provided to the Committee members.

Moved: Councillor Stewart Seconded: Councillor Ward

THAT the Utilities and Roading Committee:

(a) **Receives** report No 220811137957.

(b) **Notes** that 598 drainage service requests were received related to the significant rainfall events in May 2021, December 2021 and February 2022, from which a total of 61 areas were identified for further investigation work.

(c) **Notes** that 17 of the 61 investigations were either complete, and the issue resolved, or incorporated into the Business as Usual (BAU) work and was being tracked as part of a maintenance or capital works programme.

(d) **Notes** that 685 drainage service requests were received related to the rainfall events on 12 July 2022, 20 July 2022, 26 July 2022 and 30 July 2022 and further work was currently underway to identify the number of additional further investigations required.

(e) **Notes** that a page has been set up on the Council's website to provide updates on the status of drainage works underway, which would be updated to include information related to the July rainfall events.

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

(f) **Notes** that a communications strategy would be developed that covered both general messaging as well as targeted area specific information.

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

CARRIED

In supporting the recommendation, Councillor Stewart acknowledged the efforts and dedication of staff in this area and their responses to the many flooding events. There were concerns raised as to whether the current staff resources were sufficient for the work required to resolve these issues.

Councillor Ward also extended thanks to staff for the work that had been undertaken to date and noted that it was a challenge with the water table being high.

Mayor Gordon also acknowledged the significant number of service requests that staff had to respond to and was pleased to have the communications staff involved to provide reassurance to the public .

Councillor Williams noted the recent unprecedented rainfall in the district and extended thanks to K Simpson and G Cleary and the Utilities and Roading staff for their work and attending onsite meetings with residents whose properties had been affected by the flooding.

6 PORTFOLIO UPDATES

6.1 Roading – Councillor Paul Williams

- A collapsed culvert under Skewbridge Road (west of the bridge) was being replaced. This had caused some flooding across the road.
- Lees Valley and Okuku Pass work was continuing clearing swales, and culverts and to repair areas of roadsides that had sunk. This would be an ongoing and significantly major job.
- Repairs to Lineside Road near Stadium Cars was completed.
- There was grading and re-metalling of unsealed roads continuing, with currently three graders working in the network, when there was usually only two. This was an endeavour to catch up on work resulting from damage caused by the recent flooding.
- The high shoulder had been removed from Upper Sefton Road, after previous flooding had made conditions dangerous.
- There was continued work being carried out throughout the district with repairing of potholes and culvert cleaning.

6.2 Drainage and Stockwater – Councillor Sandra Stewart

- Supports the updating of the Rural Drainage Groups, and the Council needed to take a lead with drainage rating.

- The information pamphlet on Stockwater Races, was currently with the Communications team, and still had to go to Waimakariri Irrigation for their comments prior to coming to the Council for approval. This information would be circulated to all 1,700 properties located on the stockwater race system in the district.

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

- There had recently been a leaking joint in the 500mm PVC water pipeline between Kaiapoi and Rangiora that needed repairing in the last few weeks. This was the first repair that had needed to be undertaken on this pipeline since the installation in 2010. The repairs were completed within one day, commencing at 4am one day, and completed by 2am the following day.

- C Roxburgh will provide a report to a future meeting of the Committee on drinking water standards. There would also be an update provided on chlorination and Water Safety Plans to the next meeting of the Committee.

6.4 Solid Waste– Councillor Robbie Brine

- Notification had been received of the Christchurch City Council's pending Expression of Interest process for landowners, for the Organics Processing Plant. They would look at a long-term lease, and the landowner might work in partnership with a 'technology provider'. Simon Hart would make enquiries about this process, and discuss it with the property and solid waste teams. Any possible site would need to be near SH1 and be away from residential or occupied rural areas owing to 'sensitivity' to possible odors.

- The rubbish bag supply contract had been awarded to Office Max NZ Ltd, for a bag that contains 30% post-consumer plastics. The price was substantially lower than the current bag costs. Office Max had advised they needed to order the bags in the next month to ensure the bags arrive by January 2023, when the current contract ends.

- The Waste Audit that feeds our landfill waste composition data into the Waste Assessment and Waste Management and Minimisation Plan reviews had been scheduled for 5 to 9 September 2022. This involved a visual survey at Southbrook RRP over six days, and sort and weigh audits of rubbish bags and bins (includes private bin data), and also a selection of organics bins, over that week.

- The 2022/23 WA and WMMP review project was currently out to tender and closes next week. It was a two-envelope tender, and there had been reasonable interest from a number of consultants.

- Rangiora Rubbish Removals had received consent for a waste sorting facility in Rangiora as of mid-July 2022, and were putting their skips through this sorting process. They were recovering around 70% of the contents from building waste skips, but general waste from bins was more of a challenge. Rubbish would be sent straight to Kate Valley in pods, transported by Container Waste who had provided Councillor Brine with a compactor as part of their contract. Recycling and greenwaste, and most likely household rubbish, would still be coming to Southbrook. Council staff and the Council's educator had been invited to Rangiora Rubbish Removals site, which they plan to do.

- Council contractors had continued to work with the impacts of COVID and the other seasonal viruses, and had provided collection and disposal services as per usual. They had a few truck break-downs in the last two weeks but managed to bring in extra cover trucks, with the drivers working hard to provide collections on the correct collection day. The wet weather had resulted in a very wet site, which meant some areas could not be mown, however maintenance had been kept up as much as possible.

- A new camera system had been installed on the collection trucks working in Waimakariri (this included trucks used for scheduled or unscheduled truck maintenance). Council's Solid Waste staff and two customer services staff would be going for training in the system and to be registered into the software which was cloud-based.

6.5 Transport – Mayor Dan Gordon

Mayor Gordon was not present for this part of the meeting.

7 MATTERS REFFERED FROM KAIAPOI-TAUHIWI COMMUNITY BOARD

7.1 Island Road / Ohoka Road Intersection Improvements – Approval of Traffic Signal Scheme Design – J McBride (Roading and Transport Manager) and G Kempton (Project Engineer)

J McBride and G Kempton presented this report, referred from the Kaiapoi-Tuahiwi Community Board's meeting of 15 August 2022, which sought a recommendation for the scheme design for the upgrade of the Island Road/Ohoka Road intersection.

There had been three scheme designs previously developed for this intersection improvement – traffic signals with raised platforms; single lane roundabout and dual lane roundabout. The preferred staff option was for a traffic signals with raised platforms.

Councillor Williams expressed concern that the Council would be spending $100,000 on design before it was known if funding was confirmed and asked if a more affordable option had been considered. J McBride said the Council needed to have a design in place and be ready to go to tender to enable the Council to be in a position to apply for funding. The option of installing raised platforms on their own would not address the long term issues of the intersection, noting that this was a high risk intersection, especially during peak times. There had been near misses at this corner in the past two years, and six accidents. Traffic signals would provide a better level of service, noting that the Ohoka Road traffic volumes had increased in the past six years from 4,000 vehicle movements per day, to 10,000 per day and this route would only be getting busier in the future.

J McBride also confirmed that Waka Kotahi considered this intersection to be of a high personal risk, which was why staff had recommended that this work be progressed to design stage, so as to be in a position to progress if the funding was approved. The Council would be able to claim back the Waka Kotahi share of the design work if funding was approved.

Councillor Atkinson suggested that there were more dangerous intersections in the district (for example, several intersections along Tram Road where there had been fatalities), and believed these were a much higher priority than this intersection. J McBride advised that Council staff had worked with Waka Kotahi to determine this as a high risk intersection requiring safety improvements and had subsequently been added to the Long Term Plan. Other intersections would be prioritised for future safety work, which included those on Tram Road.

J McBride confirmed that the traffic signals would be at the Island Road/Ohoka Road intersection. This would control traffic and help provide safer movements for people turning. In combination with the raised platforms this would also slow the speed of traffic off the motorway.

Moved: Mayor Gordon Seconded: Councillor Brine

THAT the Utilities and Roading Committee:

(a) **Adopts** the Island Road / Ohoka Road Traffic Signals Scheme Design, as per section 3.4.1 of this report.

(b) **Authorise** staff to proceed to detailed design stage.

(c) **Approves** the installation of the required no stopping lines through the intersection, to be installed as part of construction.

(d) **Notes** that the recommended scheme design option includes raised speed tables to align the design with Waka Kotahi's Standard Intervention Toolkit and Safe System approach.

(e) **Notes** that staff would continue to work alongside Waka Kotahi to progress the traffic signals design and give consideration for potential queuing and any adverse impacts due to the proximity of the off-ramp.

(f) **Notes** that staff conducted a combined Board briefing on the 4 August 2022 for discussion of three options.

(g) **Notes** that there was Council budget of $100,000 allocated to the design for this project in the 2021/22 budget, and that unused budget had been carried over to allow detailed design to progress in 2022/23.

(h) **Notes** that Waka Kotahi had not approved co-funding for the construction of the project at this time, and that Council staff were continuing to advocate for funding to support this project in the future.

CARRIED
Councillor Williams against

Mayor Gordon, in supporting this motion, commented that there had been many approaches from residents concerned about the safety of this intersection and the speed of vehicles. Mayor Gordon also noted the increased traffic movements on Ohoka Road. There was general support from the Boards for this safety improvement to progress.

Councillor Brine noted his concerns with the safety at this intersection and fully supported proceeding with the design phase.

Councillor Williams did not support the motion and the spending of $100,000 of ratepayers money, before any funding was guaranteed. Councillor Williams also suggested that there were other intersections in the district that, in his view, warranted safety improvements.

Councillor Atkinson, did not support the motion when it was considered by the Community Board and, though not a member of the Committee, still did not support the spending of $600,000 of Council funds at this intersection. He suggested the installation of raised platforms to slow traffic speed would be sufficient. There would be an issue with noise with trucks having to slow down at the traffic lights which could be an issue for the neighbouring properties. Councillor Atkinson believed it was time for more focus on driver responsibility and enforcement procedures. Driver education and how drivers used the intersection was also important. It was also noted that there were no traffic calming measures in place on Cosgrove Street. Councillor Atkinson referred to the six accidents that had previously occurred at this intersection and that there had been none in the last two and suggested that people were getting used to the intersection. He reiterated his concerns with spending Council funds on this intersection and believed there were other intersections where fatal accidents were happening that were a higher priority.

Councillor Blackie agreed with the comments of Councillor Atkinson and though this intersection was a priority for safety improvements, it was not a high priority. This matter was passed by the KTCB members, but it was not an unanimous decision. Councillor Blackie had concern with the speed of traffic coming off the motorway and also that drivers approaching the intersection, either from Kaiapoi, or off the motorway, would still have to cross lanes to either turn left or right at the intersection. The traffic lights would interrupt the flow of commuter traffic and he questioned the spending of $1.25m on signals at this intersection.

Councillor Ward supported having the traffic signals installed at this intersection, noting that this would allow for safe turning of traffic onto Ohoka Road from Island Road.

Councillor Doody pointed out that the Community Board members supported this and the Council should support their recommendation.

In reply, Mayor Gordon acknowledged the previous comments and noted that this was a major thoroughfare between Kaiapoi and Rangiora. This was an opportunity to make this intersection safer.

7.2 Approval to Consult on Scheme Design Options for the Tuahiwi Footpath – J McBride (Roading and Transport Manager) and A Mace-Cochrane (Graduate Engineer)

A Mace-Cochrane and J McBride presented to this report, which sought approval to consult on the scheme design options for the Tuahiwi footpath construction, as was recommended by the Kaiapoi-Tuahiwi Community Board. The footpath was for the eastern side of Tuahiwi Road.

It was planned to have targeted consultation with the iwi at the Marae and the directly affected residents on the east side of the road, to explain the different parking options. An information notice would be distributed to the remaining residents of Tuahiwi village.

Moved: Mayor Gordon Seconded: Councillor Brine

THAT the Utilities and Roading Committee:

(a) **Receives** Report No. 220801130424.

(b) **Approves** consultation being undertaken on the proposed scheme design options shown in Attachment i.

(c) **Notes** that a communication and engagement plan would be put together following approval of this report which would detail the method of engagement for directly affected residents, the Marae, and Ngāi Tūāhuriri.

(d) **Notes** that there was a budget of $450,000, allocated within PJ 101229.000.5135, for the 2022/2023 financial year to undertake the detailed design and construction of the Tuahiwi Footpath.

(e) **Notes** that all three scheme design options are below the allocated budget of $450,000 and include 20% contingency.

CARRIED
Councillor Williams against

Mayor Gordon, in supporting this motion, said the matter had been raised by residents with the Council over several years and with an urupa, a pre-school and a school on the east side of Tuahiwi Road, made this a priority. Mayor Gordon asked staff to advise when the targeted consultation was being undertaken and elected members could be available to provide support.

Councillor Williams did not support this motion, and believed there were other communities in the district that also required a footpath. There was already an adequate footpath on one side of the road with a pedestrian crossing at the school.

Councillor Atkinson referred to the proposal for the footpath to go to the entrance to the urupa, and suggested it could be extended along to where the current traffic calming was in place, and have a pedestrian crossing installed there. Staff would investigate this suggested addition.

Councillor Stewart supported this motion and acknowledged Councillor Williams comments that there were other towns in the district that required footpaths. Members were reminded that this town had an urupa, a preschool, a school, a church and a marae and there are times when there were a significant number of people walking from the marae to the urupa, who mostly walked on the road, as there was no footpath. There were also vehicles on Tuahiwi Road at the same time, and this footpath was long overdue to allow people to move safely along the east side of the road.

8 MATTERS FOR INFORMATION

8.1 Request for Approval to Engage Waugh Infrastructure Management Limited for 3 Waters Climate Change Risk Assessment Project – Colin Roxburgh (Water Asset Manager)

(refer to report no. 220721124634 to the Management Team meeting of 1 August 2022)

Moved Councillor Williams Seconded Councillor Ward

THAT the Utilities and Roading Committee

(a) **Receives** the information in Item 8.1.

CARRIED

9 QUESTIONS UNDER STANDING ORDERS

There were no questions.

10 URGENT GENERAL BUSINESS

There was no urgent general business.

11 MATTERS TO BE CONSIDERED WITH THE PUBLIC EXCLUDED

Section 48, Local Government Official Information and Meetings Act 1987

Moved Councillor Brine Seconded Councillor Ward

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

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

Item No	Minutes/Report of:	General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under section 48(1) for the passing of this resolution
11.1	Minutes of the Public Excluded portion of the Utilities and Roading Committee Meeting Tuesday 19 July 2022.	Confirmation of Minutes	Good reason to withhold exists under Section 7	Section 48(1)(a)
REPORTS				
11.2	Report from Management Team meeting	Report for Information	Good reason to withhold exists under Section 7	Section 48(1)(a)

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

Item Nº	Reason for protection of interests	Ref NZS 9202:2003 Appendix A
11.1 – 11.2	Protection of privacy of natural persons To carry out commercial activities without prejudice	A2(a) A2(b)ii

CARRIED

CLOSED MEETING

Resolution to Resume in open meeting

Moved Councillor Brine Seconded Councillor Ward

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

CARRIED

The public excluded portion of the meeting commenced at 5.10pm and concluded at 5.12pm.

OPEN MEETING

NEXT MEETING

The next meeting of the Utilities and Roading Committee is scheduled for 3.30pm, on Tuesday 27 September 2022.

There being no further business, the meeting concluded at 5.13pm.

CONFIRMED

_____
Councillor Robbie Brine
Chairperson

_____
Date

Workshop

- *Annual Eastern Districts Sewer Scheme – Kalley Simpson (3 Waters Manager)*

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR DECISION

FILE NO and TRIM NO:	STW-10-05 / 220912157430
REPORT TO:	UTILITIES AND ROADING COMMITTEE
DATE OF MEETING:	27 September 2022
AUTHOR(S):	Dan Lewis – Land Drainage Engineer
SUBJECT:	Proposed Closure of Stockwater Race R4-2
ENDORSED BY: (for Reports to Council, Committees or Boards)	General Manager / Acting Chief Executive

1. SUMMARY

1.1. This report seeks approval to close Waimakariri District Council owned stock-water race R4-2 at Carleton Road, Oxford.

1.2. The Waimakariri District Council owns and operates a stockwater race network delivering stock water to a service area of approximately 44,000 hectares.

1.3. The Stockwater Race Closure Policy provides a mechanism for the Council to consider applications to close sections of the stockwater network.

1.4. An application has been received by JG & DA Crawford Limited to close stockwater race R4-2 at 1149 and 1162 Carleton Road, Oxford. The stockwater race is no longer required for stock water due to the development of on-farm improvements such as reticulated stockwater and irrigation.

1.5. Community views of this closure have been sought and feedback detailed in this report.

1.6. There is no financial or performance impact on the stockwater scheme as a result of this closure.

Attachments:

i. Location Plan
ii. Proposed Closure Plan
iii. Stockwater Race Closure Policy (190118004909)
iv Plan 4020-1-B - Water Race Network Time Stamped Race Changes (220913159018)

2. RECOMMENDATION

THAT the Utilities and Roading Committee

(a) **Receives** Report No. 220912157430.

AND

THAT the Utilities and Roading Committee recommends:

THAT the Council:

(b) **Approves** the closure of Stockwater Race R4-2.

(c) **Notes** there will be no financial or performance impact from this closure on the stockwater network.

(d) **Notes** the length of stock-water races is reported to the Utilities and Roading Committee; and Waimakariri Water Zone Committee each year.

3. BACKGROUND

3.1. Stockwater races have supplied water for stock since the introduction of the network in 1896. Additional farm races added over time have culminated in a network delivering water to approximately 44,000 hectares. With the change in land use, water can now be taken for stock-water and domestic irrigation.

3.1 The primary function of the network is to supply stock-water. It is self-funding and paid for by the stock-water users. The Council currently has Environment Canterbury consent (CRC133965) to take surface water from the Waimakariri River at the Browns Rock intake to supply the scheme.

3.2. Due to various reasons such as: development of farm infrastructure, some land owners have a desire to remove races from their properties. For this reason, the Waimakariri District Council have a Stockwater Race Closure Policy S-CP 5612. This policy has been designed to follow the steps as set out in legislation in the *Local Government Act 2002* (LGA) on decision making in the context of water race closure. Generally the Council will not allow race closures where they may affect the viability of the water race network.

3.3. An application has been received by JG & DA Crawford Limited to close stockwater race R4-2 at 1149 and 1162 Carleton Road, Oxford. The stock-water race is no longer required for stock water due to the development of on-farm improvements such as reticulated stockwater and irrigation. This particular race now creates an unnecessary burden due to its location within the farm and ongoing maintenance costs. The remaining races follow features such as boundaries, vehicle tracks or shelterbelts.

3.4. The impact of this proposed closure is considered minor due to the relative length. The length of stock-water races is reported to the Utilities & Roading Committee; and Waimakariri Water Zone Committee each year to provide an overview of the cumulative effect of race closures.

4. ISSUES AND OPTIONS

4.1. **Proposal**

The property at 786 Wrights Road is served by a further two combined irrigation/stockwater races on the north and south boundaries. The property owner has no requirement for race R4-2 and supports this proposed closure.

The property at 1149 & 1162 Carleton Road form one rating unit. This property is served by five existing races with a combined length of approximately 12kms. The proposal is to close 3.6kms of race R4-2 shown on attachment ii.

Race R4-2 commences at an off-take from race R5 within the property at 786 Wrights Road. The race flows along the common boundary for some 400 meters before entering 1149 Carleton Road. The race then flows in an easterly direction for three kilometres through one farm before servicing multiple properties again at the boundary of 661 Wolffs Road.

A new off-take is proposed from race R4-1 to continue to supply the balance of race R4-2 and R4-3 users.

4.2. **Consultation**

The Waimakariri District Council's Stockwater Race Closure Policy requires the decision making process, in Part 6 of the Local Government Act 2002, to be followed when a proposed closure is processed. In particular, Section 4.2 of the policy requires an assessment of significance in terms of the Council's Significance Policy. The proposed closure is not considered significant due to there being no impact on the stockwater scheme revenue and the one affected property owner supports the closure. Therefore, consultation with residents using the Special Consultative Procedure is not considered necessary as nobody else if considered affected.

4.3. **Waimakariri Irrigation Limited**

Waimakariri Irrigation Limited (WIL) have reviewed the proposed closure and report the changes will have no impact on the remaining network performance. Physical changes will be overseen by WIL to ensure structures and new races are constructed correctly.

4.4. **Aquifer Recharge and River Flow Augmentation**

In the past, Environment Canterbury (ECan) have advised that their preference is for no stockwater races to be closed due to the significant benefits of the scheme in terms of diluting nitrates in groundwater and sustaining flows in spring-fed streams.

The race systems function is primarily for irrigation and stockwater supply. The operation and maintenance of the stock-water system (not including irrigation supply) is paid for by the stockwater users, via targeted water-race rates. The Council currently has resource consent (CRC133965) to take surface water from the Waimakariri River at the Browns Rock intake to supply the water race system. Condition 2 of CRC133965 states that water taken shall only be used for stockwater, domestic irrigation, for hydro-electric power generation and for purposes associated with CRC000585. Any other use of the water (e.g.: for managed groundwater recharge purposes) is not covered by this consent.

Relative to the amount of groundwater recharge likely across the entire scheme, based on total length of approximately 831km, the recharge accountable to R4-2 is likely minimal as the proposed closure is approximately 3.3km long. This equates to only 0.40% of the total stock-water scheme.

4.5. **Drainage**

The closure of R4-2 is not expected to have any impact on drainage capacity during a flood event as the race flows parallel with the direction of overland flows.

4.6. **Archaeological Assessment**

Heritage New Zealand provides the following text on their website:

"The Heritage New Zealand Pouhere Taonga Act 2014 makes it unlawful for any person to modify or destroy, or cause to be modified or destroyed, the whole or any part of an archaeological site without the prior authority of Heritage New Zealand. If you wish to do any work that may affect an archaeological site you must obtain an authority from Heritage New Zealand before you begin."

"This is the case regardless of whether the land on which the site is located is designated, or the activity is permitted under the District or Regional Plan or a resource or building consent has been granted. The Act provides for substantial penalties for unauthorised destruction or modification."

"An archaeological site is defined in the Heritage New Zealand Pouhere Taonga Act 2014 as any place in New Zealand (including buildings, structures or shipwrecks) that was associated with pre-1900 human activity, where there is evidence relating to the history of New Zealand that can be investigated using archaeological methods."

Aerial photographs have been examined to determine the approximate age of race R4-2. The race is evident on aerials from 1975-79 but not visible on aerials from 1955-59, therefore staff estimate it to be no older than 67 years old. No archaeological assessment has been undertaken or is considered necessary.

4.7. **Ecology**

The overall stockwater race network is likely to provide some level of ecological value. Informal fish surveys have been conducted at a few sites but the results have not be reported. The operation of the race network does not account for ecological values. The supply of water to individual races may stop for extended periods for race maintenance. Condition 3 of CRC133965, states that "water shall only be taken when a fish screen with a mesh size or slot width not exceeding five millimetres is operated and maintained across the intake to ensure that fish and fish fry are prevented from passing through the intake" and that "all practicable measures shall be taken to avoid the stranding of fish in pools and channels". No site specific assessment has been undertaken for this proposed closure.

Implications for Community Wellbeing

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

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

5. COMMUNITY VIEWS

5.1. The following groups were provided a memo (220526085708) outlining the proposed closure seeking their feedback:

- Oxford-Ohoka Community Board
- Water Race Advisory Group
- Waimakariri Water Zone Committee
- Te Ngāi Tūāhuriri Rūnanga
- Environment Canterbury
  Fire and Emergency NZ

5.2. **Mana whenua**

Te Ngāi Tūāhuriri hapū are not likely to be affected by, or have an interest in the subject matter of this report.
Mahaanui Kurataiao Ltd were provided the memo outlining the proposed closure but no feedback has been received from them.

5.3. **Water Race Advisory Group**

The Water Race Advisory Group discussed the proposal at their 6 July 2022 meeting. They have no objection as the closure will not impact rates revenue or the function of the scheme.

5.4. **Oxford-Ohoka Community Board**

The Oxford-Ohoka Community Board received the memo at their 7 September 2022 meeting. Staff were available at the meeting to answer questions. The Community Board were invited to provide feedback via email to Dan Lewis. No feedback has been received.

5.5. **Waimakariri Water Zone Committee**

The Waimakariri Water Zone Committee discussed the proposal during their meeting on 5 September 2022. The following feedback was received:

Ecological Values
The committee noted the race may provide ecological values and these values should be considered.

Nitrate reduction
The committee noted the races contribute to nitrate dilution through leakage and the cumulative effect of closures may impact this. It was noted this negative impact may offset gains made by farms at reducing nitrate contamination. The committee recommended communities be made aware of the dilution effect the race network provides.

National Policy Statement – Freshwater Management
The committee stated their understanding is stockwater races fall under the requirements of the NPS-FM. The committee queried how Council are managing the stock-water scheme to give effect to the NPS-FM.

Wolffs Road properties not consulted
The committee noted the lifestyle properties at the east end of the closure on Wolffs Road have not been consulted and the reduction in nitrate dilution may impact their water supply wells. They recommended these properties be made aware of the possible impact of the closure.

5.6. **Environment Canterbury**

Environment Canterbury were provided the memo outlining the proposed closure but no feedback has been received from them.

5.7. **Fire and Emergency NZ**

Fire and Emergency NZ were provided the memo outlining the proposed closure but no feedback has been received from them.

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. No groups other than those listed above have been made aware of the proposed closure.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

6.1. **Financial Implications**

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

6.2. **Sustainability and Climate Change Impacts**

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

6.3 **Risk Management**

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

6.3 **Health and Safety**

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

7. CONTEXT

7.1. **Consistency with Policy**

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

7.2. **Authorising Legislation**

Stockwater Race Bylaw 2021.
Waimakariri District Council Stockwater Closure Policy.

7.3. **Consistency with Community Outcomes**

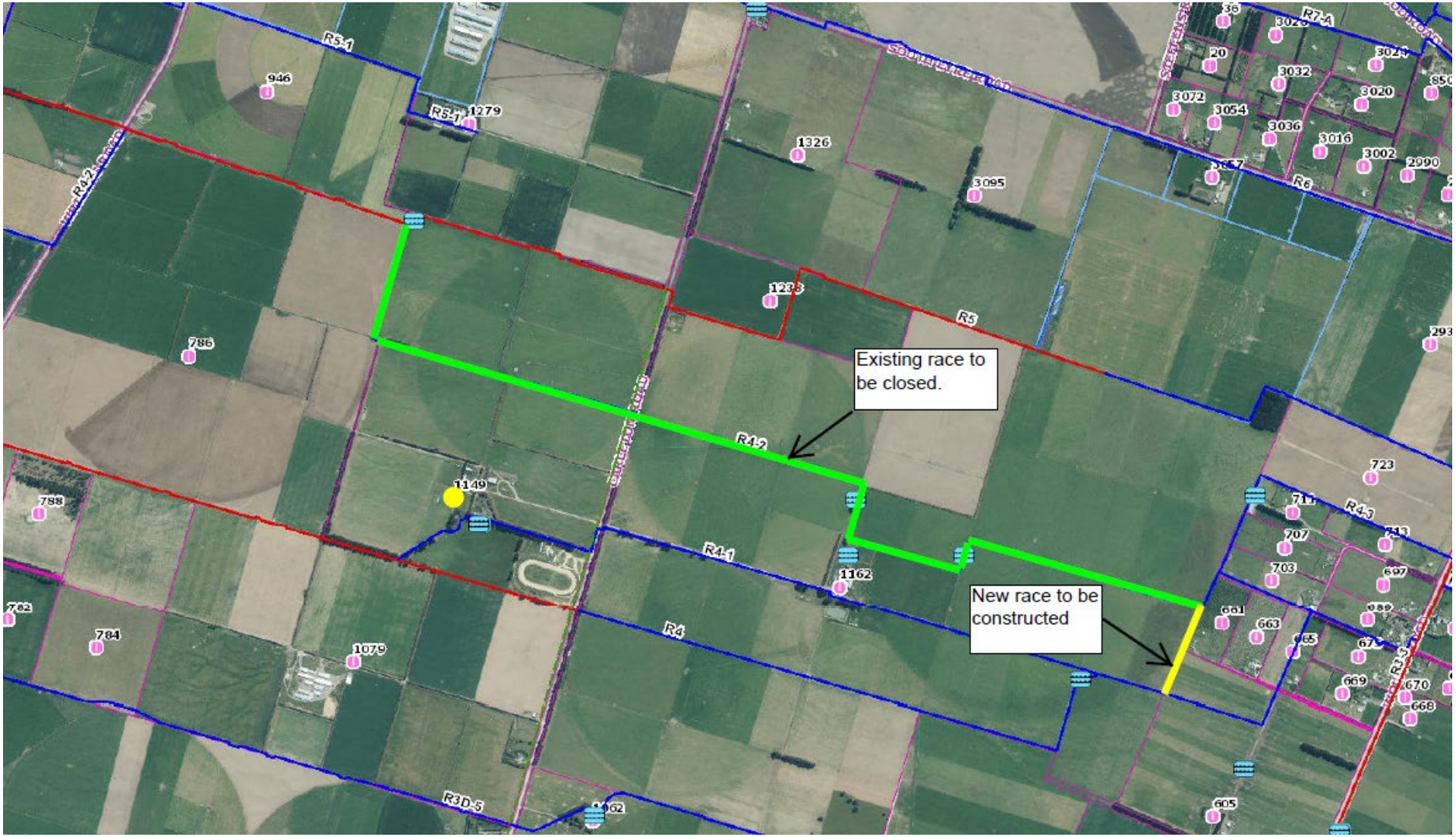
The Council's community outcomes are relevant to the actions arising from recommendations in this report.

7.4. **Authorising Delegations**

The Council has delegated authority to make a decision on this race closure.

Attachment i. **Location Plan**

Attachment ii. **Proposed Closure Plan**



WAIMAKARIRI DISTRICT COUNCIL

POLICY

Water

STOCKWATER RACE - CLOSURE POLICY

1 Introduction

1.1 Stockwater races in the Waimakariri District have supplied water for stock since the system was first introduced in 1896. Since then water has been supplied to livestock on a continuing basis throughout the District. There have been few closures of races over that time however with changes in land use, particularly due to rezoning and encroaching urbanisation there has been the need to close several water races. This policy set outs the procedures to be followed when further applications for closures of water races are received.

2 Policy Context

2.1 This policy has been designed to follow the steps as set out in legislation in the *Local Government Act 2002* (LGA) on decision making in the context of water race closure.

2.2 Generally the Council will not allow race closures where they may affect the viability of the water race network.

3 Policy Objective

3.1 The objective of this policy is to ensure that all closures are carried out in a systematic fashion and to ensure that effective consultation is carried out.

4 Policy Statement

4.1 The steps to closing a water race are initiated once a reason for a closure has been established and investigated. This may be due to an external request or as a result of an internal Council staff review. Once a water race has been identified for closure, a decision process is then to be undertaken as set out in the LGA, specifically Part 6 which deals with decision making.

4.2 The first step is to determine if the closure is a matter of significance as set out in the Council's Significance Policy (refer to Financial Management section of the Long Term Plan) and based on the following questions:

a. Would the level of service for the supply and delivery of stockwater be significantly affected if the race were closed?

b. Is the race being considered for closure a strategic asset?

c. Would closure significantly affect Council's ability to supply water?

d. Would closure significantly affect the cost to Council and ratepayer to undertake this activity?

4.3 If the answer is yes to any of the above questions then the special consultative procedure as set out in Section 83 of the LGA should be initiated. This should include reporting to the Utilities and

Roading Committee, Water Race Advisory Group and relevant Community Board or Advisory Board on the proposed consultation process and subsequent decision.

4.4 If the answer to the questions under Clause 4.2 are no then the decision making process as set out in Sections 77 and 78 of the LGA should be followed.

4.5 Whether the process is a Special Consultative Procedure or not, the consultation undertaken may include:

i. Letters to residents and other affected parties e.g.: developers
ii. Consultation with the Heritage New Zealand regarding structures such as culverts, weirs and flumes.
iii. Consultation with Environment Canterbury, Te Ngāi Tūāhuriri Rūnanga, and the Waimakariri Water Zone Committee.
iv. Public notices in papers and/or on the WDC website
v. Proposal open for consultation for at least one calendar month
vi. Report to affected Community Board or Ward Advisory Board and Water Race Advisory Group
vii. Public meeting
viii. Closing date for proposal submissions
ix. Send acknowledgement letter to submitters
x. Complete report based on the submissions and deliberations
xi. Report to Management Team
xii. Report to Council Committee (U&R) then Council
xiii. Letter to residents with Council decision where appropriate

5 Links to other policies and community outcomes

5.1 This policy links with the Stockwater Race Bylaw 2019, Stockwater Race Pond Policy and Planting of Trees and Shrubs Alongside Water Races Policy. In addition it is linked to the following Community Outcomes:

- *The demand for water is kept to a sustainable level*
- *Harm to the environment from the spread of contaminants into ground and surface water is minimised.*

6 Adopted by and date

6.1 This policy was adopted by the Council on the 2 April 2019

7 Review

7.1 The review of this policy will be aligned with the Stockwater Race Bylaw 2019 review programme by June 2029.

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR DECISION

FILE NO and TRIM NO:	TSU-22 / 200108001550
REPORT TO:	UTILITIES AND ROADING COMMITTEE
DATE OF MEETING:	27 September 2022
FROM:	Gerard Cleary, General Manager Utilities and Roading Kelly LaValley, Project Delivery Manager
SUBJECT:	Flood Mapping Freeboard and Floor Level Technical Practice Note
ENDORSED BY: (for Reports to Council, Committees or Boards)	General Manager / Acting Chief Executive

1. SUMMARY

1.1 This report is to update the Utilities and Roading Committee and Council on work staff have been doing to ensure that a consistent and robust process is followed when assessing the risk of flooding and setting minimum floor levels for new dwelling houses in the district.

1.2 Minimum floor levels work in conjunction with Council infrastructure to provide a level of flood protection to dwelling houses. Minimum floor levels provide protection in large flood events that exceed the level of service provided by Council infrastructure.

1.3 The report requests that the Utilities and Roading Committee recommends that the Council adopt the Flood Mapping Freeboard and Floor Level Technical Practice Note (provided as attachment i).

1.4 This practice note has been written by the Utilities and Roading Department with on-going advice from Planning, Building Unit and Policy over approximately 2 years. Collaboration has predominately been through the Flood and Floor Level Working Group.

1.5 The practice note provides a process for determining finished floor level recommendations for very low, low, and medium hazard areas but advises that no building should occur in high flood hazard areas. This aligns with the requirements in the Proposed District Plan and the direction of the Canterbury Regional Policy Statement, which the Proposed District Plan must give effect to.

1.6 The practice note aligns with the approach taken with the Housing Amendment Act variation whereby flooding is proposed to be a qualifying matter that limits further housing intensification in areas of Kaiapoi.

Attachments:

i. Draft - Flood Mapping Freeboard and Floor Level Technical Practice Note (Record No. 200106000520)
ii. Memo to Flood and Floor Level Working Group, Minimum Floor Levels in Kaiapoi (Record No. 200106000237)
iii. Kaiapoi Minimum Finished Floor Level Technical Memorandum (Record No. 200114003406)
iv. Practice Note Process Flow Chart (Record No. 220323042890)

v. Provide Minimum Finished Floor Level Advice Promapp process (Record No. 220323042876)

2. RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 200108001550.

AND

THAT the Utilities and Roading Committee recommends:

THAT the Council:

(b) **Endorse** the Flood Mapping Freeboard and Floor Level Technical Practice Note and associated process (Record No. 200106000520 and 220323042890).

(c) **Notes** that the processes and requirements in this Technical Practice Note will be used by staff when setting minimum floor levels in relation to building, subdivision and land development in the district.

(d) **Notes** that the General Manager Utilities and Roading, 3 Waters Manager and Project Delivery Manager will use discretion in applying the Technical Practice Note on a case by case basis.

(e) **Notes** that the Technical Practice Note may need to be revised once the Proposed District Plan is adopted to reflect the proposed changes to the natural hazards chapter.

(f) **Notes** that the Technical Practice Note is a living document and may be amended by the General Manager Utilities and Roading, 3 Waters Manager or Project Delivery Manager with any major changes to be brought to the Council for endorsement.

3. BACKGROUND

3.1 The risk of flooding is a significant natural hazard in the district. Given the nature of our topography it requires careful consideration whenever houses are being planned for or constructed.

3.2 Council staff have robust systems and processes to manage this risk including, LIDAR survey, flood mapping and historical flood records. In recent years these processes have been strengthened considerably. If houses are constructed in a way that does not provide an adequate level of flood protection the cost and consequences can be significant for the property owner, builder, developer, insurers and the Council. The risk can never be completely eliminated, however, having clear requirements and good systems will help to minimise this risk.

3.3 Despite having good technical information there is, at times, a lack of consistency in its application. The Flood Mapping Freeboard and Floor Level Technical Practice Note will provide staff throughout the entire council with clear guidance when dealing with these matters. In addition to this builders, developers and property owners will have clearer information available to help them understand their obligations and the expectations of the Waimakariri District Council.

3.4 Due to cost pressures there is an approach taken by some property owners, builders and developers to build to the standards of the Building Code which are a minimum. There is sometimes a reluctance to pay the cost of building floor levels up to an appropriate height and Council staff are therefore put under pressure to defend the Council's chosen position

on a floor level. This Technical Practice Note will be very helpful for all parties by clarifying requirements.

3.5 Minimum floor levels are set to protect dwelling houses from larger storm events that exceed the level of service of Council infrastructure. Other constructed flood protection systems, such as pumped systems or stop banks, can fail in large storm events; minimum flood levels will provide protection if potential failures occur.

3.6 The recent stormwater and flood protection works included in the Shovel Ready programme of works will improve outcomes for existing properties in Kaiapoi, however, the capacity of the pump systems installed is fixed. In order to ensure that no future dwellings are at risk in up to a 0.2% AEP (Annual Exceedance Probability) event, minimum floor levels are required.

4. ISSUES AND OPTIONS

4.1. Flood Mapping

4.2. The Waimakariri District Council has in-house modelling capability and has produced a series of flood hazard maps based on flood models that show areas of flood risk with predicted water level and velocity for a range of storm events. These models are regularly updated, improved, and more recently include Ashley River breakout modelling.

4.3. Additionally, Council has commissioned coastal inundation modelling undertaken by an external consultant that shows areas of flood risk from coastal hazards. This information has also been incorporated into the flood hazard maps.

4.4. For large scale developments it is still necessary to carry out specific modelling to determine the impact the development has on the surrounding area and to determine minimum floor levels.

4.5. For individual houses and small developments the Waimakariri District Council flood hazard maps are appropriate for setting minimum floor levels provided the requirements of the Technical Practice Note are complied with.

4.6. Flood Annual Exceedance Probability

4.7. For rural areas 0.5% AEP flood maps are used to predict flood levels. There are a number of reasons for using this probability of flood event.

4.8. Firstly the 0.5% AEP flood event is aligned with the requirements of the Canterbury Regional Policy Statement (CRPS).

4.9. Secondly, particularly in rural areas, the flood maps should be considered an indication of where flooding is likely to occur. They also categorise the flood hazard as low, medium or high rather than being an exact predictor of flood level. This is because they are broad scale and based on a relatively large grid scale when compared to actual house sites. Using the 0.5% AEP storm, coupled with the freeboard requirements gives an adequate level of conservatism for staff to be comfortable that the risk is being managed adequately. This allows the flood maps to be used to help locate individual houses and build to appropriate floor levels with confidence.

4.10. In urban areas such as Kaiapoi and Rangiora there has been modelling completed to a finer level of detail. These models use smaller grids and represent actual ground levels more accurately. The models also include the primary stormwater network (including pipes and pumps). Because of this higher level of confidence, 1% flood maps have been

produced as well as 2% flood maps. This allows a much better understanding of flood behaviour. As a result these 1% AEP models can be used, with the required freeboard, to set building consent floor levels in towns such as Rangiora and Kaiapoi.

4.11. Along with the requirements of the District Plan, the Canterbury Regional Policy statement requires Council to 'have regard' to the effects of a 0.5% AEP flood breakout event when assessing subdivision or land use consents. It is acknowledged that in some circumstances the specific site context will require consideration of the existing developed environment. The Technical Practice note addresses this matter by setting a starting point for assessment based on a 1% AEP flood event for individual dwellings, with any requirement for a higher finished floor level considered from this starting point.

4.12. **Climate Change**

4.13. Climate change has been allowed for in the flood modelling based on current recommendations from the Ministry for the Environment (MfE). This includes an allowance for sea level rise and an allowance for increased rainfall intensity as predicted by NIWA for future rainfall events.

4.14. One of three new pieces of legislation proposed by central government to replace the Resource Management Act is the Climate Change Adaptation Act. This legislation is expected to be introduced into the house as the third proposed Bill behind the Natural and Built Environments Act and the Strategic Planning Act. Staff understand that this Bill is likely to be introduced sometime in mid-late in 2023. Outcomes of the Climate Change Adaptation Act will be incorporated into future updates of the practice note.

4.15. **Freeboard**

4.16. There has been, in general, a requirement for a 300mm freeboard within the Waimakariri District. Freeboard is the height that the buildings floor level is constructed above the flood level. For example if the flood level is 1.0m above the ground at a house site and a 300mm freeboard is applied, then the building's floor level would need to be 1.3m above the ground.

4.17. There is a variation in the freeboard allowance that is used throughout New Zealand, this is generally between 300mm to 500mm. Table 1 below is a summary of freeboard allowances for a number of New Zealand territorial authorities.

Table 1: Comparison of New Zealand Freeboard Requirements

Location	Freeboard requirement
Waimakariri	300mm
Auckland	500mm, Residential 300mm, Commercial
Wellington	500mm, Habitable 200mm, Non Habitable
Christchurch	400mm
NZS4404, Code of Practice for Urban Subdivision	500mm
Dunedin	500mm 400mm in areas flooded in 2015
Building Act	500mm, if surface water depth is 100mm or more and adjacent to road or areas subject to vehicle wash, 150mm for all other cases.

4.18. The 300mm freeboard that is used in the Waimakariri District has its merits. However it can be seen from the comparison in Table 1 that it is relatively low compared to the general requirement in other jurisdictions.

4.19. One justification for having a freeboard lower than some others is that Waimakariri District is located within a large and predominantly flat floodplain. Generally speaking water flow is laminar at relatively low velocity. It also requires a lot of additional water to significantly increase the height of a flood as there is generally a large surface area to spread the water over. These characteristics make the water level more predictable and support a freeboard of 300mm.

4.20. However there are a number of factors that would favour a higher freeboard of 500mm. These include; vehicle wash, survey error and inaccuracy, fences impeding flow, less public and insurance industry acceptance of flooding, modelling error and uncertainty, minor earthworks (bunding and channels) not represented in the model, ongoing ground movement due to seismic activity, unpredictability of climate change and, catchment changes upstream of development.

4.21. This Technical Practice Note takes an approach of varying the freeboard between 300mm and 500mm depending on the circumstances associated with flood risk. This issue is explained below and in the Technical Practice Note itself (attachment i).

4.22. *New Greenfield Development*

4.23. In new greenfield development areas the Technical Practice Note requires a 500mm freeboard above the 0.5% AEP flood level. This matches the freeboard requirement of 500mm in the New Zealand Standard, Land Development and Subdivision Infrastructure, NZS 4404:2010.

4.24. Where the land has a low risk of flooding, there is little or nothing that needs to be done by the Developer to achieve the freeboard requirement. In areas of medium or higher risk there may need to be additional filling or careful design considerations given to achieve the desired level of protection.

4.25. The Technical Practice Note is guidance for Council Staff in this situation, it also helps the Developer understand what Council engineers consider to be an acceptable level of protection. A Plan Change or Resource Consent for subdivision provide the formal process for assessing the effects of a development under the Resource Management Act (RMA). A Developer may choose to seek to gain approval for a lower level of flood protection than the Technical Practice Note, which would require the preparation and approval of a site specific flood risk assessment. The formal RMA process allows for this and will take precedence over the requirements of the Technical Practice Note.

4.26. *Existing Greenfield subdivisions*

4.27. Many subdivisions that have been approved since 2000 have minimum floor level requirements. These include subdivisions such as Pegasus and Ravenswood. In these areas the floor level requirements are clearly spelled out and used without any need to utilise the Waimakariri District Council's flood maps to carry out further engineering assessment.

4.28. *Existing Urban Areas (Brownfield) and Rural Areas*

4.29. The Technical Practice Note adopts a variable freeboard between 300mm and 500mm. A staff working group consisting of experienced engineers' workshopped this issue in developing the outlined approach. A 300mm freeboard is required for shallow flood water, increasing up to 400mm in medium hazard areas and 500mm in high hazard areas.

4.30. Where flood water is predicted to be less than 100mm in depth, then 300mm freeboard is required. This is because there is a lower flood risk and it is unlikely that significant waves can be sustained in such shallow water.

4.31. For flood water up to 300mm in depth, a 400mm freeboard is required. Where water exceeds 300mm, then a 500mm freeboard is required.

4.32. *Rural Areas and Res 4A.*

4.33. In areas where flood water is predicted to be below 100mm (very low hazard) the technical practice note requires a floor level to be 400mm above the surrounding ground. This allows for a 300mm freeboard.

4.34. 300mm is considered adequate as it is unlikely significant waves can be generated in less than 100mm of water. It is still necessary to allow for some freeboard as there is still a risk of error. Also, particularly in rural areas there is a risk that flooding will be deeper than predicted in localised areas due to minor earthworks, fences, shelterbelts, driveways and other land use changes. Our experience during flood events has shown this to be an issue, depending on the location of the building on the site.

4.35. For low hazard areas, where water can be up to 300mm deep, a freeboard of 400mm is required by the practice note. In medium hazard areas where water is greater than 300mm deep, a 500mm freeboard is required by the practice note.

4.36. In high hazard areas building is not anticipated by the practice note. If a property owner wishes to construct a house in a high hazard area then they will need to apply for a resource consent, supported with a flood risk assessment from a Chartered Professional Engineer. This assessment will need to take into consideration the Regional Policy Statement which seeks to avoid adverse environmental effects resulting from construction of houses in high hazard areas.

4.37. There is an allowance for exceptions such as on hillsides or ridges where there is not a risk of flooding.

4.38. *Existing Urban Areas (Brownfield)*

4.39. In urban areas (excluding Kaiapoi and coastal urban area of Kairaki, The Pines Beach, Woodend Beach and Waikuku Beach) the 1% AEP flood maps are used. In very low hazard areas the Building Act minimum requirements need to be complied with, with no need for any further specific consideration. In low hazard areas a 400mm freeboard is required over the 1% AEP flood level. For medium and high hazard areas 500mm freeboard is required over the 1% AEP flood level.

4.40. *Kaiapoi and Coastal Urban Areas*

4.41. Kaiapoi and coastal urban area of Kairaki, The Pines Beach, Woodend Beach and Waikuku Beach has been considered separately as much of the these areas are located within basins that rely on a functioning stormwater system and pump stations. A separate memo has been prepared to discuss floor levels including freeboard requirements in Kaiapoi. This memo is appended to this report (see attachment ii).

4.42. A minimum floor level map has been prepared for Kaiapoi and coastal urban areas. This makes it simple for the public and Council staff to work off. It allows for the 1% AEP flood level and a suitable freeboard depending on the area. The freeboard requirements are based on the hazard category and are consistent with the other towns and rural areas.

4.43. *Existing Dwellings*

4.44. The requirements of this practice note are not intended to apply to existing dwellings already established within these areas. It is considered unreasonable to force a Property Owner to raise the floor level of an existing dwelling.

4.45. **Process**

4.46. There is an established working group of staff who are involved in flood assessment, 3 Waters, Subdivision Engineering, Building Consents and Planning. This group meets regularly to ensure that there is a coordinated approach to Council processes, focusing on customer service and delivery, consistent standards, learning, debriefing when issues have been identified, assessing current applications and helping to develop the Technical Practice Note.

4.47. The attached flow chart (attachment iii) shows how the Technical Practice Note will be implemented by staff. The process will be fully documented within the Promapp system which clearly spells out key decision points, staff roles and responsibilities.

4.48. **District Plan**

4.49. The natural hazards chapter was reviewed as part of the district plan review. This review included flood risk as a natural hazard in the district. This practice note aligns with the current district plan as well as the proposed natural hazards chapter. In terms of hierarchy the district plan sets the policy. This technical practice note relates at an operational level and sets out how the district plan policy and rules are implemented by staff. When the district plan natural hazards chapter is adopted the technical practice note will be reviewed and if necessary updated to incorporate any changes or requirements of the new district plan.

4.50. In existing urban areas, brownfield developments could result in floor levels of new dwellings being noticeably higher than the existing adjacent dwellings. This would potentially have an effect on recession planes with more dwellings breaching the District Plan and requiring consent. Such impacts will be considered at the time of building consent under the relevant built form standard that applies (either the operative plan, proposed plan or the built form standards amended under the housing intensification variation.

4.51. **Key Changes**

4.52. A lot of the technical practice note does not change current practice. However there are some areas where requirements will be made clearer, there will be more consistency or higher standards will be required. The key changes from current practice that will be implemented as a result of the technical practice note are summarised below:

4.52.1. The typical freeboard that was previously applied in all cases was 300mm. This will remain the same for water depths up to 100mm and increase to 400mm for low hazard areas (water up to 300mm deep) and further increase to 500mm for medium and high hazard areas (water depths of greater than 300mm).

4.52.2. In existing urban areas where there are accurate 1% AEP flood maps available these will be used. Previously there had not been a consistent approach, and it relied a lot more on the discretion of the Council Engineer assessing the risk on a case by case basis.

4.53. **Options**

4.54. The Utilities and Roading Committee and Council have three broad options available. These are outlined below:

4.55. **Option 1. Recommended Option**

4.55.1. Adopt the Practice Note. This will provide a clear framework for staff to work within and is supported by the Council Engineers with expertise in flooding and development.

4.56. **Option 2. Require reconsideration or amendment**

4.56.1. Request the Manager Utilities and Roading to revise the detail of the Technical Practice Note, or provide more information if there are any outstanding issues in the mind of the Council. This would allow staff to consider any issues raised by Council and allow these to be addressed before bringing a revised technical practice note back to the Committee and Council for adoption.

4.57. **Option 3. Decline**

4.57.1. Decline to approve the technical practice note and instruct staff to do no further work on it. This is not recommended as it would leave the Council exposed to risk and continue to create uncertainty for staff and property owners.

4.58. **Management Team**

4.59. The Management Team have reviewed this report and support the recommendations.

5. COMMUNITY VIEWS

5.1. **Mana whenua**

5.1.1. Te Ngāi Tūāhuriri hapū are likely to have an interest in the subject matter of this report. Flooding in parts of Tuahiwi have previously been raised as issues by the Runanga.

5.2. **Groups and Organisations**

5.2.1. No specific engagement has been carried out in preparation of this report. When the technical practice note is completed it will be made publically available, particularly to engineers working on behalf of Developers within the district.

5.3. **Wider Community**

5.3.1. Flooding is an issue that impacts on the wider community. In general feedback from the community, particularly following flood events is that the Council should be doing more in reducing the risk of flooding to houses. This Technical Practice Note helps achieve this.

5.3.2. Following adoption of the Technical Practice Note staff will develop material for the public that covers off the key information to help them interpret flooding information in LIMS and PIMS.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

6.1. **Financial Implications**

6.1.1. The cost of flooding can be substantial to all parties involved. This Technical Practice Note will in some cases require floor levels to be built higher than has traditionally been the case. This cost is borne by the property owner when building their house.

6.1.2. The cost of raising either the building platform or the finished floor level should be borne by the Developer or Property Owner.

6.2. **Sustainability and Climate Change Impacts**

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

6.2.2. The effects of climate change are contributing to increased likelihood of adverse weather events prompting the raising of floor levels is to protect people and property, this report is a direct response to the effects of climate change.

6.3. **Community Implication**

6.3.1. Developing the district in a way that minimises the risk of flooding is very important for the long term wellbeing of the community.

6.4. **Risk Management**

6.4.1. This Technical Practice Note takes a risk management based approach to flood risk. The level of mitigation required is dependant of the level of flood risk.

6.4.2. The technical practice note is a significant step in improving the management of flood risk in the district.

6.5. **Health and Safety**

6.5.1. By developing in a manner that allows for the risk of flooding this will improve community Health and Safety over time.

7. CONTEXT

7.1. **Consistency with Policy**

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

7.1.2. This Technical Practice Note is the operational response to policy set by the Regional Policy Statement and District Plan. It standardises, documents and formalises the WDC staff practice and process in relation to flood hazard management in subdivision and building development.

7.2. **Authorising Legislation**

7.2.1. Sections 31, 74, 106, 108 and 220 of the RMA allow councils to impose conditions on subdivision or land use consents relating to hazards or to prevent or restrict development in hazardous areas.

7.2.2. The Building Act has specific requirements in relation to flooding.

7.2.3. Section 71 and 72 of the Building Act 2004 outline the limitations and restrictions on building consents in relation to natural hazards. If consents are issued, this may result in a tag being put on the certificate of title for the property under sections 73 and 74 of the Building Act.

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.

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.

There is a healthy and sustainable environment for all

- Harm to the environment from the impacts of land use, use of water resources and air emissions is minimised

7.4. Authorising Delegations

7.4.1. This issue of flooding relates predominantly to 3 Committees of Council.

- Utilities and Roading
- District Planning and Regulation
- Land and Water.

7.4.2. As this is a Technical Practice Note that has been prepared by the General Manager Utilities and Roading and it is based on engineering advice and expertise it is being reported through the Utilities and Roading Committee.

7.4.3. Given the range of council functions covered by this matter and that it does not fit within any one committee's delegation, a resolution from the Council is requested.

WAIMAKARIRI DISTRICT COUNCIL

TECHNICAL PRACTICE NOTE

DRAFT FOR COUNCIL CONSIDERATION

FILE NO AND TRIM NO:	TSU-22 / 200106000520
DATE:	21 June 2022
TO:	Council staff involved in 3 Waters, Building, Policy, Planning and Land Development
FROM:	Gerard Cleary, Manager Utilities and Roading
SUBJECT:	Flood Mapping, Freeboard and Floor Levels

1. Purpose

1.1. The purpose of this Technical Practice Note is to document standard practice and provide guidance to achieve a consistent framework for Council staff involved in flood risk assessment and setting out and approving building floor levels. It will be used to:

1.1.1. Provide technical advice on applications for Building Consent

1.1.2. Provide technical advice on Resource Consent applications under the Operative District Plan

1.1.3. Provide advice on enquiries received from external Customers

1.2. The Practice Note is intended to be reviewed when the Proposed District Plan becomes operative.

1.3. Flood Maps

1.3.1. This Technical Practice Note relies on flood maps which can be found on Waimap

1.3.2. These Maps have colour coded hazard areas as follows:

- Uncoloured areas are considered to be very low hazard
- Green mapped areas are considered low hazard
- Blue coloured areas are considered medium hazard
- Red coloured areas are considered high hazard

2. Planning and Regulatory Context

2.1. General

2.1.1. The setting of floor levels is governed by the requirements of the Regional Policy Statement, Waimakariri District Plan, Building Act and Building Code. In all cases, Building Act compliance still needs to be achieved and any necessary resource consents applied for. In many cases the guidance in this Technical Practice Note will exceed those of the Building Act and therefore the Building Act will be met by default. However, where they are not it is still a requirement that the Building Act

requirements are met. There is also a requirement to meet any floor level requirements of consent notices on the property title, or any district plan rule.

2.2. Building Consents

2.2.1. The applicant for a Building Consent is required to demonstrate that the proposed development complies with the Building Act and Building Code as part of their building consent application. This includes achieving minimum floor levels in relation to surrounding ground levels and predicted flood levels.

2.3. Subdivision or Land Use Consents under the District Plan

2.3.1. The applicant for a subdivision consent, or land use consent is required to demonstrate that they comply with the District Plan, and any relevant regional plan such as the Land Water Regional Plan, in addition to having regard to the flood mitigation and avoidance policies of the Canterbury Regional Policy Statement (CRPS) in the consent assessment. Reference should also be made to section 106 (hazards relating to subdivision) and any consent notice in relation to floor levels and flood hazards.

2.4. Private District Plan Change

2.4.1. For private plan change proposals, any amendments proposed to the District Plan must 'give effect' to the policies of the CRPS and any relevant national policy statements. Expert evidence will need to be provided to demonstrate this.

2.4.2. In order to demonstrate compliance the applicant is required to provide a flood assessment report from a Suitably Qualified and Experienced Person (SQEP) for Council consideration, assessment and approval. This assessment will need to include consideration of the flood hazard and a freeboard requirement.

3. General Requirements

3.1. Flood assessment methodology

3.1.1. Where the development is changing the underlying ground level, or there are new roadways being constructed, then the applicant will need to provide evidence from a SQEP to demonstrate the effect of the development. The evidence shall consider both the effect on the potential occupants of the development, as well as neighbouring properties, and will apply freeboard requirements as per the District Plan, if available and as set out in this practice note. The applicant may request information pertaining to the site from the Council's flood hazard model to assist with providing the required assessment and evidence.

3.1.2. Where the development is being carried out in a manner that will not disrupt the existing overland flow-paths, then upon request the Council will provide a Minimum Floor Level that will meet Council requirements. Examples of this include building consent applications and development or subdivisions of four lots or less. The Minimum Floor Level will be based on the Council's flood hazard model and other relevant information held by Council, and will apply the general principles below, including freeboard requirements.

3.1.3. If the applicant disagrees with the Council's Minimum Floor Level, then they can commission a flood assessment report signed by a SQEP and submit to the Council for consideration. If the Minimum Floor Level is required under the District Plan, the Council consideration will be undertaken as part of a resource consent application assessment.

3.2. Existing (Post 2000) Large Scale Subdivisions and Land Use Consent Areas

3.2.1. Most large scale residential subdivisions that have been established since 2000 (for example Silverstream and Beach Grove) will have pre-approved minimum floor levels that were established for the specific subdivision at the time of the development. In these cases the minimum floor levels specified in the resource consent documentation will apply. Should a new development seek to build outside of the resource consent parameters then the District Plan (including the Minimum Floor Level) might apply.

3.3. Extensions to existing houses

3.3.1. Provided that the Building Act and Building Code requirements are met in relation to predicted flooding, extensions up to 30 percent of the existing floor area would likely be considered acceptable. The reasoning for this is that this does not create a substantial additional risk to an existing house and would allow, for example, the addition of a bedroom.

3.4. Existing Developments and Existing Buildings

3.4.1. It is important to note that existing buildings that have been constructed to previously applicable standards are not impacted by this technical note. As with many development standards that change over time any previously constructed and consented activities will continue to enjoy any existing use rights. This technical note is forward looking only.

3.5. Benchmarks

3.5.1. The developer shall provide local benchmarks to be used to set out floor levels. A minimum of two benchmarks are required, visible by line of sight, to each lot frontage.

4. Demonstrating Compliance with Required floor level for Building Consent

4.1. PDU staff will identify any formally received applications (for PIM or Compliance Check in conjunction with a Building Consent or as a PIM Only) that require a Finished Floor Level (FFL) Assessment. Following identification PDU will set up a new FL application in Tech 1 and associate the Building Consent number as a related application.

4.2. Set up and FFL assessment will be undertaken by the Project Planning & Quality and Development Teams. Advice provided by PDU will depend on whether the FL was tabulated through the subdivision process or not, in accordance with the process set out in TRIM record 210514077201.

4.3. Location of structures on site, and access

4.3.1. In all cases, care shall be taken to avoid siting buildings in flood hazard areas and where possible to site the building on the property clear of ponding or overland flow paths.

4.3.2. Where there is no clear area, the building should be located, where possible, on the area with the lowest flood hazard. For example locate the building site on green (low hazard) rather than blue (medium hazard) mapped areas.

4.4. Rural area – Very Low Hazard Areas (White/clear area on 1 in 200 year flood maps)

4.4.1. On generally flat areas the floor level shall be a minimum of 400mm above the highest point of the original ground level at the house site.

4.4.2. On a sloping area, or ridge, the floor level may not need to be elevated above the ground other than to simply comply with standard building act ground clearance

requirements. Note that a topographical survey may be requested to confirm the building site is on a localised high point.

4.5. Rural - Low Hazard Areas (Green on 1 in 200 year flood maps)

4.5.1. The floor level shall be 400mm above the modelled 0.5% AEP flood level based on the Council's district wide flood hazard mapping.

4.4.2 If required by the Council the applicant may need to engage a Suitably Qualified and Experienced Person to provide a flood assessment report to Council showing the proposed house site and floor level and demonstrate that the floor level will be at least 400mm above the 0.5% AEP flood level and that the building or site works will not impede overland follow or exacerbate or cause flooding on any other property.

4.6. Rural – Medium Hazard Areas (Blue on 1 in 200 year flood maps)

4.6.1. If building is approved, the floor level shall be 500mm above the modelled 0.5% AEP flood level based on the Council's district wide flood hazard mapping.

4.6.2. If required by the Council the applicant may need to engage a Suitably Qualified and Experienced Person to provide a flood assessment report to Council showing the proposed house site and floor level and demonstrate that the floor level will be at least 500mm above the 0.5% AEP flood level and that the building or site works will not impede overland follow or exacerbate or cause flooding on any other property.

4.6.3. In areas where there is a Medium Hazard it may not always be possible to build because of the requirements for a floor level and all weather access will have unacceptable impacts on neighbouring properties.

4.7. Rural – High Hazard Areas (Red on 1 in 200 year flood maps)

4.7.1. It is not considered appropriate to build in these areas due to the high hazard unless a resource consent has been obtained. Any floor level requirements of the Resource Consent shall apply.

4.8. Rationale for flood events and freeboards

4.8.1. The Building Act requires new houses to be designed and built in such a way that Surface water, resulting from an event having a 2% probability of occurring annually, shall not enter buildings. The Building Act methodology suggests a 150mm freeboard in normal circumstances, and 500mm where waves may occur.

4.8.2. However, the Council has applied different flood models and freeboards as the "Acceptable Solutions" due to a recognition of the greater risks of building on an active flood plain (which covers the majority of the District), and recent experiences over the past two decades of flood events.

4.8.3. It is recognised that this is a greater requirement than the Building Act minimum requirements.

4.8.4. Therefore, the applicant can choose to supply information supporting a level in keeping with the Building Act. This would need to be a flood model assessment of the specific site, certified by a SQEP.

4.8.5. The Council does not model a 1 in 50 flood event throughout the District. The Council does have models for the 1 in 100 (1% AEP), 1 in 200 (0.5% AEP) and 1 in 500 (0.2% AEP) year events.

4.8.6. The 1 in 200 (0.5% AEP) is referenced in the RPS (Policy 11.3.2) such that development should be avoided unless (among other matters), new buildings have

an appropriate floor level above the 0.5% AEP design flood level. While it is acknowledged that this policy is only triggered by a Resource Consent application, nevertheless it is an indication of where the region sets its risk profile for new buildings.

4.8.7. For this reason, the Council has adopted the 1 in 200 (0.5% AEP) flood level as an appropriate event to require protection from.

4.8.8. With regard to the freeboard, the Council rationale is as follows:

4.8.8.1. Rural very low risk (i.e.: no flooding indicated)

4.8.8.1.1.400mm total clearance above ground

4.8.8.1.2.100mm possible flooding (due to margin of error in flood model)

4.8.8.1.3.300mm freeboard above flood level (due to uncertainty in exact terrain shape, and due to uncertainty in future land surface changes in surrounding upstream areas)

4.8.8.2. Rural low risk

4.8.8.2.1.400mm total freeboard above 0.5% AEP flood level

4.8.8.2.2.100mm margin of error in flood model

4.8.8.2.3.300mm freeboard above flood level (due to uncertainty in exact terrain shape, and due to uncertainty in future land surface changes in surrounding upstream areas)

4.8.8.3. Rural Medium Risk

4.8.8.3.1.500mm total freeboard above 0.5% AEP flood level

4.8.8.3.2.100mm margin of error in flood model

4.8.8.3.3.300mm freeboard above flood level (due to uncertainty in exact terrain shape, and due to uncertainty in future land surface changes in surrounding upstream areas)

4.8.8.3.4.100mm additional freeboard due to greater variation of flood depth at greater depths.

4.8.8.4. Urban (Building Consents only)

4.8.8.4.1.400mm total freeboard above 0.5% AEP flood level

4.8.8.4.2.100mm margin of error in flood model

4.8.8.4.3.300mm freeboard above flood level (due to wash from passing vehicles)

4.8.8.5. Urban (Subdivision)

4.8.8.5.1.500mm total freeboard above 0.5% AEP flood level

4.8.8.5.2.100mm margin of error in flood model

4.8.8.5.3.300mm freeboard above flood level (due to wash from passing vehicles)

4.8.8.5.4.100mm additional freeboard to allow for other unaccounted for variables including survey error, lot level tolerance, infrastructure failure, and uncertainty in climate change allowances.

5. Demonstrating Compliance with the Operative District Plan Provisions – Greenfield Development

Table 1: Summary of Freeboard Requirements, Greenfield Development

Hazard Category	Rural	Rural Residential	Urban
Very Low (Clear)	N/A – FFL to be minimum 400mm above surrounding ground*	Freeboard = 500mm	N/A – Building Code requirements apply
Low (Green)	Freeboard = 400mm	Freeboard = 500mm	Freeboard = 500mm
Medium (Blue)	Freeboard = 500mm	Freeboard = 500mm	Freeboard = 500mm
High (Red)	No build advised	No build advised	No build advised

5.1. New Greenfield Subdivision of > = 4 lots (Res 1, 2, 3, 5, 6, 7, Bus 1 & 2)

5.1.1. In areas identified as low or medium flood hazard, the minimum requirements for floor levels are to provide a 500mm freeboard above the 0.5% (200yr) AEP flood level.

5.1.2. New greenfield subdivision with a building platform located within a high flood hazard area (or where no building platform is specified) is non-complying and resource consent would be required. It is possible that land can be raised so that it no longer meets the CRPS high flood hazard definition (high flood hazard is: where depth x velocity of flood waters is >= 1 in a 0.2% (500yr) AEP flood event.

5.1.3. Site levels should be formed to allow 225mm between the finished site level and the required minimum floor level to allow reasonable building site platforms, as required by the Building Code.

5.1.4. Overall, new greenfield development is subject to the process and outcome of the Plan Change, Ecan consents, assessment of flood displacement and / or subdivision consent.

5.2. New Subdivision of (Residential 4A and 4B)

5.2.1. Minimum requirements are 500mm freeboard above the 0.5% AEP flood level.

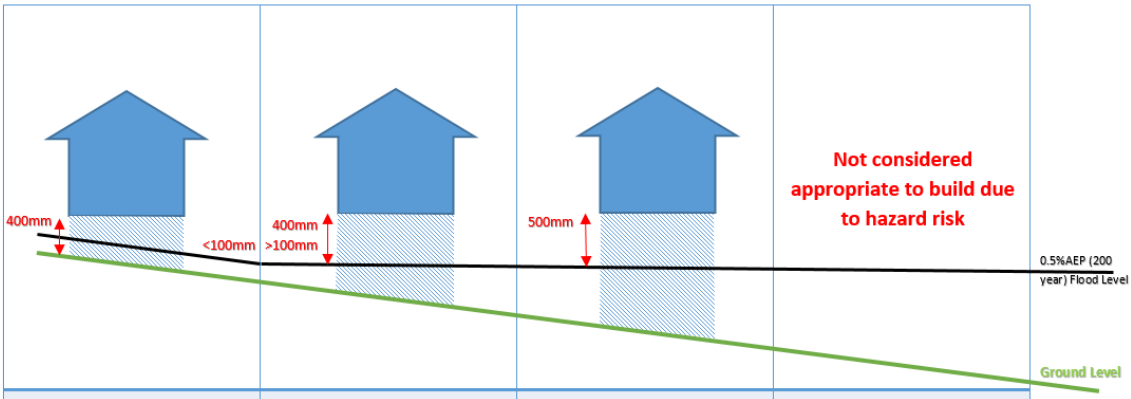
5.2.2. Regard must also be given to the 0.2% AEP flood as required by the CRPS.

5.2.3. This is subject to the process and outcome of the Plan Change or subdivision consent.

5.3. New subdivision in Rural Areas

5.3.1. General

The concepts in figure 1 apply.



	400mm above existing ground Level **or** Floor Risk Assessment (FRA) by SQEP	If possible, avoid **or** 400mm above 0.5% AEP (200 year) Flood Level **or** FRA by SQEP	Avoid, unless not possible **or** 500mm above 0.5% AEP (200 year) Flood Level or FRA by SQEP *Council may require FRA by SQEP for Medium hazard sites	
Development Manager Advice on Floor Level	X	✓	✓	✓
Development Manager Approval of Floor Level	✓	✓	✓	✓
Flood Hazard Classification	Very Low (Clear) <100mm	Low (Green) 100-300mm	Medium (Blue) 300-1000mm	High (Red) 1000+mm

Figure 1: Minimum floor level requirements (Rural and large lot residential)

5.3.2. Rural - Where very low flood Hazard is mapped. (Clear area on 0.5% AEP (200 year) Flood Hazard maps)

Floor levels should be required to meet Building Act requirements (i.e. a floor level above the 2% AEP (50 year) flood level plus a freeboard.

The freeboard will be as required by the Building Code. On generally flat areas the floor level shall be a minimum of 400mm above the highest point of the original ground level at the house site.

Where the property is on the side of a hill and obviously clear of any flooding or overland flow path the Building Act requirements in relation to floor levels above ground shall govern and the 400mm above the highest point of the existing ground may not necessarily be required. Note that a topographical survey may be requested to confirm the building site is on a localised high point.

5.3.3. Rural - Low Hazard Areas (Green on 0.5% AEP (200 year) Flood Hazard Maps)

The floor level shall be 400mm above the modelled 0.5% AEP flood level based on the Council's district wide flood hazard mapping.

5.3.4. Rural – Medium Hazard Areas (Blue on 0.5% (200 year) AEP Flood Hazard Maps)

At the Council's discretion and where the building is only partially on or at the edge of an area shown as blue, the Council's flood hazard mapping may be used to determine the minimum floor level. In this case the floor level shall be 500mm above the modelled 0.5% AEP flood level based on the Council's flood hazard mapping.

If required by the Council the applicant may need to engage a Suitably Qualified and Experienced Person. They shall provide a flood assessment report to Council showing the proposed house site and floor level and demonstrate that the floor level will be at least 500mm above the 0.5% AEP flood level and that the building or site works will not impede overland follow or exacerbate or cause flooding on any other property.

In areas where there is a Medium Hazard it may not always be possible to build because of the requirements for a floor level and all weather access will have unacceptable impacts on neighbouring properties.

5.3.5. Rural – High Hazard Areas (Red on 0.5% AEP (200 year) Flood Hazard Maps)

It is not considered appropriate to build in these areas due to the high hazard.

6. Demonstrating Compliance with the Operative District Plan Provisions – Intensification (3 or Fewer Lots)

6.1. Rural Areas and Residential 4 areas

6.1.1. Sections 5.2 and 5.3 above applies.

6.2. Residential Areas (Res 1, 2, 3, 5, 6, 7) - General

6.2.1. In existing zoned residential areas that trigger assessment under the Resource Management Act 1991 (RMA) via the District Plan, it is anticipated that all developable lots will have a finished ground level that avoids inundation in a 1% AEP flood event.

6.2.2. The consent assessment, where required, is also required to consider the 0.5% AEP flood, with regard to Policy 11.3.2 of the Canterbury Regional Policy Statement (CRPS) given in the engineering assessments and the matters covered in s106 of the RMA. Detail on 11.3.2 of the CRPS is included as appendix 1 of this report.

6.2.3. Assessment of the matters covered in Policy 11.3.2 may require consideration of the specific site conditions both within and adjacent to the subject site, and may result in the setting of finished floor levels that give effect to Policy 11.3.2.

6.2.4. This practice note is the starting point for consideration of Policy 11.3.1. For infill development in urban areas the 1% AEP flood level shall be allowed for with freeboard. The 0.5% AEP flood level should be assessed and considered as part of the setting of floor levels. In practice this may mean a floor level for 1 to 3 houses that is at or even lower than the 0.5% AEP. This needs to be considered in the context of being compatible with existing surrounding houses without causing an adverse impact on neighbours.

6.2.5. This applies to the small scale (3 houses or fewer) infill development of existing urban areas where the surrounding area has already been built on. It applies to small scale subdivisions of existing residential lots or new houses on vacant lots, or rebuild of existing houses. For large scale development (4 houses or more) the Greenfield provisions shall apply. (Refer section 5.1)

6.2.6. The Council's urban flood hazard maps shall be used where they are available. These models include provision for the open drains, stormwater pipes and pump stations that make up the urban stormwater network. In the absence of urban flood hazard maps the district wide flood hazard maps shall apply.

6.2.7. In all cases, care shall be taken to avoid siting buildings in flood hazard areas and where possible to site the building on the property clear of ponding or overland flow paths.

6.2.8. Where there is no clear area (very low hazard), the building should be located, where possible, on the area with the lowest flood hazard. For example locate the building site on green (low hazard) rather than blue (medium hazard) mapped areas.

6.2.9. Where a dwelling is being replaced, the floor level for the new dwelling shall be no lower than the original dwelling. And where flood modelling is available for such a site an assessment shall be made by Council to the home owner/applicant to set a minimum floor level.

6.3. Existing residential areas (Res 1, 2, 3, 5, 6, 7) (excluding Kaiapoi and coastal urban areas) - Where very low flood hazard is mapped. (Clear area on 1% AEP Flood Hazard maps)

6.3.1. Floor levels should be required to meet Building Act requirements (i.e. a floor level above the 2% AEP (50 year) flood level plus a freeboard.

6.3.2. The freeboard will be as required by the Building Code.

6.3.3. Note - Isolated small pockets of flooding shown on the flood hazard maps may be treated as “Clear” at the sole discretion of the Council.

6.4. Existing residential areas (Res 1, 2, 3, 5, 6, 7) (Excluding Kaiapoi and coastal urban areas) - Where a low or medium flood hazard is mapped. (Green and Blue areas on the 1% AEP Flood Hazard Maps)

6.4.1. The floor level of houses shall have a freeboard above the 1% AEP (100 year) flood level.

6.4.2. The freeboard requirements shall be 400mm above 1% AEP for the mapped Green areas (Low Hazard).

6.4.3. The freeboard requirements shall be 500mm above 1% AEP for the mapped Blue areas (Medium Hazard).

6.4.4. Consideration shall also be given to the spill level of the secondary flow path based on known topographical levels.

6.5. Existing residential areas (Res 1, 2, 3, 5, 6, 7) (Excluding Kaiapoi and coastal urban areas) – Where a high hazard area is mapped (Red on 0.5% AEP (200 year) Flood Hazard Maps)

6.5.1. It is not considered appropriate to build in these areas due to the high hazard flood risk.

6.5.2. If a building is approved, then the floor level of houses shall have a freeboard of 500mm above 1% AEP (100 year) flood level

6.6. Kaiapoi and coastal urban existing residential areas (Kaiapoi, The Pines Beach, Kairaki, Woodend Beach and Waikuku Beach)

6.6.1. The Council Flood Hazard Models assume that the underlying drainage infrastructure (including pipes and pumps) continues to operate. This is a satisfactory assumption for the majority of the District where there is little need to pump stormwater and good secondary flow paths exist. However Kaiapoi and the coastal urban areas are more dependent on pumps and pipelines continuing to operate to maintain the levels that the Flood Hazard model predicts. This is not

considered to be an appropriate assumption for these areas, because it is possible that this protection would have an outage during a large rainfall event, at some time during the life of a new house.

6.6.2. Therefore, the basis for determining a minimum floor level in Kaiapoi and the existing coastal urban areas is based on the possible depth of flooding if the pumping system was not working and/or the piped system became blocked. This differs from the Flood Hazard model results where the proposed property is in a 'basin' – i.e. the property level is lower than the surrounding ground levels (including stop banks). In this situation, the 'ponding' level takes precedence over the level from the Flood Hazard model.

6.6.3. The minimum floor levels in the existing urban areas of Kaiapoi, The Pines Beach, Kairaki, Woodend Beach and Waikuku Beach, where there are no underlying floor level requirements from existing subdivision and land use consents, are shown on the maps attached as Appendix 2.

6.6.4. The diagram below explains the floor level requirements for existing urban areas of Kaiapoi and the coastal urban areas.

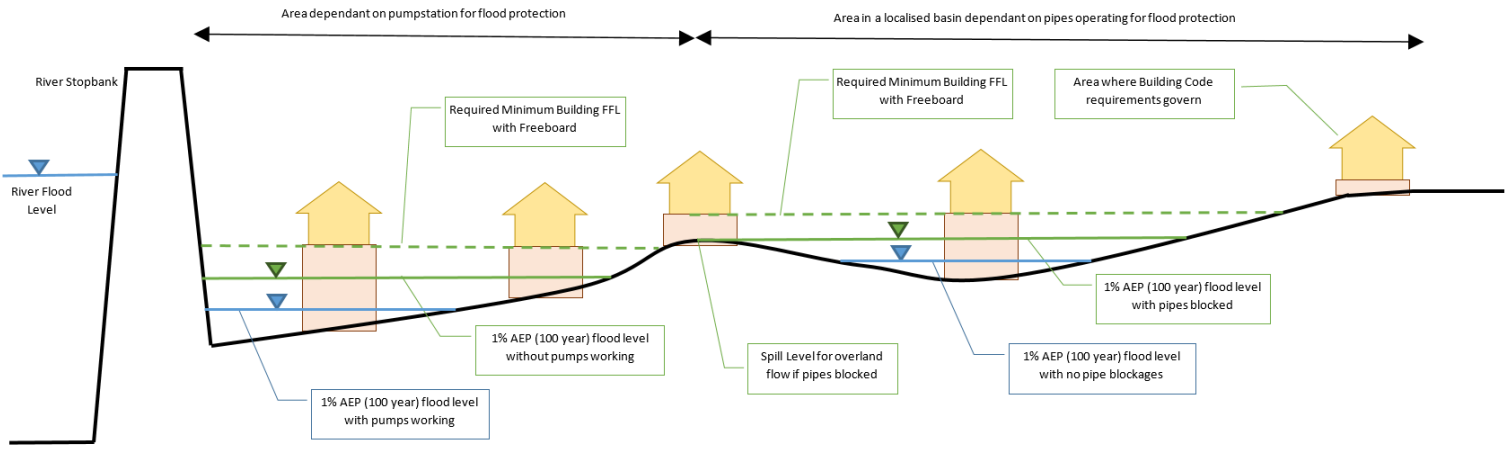


Figure 2: Urban Kaiapoi and Existing Coastal Developed Areas

7. Commercial Areas (Business 1, 2)

7.1. Advice will be given for these areas in relation to the flood level and freeboard as it would apply to residential. This information shall be advice only and the Building Act provisions shall apply.

8. Definitions

8.1. Annual Exceedance Probability is as defined in the Canterbury Regional Policy Statement: "the probability for a certain size of flood flow occurring in a single year."

8.2. Building Location Certificate – means a certificate prepared by a registered licensed professional surveyor

8.3. Current WDC Flooding Map – means the current available published localised flood hazard mapping generated by the Waimakariri District Council.

8.4. Finished Floor Level - means the level of the finished floor of the building. The finished floor level is measured from the top of the finished slab or top of floor joists and does not include decorative features or tiles. For residential sites that have been filled to achieve

minimum finished floor levels an attached garage may be exempt from compliance with a specified minimum finished floor level if the garage does not meet the building code requirements for a habitable space. If no formal finished floor level exists (for example pole sheds), the minimum finished floor level is deemed to be the height of undisturbed ground underneath the building.

8.5. Freeboard - Freeboard, for the purposes of this Technical Practice Note, refers to the height to a floor level above a mapped flood water level. The freeboard represents a margin of safety for effects of wind or wave action, vehicle wash, or other influences on the maximum height of floodwaters. It is important to note that this is not the same as height above ground level.

8.6. Greenfield development – means existing areas zoned residential (excluding rural residential) within the CRPS infrastructure boundary and that do not fall within the definition of infill development. Greenfield development includes applications for comprehensive residential allotments as defined in the Waimakariri District Plan (minimum of 4 dwellings). Note that Greenfield development areas may have specific floor level requirements imposed within the District Plan.

8.7. Height above ground level - The height above ground level is the difference between the floor level and the surrounding existing ground level.

8.8. Infill Development – means existing areas zoned residential (excluding rural residential) that contained a dwelling on <<date of practice note 2019>> and/or have the ability to erect up to three dwellings in accordance with the delineated area provisions, or a complying subdivision under the Waimakariri District Plan. Note that infill development areas may have specific floor level requirements imposed within the District Plan.

8.9. New urban Areas - New development areas have all had specific flood risk assessments as part of the Plan Change or Subdivision Consent process. In most cases this has resulted in a predetermined floor level being required for specific sites, or a set procedure to be followed to determine the minimum floor level.

8.10. Suitably Qualified Person – means a Chartered Professional Engineer with expertise in flood hazard assessment, or equivalent

8.11. Surrounding Ground Level - means the highest undisturbed natural ground level at the proposed building location and should be determined by appropriate spot heights intersecting the dwelling location. For all zones, '*Surrounding Ground Level'* should be expressed as a pre or post development level if earthworks have, or are anticipated to occur. This ensures that any cut or fill of building platforms is accounted for. '*Finished Formation Level*' has the same meaning as surrounding ground level.

9. Review

9.1. This document is anticipated to be reviewed to incorporate the updated District Plan natural hazards provisions.

Where a flood risk assessment is submitted by an external consultant reference shall be made to these standard definitions. Any alternative definition or meaning used shall be defined by the report author within the flood risk assessment.

Appendix 1 (Canterbury Regional Policy Statement 33.3.2)

11.3.2 Avoid development in areas subject to inundation
In areas not subject to Policy 11.3.1 that are subject to inundation by a 0.5% AEP flood event; any new subdivision, use and development (excluding critical infrastructure) shall be avoided unless there is no increased risk to life, and the subdivision, use or development:

1. *is of a type that is not likely to suffer material damage in an inundation event; or*
2. *is ancillary or incidental to the main development; or*
3. *meets all of the following criteria:*
    a. *new buildings have an appropriate floor level above the 0.5% AEP design flood level; and*
    b. *hazardous substances will not be inundated during a 0.5% AEP flood event;*

The table below summarises the flood level and freeboard requirements (Except for Kaiapoi and coastal urban areas, where there is a separate Flood Level Map.

Figure 3:

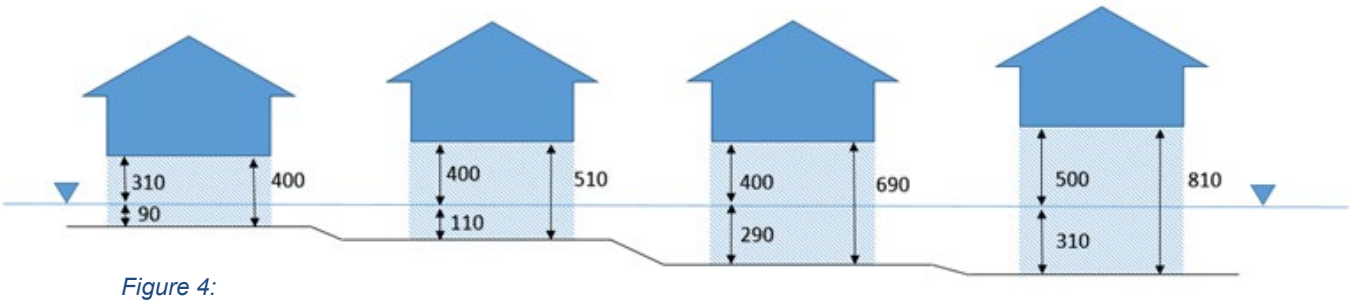
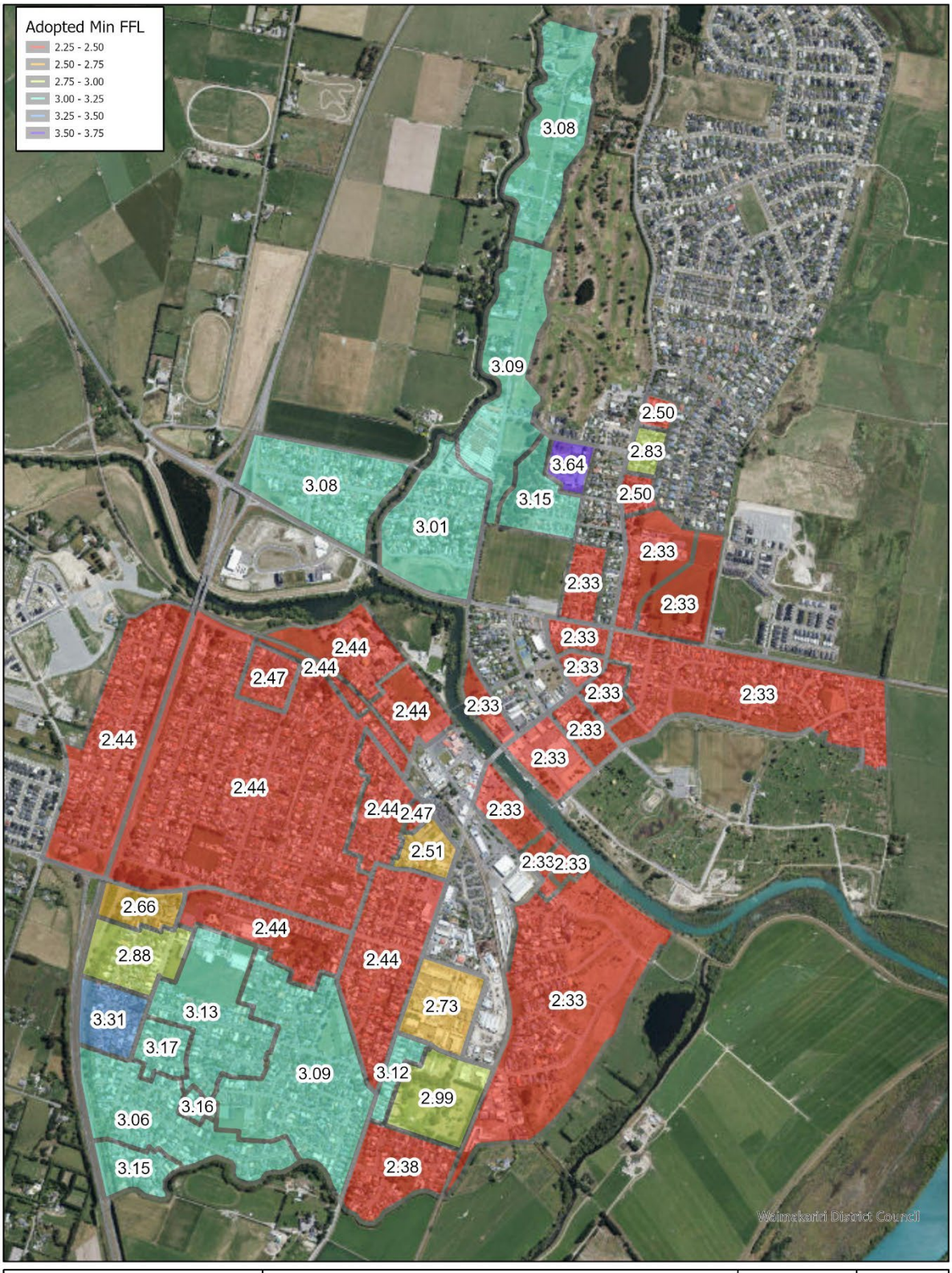


Figure 4:

FREEBOARD			
	Urban Greenfield (4 or more buildings)	Urban Brownfield (3 or fewer dwellings)	Rural (200yr)
Very low (VL)	500mm (200 year)	BC / RC	300mm (400mm above ground allows for 100mm with + 300mm freeboard)
Low (L)	500mm (200 year)	400mm (100 year)	400mm
Medium (M)	500mm (200 year)	500mm (100 year)	500mm
High (H)	500mm (200 year)	500mm (100 year)	No Build

Appendix 2) Kaiapoi and Existing Developed Coastal Urban Areas Minimum Finished Floor Levels



WAIMAKARIRI DISTRICT COUNCIL	Kaiapoi Adopted Minimum Floor Level Requirements New Zealand Vertical Datum 2016	SCALE (A4) 1:16,000 DATE 8/04/2022	

WAIMAKARIRI DISTRICT COUNCIL	Pines Kairaki Beach Adopted Minimum Floor Level Requirements New Zealand Vertical Datum 2016	SCALE (A4) 1:9,000 DATE 8/04/2022	

WAIMAKARIRI DISTRICT COUNCIL	Woodend Beach Adopted Minimum Floor Level Requirements New Zealand Vertical Datum 2016	SCALE (A4) 1:3,000 DATE 8/04/2022	

WAIMAKARIRI DISTRICT COUNCIL	Waikuku Beach Adopted Minimum Floor Level Requirements New Zealand Vertical Datum 2016	SCALE (A4) 1:9,000 DATE 8/04/2022	

WAIMAKARIRI DISTRICT COUNCIL

MEMO

FILE NO AND TRIM NO:	TSU-22 / 200106000237
DATE:	6 January 2020
MEMO TO:	Flood and Floor Level Working Group
FROM:	Gerard Cleary, Manager Utilities and Roading
SUBJECT:	Minimum Floor Levels in Kaiapoi (existing urban area)

Background

Recent modelling work and discussions with the working group have led to a detailed assessment of two critical flood basins in Kaiapoi.

For most of the existing town of Kaiapoi a minimum floor level based on the 200 year flood (with the pump system working) plus freeboard gives floor levels that are sensible and in keeping with the surrounding urban area. The Network Planning Team Leader, Chris Bacon, has prepared maps that break the town into areas with minimum floor levels based on this criteria.

There are two areas that warranted a more detailed analysis.

1. The Meadow Street / Bracebridge / Feldwick area.
2. The Otaki Street area, bounded by Whitefield Street / Ohoka Road/ Williams Street / and the Kaiapoi River.

This memo discusses each of these areas separately.

These two areas are low lying and reliant on stop banks, a functioning drainage network and pumps to prevent flooding in extreme floods. They are areas that have flooded in the past and require active management by staff and contractors during flood events. Due to these factors additional freeboard is required to manage the additional risks associated with these areas.

Attachments

i. Feldwick / Meadow Street Area, Ground Level Map
ii. Otaki Street Area, Ground Level Map
iii. Feldwick / Meadow Street FFL Examples
iv. Otaki Street Area FFL Examples

Area 1. East Kaiapoi (Feldwick/Meadow/Bracebridge)

The proposed minimum floor level for this area is 2.0m RL.

Typical Ground levels.

The lowest ground levels in this area are road levels that are just at or below 1.0m RL in Meadow Street, Bracebridge, Kalmia, and Ellen Place (Road). The lowest ground level in this area is 0.89m RL on the road carriageway near the eastern end of Bracebridge Street.

There is a small area of residential land between Bracebridge and Beach Road that is at or just below 1.0m RL. Otherwise the lowest lying residential areas in Bracebridge and Meadow Street are in the order of 1.0m to 1.2m RL. With the rest of the low lying areas in Grey Crescent,

Feldwick and Moore Street 1.2 to 1.4m RL. Higher ground in these areas is in the order of 1.4 to 2.0m RL.

Flood Levels

Various flood model levels are discussed in the sections below to compare against the proposed minimum floor level of 2.0m RL.

2019 Urban Kaiapoi Flood Model.
Recent modelling work which includes the Pump Stations in Kaiapoi operating have yielded the following flood levels.

1% AEP (100 year) Flood level 1.29m RL
0.5% AEP (200 year) Flood level 1.39m RL.

Ashley River Breakout (ECAN) Model
An additional check has been made for the following flood scenarios.
Ashley River Ecan Breakout modelling, 100 year, no flooding in this area.
Ashley River Ecan Breakout modelling, 200 year, 0.3 to 0.62m deep flooding in the lowest point in Bracebridge Street. (Approx. flood level 1.51m RL).

Actual Flood Observations
My own observations during storms in June 2014 and June 2019 would indicate water levels of up to 1.2m RL.

2015 Localised Flood Hazard Mapping
The 2015 Localised flood mapping for this area that was carried out by Waimakariri District Council and is used for the district wide flood hazard assessment was also considered. This is accepted as being very conservative and not directly applicable to Kaiapoi given that it does not make any allowance for the primary reticulation and assumes none of the pumps are working.

This model yields the following results:
1% AEP (100 year) 0.61m deep flooding in the lowest point in Bracebridge Street. (Approx. flood level 1.50m RL).
0.5%AEP (200 year) 1.18m deep flooding in the lowest point in Bracebridge Street. (Approx. flood level 2.07m RL).

Floor Levels

A minimum floor level of 2.0m RL is proposed for this area. This achieves a freeboard of 700mm above the 1% AEP flood level and 600mm above the 0.5% AEP flood level.

Most houses in the area are timber floors on plies and joists. These floor levels would typically be up to 0.5m above the ground level. So in the lowest lying areas house levels will be as low as 1.5m. More typical levels will be 1.7 to 1.9m RL.

There is no absolute minimum floor level that has been adopted in the District. Discussions with relevant engineers within WDC have suggested that it would be appropriate to have a mandatory minimum level. There is some merit in this approach. For the purposes of the assessment in this area 2.0m has been adopted. This equates to the same water level in the Kaiapoi River at high tide during a fresh in the Waimakariri River. Using this as an absolute minimum for Kaiapoi will give some reassurance that in the event of pumps not working or a serious disaster situation where the river bank was breached outside a major storm event house levels would be at least at this level.

The proposed level of 2.0m is tested below against a number of scenarios.

1% AEP, 100 year flood level pumps on 1.3mRL, plus 700mm freeboard.
0.5% AEP 200 year flood level pumps on 1.4m RL, plus 600mm freeboard.
1% AEP 100 year flood level pumps not working, 1.5m RL. plus 500mm freeboard. (Note that this is a very conservative scenario as described above)
0.5% AEP, 200 year flood level pumps off, no freeboard. Flood level is approximately 70mm above the floor level. (Note that this is an unrealistic and overly conservative scenario as described above)

A comparison of this level with typical ground levels is also made below for the purposes of seeing how this will fit into existing housing and the local landscape. Diagrams of some typical houses have been appended to this report. This shows that a minimum floor level of 2.0m will result in houses that will be able to fit into the existing streetscape.

In the lowest lying area the ground level is 1.0m RL a floor level of 2.0m would require the house to be 1.0m above the ground. They will be out of context with other existing houses that may be 400 to 500mm above the ground. Given these areas are regularly subject to flooding this is not unreasonable.

The majority of the area is 1.2 to 1.4m RL. This would put the houses 600mm to 800mm above the ground level. This will not be entirely out of context in this situation and should fit into the landscape reasonably well.

Area 2, The Otaki Street area, bounded by Whitefield Street / Ohoka Road/ Williams Street / and the Kaiapoi River.

The proposed minimum floor level for this area is 2.82m RL. This achieves a freeboard of 1.0m above the 1% AEP (100 year) flood level. The minimum floor level matches the predicted 0.5% AEP (200 year) flood level. On balance this provides a good level of protection for an area that is already built up with most existing houses built lower than this level.

Typical Ground levels.

The lowest ground levels in this area are road levels these are between 1.0 and 1.2m in Evans Place and Porters Place.

The lowest property levels are in the order of 1.4 and 1.6m RL. The typical property levels in the broader area are 1.6 to 1.8m RL.

Flood Levels

Various flood model levels are discussed in the sections below to compare against the proposed minimum floor level of 2.0m RL.

2019 Urban Kaiapoi Flood Model.
Recent modelling work which includes the Pump Stations in Kaiapoi operating have yielded the following flood levels.

1% AEP (100 year) Flood level 1.82m RL
0.5% AEP (200 year) Flood level 2.82m RL.

Ashley River Breakout (ECAN) Model
Checks made against the Ashley River Breakout modelling show that no flooding will occur in this area either in the 1% AEP (100 year) or 0.5% AEP (200 year) events.

Actual Flood Observations
My own observations during storms in June 2014 and June 2019 would indicate water levels of up to1.6m RL.

2015 Localised Flood Hazard Mapping
An additional check has been made against the 2015 Localised Flood Mapping for this area which is considered very conservative and not directly applicable to Kaiapoi given in does not make any allowance for the primary reticulation and assumes none of the pumps are working. Furthermore, the Kaiapoi River stopbanks in this area are not modelled accurately enough in the 2015 study resulting in unrealistic water levels in the urban area.
For the 0.5% AEP (200 year) scenario, approximately 2.3m deep flooding is modelled on properties in the lowest lying areas, and 1.5 to 2.0m in the broader area. (Approx. flood level 3.40m RL).
For the 1% AEP (100 year) scenario, 2.0m deep flooding is modelled in the lowest properties in the lowest lying areas, and 1.2 to 1.7m in the broader area. (Approx. flood level 3.10m RL).
Given these scenarios are unrealistic and overly conservative this assessment is dismissed for the purposes of this memo. The 2015 modelling was prepared solely to help identify flood hazard areas and is not suitable for setting minimum floor levels in the existing urban area of Kaiapoi.

Floor Levels

A minimum floor level of 2.82m RL is proposed for this area.

Most houses in the area are timber floors on plies and joists. These floor levels would typically be up to 0.5m above the ground level. So in the lowest lying areas house levels will be as low as 2.0 m. More typical levels will be 2.1 to 2.2m RL.

For the purposes of this memo a 2.82 minimum floor level is tested.
This would equate to 1.0m freeboard above the 1% AEP storm with the pumps and primary system operating. It is also at a level that matches the localised 0.5% AEP flood level (with pumps and primary system working).

In terms of being in context with the surrounding area this would make houses substantially higher than neighbouring properties. This in itself can lead to localised drainage issues with one property due to being so much higher than its neighbour causing localised issues. Also in term of the streetscape this can cause issues with privacy and day to day living.

The working group has carried out an assessment of how any new houses constructed to a 2.82m floor level would relate to the existing street scape. Some diagrams showing this assessment are appended to this report. This shows that despite having floor levels higher than neighbouring properties houses could be constructed in keeping with the streetscape.'

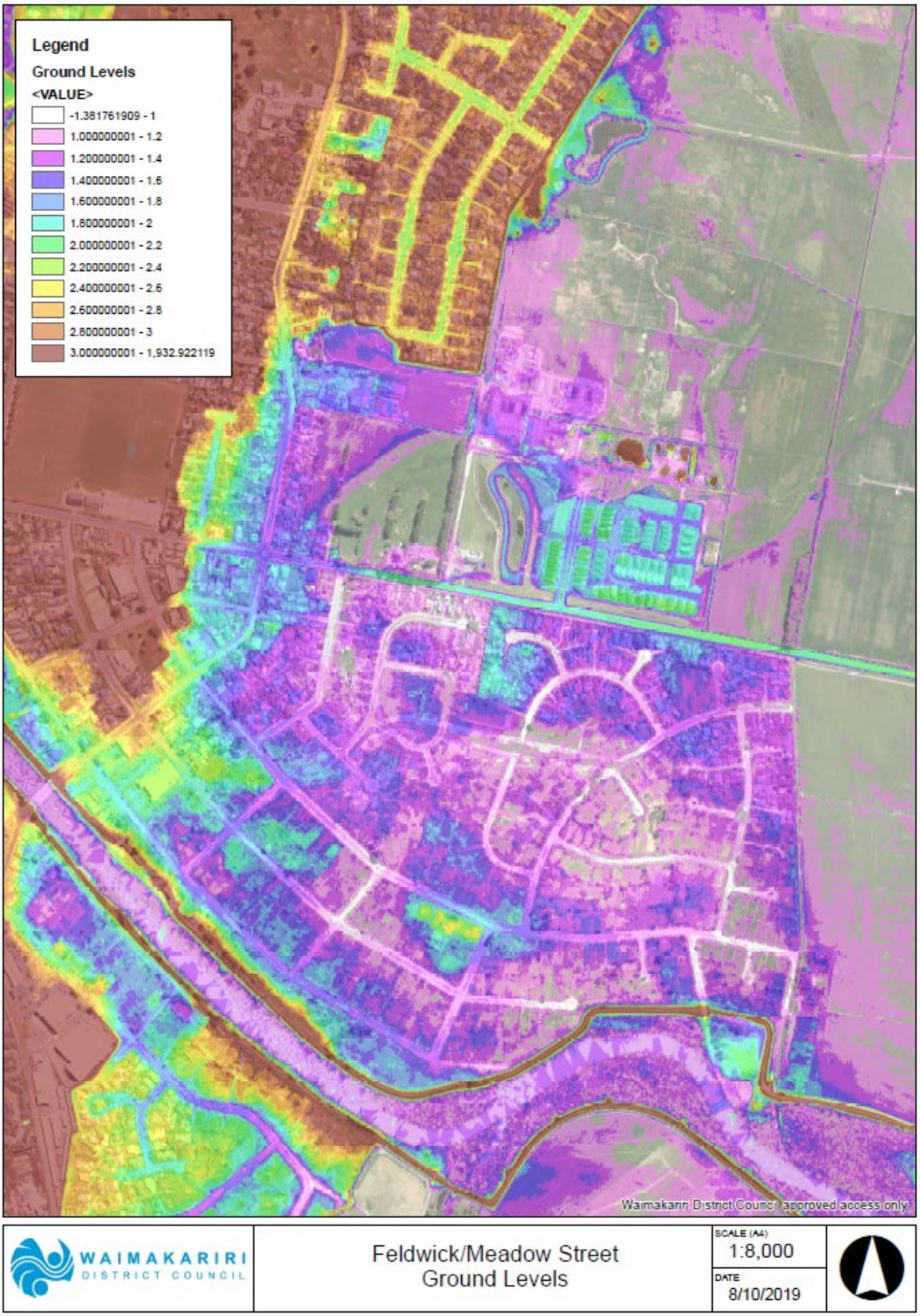
Conclusion / Recommendation.

It is recommended that the following minimum floor levels are adopted.

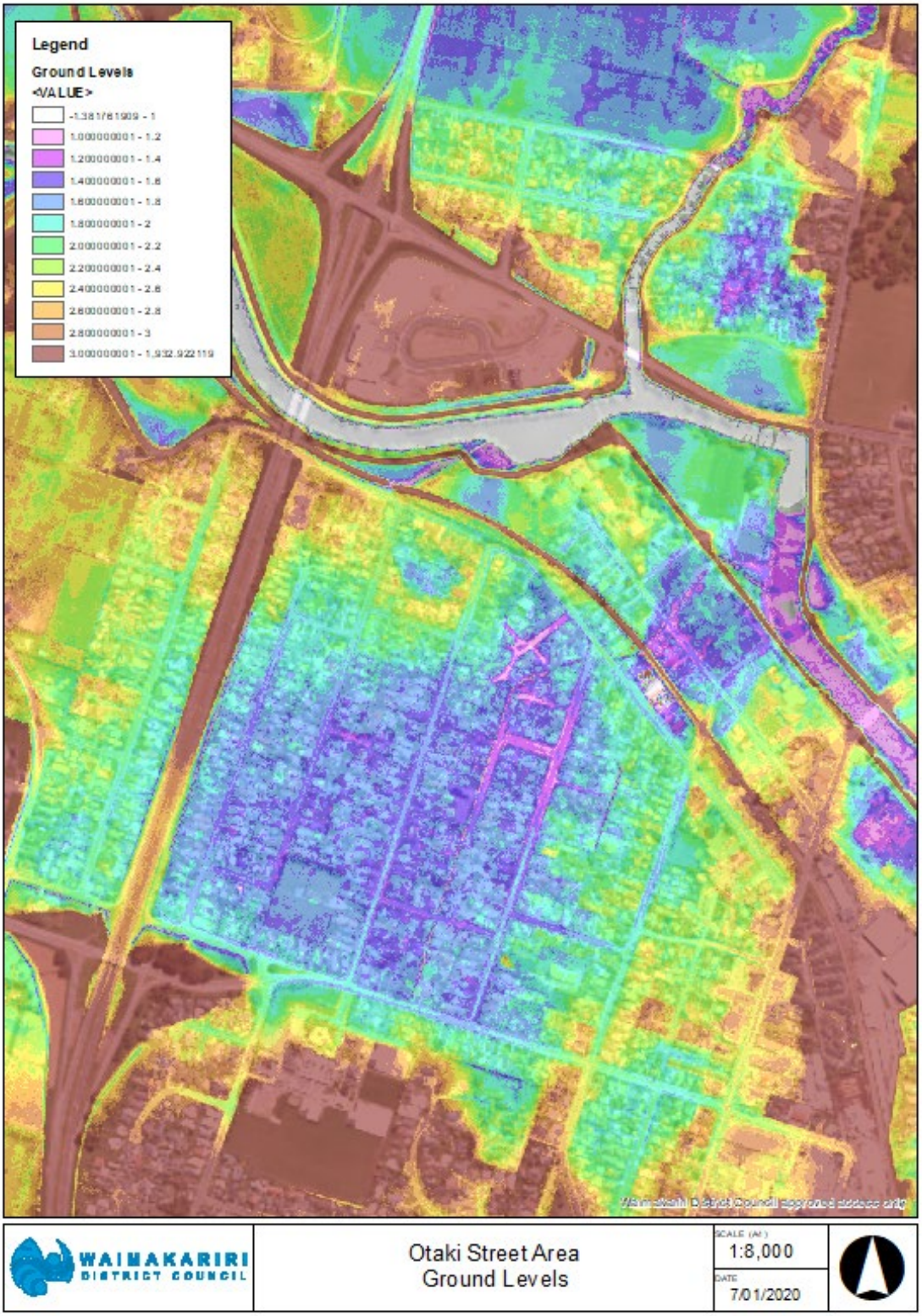
Area 1. East Kaiapoi (Feldwick/Meadow/Bracebridge). The proposed minimum floor level for this area is 2.0m RL.

Area 2, The Otaki Street area, bounded by Whitefield Street / Ohoka Road/ Williams Street / and the Kaiapoi River. The proposed minimum floor level for this area is 2.82m RL.

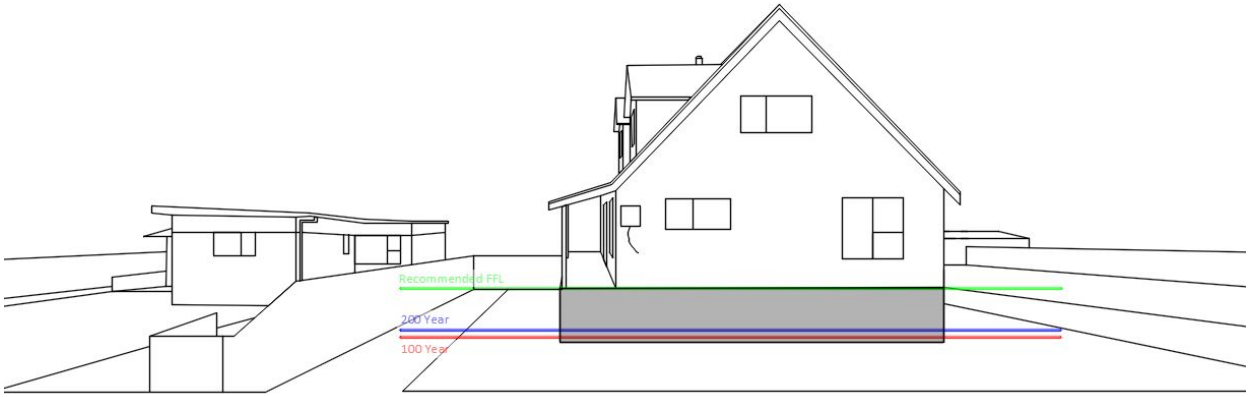
Appendix i) Feldwick / Meadow Street Area

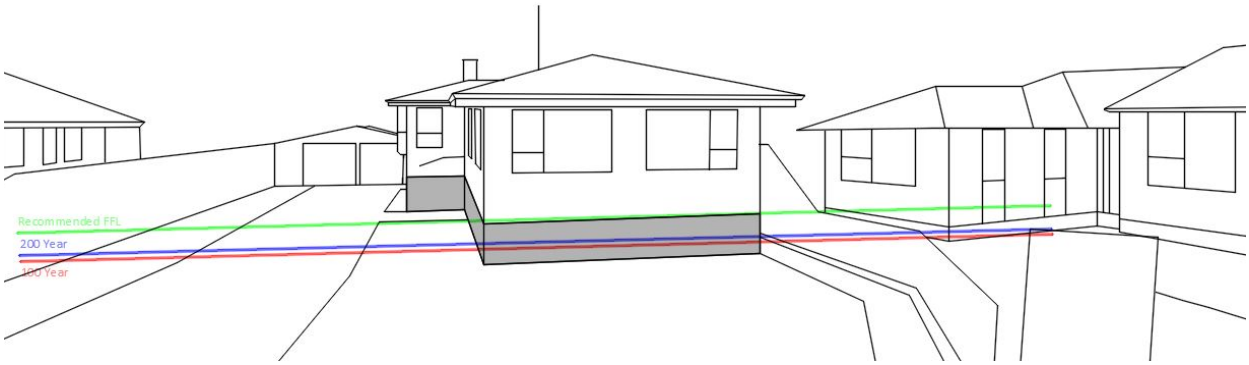


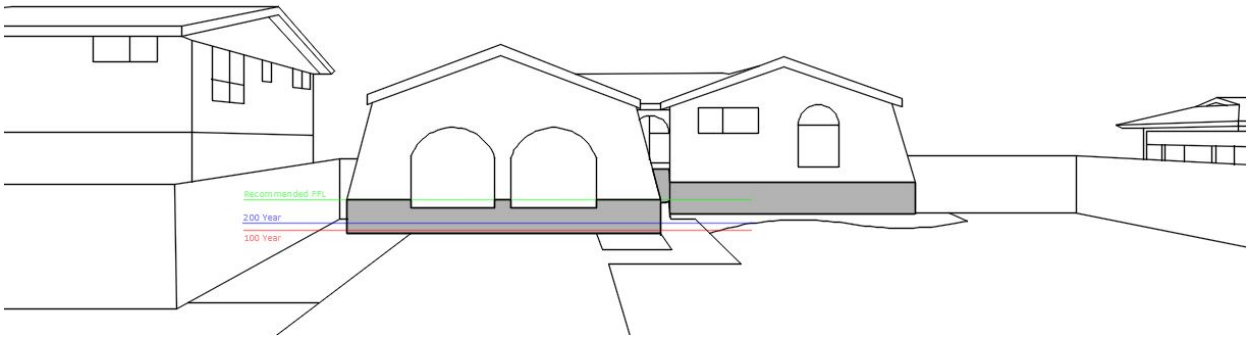
Appendix ii) Otaki Street Area



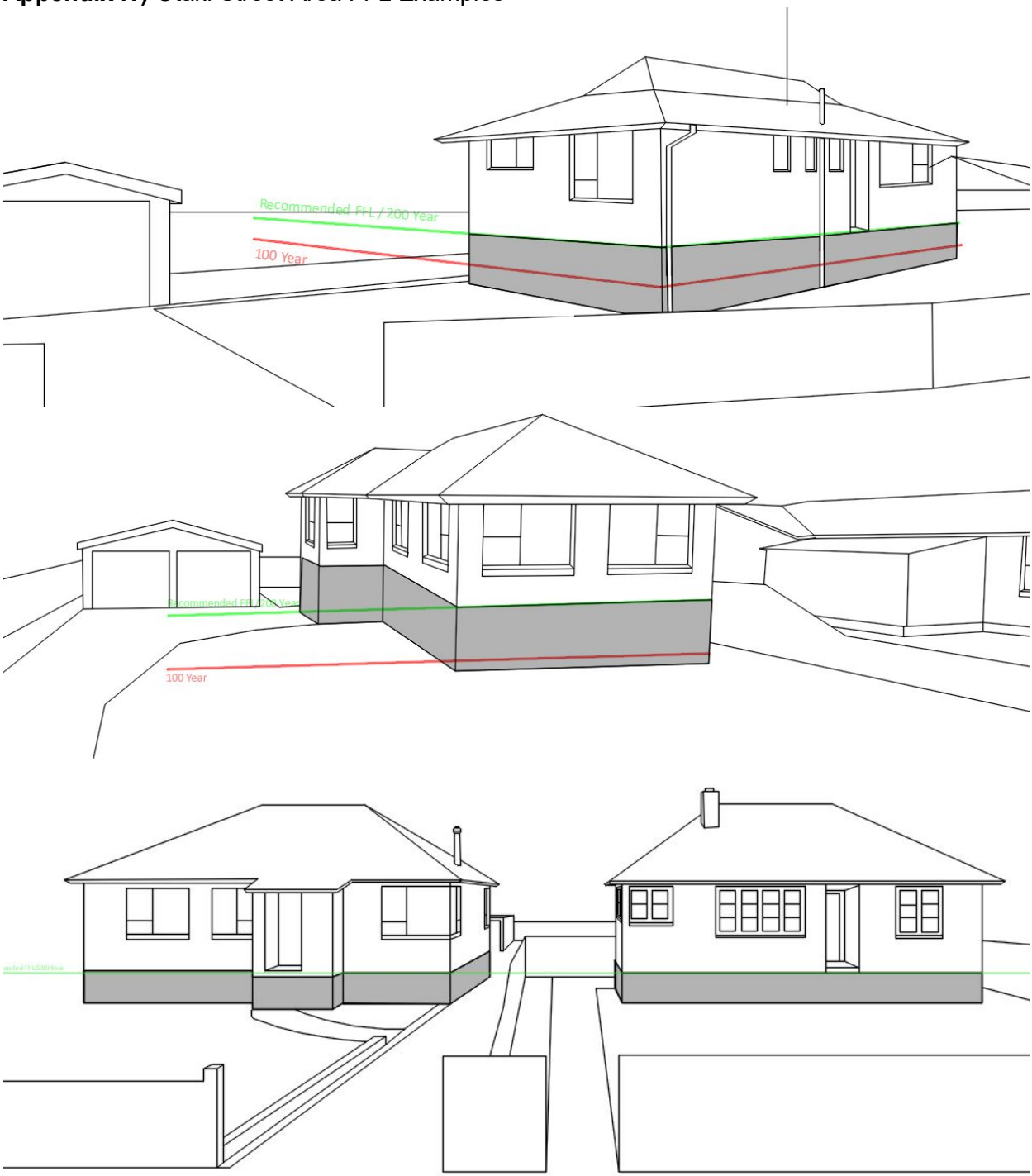
Appendix iii) Feldwick / Meadow Street FFL Examples

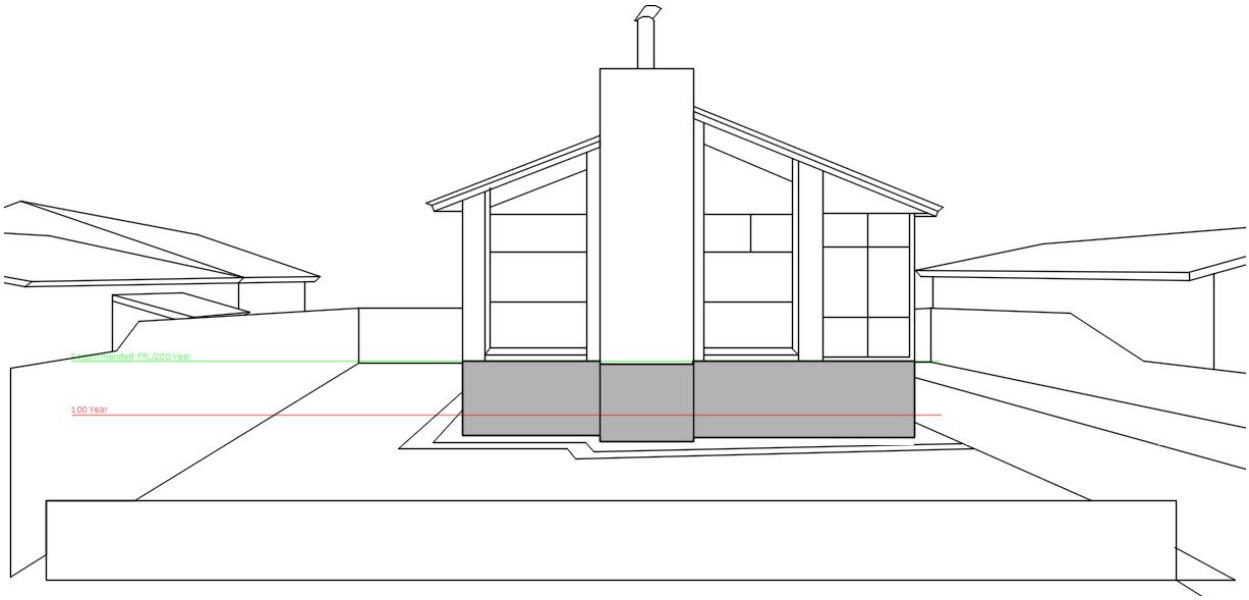


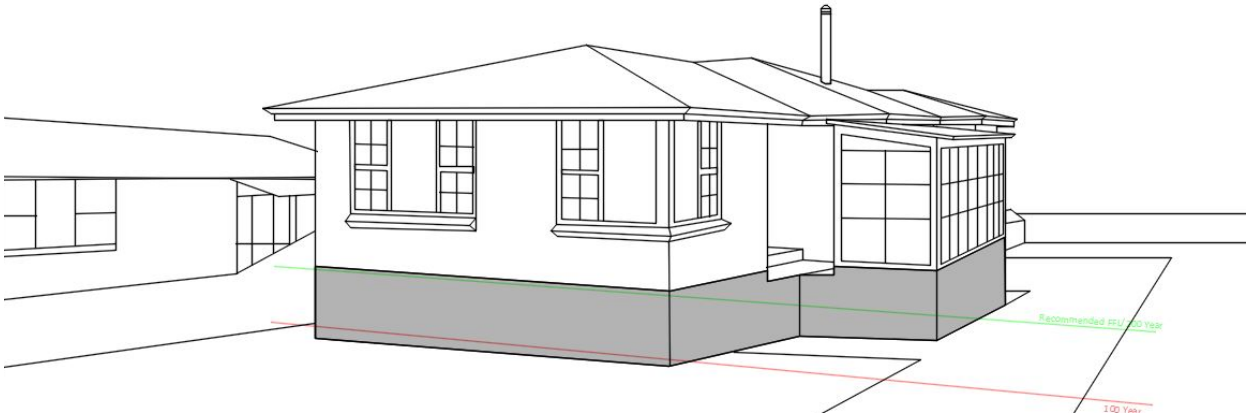




Appendix iv) Otaki Street Area FFL Examples




Recommended FFL/200 Year
100 Year


Recommended FFL/200 Year
100 Year

WAIMAKARIRI DISTRICT COUNCIL

MEMO

FILE NO AND TRIM NO:	TSU-22 / 200114003406 [v2]
DATE:	29 July 2022
MEMO TO:	Gerard Cleary, Manager – Utilities and Roading
FROM:	Chris Bacon, Network Planning Team Leader
SUBJECT:	Kaiapoi Minimum Finished Floor Level – Technical Memorandum 2022 Update

Gerard

The purpose of this memo is to document the technical work undertaken to help determine the minimum Finished Floor Levels (or FFL) that the Council should adopt within the Kaiapoi township and the Coastal settlements of Pines Kairaki, Woodend Beach and Waikuku Beach.

This work is a revision of the work undertaken in 2020 which incorporates a number of improvements including:

- Updated 2020 Flood Modelling
- Coastal Inundation Modelling
- Levels expressed in terms of New Zealand Vertical Datum 2016
- Inclusion of the residential beach settlements of Pines Kairaki, Woodend Beach and Waikuku Beach

Refer to TRIM 200114003406 [v1] for the previous 2020 Memo.

This work will inform the Technical Practice Note on Flood Mapping Freeboard and Finished Floor Levels (TRIM 200106000520).

This memo contains a number of figures and plans which can all be found in full scale in the Appendix.

1. Information and Data

The 2020 District Flood Modelling was used as the basis for this work. This work was completed in 2020 and featured the following assessments

- Localised Flooding
- Ashley Breakout Modelling
- Coastal Inundation

The 100 year ARI flood event was used throughout this work as this represents the return period to demonstrate compliance with the Building Act. It is noted that new greenfield subdivision or other comprehensive developments would normally require specific assessment with regards to the 200 year ARI flood event to meet the requirements under the ECAN Regional Policy Statement. Therefore the minimum finished floor levels presented in this memo should not be used for comprehensive or greenfield development within the urban zone without specific approval from the Utilities and Roading Manager or the Planning and Regulation Manager.

Refer to Figure 1 and Figure 2 for the 2020 Flood Modelling Results for Kaiapoi and the coastal settlements.

The 2020 Flood Modelling was based on the 2014 LiDAR survey with the inclusion of developer provided DEMs where available. The LiDAR data and the flood modelling results were used to determine the Flooding RL levels.

Refer to Figure 3 and Figure 4 for the 2014 LiDAR Ground Levels in the Kaiapoi Area and the Coastal Beach Settlements.

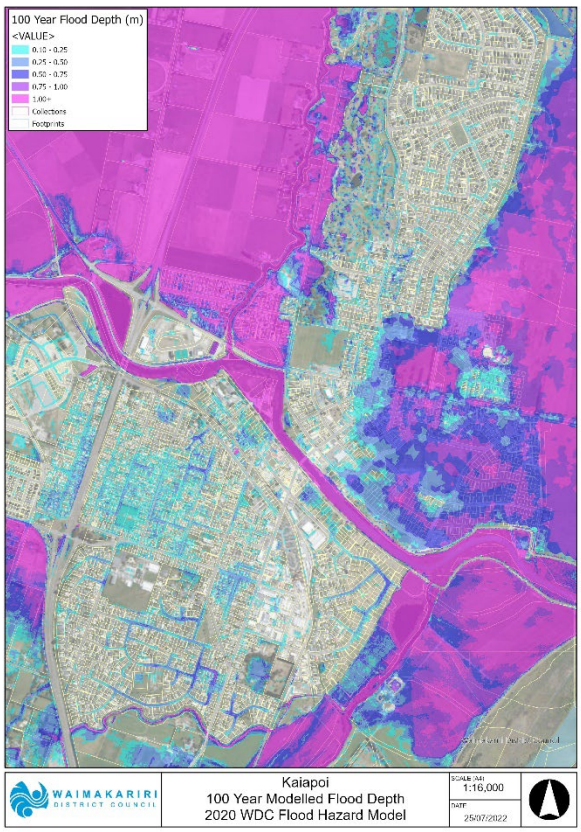


Figure 1 - Kaiapoi 100 Year Modelled Flood Depth

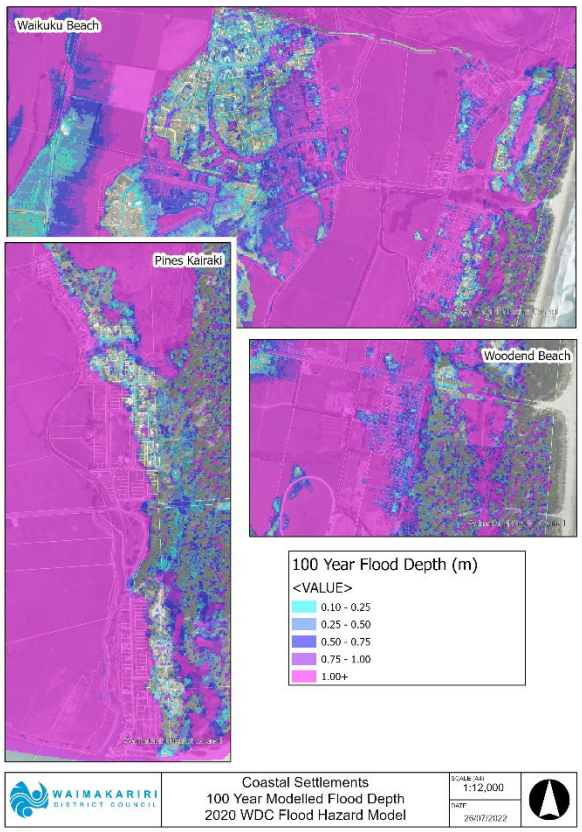


Figure 2 - Coastal Settlements 100 Year Modelled Flood Depth

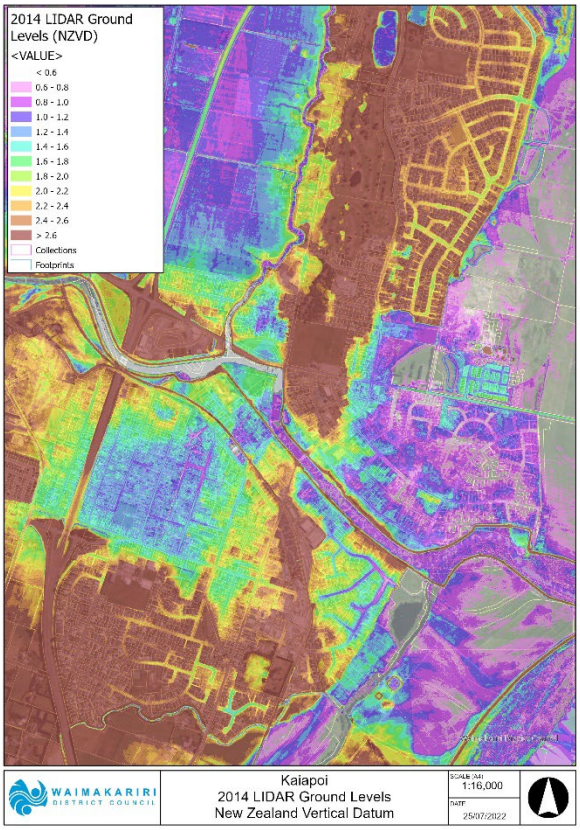


Figure 3 - Kaiapoi LIDAR Levels

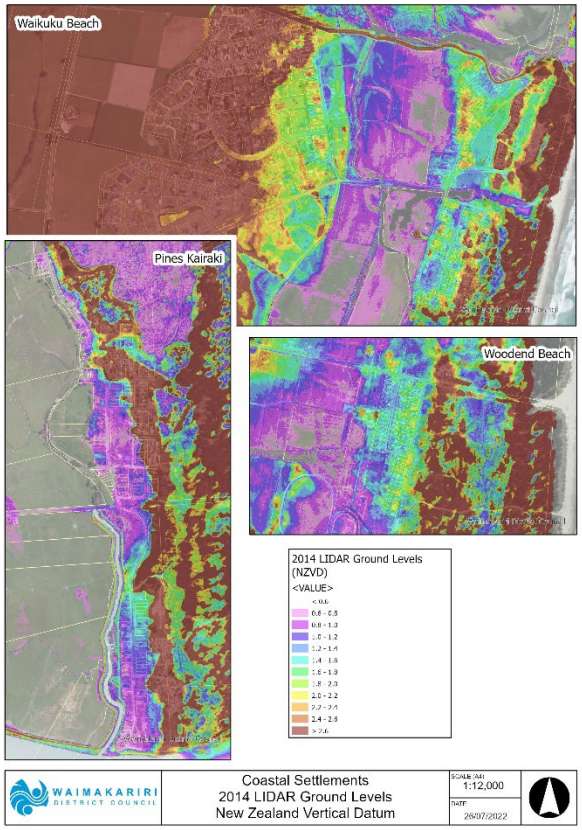


Figure 4 - Coastal Settlements LIDAR Levels

2. Delineation of Flood Basins

In Kaiapoi it was necessary to consider the impact of a localised flood basins in the event that stormwater infrastructure (such as pipes, pumps etc) could fail. In these areas overland flowpaths are not available and flood depths could be more significant than those presented in the flood model results.

In the Coastal Settlements these flood basins only represented areas directly affected by Coastal or Ashley Breakout Flooding where properties formed part of a larger flood basin often covering the full settlement.

Flood depths from the model results were used to determine localised flood basins where flood levels represented a homogenous surface and there was no overland flowpath available. Flooding within these basins would occur whenever the primary infrastructure failed or was overwhelmed by incoming stormwater flows. The basins were delineated manually using the mapped flood depths and the 2014 LiDAR data.

Refer to Figure 5 and Figure 7 for the assessed flood basins in Kaiapoi and the Coastal Settlements.

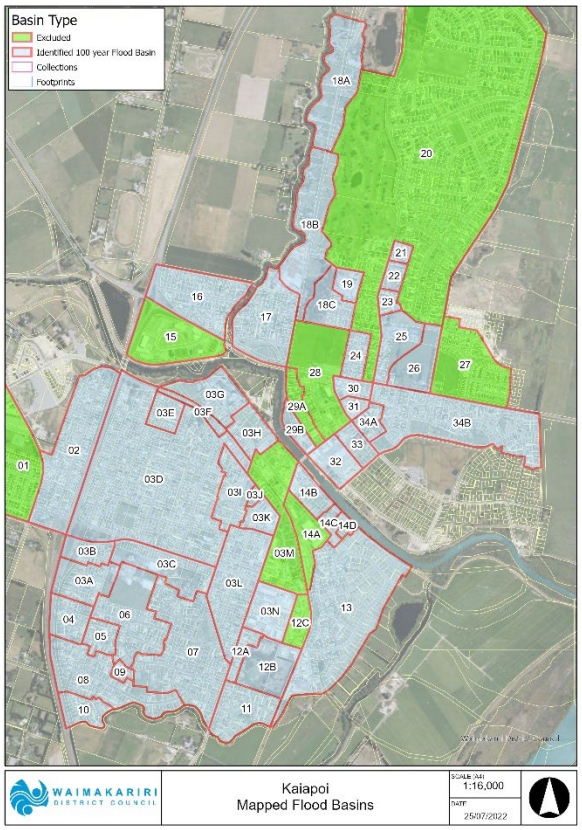


Figure 5 - Kaiapoi Flood Basins

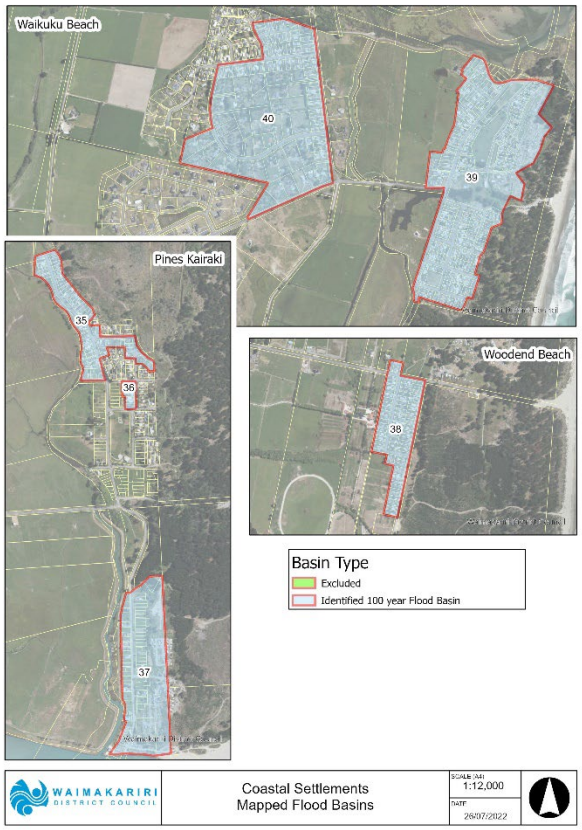


Figure 6 - Coastal Settlements Flood Basins

Some of the urban areas in Kaiapoi were specifically excluded from this flood basin assessment either because

a) They were subject to specific Resource Consent Conditions for Finished Floor Levels and/or
b) They did not feature any significant flooding or exhibit basin behaviour (ie floodwaters were able to flow away freely)

These areas are shown in green on Figure 5.

Using the flood depths from the flood models and LiDAR data it was then possible to determine a relative flood level for each basin in terms of Reduced Level[1] (or RL). The flood level was determined based on where the homogenous flood surface had formed. Areas where floodwater was flowing across land or where surface water had formed in small localised hollows were ignored. This was undertaken as a manual exercise.

Refer to Figure 7 and Figure 8 for the 100 Year Flood Levels in each assessed Flood Basin

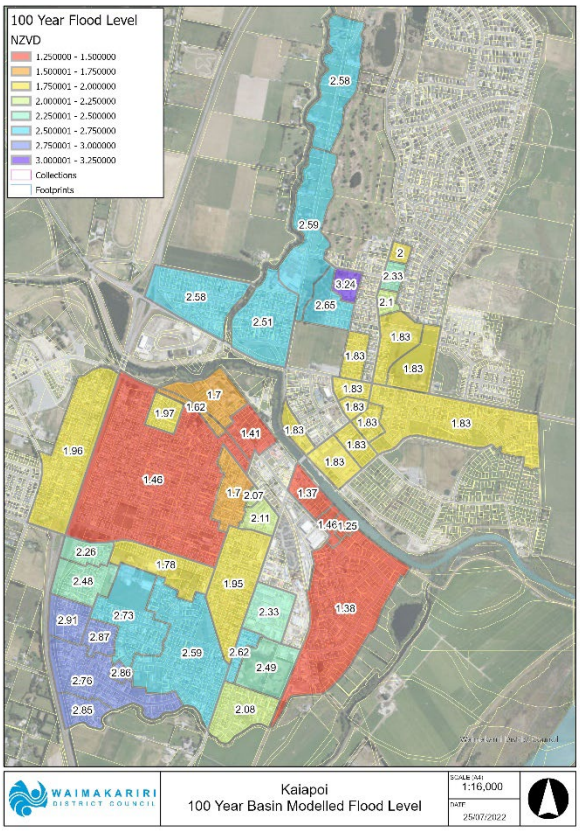


Figure 7 - Kaiapoi 100 Year Flood Level

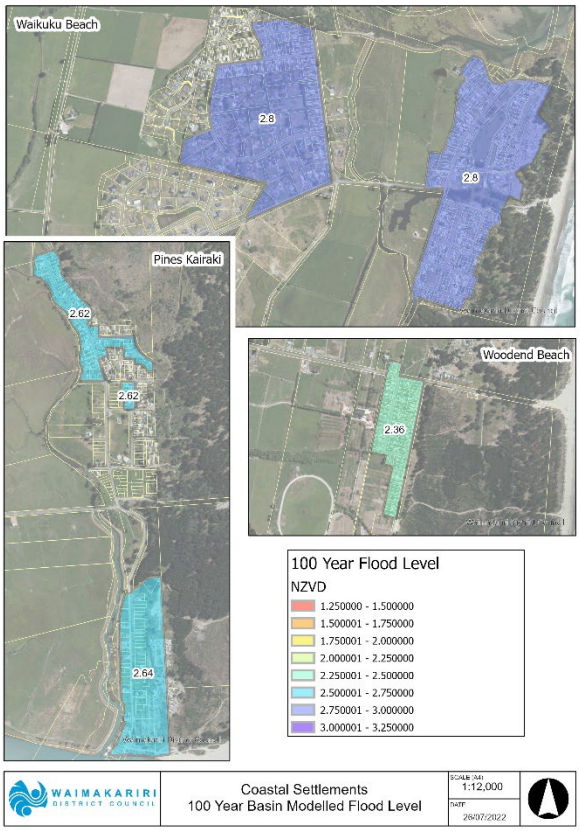


Figure 8 - Coastal Settlements 100 Year Flood Level

[1] The Reduced Level used is based on the New Zealand 2016 Vertical Datum. These levels have been translated from the Lyttelton 1937 Vertical Datum which was the vertical datum used for both the 2020 Flood Modelling and the 2014 LiDAR survey.

3. Determination of Freeboard

Each flood basin was then assigned a suitable freeboard based on the modelled flood hazard and the freeboard guidelines developed as part of the Flood Mapping Freeboard and Finished Floor Levels Practice Note (TRIM 200106000520). Table 1 summarises the freeboard requirements used for the different hazard categories.

Table 1 - Minimum Freeboard Requirements

Flood Hazard[2]	Minimum Freeboard
Very Low (White)	300mm
Low (Green)	400mm
Medium to High (Blue and Red)	500mm

Refer to Figure 9 and Figure 10 for the Modelled 100 Year Flood Hazard Categories

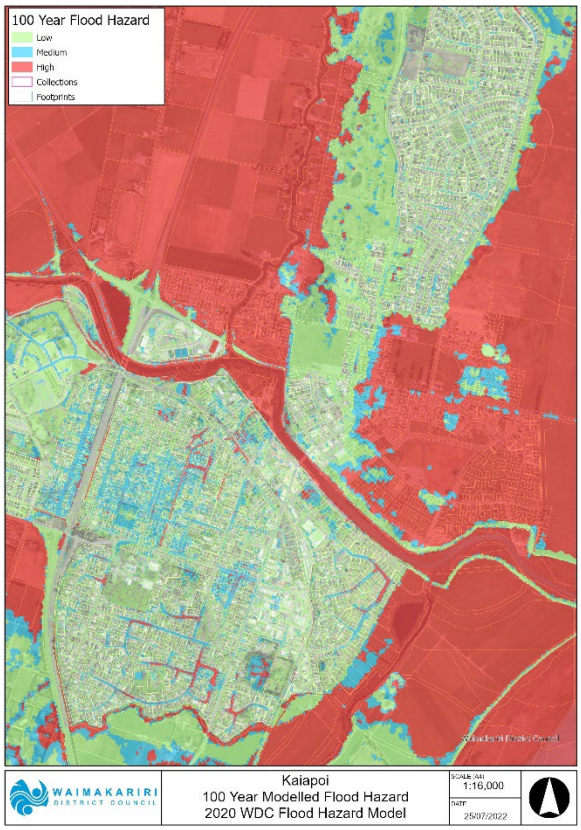


Figure 9 - Kaiapoi 100 Year Flood Hazard

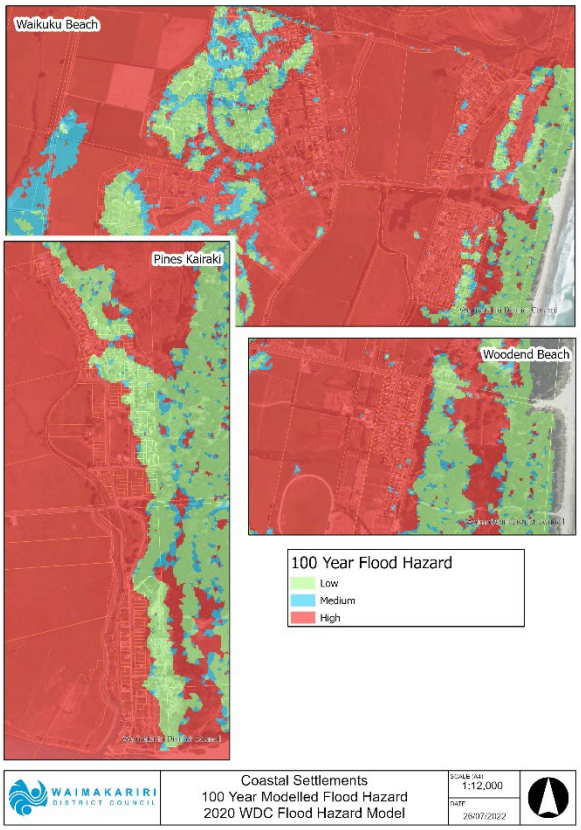


Figure 10 - Coastal Settlements 100 Year Flood Hazard

[2] Flood Hazard as assessed on land parcels. Higher levels of flood hazard may be present on the adjoining road corridor

Refer to Figure 11 and Figure 12 for the assessed freeboard requirement at each basin for the 100 Year flood events.

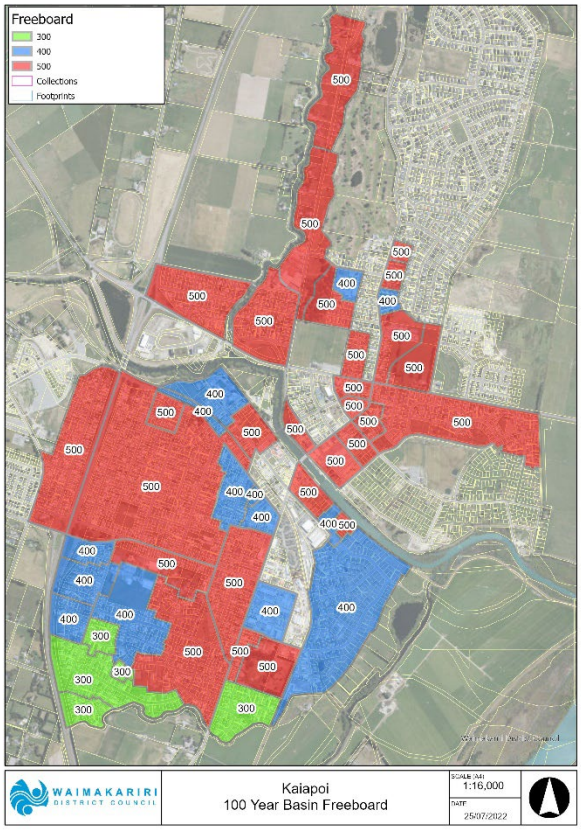


Figure 11 - Kaiapoi 100 Year Freeboard Requirement

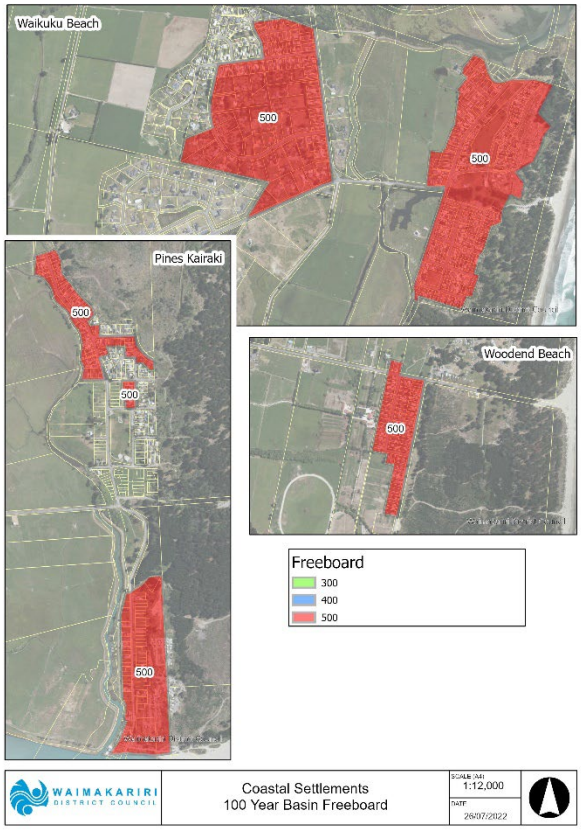


Figure 12 - Coastal Settlements 100 Year Freeboard Requirement

4. Determination of Minimum Finished Floor Level

Taking the adopted freeboard for each flood basin and adding this to the modelled flood depth it was then possible to specify a minimum FFL for each basin. This FFL represents the safe finished floor level within each basin area to prevent inundation due to ponding. Some properties may still require higher floor levels where they are subject to overland flow or Building Code requirements.

Refer to Figure 13 and Figure 14 for the minimum Finished Floor Level requirement for each flood basin.

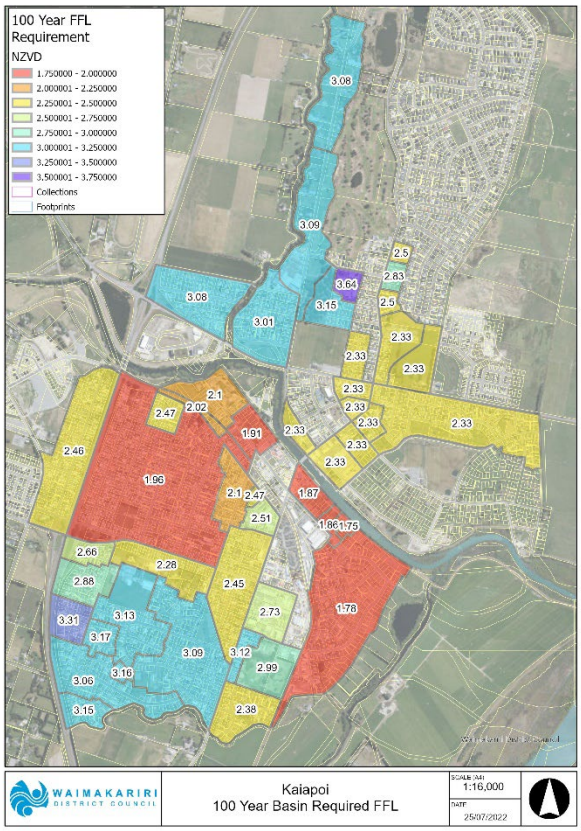


Figure 13 - Kaiapoi 100 Year FFL Requirement

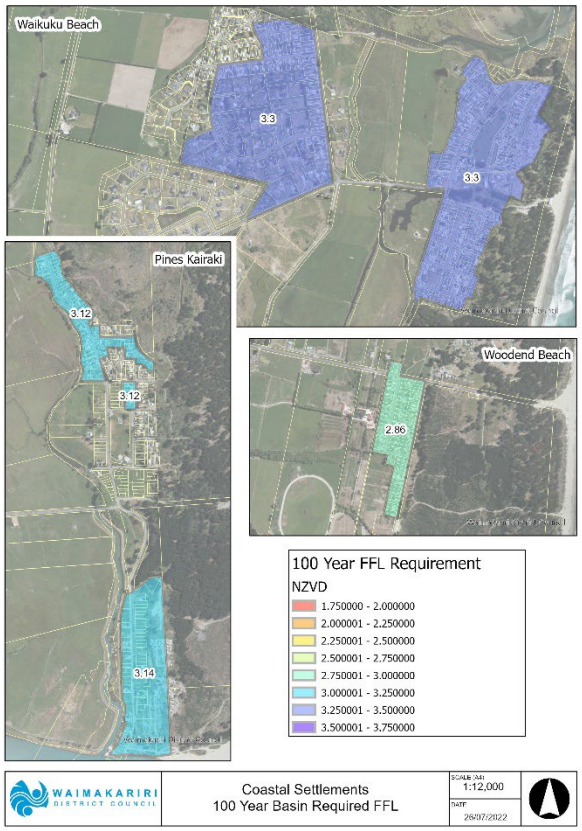


Figure 14 - Coastal Settlements 100 Year FFL Requirement

For new dwellings built in the existing urban area that are replacing existing dwellings the Council has adopted the 100 year level of protection in line with the requirements under the Building Act.

5. Further Assessment of Absolute Minimum Finished Floor Level Requirement

Following the assessment of the Minimum Finished Floor Level requirements for each flood basin it was deemed necessary to consider a higher minimum Finished Floor Level that would provide further protection for the low lying areas on the southern side of the Kaiapoi River. This absolute minimum level would supersede any modelled flood level information in these areas and provide additional protection for events such as a pumpstation failure in Kaiapoi.

Four potential absolute minimum FFL levels were subsequently assessed as outlined in Table 2

Table 2 – Absolute Minimum FFL Assessment

Potential Absolute Minimum FFL	Justification	Comments
1.65m RL	Correlates to historically observed high tide levels in the Kaiapoi River.	This is less than any of the assessed 100 year FFL levels, so this would not be appropriate for an absolute minimum FFL
1.96m RL	Correlates to the assessed minimum FFL level for the Otaki Street area	The Otaki Street area is one of the lowest lying parts of Kaiapoi and regular experiences surface flooding following moderate to large rain events. Therefore using the assessed 100 year FFL level for this area to set the absolute minimum FFL for the district appears to make logical sense.
2.05m RL	Correlates to recently consented minimum FFL for subdivisions in Kaiapoi where not subject to Coastal Inundation.	In areas not subject to Coastal Inundation this would provide some consistency with recent consented subdivisions, however it doesn't necessary reflect the flood levels across all low lying areas.
2.91m RL	CCC adopted minimum FFL for Christchurch City	Assessed to compare the existing requirements of a neighbouring local authority. However it is noted that this level would be impractical for most eastern urban communities in Waimakariri where the ground level is often in the order of 1.00m RL.

6. Final Minimum Finished Floor Level Requirements for Kaiapoi and the Coastal Settlements

Following this work it was decided to adopt the 100 year minimum FFL requirements in Kaiapoi and the Coastal Settlements. Furthermore it was determined that an absolute minimum FFL requirement of 1.96m be applied to all areas to match the requirement in the Otaki Street area.

Refer to Figure 15 and Figure 16 for plans showing the adopted Minimum FFL for Kaiapoi and the Coastal Settlements. Areas not shaded or coloured on the map may be subject to further Minimum FFL requirements under Resource Consent conditions.

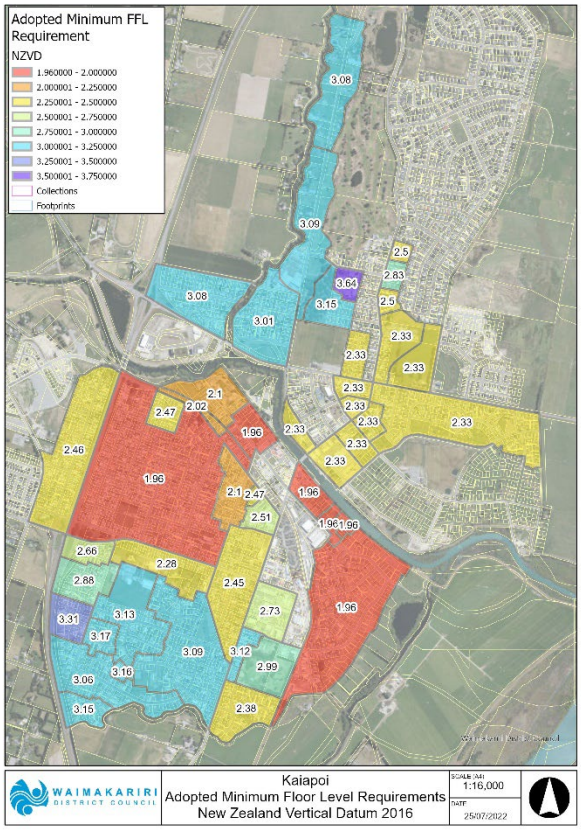


Figure 15 - Kaiapoi Adopted Minimum FFL Requirement

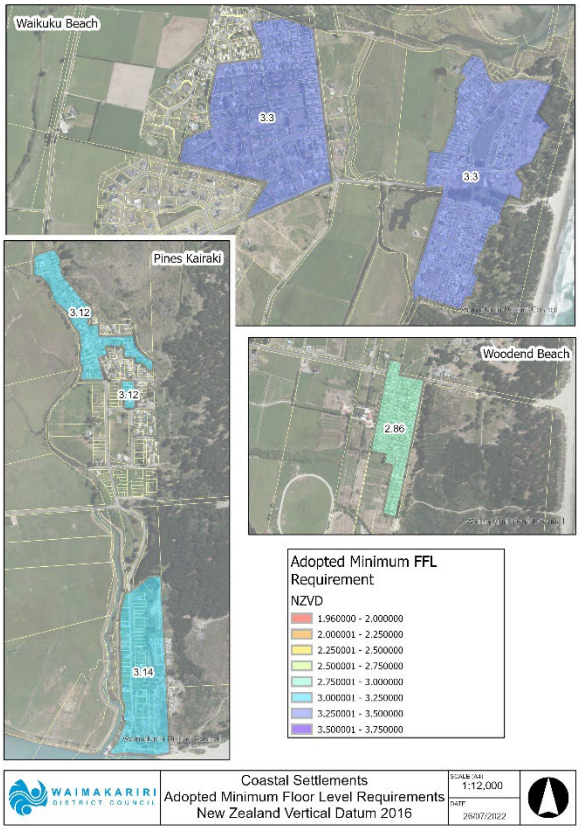
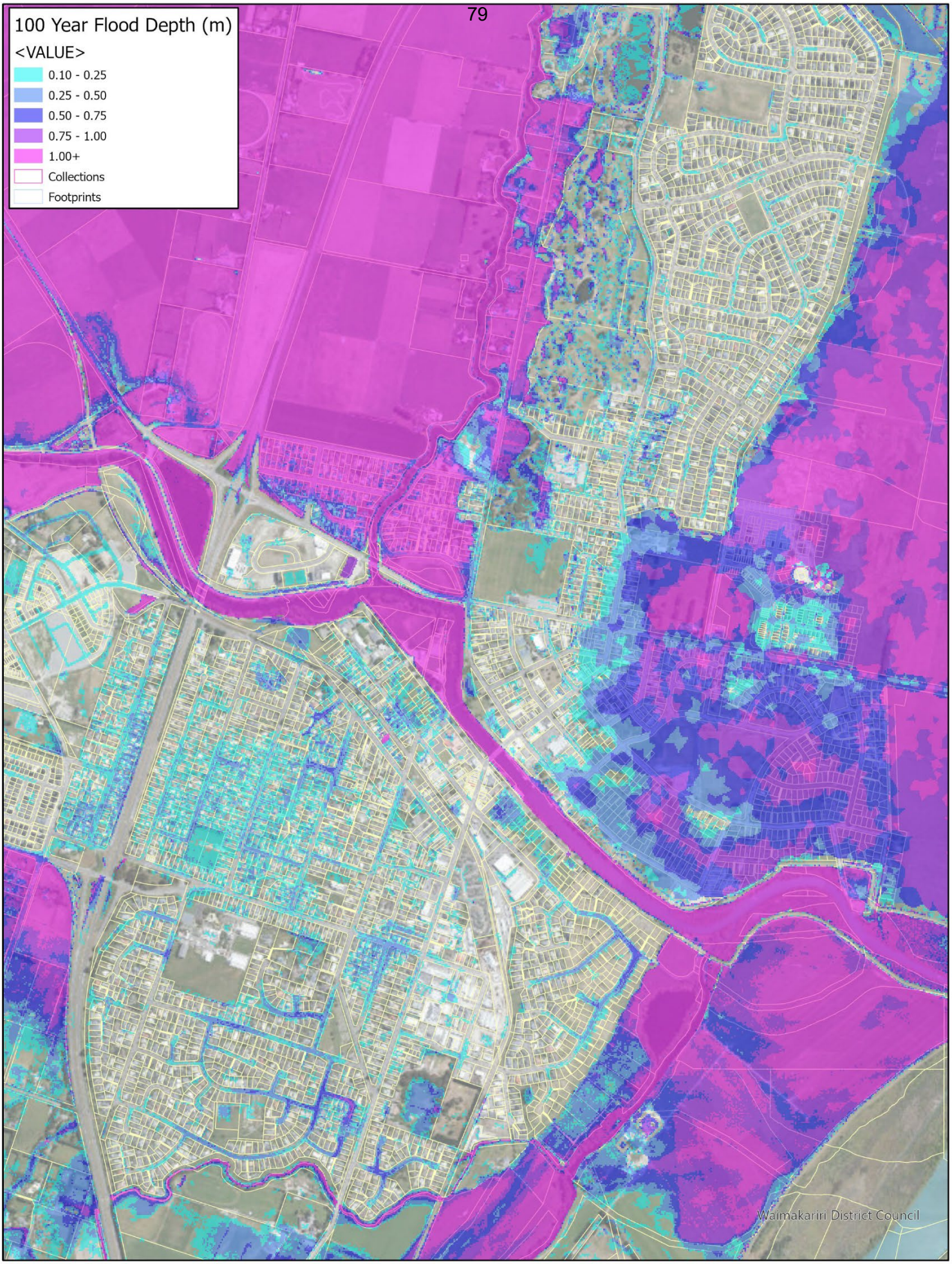


Figure 16 - Coastal Settlements Adopted Minimum FFL Requirement

APPENDICES

Figure 1 - Kaiapoi 100 Year Modelled Flood Depth
Figure 2 - Coastal Settlements 100 Year Modelled Flood Depth
Figure 3 - Kaiapoi LIDAR Levels
Figure 4 - Coastal Settlements LIDAR Levels
Figure 5 - Kaiapoi Flood Basins
Figure 6 - Coastal Settlements Flood Basins
Figure 7 - Kaiapoi 100 Year Flood Level
Figure 8 - Coastal Settlements 100 Year Flood Level
Figure 9 - Kaiapoi 100 Year Flood Hazard
Figure 10 - Coastal Settlements 100 Year Flood Hazard
Figure 11 - Kaiapoi 100 Year Freeboard Requirement
Figure 12 - Coastal Settlements 100 Year Freeboard Requirement
Figure 13 - Kaiapoi 100 Year FFL Requirement
Figure 14 - Coastal Settlements 100 Year FFL Requirement
Figure 15 - Kaiapoi Adopted Minimum FFL Requirement
Figure 16 - Coastal Settlements Adopted Minimum FFL Requirement

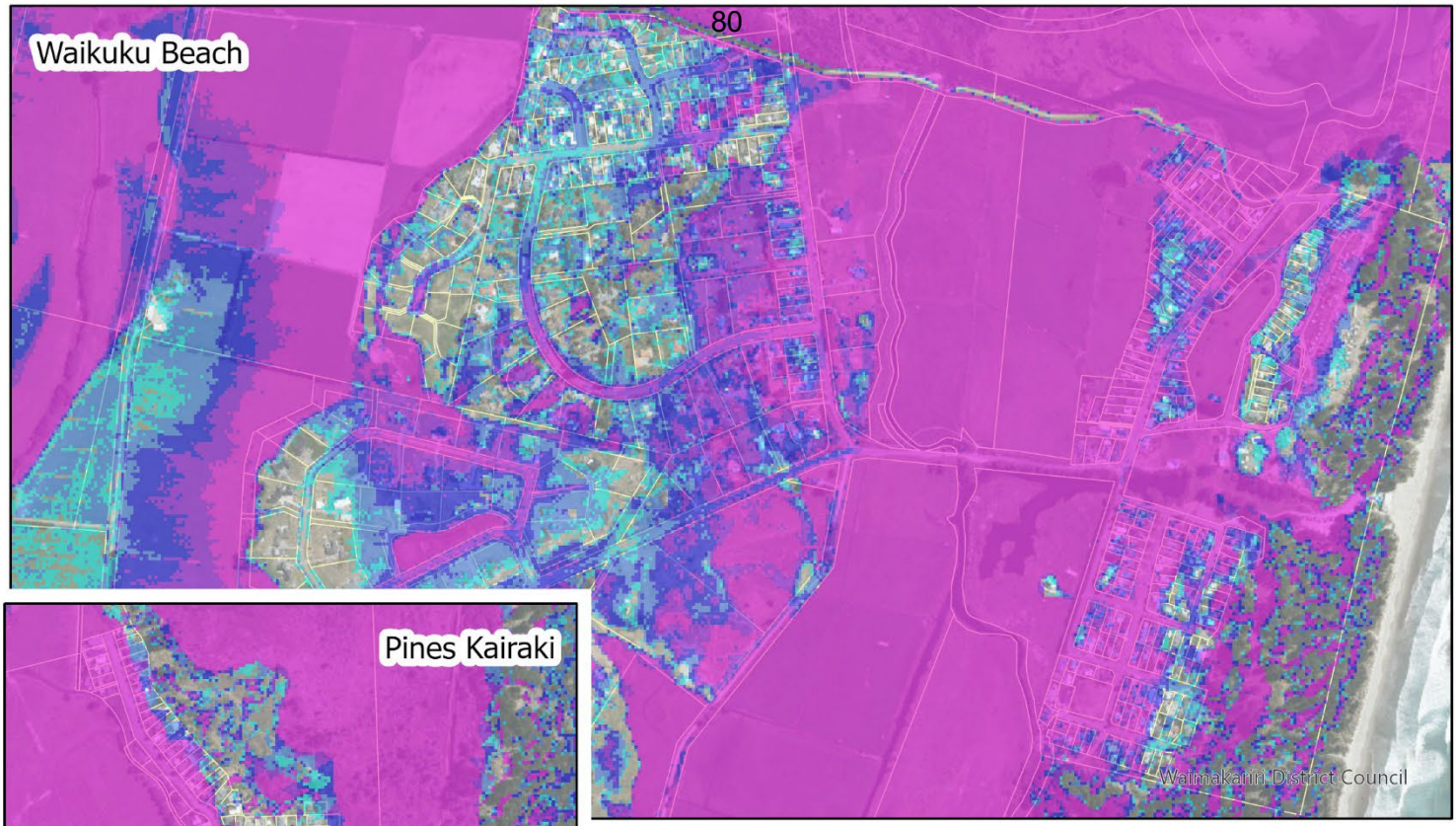


WAIMAKARIRI DISTRICT COUNCIL

Kaiapoi
100 Year Modelled Flood Depth
2020 WDC Flood Hazard Model

SCALE (A4)
1:16,000

DATE
25/07/2022

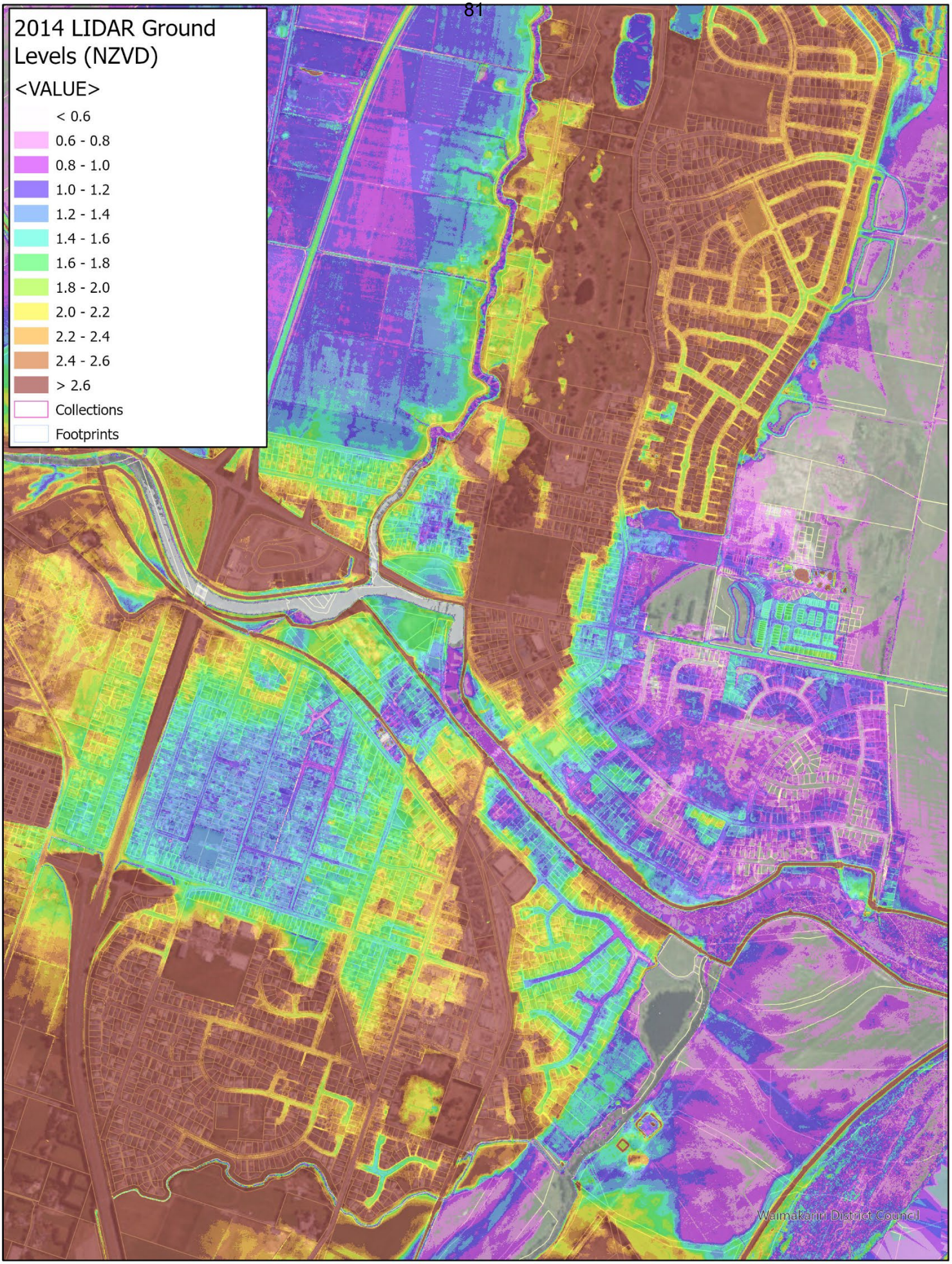


100 Year Flood Depth (m)

<VALUE>

- 0.10 - 0.25
- 0.25 - 0.50
- 0.50 - 0.75
- 0.75 - 1.00
- 1.00+

WAIMAKARIRI DISTRICT COUNCIL	Coastal Settlements 100 Year Modelled Flood Depth 2020 WDC Flood Hazard Model	SCALE (A4) 1:12,000 DATE 26/07/2022	

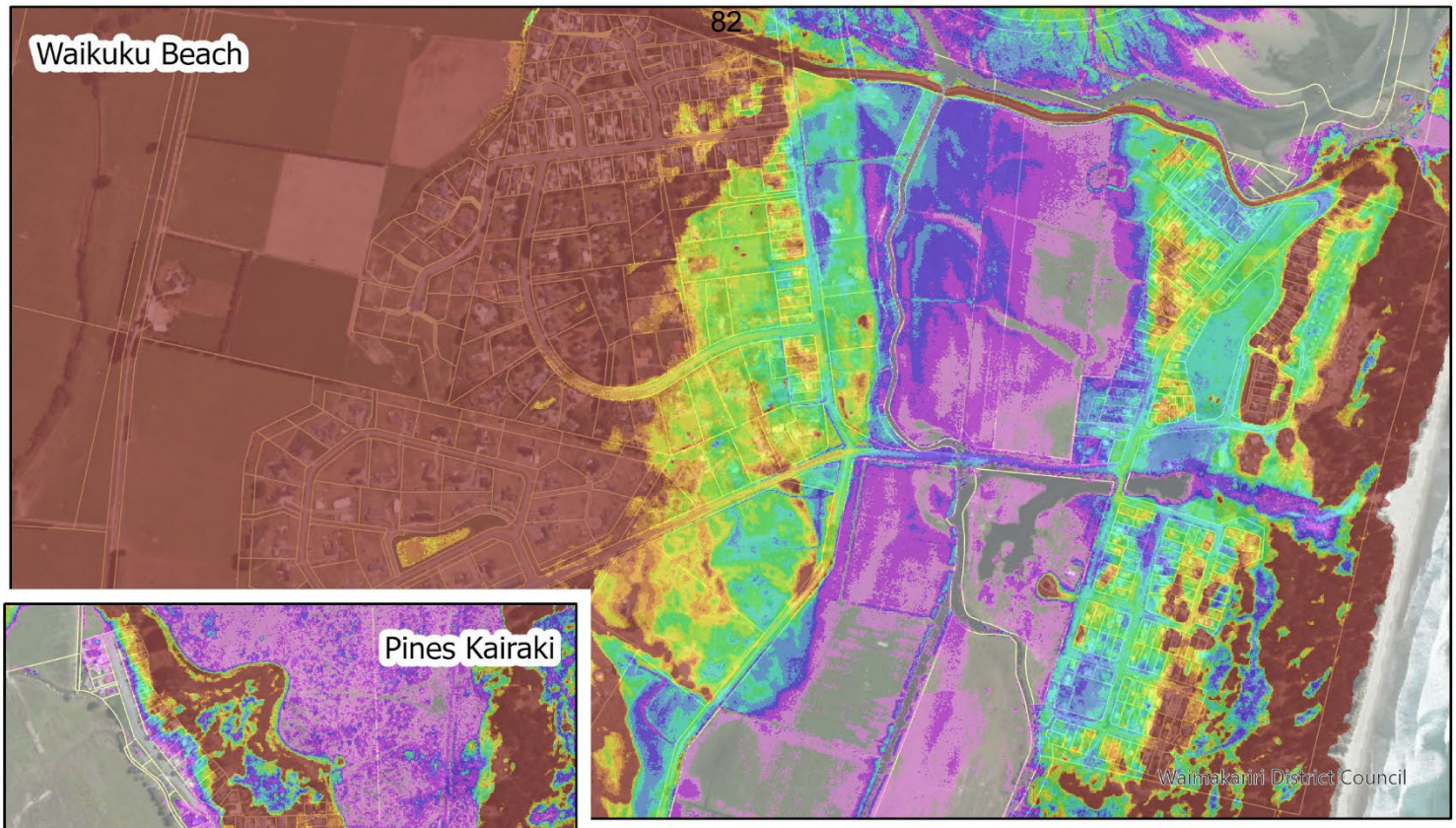


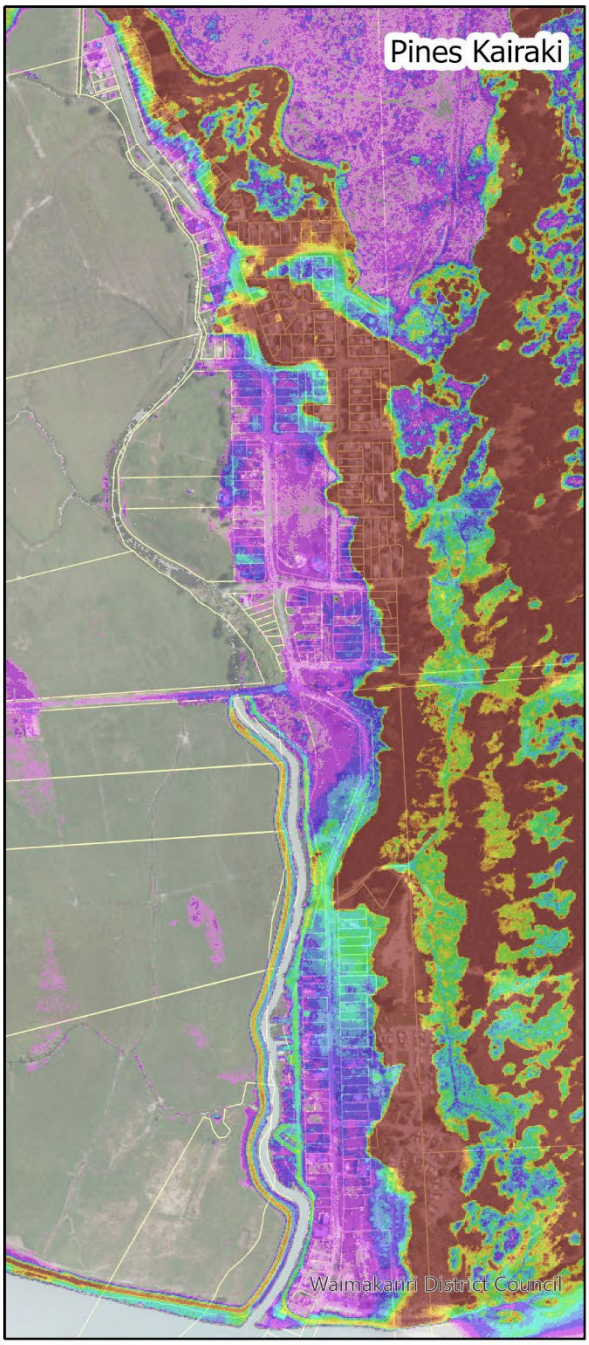
WAIMAKARIRI DISTRICT COUNCIL

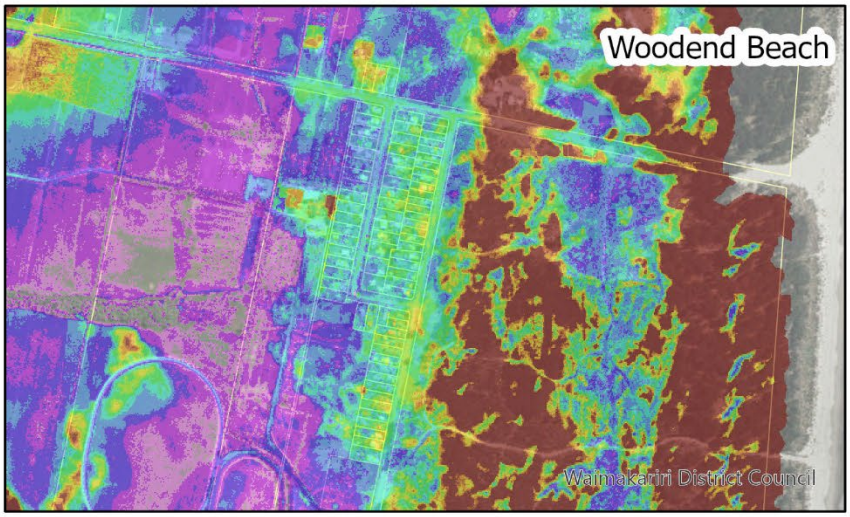
Kaiapoi
2014 LIDAR Ground Levels
New Zealand Vertical Datum

SCALE (A4)
1:16,000

DATE
25/07/2022







2014 LIDAR Ground Levels (NZVD)

<VALUE>

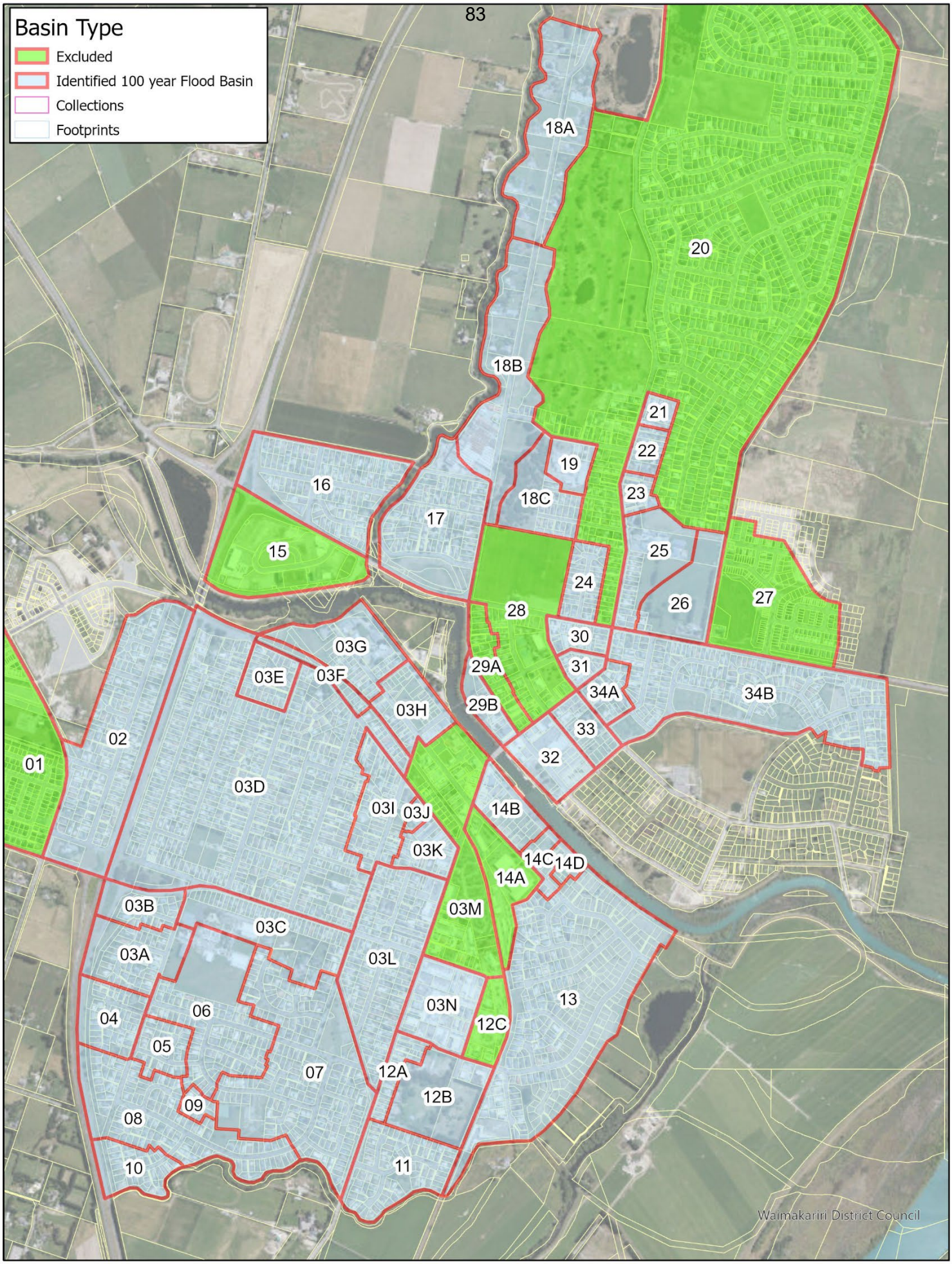
- < 0.6
- 0.6 - 0.8
- 0.8 - 1.0
- 1.0 - 1.2
- 1.2 - 1.4
- 1.4 - 1.6
- 1.6 - 1.8
- 1.8 - 2.0
- 2.0 - 2.2
- 2.2 - 2.4
- 2.4 - 2.6
- > 2.6

WAIMAKARIRI DISTRICT COUNCIL

Coastal Settlements
2014 LIDAR Ground Levels
New Zealand Vertical Datum

SCALE (A4)
1:12,000

DATE
26/07/2022



WAIMAKARIRI DISTRICT COUNCIL

Kaiapoi
Mapped Flood Basins

SCALE (A4)
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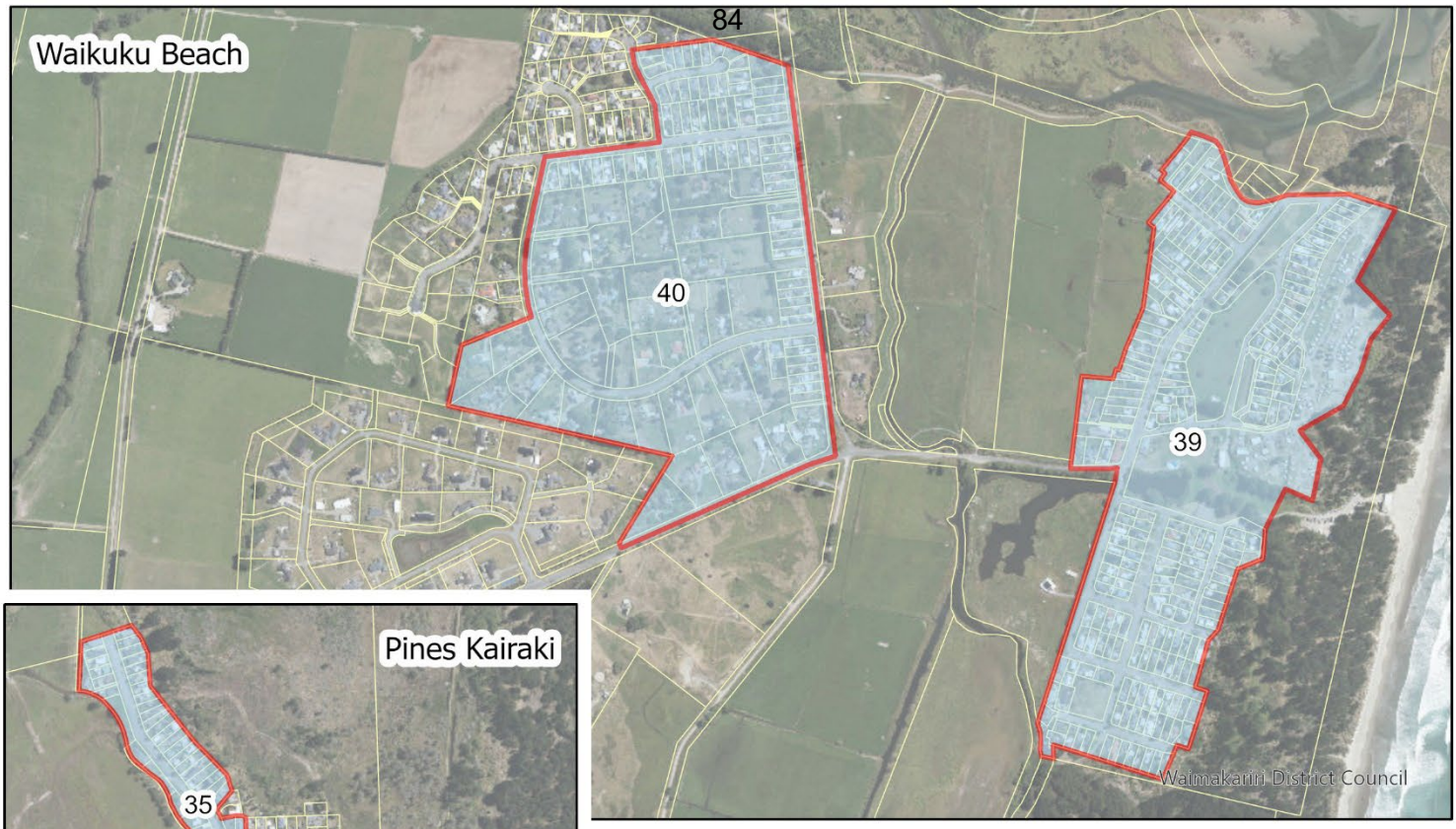
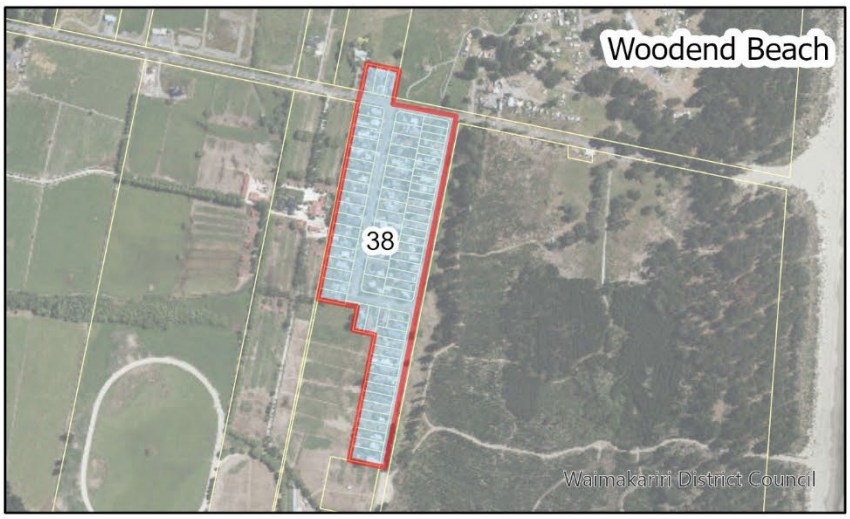
DATE
25/07/2022





Basin Type

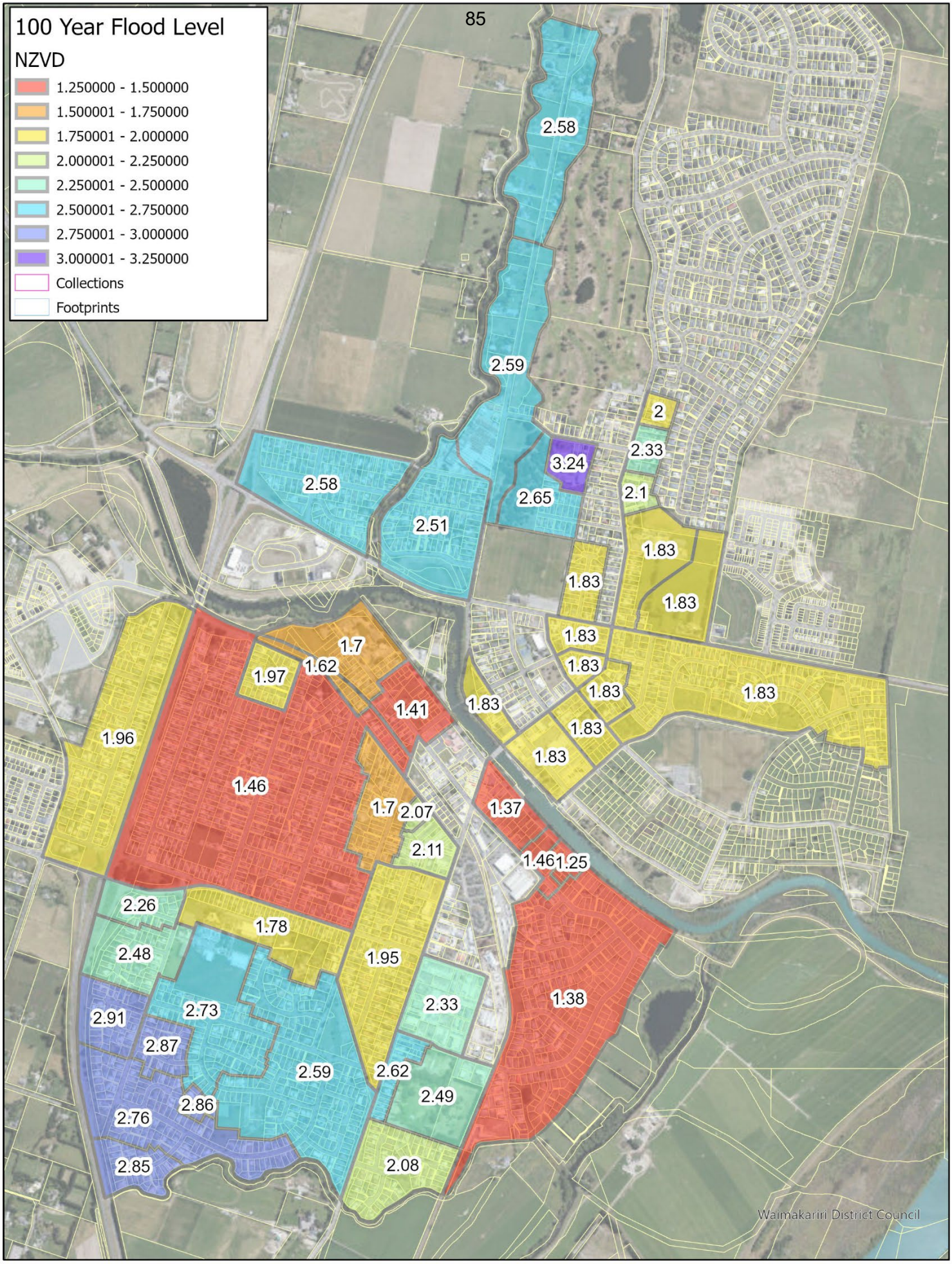
- Excluded
- Identified 100 year Flood Basin

WAIMAKARIRI DISTRICT COUNCIL

Coastal Settlements Mapped Flood Basins

SCALE (A4) 1:12,000

DATE 26/07/2022



WAIMAKARIRI DISTRICT COUNCIL

Kaiapoi
100 Year Basin Modelled Flood Level

SCALE (A4)
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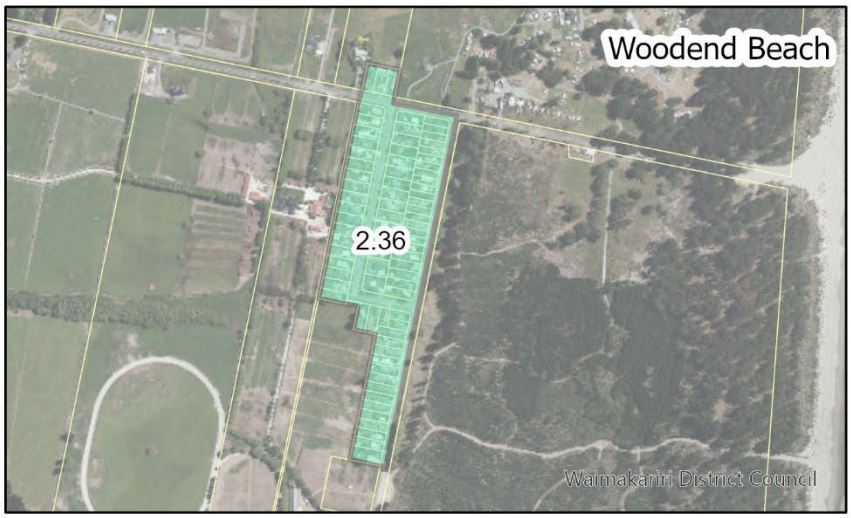
DATE
25/07/2022



100 Year Flood Level

NZVD

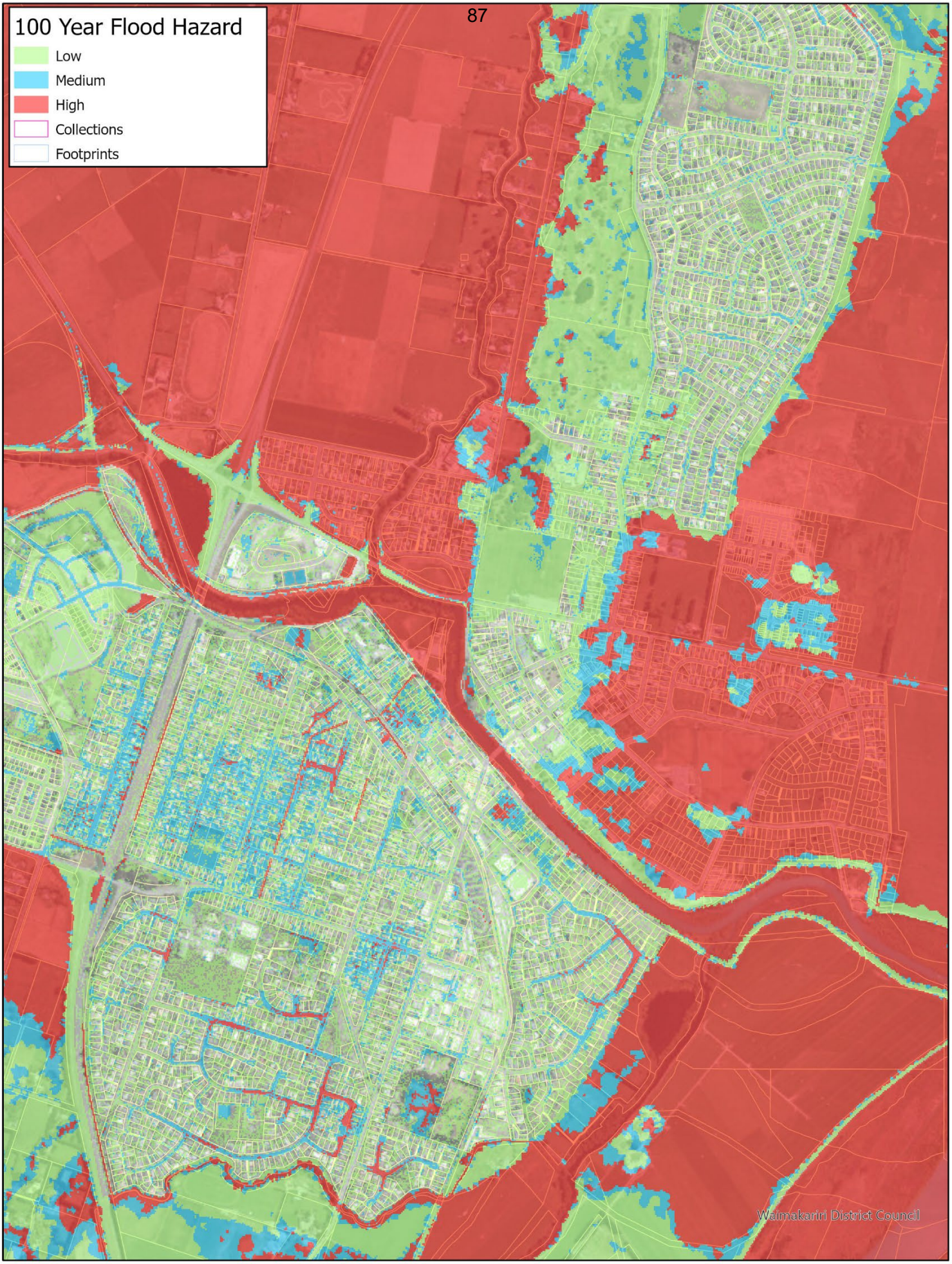
- 1.250000 - 1.500000
- 1.500001 - 1.750000
- 1.750001 - 2.000000
- 2.000001 - 2.250000
- 2.250001 - 2.500000
- 2.500001 - 2.750000
- 2.750001 - 3.000000
- 3.000001 - 3.250000

WAIMAKARIRI DISTRICT COUNCIL

Coastal Settlements
100 Year Basin Modelled Flood Level

SCALE (A4)
1:12,000

DATE
26/07/2022

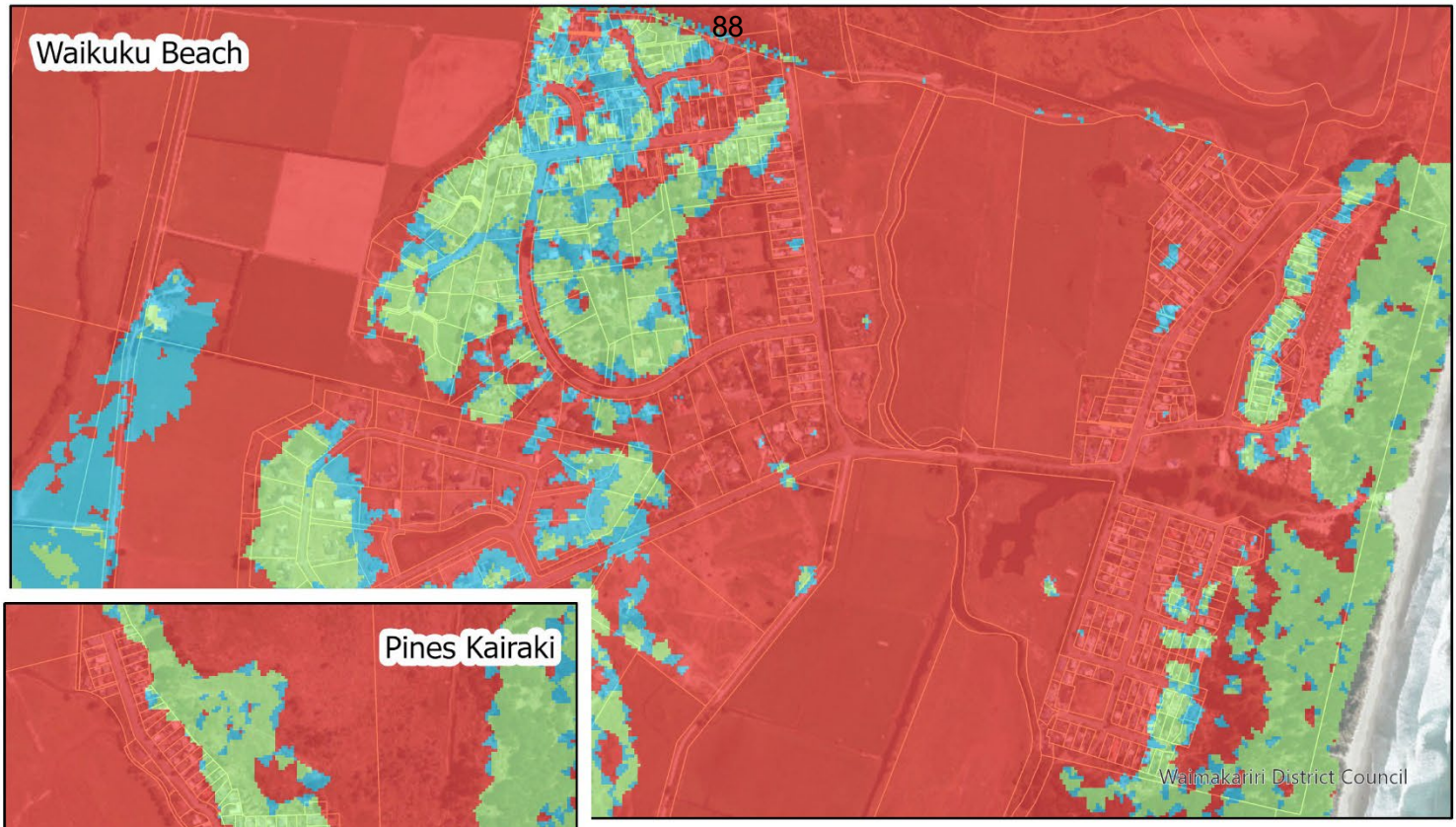


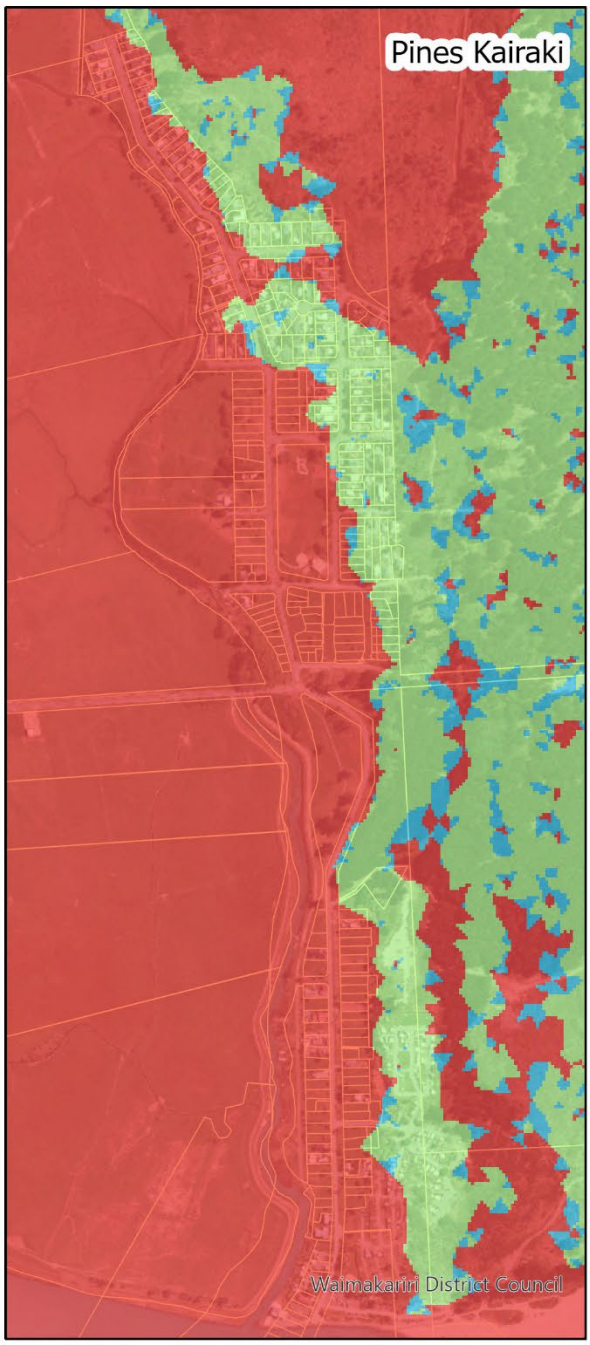
WAIMAKARIRI DISTRICT COUNCIL

Kaiapoi
100 Year Modelled Flood Hazard
2020 WDC Flood Hazard Model

SCALE (A4)
1:16,000

DATE
25/07/2022

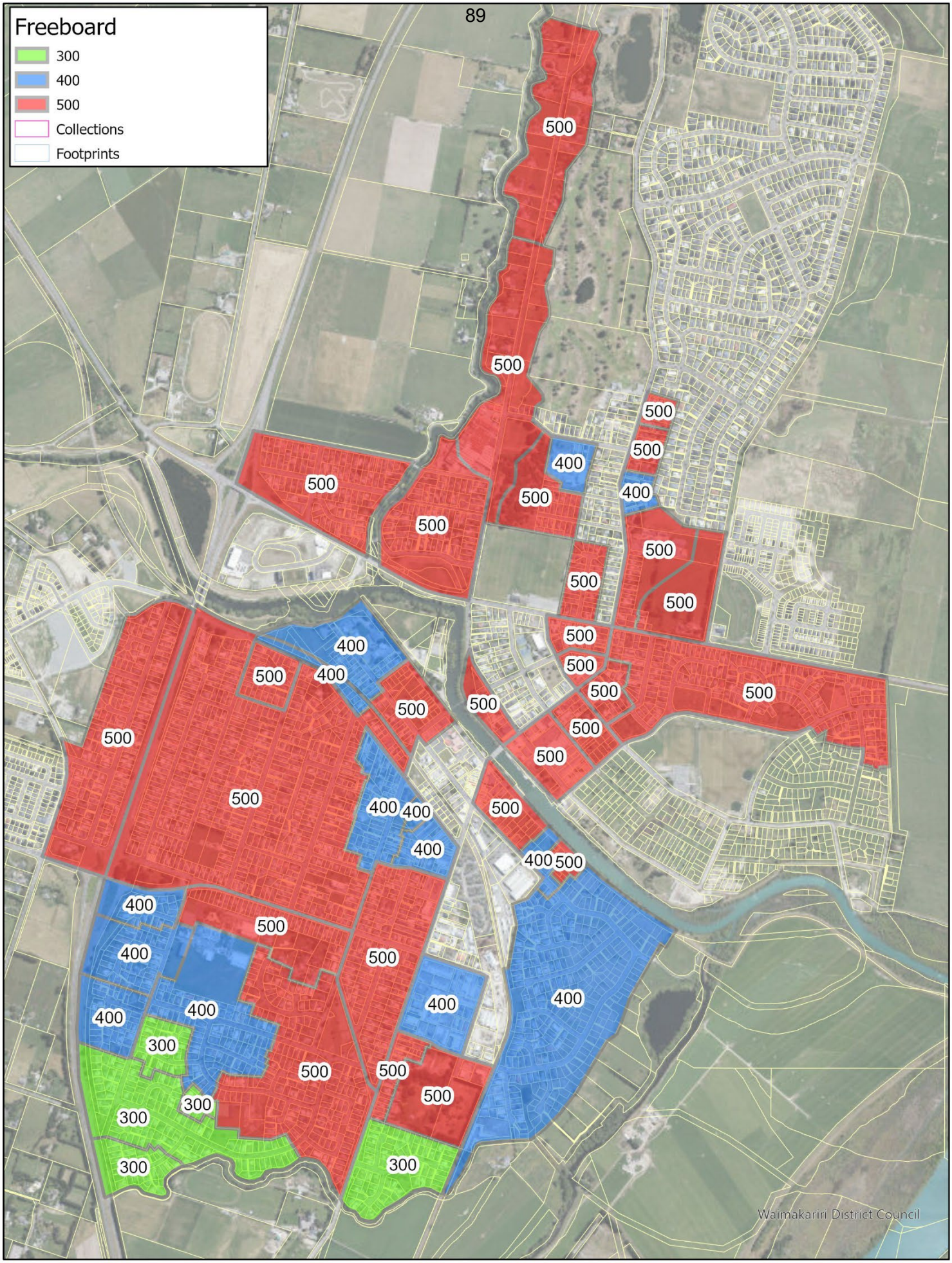




100 Year Flood Hazard

- Low
- Medium
- High

WAIMAKARIRI DISTRICT COUNCIL	Coastal Settlements 100 Year Modelled Flood Hazard 2020 WDC Flood Hazard Model	SCALE (A4) 1:12,000 DATE 26/07/2022	



WAIMAKARIRI DISTRICT COUNCIL

Kaiapoi
100 Year Basin Freeboard

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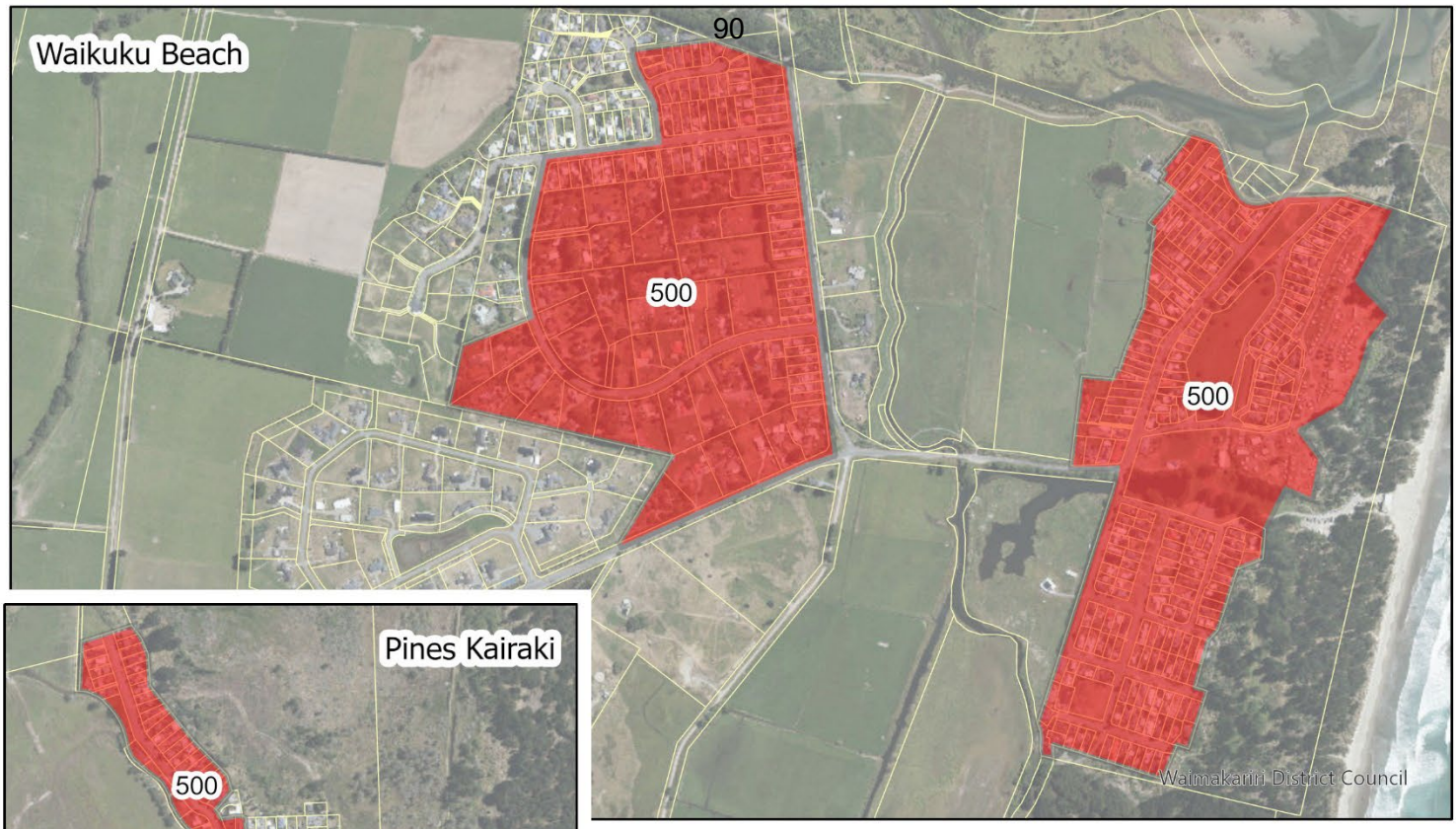
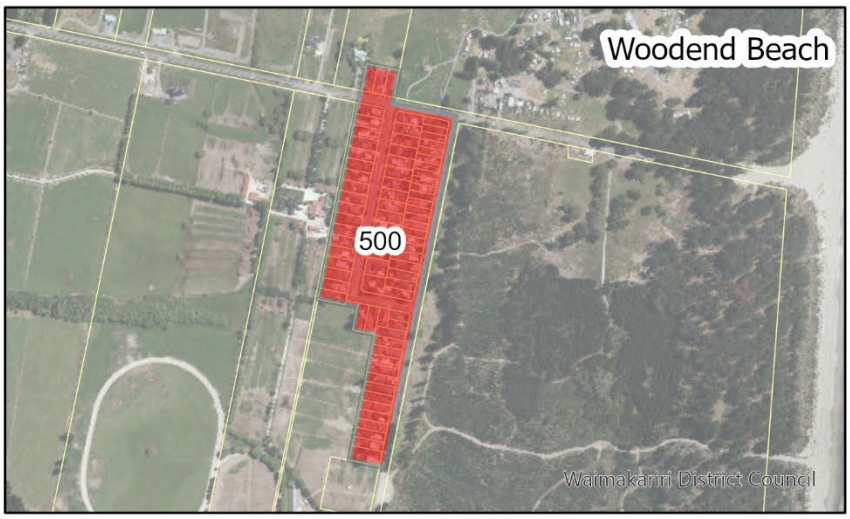
25/07/2022





Freeboard

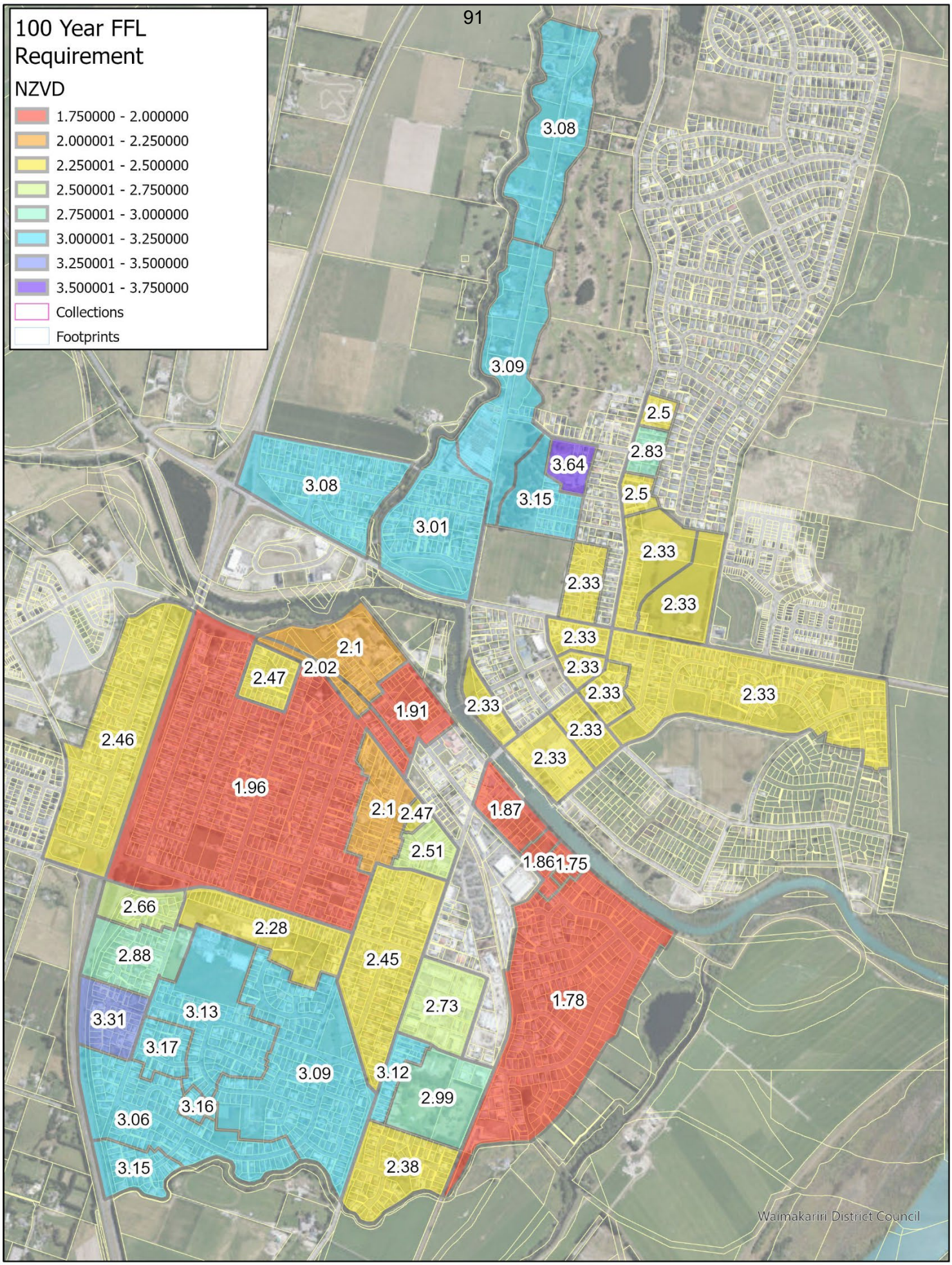
- 300
- 400
- 500

WAIMAKARIRI DISTRICT COUNCIL

Coastal Settlements
100 Year Basin Freeboard

SCALE (A4)
1:12,000

DATE
26/07/2022

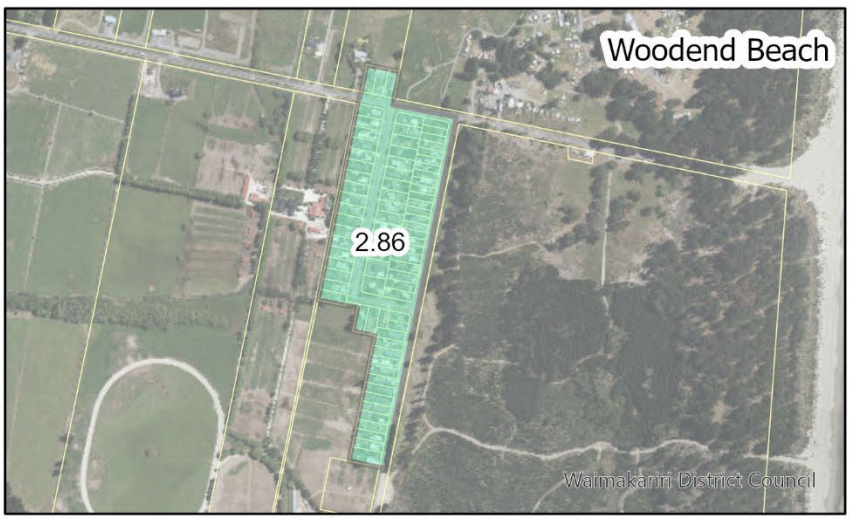


WAIMAKARIRI DISTRICT COUNCIL

Kaiapoi
100 Year Basin Required FFL

SCALE (A4)
1:16,000

DATE
25/07/2022



100 Year FFL Requirement

NZVD

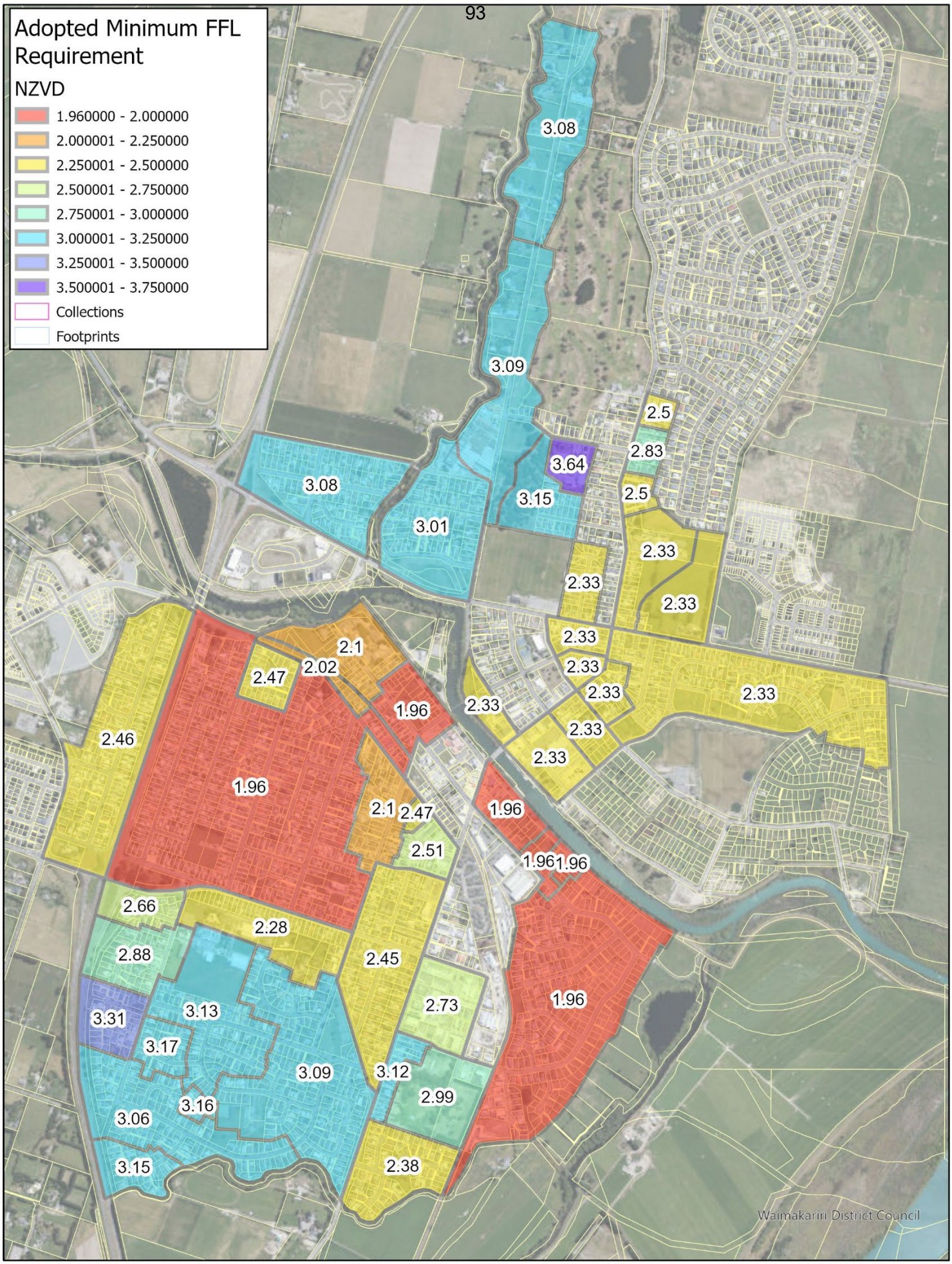
- 1.750000 - 2.000000
- 2.000001 - 2.250000
- 2.250001 - 2.500000
- 2.500001 - 2.750000
- 2.750001 - 3.000000
- 3.000001 - 3.250000
- 3.250001 - 3.500000
- 3.500001 - 3.750000

WAIMAKARIRI DISTRICT COUNCIL

Coastal Settlements
100 Year Basin Required FFL

SCALE (A4) 1:12,000

DATE 26/07/2022

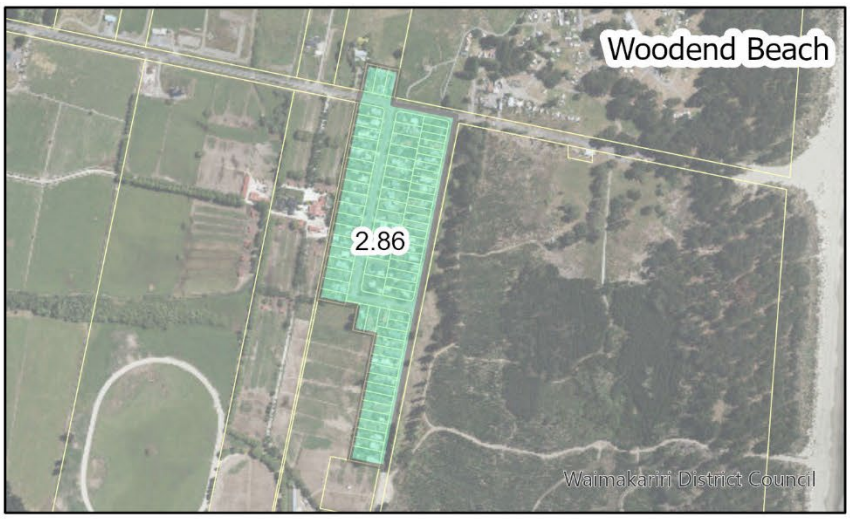


WAIMAKARIRI DISTRICT COUNCIL

Kaiapoi
Adopted Minimum Floor Level Requirements
New Zealand Vertical Datum 2016

SCALE (A4)
1:16,000

DATE
25/07/2022



Adopted Minimum FFL Requirement

NZVD

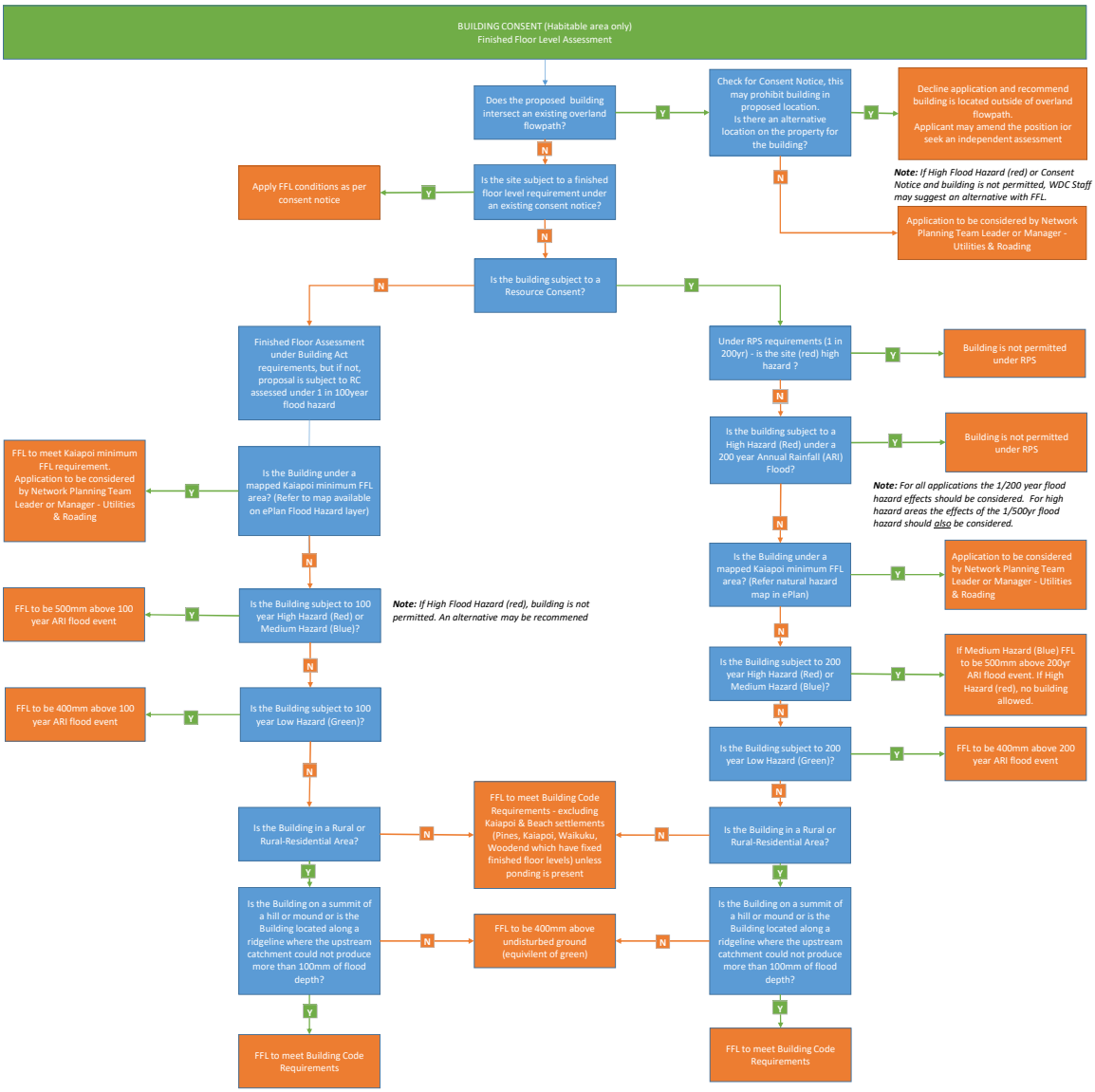
- 1.960000 - 2.000000
- 2.000001 - 2.250000
- 2.250001 - 2.500000
- 2.500001 - 2.750000
- 2.750001 - 3.000000
- 3.000001 - 3.250000
- 3.250001 - 3.500000
- 3.500001 - 3.750000

WAIMAKARIRI DISTRICT COUNCIL

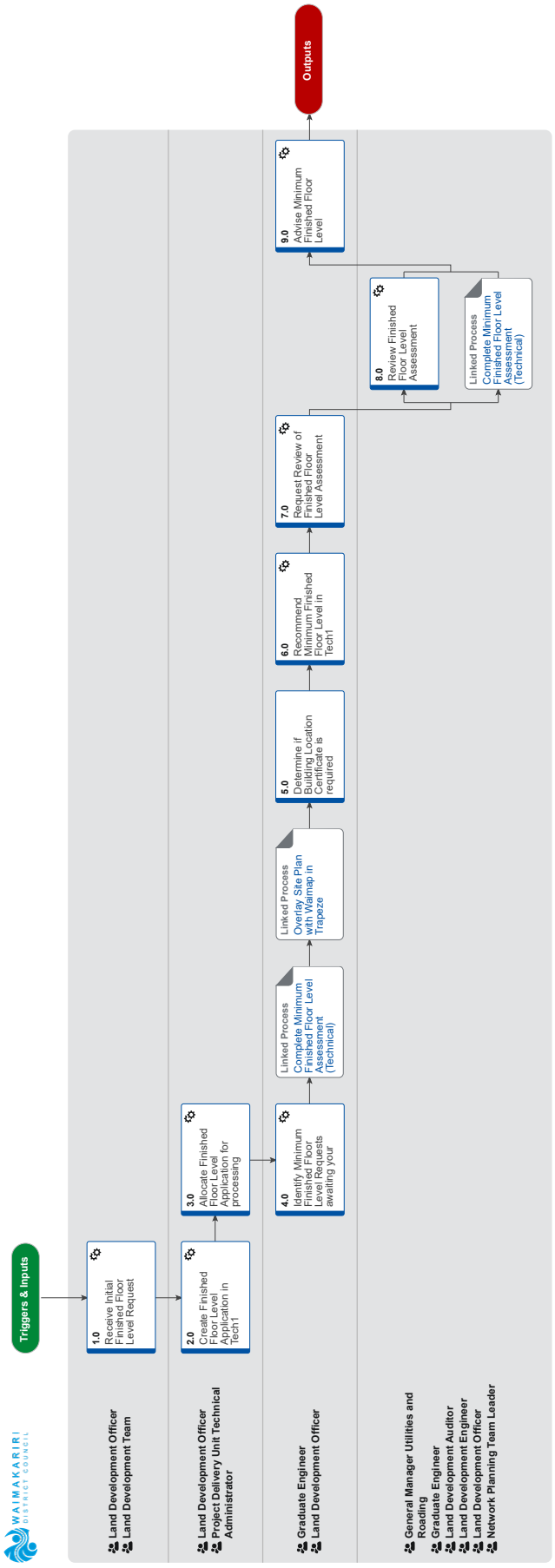
Coastal Settlements
Adopted Minimum Floor Level Requirements
New Zealand Vertical Datum 2016

SCALE (A4) 1:12,000

DATE 26/07/2022


BUILDING CONSENT (Habitable area only)
Finished Floor Level Assessment
Does the proposed building intersect an existing overland flowpath?
Y
Check for Consent Notice, this may prohibit building in proposed location.
Is there an alternative location on the property for the building?
Y
Decline application and recommend building is located outside of overland flowpath.
Applicant may amend the position ior seek an independent assessment
N
Note: If High Flood Hazard (red) or Consent Notice and building is not permitted, WDC Staff may suggest an alternative with FFL.
Application to be considered by Network Planning Team Leader or Manager - Utilities & Roading
N
Is the site subject to a finished floor level requirement under an existing consent notice?
Y
Apply FFL conditions as per consent notice
N
Is the building subject to a Resource Consent?
N
Y
Finished Floor Assessment under Building Act requirements, but if not, proposal is subject to RC assessed under 1 in 100year flood hazard
Under RPS requirements (1 in 200yr) - is the site (red) high hazard ?
Y
Building is not permitted under RPS
N
Is the building subject to a High Hazard (Red) under a 200 year Annual Rainfall (ARI) Flood?
Y
Building is not permitted under RPS
Note: For all applications the 1/200 year flood hazard effects should be considered. For high hazard areas the effects of the 1/500yr flood hazard should also be considered.
N
Is the Building under a mapped Kaiapoi minimum FFL area? (Refer to map available on ePlan Flood Hazard layer)
Y
FFL to meet Kaiapoi minimum FFL requirement. Application to be considered by Network Planning Team Leader or Manager - Utilities & Roading
Is the Building under a mapped Kaiapoi minimum FFL area? (Refer natural hazard map in ePlan)
Y
Application to be considered by Network Planning Team Leader or Manager - Utilities & Roading
N
Is the Building subject to 100 year High Hazard (Red) or Medium Hazard (Blue)?
Y
FFL to be 500mm above 100 year ARI flood event
Note: If High Flood Hazard (red), building is not permitted. An alternative may be recommened
Is the Building subject to 200 year High Hazard (Red) or Medium Hazard (Blue)?
Y
If Medium Hazard (Blue) FFL to be 500mm above 200yr ARI flood event. If High Hazard (red), no building allowed.
N
Is the Building subject to 100 year Low Hazard (Green)?
Y
FFL to be 400mm above 100 year ARI flood event
Is the Building subject to 200 year Low Hazard (Green)?
Y
FFL to be 400mm above 200 year ARI flood event
N
Is the Building in a Rural or Rural-Residential Area?
N
FFL to meet Building Code Requirements - excluding Kaiapoi & Beach settlements (Pines, Kaiapoi, Waikuku, Woodend which have fixed finished floor levels) unless ponding is present
N
Is the Building in a Rural or Rural-Residential Area?
Y
Is the Building on a summit of a hill or mound or is the Building located along a ridgeline where the upstream catchment could not produce more than 100mm of flood depth?
N
FFL to be 400mm above undisturbed ground (equivilent of green)
N
Is the Building on a summit of a hill or mound or is the Building located along a ridgeline where the upstream catchment could not produce more than 100mm of flood depth?
Y
FFL to meet Building Code Requirements
Y
FFL to meet Building Code Requirements

Provide Minimum Finished Floor Level Advice [Awaiting Approval] v2.33



Provide Minimum Finished Floor Level Advice [Awaiting Approval] v2.33

Summary

Objective
Administer Finished Floor Level (FFL) advice via Tech1. This process will be used to issue Floor Level Certificates in the future, once the District Plan Review is complete and the required rules are given effect to. Until then, staff will administer this process in support of the Technical Practice Note which will be adopted by Council.

Background
A finished floor level is required to set the physical floor level of a proposed building at a height that will mitigate risk of natural flood hazard to an acceptable standard.

Owner Kelly LaValley

Expert Libica Hurley

Procedure

1.0 Receive Initial Finished Floor Level Request
Land Development Officer, Land Development Team

a Determine if a finished floor level assessment is required, either through an external enquiry or in association with a Building Consent or Resource Consent application.

NOTE **How is a Finished Floor Level Assessment triggered?**
Enquiry: An external party may request a finished floor level assessment. This should be sent to subdivapp@wmk.govt.nz for set up and response, or forwarded to this location if received by an individual staff member.

Building Consent: The 'PIMs received but not processed' Tech1 alert is checked on a daily basis. All 'dwellings' and 'alternations' should be set up in Tech1 and processed as an FL application. As this alert is checked daily, only the previous days applications should be required to be assessed at any time. This makes the job less onerous.

b Check the PIM alert in Tech1 called 'There are X PIM applications that have been formally received but not processed' on a daily basis. This pre-empts PIM requests for FFL assessments and speeds up the process. Because the list should be checked daily, staff only ever need to look at the previous days Building Consents formally received.

2.0 Create Finished Floor Level Application in Tech1
Land Development Officer, Project Delivery Unit Technical Administrator

a Open Tech1 Property and Rating and select the Application Creation Wizard.

b Step 1 - Enter the Module Code: Debtors, Primary Group: FLCert, Primary Category: FLPIM or FLExternal. Click Next.

c Step 2 - Type a brief description of the enquiry using the following format: MINIMUM FINISHED FLOOR LEVEL FFL REQUEST ENQUIRY - [ADDRESS] (BUILDING CONSENT NUMBER).
Example: MINIMUM FINISHED FLOOR LEVEL FFL REQUEST ENQUIRY - 123 ROSS ROAD, RANGIORA (BC123456). Click Next.

d Step 3 - Search for the related property address in the Tech1 fields provided. Click Retrieve. Within the search results, select the relevant property to highlight it. Click Next.

NOTE **What if the Lot doesn't exist yet because it is part of a proposed subdivision that doesn't have 224c yet?**
Set up the FL number against the underlying parent lot for the proposed subdivision.

e Step 4 - Skip this step. Click Next.

f Step 5 - Skip this step. Click Next.

g Step 6 - Review the information entered. If correct, Click 'Save and Maintain'.

NOTE **What if there is an error in the details entered?**
Using the 'Steps to Complete' Links on the left, visit previous steps again and edit as required. Click 'Next' to navigate through the remaining steps again before returning to the Application Summary (Step 6).

h Associate application using the relationship 'DebRelApp'.

NOTE **How do you link a related application using DebRelApp?**
1. Open Application Process Enquiry Screen for the FL Application you just created
2. Expand 'Associations' under Related Data (bottom left)
3. Right click 'Related Application'
4. Click 'Add a new association'
5. Add the BC number to the 'Application ID TO' field
6. Click save
7. Click close

i Add FL Number and associated details to the tracking spreadsheet in TRIM (Record No. 210118005532)

PDU LD Finished Floor Level Tracking Spreadsheet

3.0 Allocate Finished Floor Level Application for processing
Land Development Officer, Project Delivery Unit Technical Administrator

a On the Application Process Enquiry page, enter the User ID of the staff (usually the Land Development Officer) who will process the enquiry in the first instance. Click the magnifying glass and type their name to search, click to select.

b Click Save.

c Open Events List.

d Click 'New Event' to highlight.

e Enter the following event code using the Event Code boxes; Event Process: MFLProc, Event Group: MFLEvents, Event Code: MFLRecvApp. Click Save.

f Against the new event added, enter your User ID and complete the event with decision 'Yes' to formally receive the application. This will start the clock counting the days taken to process the enquiry.

NOTE **Will this step be required when the District Plan Rule is adopted and the FL Process commences charging?**
This task skips some pre-set events in Tech1 that allow for a Debtor to be set up and an invoice raised. These tasks are not required under current processes so are skipped, however in future they will be required. At such time this promapp will be updated.

g Against event 'Allocate for initial assessment', enter your User ID and complete the event using the decision drop down. Enter the individual responsible for processing the enquiry in the first instance. It will later be reallocated for review. This name should match the 'User ID' entered previously and is often the Land Development Officer.

h Add the FLXXXXX Number generated by Tech1 to the start of the TRIM metadata for future reference. This links the record in TRIM with the Tech1 application.

4.0 Identify Minimum Finished Floor Level Requests awaiting your Assessment

Graduate Engineer, Land Development Officer

a Open Tech1 Property & Rating and select Application Process Enquiry.

b Search for the relevant Application Number. Alternatively, navigate to the request via hyperlinks in your alerts/ reporting/search as described in the following note.

NOTE **How do I search which Floor Level Enquiries require my attention? (User ID entered)**
a. Open Tech1
b. Open Application Process Enquiry module
c. Click Clear
d. Primary Group: FLCert
g. Click 'Add criteria' again to add a new field. Using the drop-down select 'Status'. The middle drop-down should read '=', and the last drop down 'Current'.
h. Click Retrieve. The results shown are the active FL Cert applications allocated to your User ID for processing
i. Add as a 'Saved Search' so that the same search criteria are available automatically in the future

The results shown are the active FLCert Enquiries allocated to your User ID for processing.

c Click Save.

PROCESS Complete Minimum Finished Floor Level Assessment (Technical)

Graduate Engineer, Land Development Officer

PROCESS Overlay Site Plan with Waimap in Trapeze

Graduate Engineer, Land Development Officer

5.0 Determine if Building Location Certificate is required

Graduate Engineer, Land Development Officer

a Use the Building Location Certificate Factsheet to determine whether a BLC is required. A BLC is not required if the level is 'above undisturbed ground'.

Factsheet - Building Location Certificate
https://www.waimakariri.govt.nz/__data/assets/pdf_fil

6.0 Recommend Minimum Finished Floor Level in Tech1

Graduate Engineer, Land Development Officer

a Check for any floor level advice already given for the property concerned.

NOTE **Is the Surveyor's name required at this stage?**
The Surveyor's name is not necessary at this stage. However, in the instance where a Building Location Certificate (BLC) is NOT required, as per the BLC Fact Sheet, the Site and Level Plan for the Building Consent must be clearly identified as being provided by a Registered Professional Surveyor or Licensed Cadastral Surveyor.

NOTE **How do I check if a surveyor is registered or licensed?**
Conduct a search via one of the website links below.

Cadastral Surveyors Licensing Board
https://www.cslb.org.nz/search.html

Survey and Spatial New Zealand
https://www.surveyspatialnz.org/DataFilter?DataFilter

b Navigate back to Tech1 and complete events. The next empty event to complete should be 'Further information required?', complete with decision 'No' to indicate that no further information is required.

NOTE **What if further information is required to calculate the minimum finished floor level?**
Select 'Yes' and email/phone the relevant person requesting the information required. TRIM any correspondence in the Regulatory -08 sub-folder against the Property File or in the Consent Details .01 sub-folder if associated to a Building Consent.

c Navigate to the Application Process Enquiry Screen (either straight away or if required after further information has been received), and enter the recommended minimum finished floor level and associated reference in the Custom Fields.

d Click Save.

7.0 Request Review of Finished Floor Level Assessment

Graduate Engineer, Land Development Officer

a Open the Events List.

b Complete event, 'Request review of recommendation'. Decision option selected should be the person whom you are requesting senior approval/peer review from. They will verify the floor level you have recommended is correct.

NOTE **Where do Silverstream West Floor Level Assessments go for review?**
These can only be approved by the Project Delivery Manager

NOTE **Who can I select for senior approval/peer review?**
Any engineer with floor level assessment experience. If the assessment is complicated or requires senior advice it should go to the Network Planning Team Leader in the first instance, then possibly Manager - Utilities & Roading if Management decision is required.

c Click Save. Click Close. Return to the Application Process Enquiry page. Enter the User ID of the Reviewer selected to allocate the enquiry to them for approval. Click Save.

NOTE **When don't I need to obtain senior approval/peer review?**
If the floor level is consent noticed or tabled against the RC only one PDU check is required to ensure that the number extracted from the table correlates to the Lot number concerned. Therefore if a Building Unit Officer has identified the finished floor level and PDU have checked it, no second review is required under these circumstances.
However if the Building Unit haven't indicated what they think the required FFL will be, a PDU initial assessment is required, and a review. This applies even if the FL is consent noticed.

All Silverstream Floor Levels (West of Island Road) need to go to the Project Delivery Manager for review.

d Create email to send to reviewer with finished floor level recommendation, attach any relevant information if required. Standard text available in TRIM via following link.

PDU Standard Words - Finished Floor Level Review Requests

NOTE **What should my metadata / email title be?**
RCxxxxxx BCxxxxxx FLxxxxxx - 123 BEST STREET RANGIORA (LOT x DPxxxxxx) FINISHED FLOOR LEVEL REQUEST - FFL REVIEW

e Update tracking spreadsheet in TRIM (Record No. 210118005532)

PDU LD Finished Floor Level Tracking Spreadsheet

8.0 Review Finished Floor Level Assessment

General Manager Utilities and Roading, Graduate Engineer, Land Development Auditor, Land Development Engineer, Land Development Officer, Network Planning Team Leader

a Open the email from the Development Officer (or first reviewer) and review contents.

b Review the Technical Process for assessing a finished floor level in order to assist your review of the assessment if required, to ensure the initial assessment is correct. Process is linked below to be completed in parallel with this Activity.

c Open Tech1 Property and Rating, navigate to the Application Process Enquiry tab and search the correct FL Application Number.

d Check the minimum finished floor level entered in the Custom Field on the Application Process Enquiry screen is correct. Also check the Reference (e.g. NZVD) entered is correct.

NOTE **What if the recommended finished floor level is incorrect?**
Leave the Custom Field as is and return the enquiry to the Land Development Officer for a re-check via the Tech1 Events.

e Enter your User ID against event 'Confirm recommended FL is correct' and select the relevant event decision using the drop down options.

NOTE **What if I reject the recommendation?**
After selecting decision 'No' against event, Confirm recommended FL is correct. Click Close to return to the Application Process Enquiry page, and enter the Land Development Officers user ID to replace yours. Click Save. When the Land Development Officer (or staff who conducted the initial assessment) check their 'Saved Search' they will see it has been returned for reassessment. It may be appropriate to send a follow up email with justification as to why the recommended FL was rejected.

f Change the User ID on the Application Process Enquiry Screen to the Land Development Officer (or other initiator), this should be done if the recommended floor level is correct or incorrect. If correct, the Officer will provide an answer to the Customer (both external or internal). If incorrect the figures will be reassessed and resent for re-review.

NOTE **Who can give final approval?**
Depending on the complexity of the assessment, simpler assessments can be initially completed by the Land Development Officer and reviewed by a Graduate Engineer (or vice versa), more complicated assessments need to be reviewed by a Land Development Engineer or Auditor, Network Planning Team Leader and in some cases the Manager - Utilities & Roading.

g TRIM a copy of the plans so that the Building Consent processor can easily identify the FL has been assessed.

NOTE **How do I save a copy of the BC plans via Trapeze?**
Open Building Consent plans in Trapeze (directly from TRIM using the link).
Select site plan thumbnail
Select Stamp icon, using the dropdown select the appropriate 'Development Team' stamp (two to choose from) - either RFI required of not.
An RFI would be required when the FL can't be verified (e.g. where no reference has been provided)

h Update the Building Unit's Costing and Referral Sheet to request that the FLCert charge is applied. Add note to FIeld #11, being 'Please add charge code for FFL assessment - BCFLCert'.

PROCESS

Complete Minimum Finished Floor Level Assessment (Technical)

General Manager Utilities and Roading, Graduate Engineer, Land Development Auditor, Land Development Engineer, Land Development Officer, Network Planning Team Leader

9.0 Advise Minimum Finished Floor Level

Graduate Engineer, Land Development Officer

a Write an email to the Customer or Building Unit (depending on if the request was internal or external) outlining the required finished floor level.

NOTE **What if the Customer indicates intent to build below the advised minimum finished floor level?**

If the Customer indicates an intent to build to a lower level than advised they should be made aware that they will need to engage an engineer to justify why the floor level should be lower that that stated in the consent notice or as advised by Council staff.

If the Finished Floor Level is Consent Noticed the Customer will not only have to engage an engineer but they will also require Resource Consent to amend or remove the Consent Notice, granting of the consent is not automatic and will need to be assessed by Council Engineers.

b TRIM the response to the Customer under the Property File, 'Regulatory' (-08) or BC Consent Details .01 (whichever is relevant) sub-folder using the following metadata: MINIMUM FINISHED FLOOR LEVEL FFL REQUEST ENQUIRY - [ADDRESS] - [DATE RECEIVED]. Example: FL123456 MINIMUM FINISHED FLOOR LEVEL FFL REQUEST ENQUIRY - 123 ROSS ROAD, RANGIORA

If a BC or RC is associated state this at the front of the Metadata.
Example: BC123456 RC654321 FL123456 MINIMUM FINISHED FLOOR LEVEL FFL REQUEST ENQUIRY - 123 ROSS ROAD, RANGIORA

c Complete Tech1 events against the corresponding FL Number.

d Mark the FL as complete in the Finished Floor Level Spreadsheet.

PDU LD Finished Floor Level Tracking Spreadsheet

Triggers & Inputs

TRIGGERS

None Noted

INPUTS

None Noted

Outputs & Targets

OUTPUTS

None Noted

PERFORMANCE TARGETS

None Noted

Process Dependencies

PROCESS LINKS FROM THIS PROCESS

Process Name	Type of Link	Assigned Role
Complete Minimum Finished Floor Level Assessment (Technical)	Process	General Manager Utilities and Roading, Graduate Engineer, Land Development Auditor, Land Development Engineer, Land Development Officer, Network Planning Team Leader
Overlay Site Plan with Waimap in Trapeze	Process	Graduate Engineer, Land Development Officer

PROCESS LINKS TO THIS PROCESS

None Noted

RACI

RESPONSIBLE
Roles that perform process activities

General Manager Utilities and Roading, Graduate Engineer, Land Development Auditor, Land Development Engineer, Land Development Officer, Land Development Team, Network Planning Team Leader, Project Delivery Unit Technical Administrator

Systems that perform process activities

None Noted

ACCOUNTABLE
For ensuring that process is effective and improving

Process Owner	Kelly LaValley
Process Expert	Libica Hurley

CONSULTED
Those whose opinions are sought

STAKEHOLDERS
None Noted

STAKEHOLDERS FROM LINKED PROCESSES

Process	Owner	Expert	Process Group
Complete Minimum Finished Floor Level Assessment (Technical)	Kelly LaValley	Libica Hurley	Project Delivery Unit
Overlay Site Plan with Waimap in Trapeze	Kelly LaValley	Libica Hurley	Land Development

INFORMED
Those notified of changes

All of the above, as well as; Glenn Busch[System Stakeholder], Trish Keen[System Stakeholder], Application and Database Analyst[System Stakeholder], Technical Business Analyst [System Stakeholder], Business and Technology Solutions Team[System Stakeholder], Business and Technology Solutions Team Leader[System Stakeholder], Information Management Assistant[System Stakeholder], Information Management Team[System Stakeholder], Information

Management Team Leader[System Stakeholder], Information Management Technical Administrator[System Stakeholder]. These parties are informed via dashboard notifications. 101

Systems

Outlook

TechnologyOne

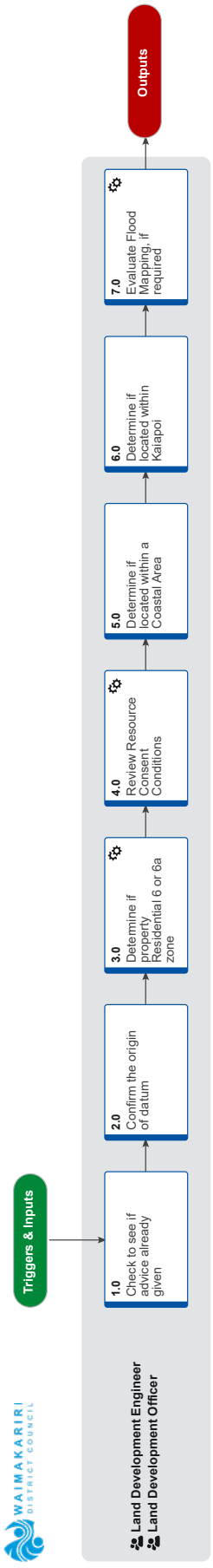
Trapeze

TRIM

Lean

None Noted

Complete Minimum Finished Floor Level Assessment (Technical) [Awaiting Approval] v1.21



Complete Minimum Finished Floor Level Assessment (Technical) [Awaiting Approval] v1.21

Summary

Objective
To assess a proposal against the process set out in the Finished Floor Level Practice Note using Council records and flood hazard mapping, to identify if the site is suitable for construction of a dwelling, if the proposed location is suitable and what the finished floor level height and associated freeboard should be.

Background
This technical process supports the Council's Technical Practice Note (Record No. 200106000520); both should be followed when assessing finished floor levels in conjunction with the individuals professional judgement and industry experience.

Owner Kelly LaValley

Expert Libica Hurley

Procedure

1.0 Check to see if advice already given
Land Development Engineer, Land Development Officer

a Undertake an 'Any word' search of the property address to see if any prior finished floor level advice has been given

NOTE **What if previous advice has already been provided and the proposal is the same?**
The original advice can be reviewed using the following process to ensure it is still correct. If so, it can be supplied again. Advice supplied should always be consistent with previous advice.

2.0 Confirm the origin of datum
Land Development Engineer, Land Development Officer

a Confirm the origin of the datum used is referenced on the Site Plan.

NOTE **What do I do if the datum is not reference on the site plan?**
If the FL is for a Building Consent that is already lodged, in your response back to the Building Unit you need to identify to the Processor that the Customer has not provided a datum. You can still assess the floor level without this information, however a Building Location Certificate may be required if the Applicant doesn't provide the information.

3.0 Determine if property Residential 6 or 6a zone
Land Development Engineer, Land Development Officer

a Determine if the property is within Residential 6 or 6a zones using the District Plan layer in Waimap. If so, apply Waimakariri District Council District Plan Rule 27.1.1.10 (only applies to Pegasus & Ravenswood).

NOTE **What is Rule 27.1.1.10?**
27.1.1.10
Within the Residential 6 and Residential 6A Zones, the finished floor level of all habitable rooms shall be not less than 3.85m above mean sea level.

Operative Waimakariri District Plan ePlan
https://waimakariri.isoplan.co.nz/eplan/#Rules/0/35/1/

b Skip the following steps of this technical process if the minimum finished floor level is now known.

4.0 Review Resource Consent Conditions
Land Development Engineer, Land Development Officer

NOTE **Is the lot proposed for development part of a recent subdivision? (post-2015)**
If so, it may have a consent condition or consent notice stating the required finished floor level. The minimum required FFL information can be found in the resource consent decision and/or s224c.

a Check to see if the finished floor level is covered by a Resource Consent Condition or Consent Notice. Check the Resource Consent conditions in the most recent decision (including any variations, if any) and any issued Consent Notices relating to Finished Floor Level and Flood Hazard requirements.

NOTE **Where do I find the Consent Conditions and Consent Notices/224c documents?**
To locate the consent conditions, find the issued decision letter in TRIM. This can be found using an 'Any word' search for the RC number and 'Decision'.

To locate the issued 224c Certificate, enter the resource consent number in TRIM and '224*' using an 'Any word' search. The Consent Notices should be attached to the 224c letter. Alternatively navigate to the resource consent subfolder -07 '223 & 224 Certificates'.

b Apply the finished floor level consent noticed, if available (otherwise the decision consent conditions are suitable). Consent notices are registered to the lot and are not able to be changed unless a resource consent is applied for to amend the consent notice.

NOTE **What if the Resource Consent DOES include floor level requirements?**
Apply as specified. Further steps in this technical process aren't required.

c Advise that the Building Code should be applied to set the Finished Floor Level in the absence of a Resource Consent Condition setting the level, if in a urban/residential subdivision (e.g. RC155328 - Woodlands Estate) that isn't within Kaiapoi, a Res 6 or 6a zone or Coastal Area and isn't subject to a consent condition or consent notice.

5.0 Determine if located within a Coastal Area
Land Development Engineer, Land Development Officer

a Apply set floor level if proposal is located within a Coastal Flood Hazard Area.

NOTE **Which Coastal areas are subject to set floor levels?**
Waikuku Beach - 3.65m
Woodend Beach - 3.21m
Pines/Kairaki - 3.47m

b Skip the following steps of this technical process if the minimum floor level is now known.

6.0 Determine if located within Kaiapoi

Land Development Engineer, Land Development Officer

a Using the Proposed ePlan 'Kaiapoi Fixed Minimum Finished Floor Level' apply the set floor level depending on the area of Kaiapoi that the proposal is located within.

b Ensure the 'Kaiapoi Fixed Minimum Finished Floor Level' layer is selected. Click the property proposed for development. Down the left-hand side of the screen results will appear including a Fixed Level (e.g. 2.45m at 5 Princess Place).

c Apply level as stated in plan.

Proposed Waimakariri District Plan - ePlan
https://waimakariri.isoplan.co.nz/draft/#/Property/0

d Skip the following step of this technical process if the minimum floor level is now known.

7.0 Evaluate Flood Mapping, if required

Land Development Engineer, Land Development Officer

NOTE **When should Flood Hazard Mapping be used to determine the freeboard and finished floor level required?**

When a consent notice or floor level requirement is not part of a Resource Consent. Often this is Rural development, either a subdivision or a rural lot proposing to build a dwelling, alteration or granny flat/secondary dwelling. Because the site is likely not the same level across its entirety, it is important to assess the exact proposed location to ensure the freeboard is correct.

Building in Red flood hazard areas should be avoided. If the red area is proposed PDU staff should advise the applicant that they need to relocate the building to part of the site not subject to a high flood hazard. If building in a red area is pursued by the Applicant despite PDU staff advice this is referred to the Manager - Utilities & Roading.

a Determine the proposed dwelling location in Waimap.

NOTE **How can I determine the exact location based off plans provided?**

Use Trapeze to overlay Waimap, see process below.

PROCESS Overlay Site Plan with Waimap in Trapeze

b Turn on the 'All Flooding Hazard 200 year' layer in Waimap (linked below) if part of a Resource Consent or if not part of a subdivision consent assess using the '100 year' layer.

NOTE **What do the 'All Flooding Hazard' layers include in Waimap?**

Coastal, Ashley Breakout, Localised Flooding

Waimap Flood Hazards
https://maps.waimakariri.govt.nz/waimap/floodhazard

c Evaluate the flood hazard present in the proposed area of development in conjunction with the Flood and Floor Level Technical Practice Note. Flood hazard is indicated by either clear, green, blue or red in Waimap. These hazards all have correlating levels of risk identified in the technical practice note, which is reflected by the freeboard above ground level required.

PDU NP DRAFT Flood and Floor Level Technical Practice Note

NOTE **Which FFL should be advised?**

The more conservative should be advised to the customer if the property is subject to both localised and breakout flooding.

Triggers & Inputs

TRIGGERS

None Noted

INPUTS

None Noted

Outputs & Targets

OUTPUTS

None Noted

PERFORMANCE TARGETS

None Noted

Process Dependencies

PROCESS LINKS FROM THIS PROCESS

Process Name	Type of Link	Assigned Role
Overlay Site Plan with Waimap in Trapeze	Note	Land Development Engineer, Land Development Officer

PROCESS LINKS TO THIS PROCESS

None Noted

RACI

RESPONSIBLE
Roles that perform process activities

Land Development Engineer, Land Development Officer

Systems that perform process activities

None Noted

ACCOUNTABLE
For ensuring that process is effective and improving

Process Owner	Kelly LaValley
Process Expert	Libica Hurley

CONSULTED
Those whose opinions are sought

STAKEHOLDERS
None Noted

STAKEHOLDERS FROM LINKED PROCESSES

Process	Owner	Expert	Process

			Group
Overlay Site Plan with Waimap in Trapeze	Kelly LaValley	Libica Hurley	Land Development

INFORMED
Those notified of changes

All of the above, as well as; Trish Keen[System Stakeholder], Sheryl Cowan[System Stakeholder], Information Management Assistant[System Stakeholder], Information Management Team [System Stakeholder], Information Management Team Leader [System Stakeholder], Information Management Technical Administrator[System Stakeholder], GIS Team[System Stakeholder]. These parties are informed via dashboard notifications.

Systems

Trapeze

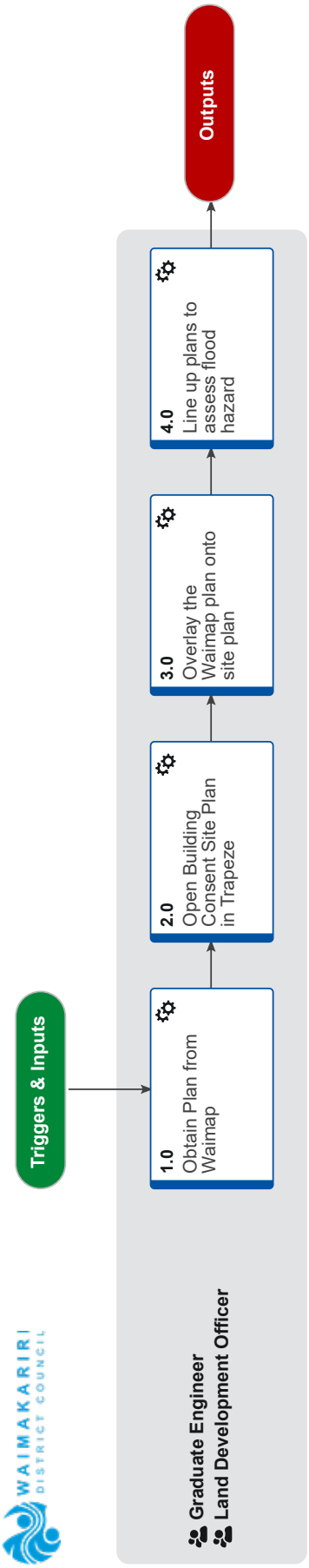
TRIM

WAIMAP

Lean

None Noted

Overlay Site Plan with Waimap in Trapeze [Awaiting Approval] v0.8



Overlay Site Plan with Waimap in Trapeze [Awaiting Approval] v0.8

Summary

Objective
This process allows you to determine the location of a proposed dwelling site in relation to flood hazard by overlaying the proposed plan on the actual aerial of the site.

Owner Kelly LaValley

Expert Libica Hurley

Procedure

1.0 Obtain Plan from Waimap
Graduate Engineer, Land Development Officer

- **a** Open Waimap and search the relevant address
- **b** Load the appropriate flood hazard layer (based on the finished floor level process)

  NOTE **Which layer do I use?**
  If assessing in conjunction with a Resource Consent the 'All Flooding Hazard 200 year' layer can be used.
  If assessing in conjunction with a Building Consent, not associated to a Resource Consent the 'All Flooding Hazard 100 year' layer should be used.
  These can both be found in the Utilities & Property module in Waimap, in or any other module by searching within the 'Add Data' tool.
- **c** Create a print of the relevant Property and save to your desktop

2.0 Open Building Consent Site Plan in Trapeze
Graduate Engineer, Land Development Officer

- **a** Locate the site plan in TRIM within the Building Consent .02 sub-folder
- **b** Open the site plan in trapeze using the TRIM link (called Trapeze 10)

3.0 Overlay the Waimap plan onto site plan
Graduate Engineer, Land Development Officer

- **a** Drag the downloaded Waimap site plan into the thumbnail section of Trapeze
- **b** Click the 'light table tool' in Trapeze (right hand side - overhead projector icon)
- **c** Click to view the Building Consent Site Plan
- **d** Drag the downloaded Waimap plan on top of the Building Consent site plan, from its thumbnail

4.0 Line up plans to assess flood hazard
Graduate Engineer, Land Development Officer

- **a** Manoeuvre the Waimap plan to match/fit the Building Consent site plan (e.g. line the boundaries up)

Triggers & Inputs

TRIGGERS

None Noted

INPUTS

None Noted

Outputs & Targets

OUTPUTS

None Noted

PERFORMANCE TARGETS

None Noted

Process Dependencies

PROCESS LINKS FROM THIS PROCESS

None Noted

PROCESS LINKS TO THIS PROCESS

None Noted

RACI

RESPONSIBLE
Roles that perform process activities

Graduate Engineer, Land Development Officer

Systems that perform process activities

None Noted

ACCOUNTABLE
For ensuring that process is effective and improving

Process Owner Kelly LaValley

Process Expert Libica Hurley

CONSULTED
Those whose opinions are sought

STAKEHOLDERS
None Noted

STAKEHOLDERS FROM LINKED PROCESSES

None Noted

INFORMED
Those notified of changes

All of the above. These parties are informed via dashboard notifications.

Systems

Trapeze

TRIM

WAIMAP

Lean

None Noted

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR INFORMATION / DECISION

FILE NO and TRIM NO:	SHW-12 / 220824146326
REPORT TO:	SOLID AND HAZARDOUS WASTE WORKING PARTY UTILITIES AND ROADING COMMITTEE
DATE OF MEETING:	9 September 2022 27 September 2022
AUTHOR(S):	Kitty Waghorn, Solid Waste Asset Manager
SUBJECT:	Solid Waste Services and Waste Data Update for 2021/22
ENDORSED BY: (for Reports to Council, Committees or Boards)	General Manager / Acting Chief Executive

1. SUMMARY

1.1. This report is to provide information to Elected Members about solid waste services provided, activities undertaken, and waste quantities measured in the 2021/22 year. This includes kerbside collections, transfer station and resource recovery park operations, education services, and how we are tracking towards our waste minimisation targets.

1.2. Kerbside Collections: Bin uptake. ***Figure 1.1*** shows the number of bins in service at the start of each year, from July 2019 through to July 2022. There continues to be stronger uptake of rubbish and organics bins, over and above new bins provided to new properties, although this "infill" has been dropping slightly each year.

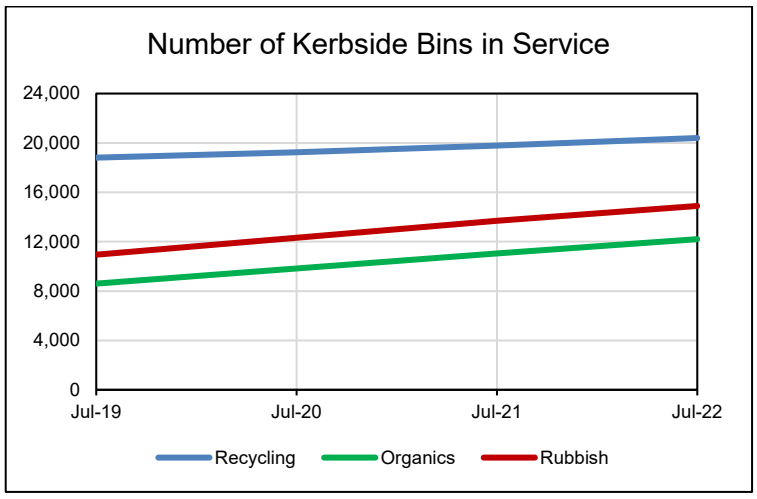


Figure 1.1: Number of Bins in Service at Start of Each Year from 2019/20 to 2022/23

1.3. Kerbside Collections: Provision of collection services. Each recycling and rubbish bin could have been put out 26 times per year, and each organics bin 52 times, totalling around 1,662,200 potential collections. Around 1,154,350 were recorded as having been carried out.

1.4. Out of these potential collections, 751 service requests relating to missed collections were received in 2021/22. A total of 211 requests were noncompliant or otherwise not the

contractor's fault, 536 were returned for by the contractor, and 4 were not resolved and classified as "missed collections".

1.5. Kerbside Collections: Material Weights and Diversion from Landfill. ***Figure 1.1*** shows the total weight of materials collected at kerbside, the weight of diverted materials (recycling and organics) and the weight of landfilled materials from the collection service. The rubbish weights includes contaminated recycling that resulted from mixed messaging across Canterbury during the first COVID lock-down period, which was collected at kerbside and landfilled.

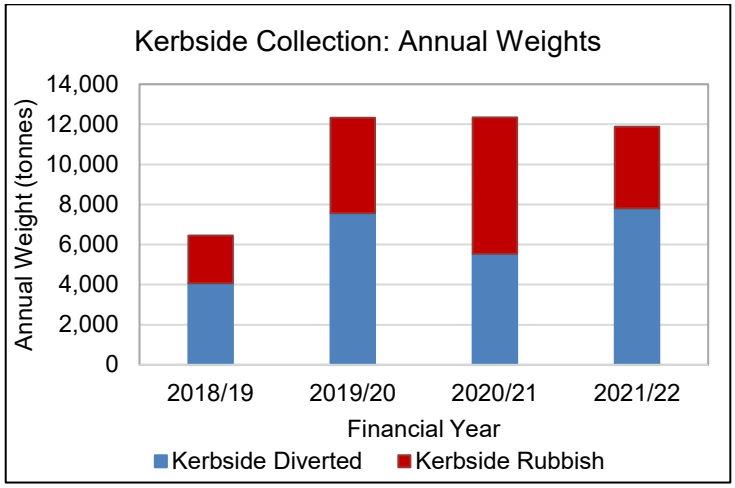


Figure 1.2: Weight of Kerbside Materials Collected from 2018/19 to 2021/22

1.6. The level of contamination in recycling bins impacted on recycling quantities in the last quarter of 2019/20, all of 2020/21 and the first quarter of 2021/22. Kerbside audits undertaken in 2020/21 and July/August in 2021/22 proved to be effective in reversing the level of contamination in kerbside recycling bins.

1.7. Our optional organics collection service has more than doubled the quantity of divertible materials collected by Council at kerbside, but this has only marginally increased the percentage diverted from 63% to 66%, owing to the fact that the optional rubbish bin service has also increased the quantity of rubbish that Council collects at kerbside.

1.8. Solid Waste Facilities: Unplanned Closures. COVID-19 has impacted on the services that could be provided at our solid waste facilities on occasion, but not to the same extent as seen in 2019/20 and 2020/21.

1.9. Southbrook resource recovery park (SRRP) had several partial-closures owing to high winds, a reduction in services from Alert Level 4 and then Red Light settings (shop closed), and one full-site closure at SRRP for 1.5 hours owing to a fire, out of a total 360 days.

1.10. Oxford transfer station (OTS) was impacted by a power outage on one day, when we were not able to accept EFTPOS payments, so this was classified as a one-day closure although the site was still open for recycling and rubbish bag disposal, out of a total of 102 days.

1.11. Solid Waste Facilities: Waste Quantities, WMMP Targets. ***Figure 1.3*** shows a graph of the total annual weights of landfilled waste, kerbside recycling, facility recycling, greenwaste, organics and other diverted materials from 2016/17 to 2021/22. Note that landfilled weights are plotted against the right hand axis, and diverted materials are plotted against the left hand axis, of the graph.

1.12. Total landfill tonnages have dropped in 2021/22, and are higher than measured in 2016/17. Although kerbside recycling contamination levels have dropped, kerbside recycling weights have not recovered to the levels seen prior to the arrival of COVID in 2019/20, facilities recycling have also dropped from 2016/17 levels. The organics service caused a decrease in greenwaste coming into SRRP in 2019/20 but greenwaste levels have been increased over the last two years. Organics weights have been increasing annually.

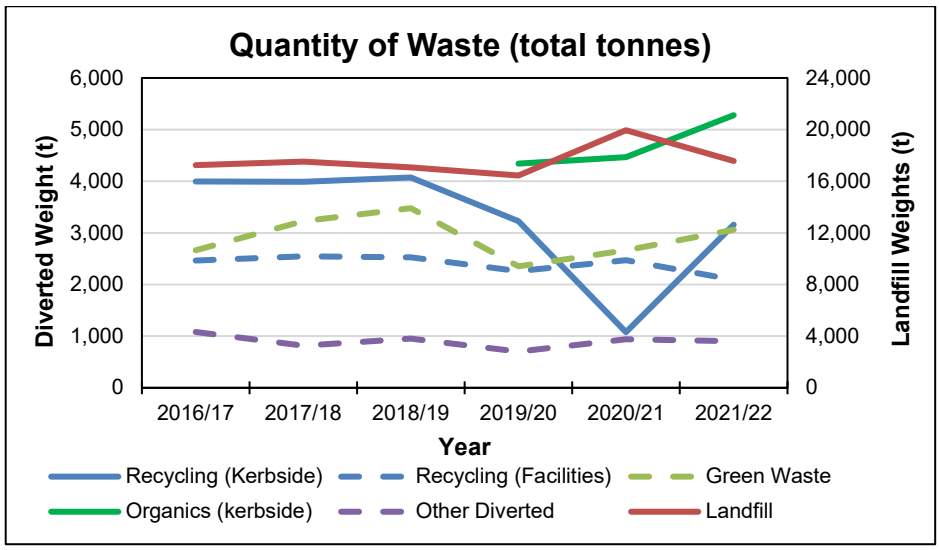


Figure 1.3: Total Annual Quantity of Waste

1.13. In 2021/22, Council achieved our per-capita landfill reduction target, and exceeded our target to increase diversion from landfill, as shown in ***Figure 1.4***. This was caused by the decrease in kerbside contamination, increase in organics collected at kerbside and in green waste taken to our facilities, which offsets the slight drop in recycling received at SRRP.

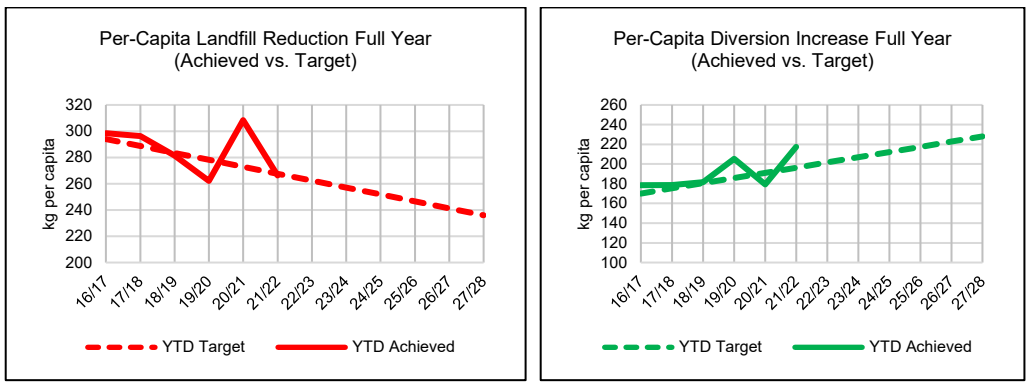


Figure 1.4: Achieved vs. Target Per-Capita Landfill Reduction and Increase in Diversion

1.14. Cust rural recycling facility. Some physical works have been completed to decrease the amount of maintenance required on the bin hardstand. Preparation for entrance sealing has been completed but the sealing work will be undertaken once ground conditions allow. Recycling that is dropped off at the Cust RRF generally continues to be of good quality. Staff note that the average monthly weight of Cust recycling has increased by around 7.5%, which indicates that more residents from the wider Cust area are now using this facility.

1.15. Southbrook RRP Upgrades. WSP have been engaged to review the current proposed site layout, and more recently were tasked with assessing overall capacity of the site (current and potential). Staff have received a report outlining the design criteria of the proposed upgrade, which we propose to workshop with the members of the SHWWP.

1.16. Education Services. COVID-19 has impacted on the number of sessions the educators could hold at schools and with the community, and on the number of events that we usually attend to educate the public about waste minimisation.

1.17. Enviroschools activities were also curtailed owing to COVID-19 restrictions within schools. There are a total of 20 Enviroschools in Waimakariri, with another 3 prospective schools in discussion with Enviroschools Canterbury

2. RECOMMENDATION

THAT the Solid and Hazardous Waste Working Party recommends:

THAT the Utilities and Roading Committee:

(a) **Receives** Report No. 220824146326.

(b) **Notes** that there continues to be a higher uptake of organics and rubbish bins than new recycling bins, but this higher uptake is gradually easing off.

(c) **Notes** that the non-financial KPI's for Solid Waste services will be included in the Policy and Business Unit's end-of-year KPI report.

(d) **Notes** that the introduction of the three-bin service has resulted in an increase in the total weights of both diverted and landfilled materials being collected by the Council, but that the percentage of diverted kerbside waste has not increased greatly over previous figures.

(e) **Notes** that recycling contamination levels decreased to below 10% as from part-way through September 2021, and as a result per-capita diversion and diversion figures have recovered sufficiently to meet Council's WMMP targets for the 2021/22 financial year.

(f) **Notes** that education services are still being provided where possible to schools, businesses and community groups, but that COVID-19 has continued to impact on the delivery of these programmes.

(g) **Circulates** this report to the Community Boards for their information

3. BACKGROUND

Kerbside Collections

3.1. Uptake of Bins. The new three-bin kerbside collection service commenced on 1 July 2019. **Figure 3.1** shows the numbers of each type of bin in service at the start of the new 3-bin service on 1 July 2019 and the end of each financial year.

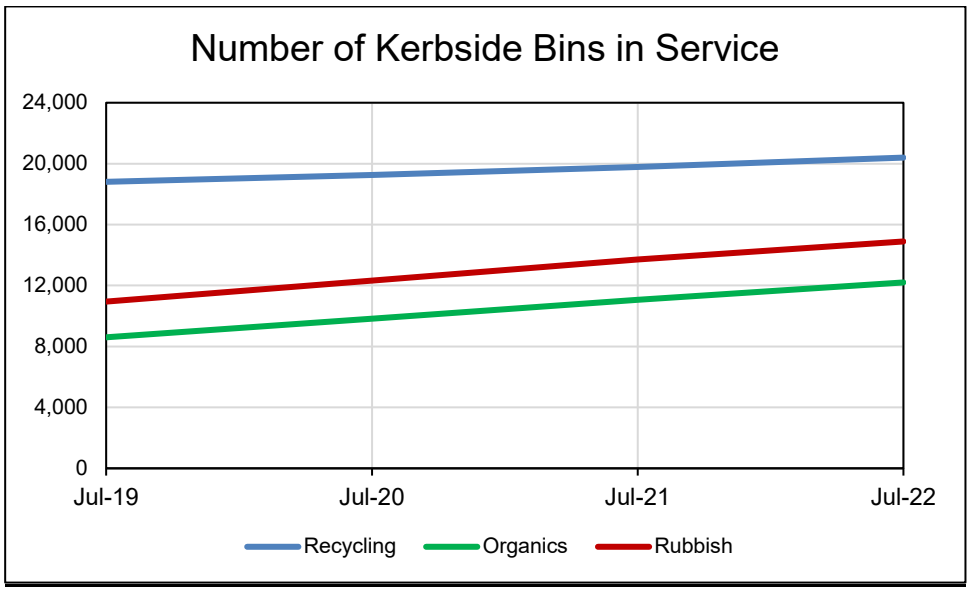


Figure 3.1: Number of Bins in Service at Start of Each Year from 2019/20 to 2022/23

3.2. As can be seen, the number of new recycling bins delivered during each year tracks the district's growth pattern, but the demand for organics and rubbish bins has been higher than that growth. This indicates that there continues to be a demand for bins for properties that did not originally opt in for the service. There seems to have been a slow-down in this "infill" during the 2021/22 financial year, but there were still almost double the number of organics and rubbish bins delivered than the number of recycling bins delivered to new properties.

3.3. Based on the bin numbers, approximately 60% of eligible properties now have an organics bin and 73% have a rubbish bin. This is a reasonable increase on the 46% who had organics and 58% who had rubbish bins at the start of the new service on 1 July 2019.

3.4. Bin Presentation. The monthly average bin presentation rates are graphed in ***Figure 3.2***, and show how seasons impact on bin presentations. On average, recycling bins are placed out more frequently than rubbish containers and organics bins.

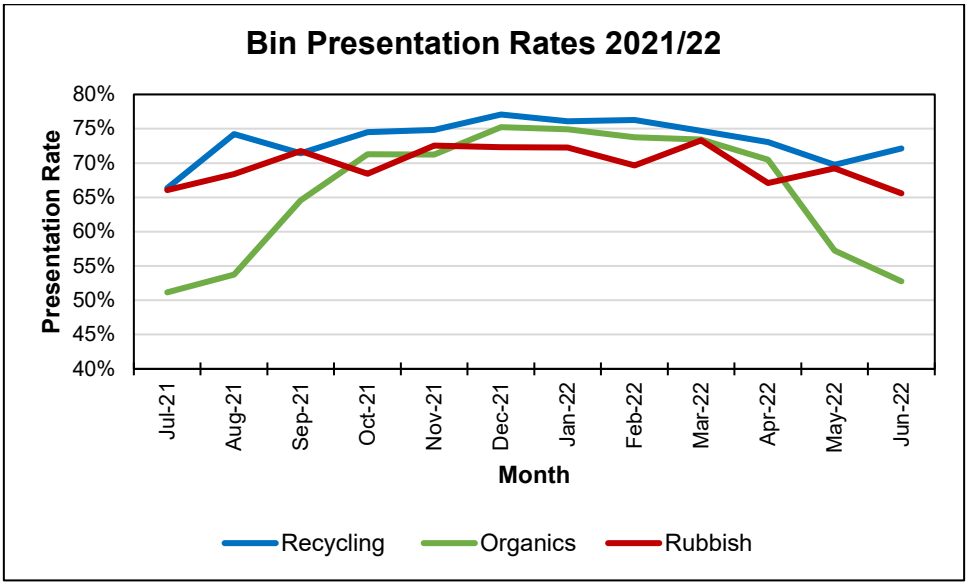


Figure 3.2: Monthly Collection Presentation Statistics 2021/22

3.5. Recycling bin presentations were lowest in June 2021 (66.3%) and May 2022 (69.7%); all other months were above 70% with the highest presentation rate being 77.1% in December.

3.6. Rubbish containers were placed out less than 70% of the time during 7 months, and over 70% of the time for the remaining 5 months. Lowest presentation rates were in July 2021 (66.0%) and June 2022 (65.6%) with the peak of 73.3% occurring in March 2022, and an average of 72.4% from November 2021 to January 2022.

3.7. There is a much wider variation in organics bin presentations owing to the seasonality of garden waste. In the winter months an average 52.5% of bins were placed out for collection, with the lowest month being June 2022 (52.8%). Normally the dry summer season causes a drop in garden waste, however this year owing to the extended growing season the peak presentation rate was 75.2% in December and 74.9% in January, which is above the more usual 70% presentation seen in spring/autumn.

3.8. Provision of Collection Services (non-collection service requests). Each recycling and rubbish bin could have been put out 26 times per year, and each organics bin 52 times, totalling around 1,662,200 potential collections. Around 1,154,350 were recorded as having been carried out. A total of 751 service requests relating to missed collections were received in 2021/22, which equates to 6.5 service requests for every 10,000 containers presented for collection.

3.9. Of these service requests, 211 were found to be either non-compliant bins/bags (e.g. out late, wrong week, rejected bins or bags, partial empties owing to 'packed' bins) or otherwise not the contractor's fault (e.g. early calls), and another 536 resulted in the contractor returning to collect the bins/bags. A total of 4 service requests were not resolved and therefore classed as "missed".

3.10. The 99% target non-financial KPI for providing kerbside collections was met. A total 99.96% of service requests related to non-collection were not classed as missed collections (as above), with 0.04% not resolved and classified as missed collections.

3.11. Weight of Materials Collected at Kerbside and Diverted from Landfill. ***Figure 3.3*** shows the total weight of materials collected at kerbside, the weight of diverted materials (recycling and organics) and the weight of landfilled materials from the collection service. The rubbish weights include contaminated recycling that resulted from mixed messaging across Canterbury during the first COVID lock-down period, which was collected at kerbside and landfilled.

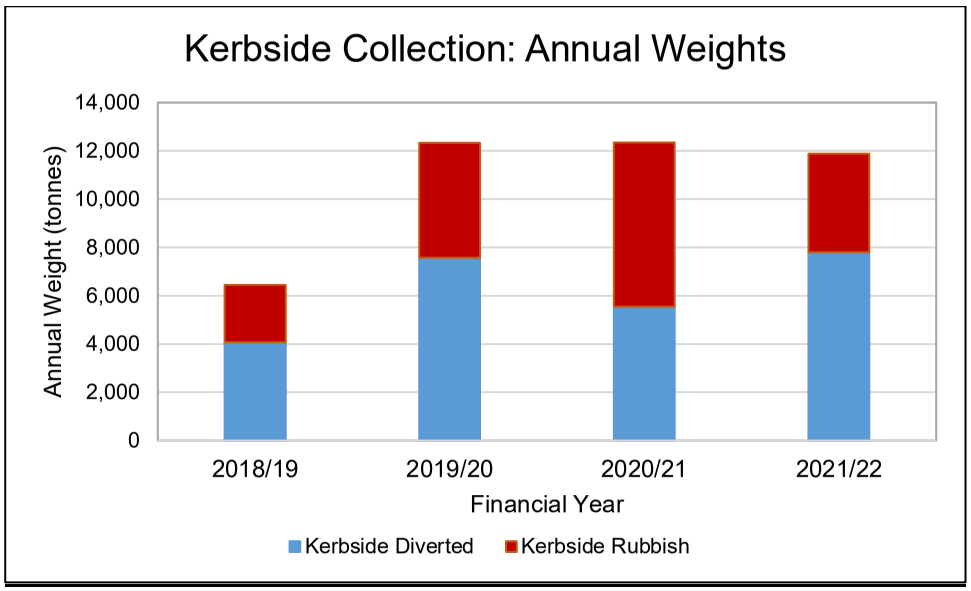


Figure 3.3: Annual Weight of Materials Collected at Kerbside — 2018/19 to 2021/22

3.12. The introduction of the three-bin service has clearly resulted in an increase in the weight of waste materials being collected by the Council, both diverted from landfill (recycling and organics), and landfilled.

3.13. The impacts of COVID-19 in 2019/20 and 2020/21 (lockdowns, temporary closure of the recycling plant, and mixed Councils' messaging) resulted in a high level of contamination in recycling bins particularly over the 2020/21 period, which was reversed through recycling bin audits during 2020 and 2021. This contamination has impacted on our kerbside diversion figures over that time-span, as discussed in Section 4 and detailed in ***Table 4.1*** below.

Solid Waste Facilities

3.14. KPI for Unplanned Closures. Southbrook resource recovery park (SRRP) was open for 359.75 out of 360 days (99.93%) and Oxford transfer station (OTS) was open for 101 out of 102 days (91.02%). COVID-19 Alert Levels impacted on the range of services provided over the year, and some incidents and weather events caused partial or full site closures at SRRP and OTS as detailed below.

3.14.1. Alert Level 4 from 18 August to 31 August meant only commercial waste collectors and essential business waste were accepted at SRRP and WDC-branded bags were accepted at both SRRP and OTS. Bulk rubbish loads were not accepted at OTS. Recycling and re-use, ReSale Store, greenwaste, cleanfill and tyre areas were closed.

3.14.2. Alert Level 3 from 1 to 7 September meant the majority of services were available, the ReSale Store remained closed at SRRP, and there were limitations on number of vehicles at recycling, greenwaste & rubbish pit at both sites. SRRP gates were closed prior to 4:30 on 5 occasions (times varied from 15 to 30 minutes) to ensure all queued customers could unload and exit the site by 4.30.

3.14.3. Alert Level 2 from 8 September to 3 December when the Traffic Light system began: all disposal services were available with limitations on number of vehicles at recycling & reuse (SRRP only), greenwaste & rubbish pit. The SRRP ReSale Store opened on 15 September with limitations on customer numbers.

3.14.4. High winds that damaged power lines in Oxford resulted in a power outage to OTS on 10 September. Loads of green waste and rubbish could not be accepted as staff were unable to process card payments, but recycling services were available: this has been classed as a 1 day site closure because it impacted refuse disposal services.

3.14.5. SRRP site was closed for rubbish and greenwaste disposal purposes for 1.5 hours owing to a fire in a rubbish 'pod' on 11 September. The 'pod' was emptied into the pit in order to be extinguished by FENZ. The gates were closed at 3pm, resulting in a 1.5 hour closure for rubbish and greenwaste disposal; recycling and ReSale Store re-opened at 3:45pm.

3.14.6. There were two partial site closures at SRRP owing to high winds. The recycling area and ReSale Store only were closed owing to high winds on 25 September (5 hour closure from 11:30am) and 16 November (3 hour closure from 1:30pm). Disposal operations were not impacted.

3.14.7. COVID has impacted on staffing numbers at both sites in the in the final quarter of 2021/22. The contractor and Council managed staff resources to ensure disposal and recycling services continued to be provided at SRRP and OTS over this period, although the ReSale Store (second hand shop) was closed for 4 days as from 24 to 27 June 2022.

3.15. Waste Quantities, Targets for Landfill Reduction and Increased Diversion. This year saw a drop in total and per-capita landfilled tonnages from 2020/21 figures, primarily owing to the reduction in contaminated kerbside recycling, with contamination levels dropping to below 10%. Diversion has continued to recover in line with this improvement. The restrictions in recycling, re-use and greenwaste services during the various Alert Levels impacted on diversion rates through our facilities in the first half of the year, but other diversion tonnages increased or remained steady.

3.16. ***Figure 3.4*** shows a graph of the total annual weights of landfilled waste, kerbside recycling, facility recycling, greenwaste, organics and other diverted materials from 2016/17 to 2021/22. Note that landfilled weights are plotted against the right hand axis, and diverted materials are plotted against the left hand axis, of the graph.

3.17. Note that the drop in kerbside recycling and increase in landfill quantities in 2019/20 resulted from a high level of contamination owing to mixed messaging across Canterbury during the first COVID lock-down period, which was reversed only through an intensive recycling bin audit and education programme throughout 2020/21 and into 2021/22.

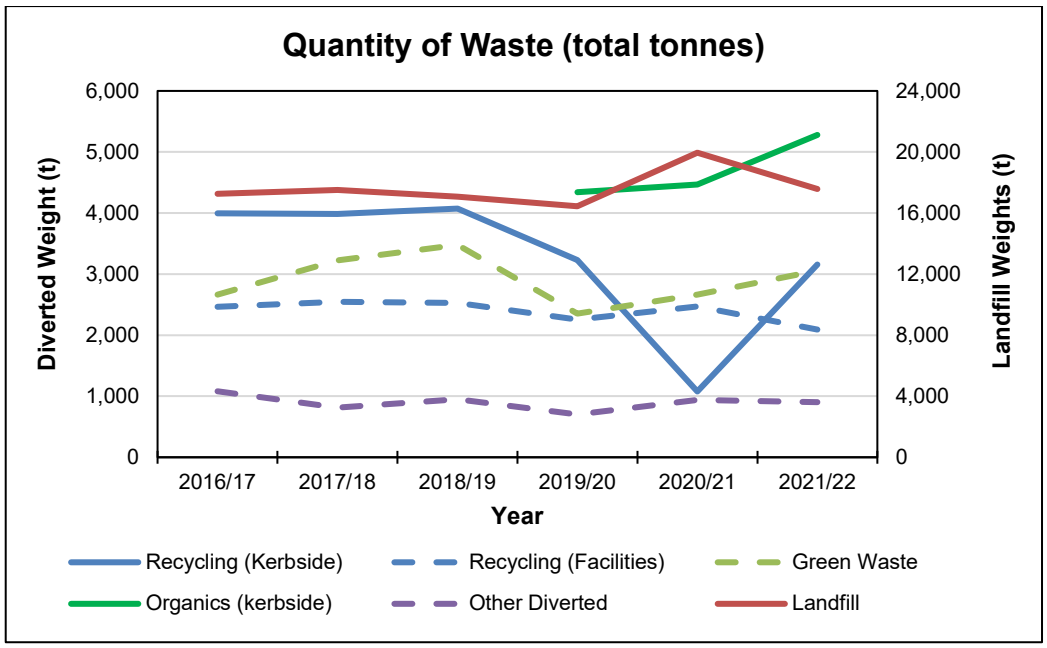


Figure 3.4: Total Annual Quantity of Waste

3.18. Total landfill tonnages have dropped in 2021/22, falling by 2,373 tonnes compared to 2020/21, as the quality of kerbside recycling has improved. While landfill tonnages are still 321 tonnes (2%) higher than 2016/17 levels, it is notable that this percentage increase is considerably lower than the almost 15% population increase since 2016/17.

3.19. Although kerbside recycling contamination levels have dropped, kerbside recycling weights have not recovered to the levels seen prior to the arrival of COVID in 2019/20, and sits 21% (838 tonnes) below 2016/17 weights. Recycling at our facilities (SRRP, OTS and Cust rural recycling facility) have also dropped from previous levels and are 15% (372 tonnes) down from 2016/17 totals.

3.20. The organics service caused a decrease in greenwaste coming into SRRP in 2019/20 but greenwaste levels have increased over the last two years, most likely owing to the longer than 'normal' growing seasons that have been experienced over this period. These results are discussed in more detail in Section 4.

3.21. ***Figure 3.5*** and ***Figure 3.6*** show the per capita landfill and diversion figures that were measured at year-end from 2016/17 to 2021/22, plotted against the targets from the Waste Management and Minimisation Plan (WMMP). Both targets were achieved in 2021/22, after the impacts of COVID and contaminated recycling in 2020/21 resulted in both targets being missed in that year.

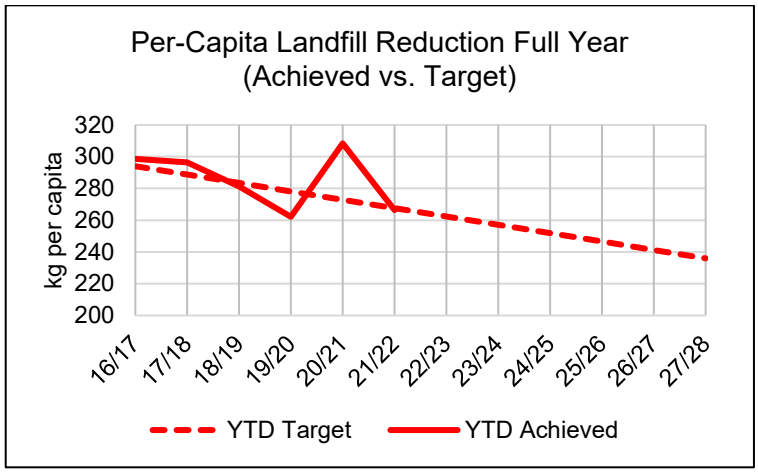


Figure 3.5: Achieved s. Target Per-Capita Landfill Reduction

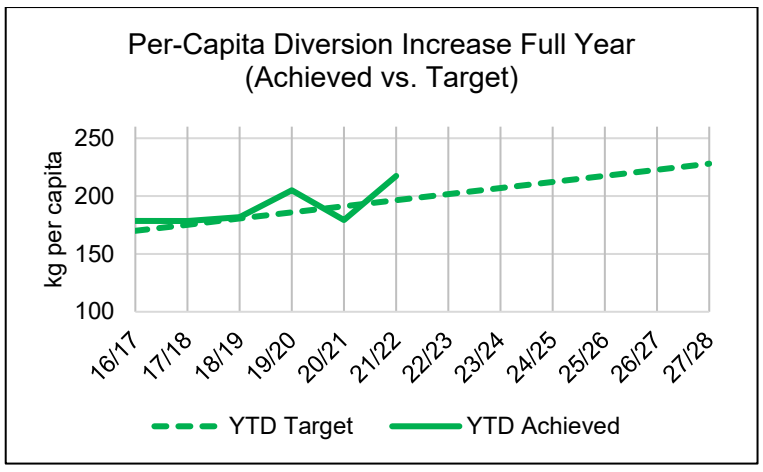


Figure 3.6: Achieved s. Target Per-Capita Diversion Increase

3.22. The decrease in per-capita landfill and increase in per-capita diversion observed in 2019/20, which resulted in significant changes to these per-capita figures, is more than likely to have been caused by the new 3-bin collection service, which outweighed the drop in recycling received at the facilities owing to COVID-19 lockdowns and limitations to services from April to June.

3.23. These results were reversed in 2020/21 owing to the high level of contaminated kerbside recycling that was landfilled throughout the tear, and the continuing impacts of the different COVID Alert Levels on offered services.

3.24. In 2021/22, Council again achieved our per-capita landfill reduction target, and exceeded our target to increase diversion from landfill, owing to the previously discussed decrease in kerbside contamination, the increase in organics collected at kerbside and the increase in green waste taken to our facilities, which offsets the slight drop in recycling received at SRRP.

Cust Rural Recycling Facility

3.25. A concrete pad has been constructed for the large hook-bins to be stored on, at the Cust rural recycling facility (Cust RRF). This provides a good all-weather surface for users and replaces the gravel hard-stand area which required a high level of work to maintain.

3.26. The preparation work for sealing the driveway entrance, which is a requirement under the resource consent, has been completed. Unfortunately the final sealing was not completed before the onset of wet weather, owing to delays caused by resourcing issues from a combination of COVID-19 and rain events. The seal will be laid once ground conditions allow.

3.27. Recycling that is dropped off at the Cust RRF generally continues to be of good quality. Staff note that the average monthly weight of Cust recycling has increased from 8 tonnes in 2020/21 to 8.6 tonnes in 2021/22 – a 7.5% increase – which indicates that more residents from the wider Cust area are now using this facility.

Southbrook RRP Upgrades.

3.28. WSP have been engaged to review the current proposed site layout, and more recently were tasked with assessing overall capacity of the site (current and potential). Staff have received a report outlining the design criteria of the proposed upgrade, which we propose to workshop with the members of the SHWWP.

3.29. The information coming from this first phase of work will feed into the preparation of several site layouts for consideration by staff and elected members, which will be post-elections.

Waste Minimisation & Water Education and Enviroschools

3.30. Waste Minimisation & Water Education: COVID-19 has impacted education activities during the 2021/22 year. This is further discussed in Section 4. In order to assist the Council with messaging about acceptable kerbside materials, Eco Educate undertook recycling bin audits of bins set out by schools, starting toward the end of 2021.

3.31. ***Table 3.1*** Shows the numbers of community, business, pre-school and school sessions that were held by EcoEducate, the hours for each forum, and number of attendees at these sessions.

Type of Session	Number of Sessions	Number of Attendees	Total Hours	No. School Kerbside Audits
Community & business	15	588	40.5	N/A
Compass FM	4	400	2	N/A
Early Learning Centre etc.	35	728	46.5	29
Primary school	18	1,012	47.25	14
Secondary/Area school/ Young Adult College	16	322	13.25	5
Totals	**88**	**3,050**	**149.5**	**48**

Table 3.1: Waste and Water Education Contract Activity

3.32. The majority of topics were related to waste minimisation/recycling, with 8 sessions on both waste minimisation/recycling and water, and 19 sessions on 3-waters.

3.33. A total of 48 recycling bin audits were undertaken outside schools when the educators were unable to enter school grounds, from November 2021 through to June 2022. Reports outlining the audit findings were provided to the schools, and included graphs, photos, and suggestions for improvement where this was needed. A number of the bins that were audited were tagged as contaminated so they would not be collected, owing to the level of contamination in these bins.

3.34. Staff from both the 3-Waters and Solid Waste teams are working with EcoEducate in preparation for the commencement of the new Sustainability Contract, to ensure they are prepared for the new contract format in the new financial year.

3.35. Enviroschools: There are a total of 20 Enviroschools in Waimakariri, tabulated below in ***Table 3.2***, with another 3 prospective schools in discussion with Enviroschools Canterbury.

Assessed at Green-Gold Level	**Assessed at Silver Level**	**Assessed at Bronze Level**	**Not Assessed**
Loburn School	Clarkville School	Ashgrove School	Lollipops Pegasus
North Loburn School	Cust School	Ashley Rakahuri School	My Preschool
Oxford Kindy	Fernside School	Little Peppertree Preschool	Pegasus Bay School
Swannanoa Preschool		Peppertree Preschool Ltd	Rangiora High School
		St Joseph's School (Rangiora)	Rangiora High School Nursery School
		West Eyreton School	Rangiora New Life School
			View Hill School

Table 3.2: Enviroschools and Assessment Levels Achieved to Date

3.36. Owing to COVID-19, the Enviroschools facilitator has not been able to enter many schools to work with them in person, and they have not been able to hold their planned school hui and other celebrations.

3.37. Environment Canterbury have now directly employed the Enviroschools facilitators, and have been able to commit more facilitator time in Waimakariri as a result of the increase in funding towards biodiversity and active transportation/travel planning.

3.38. Staff have been discussing topic and reporting needs with Enviroschools, and are looking forward to seeing more activity and receiving more regular information from their team in the coming year.

3.39. We would like to acknowledge Lynley Beckingsale for being the Waimakariri District Council's representative on the Enviroschools Steering Group for a good many years. Her input and governance has of Enviroschools Canterbury been much appreciated.

4. ISSUES AND OPTIONS

4.1. Waste Quantities: Diversion and Landfill. The impacts of COVID-19 in 2019/20* and 2020/21** (lockdowns, temporary closure of the recycling plant, and mixed Councils' messaging) resulted in a high level of contamination in recycling bins particularly over the 2020/21 period, which has now been reversed through recycling bin audits during late 2020/21 and early 2021/22. This impacted on our kerbside diversion figures over that time-span, as shown in ***Table 4.1***.

4.2. ***Table 4.1*** shows the tonnages of materials collected by Council at kerbside: recycling that was processed, organics that was composted, and rubbish that was collected at kerbside and landfilled, plus the total weight of these materials, and the total weight and percentage that was diverted from landfill. Note 1: rubbish quantities include contaminated recycling that resulted from mixed messaging across Canterbury during the first COVID lock-down period.

Materials Year	Recycling Processed (t)	Organics (t)	Rubbish[1] (t)	Total Kerbside (t)	Total Diverted via Kerbside (t)	Percentage Diverted via Kerbside (%)
2018/19	4,073		2,370	6,443	4,073	63%
2019/20*	3,230	4,342	4,761	12,333	7,572	61%
2020/21**	1,078	4,466	6,806	12,350	5,544	45%
2021/22	3,159	4,646	4,082	11,887	7,805	66%

Table 4.1: Kerbside Materials Diverted From Landfill from 2018/19 to 2021/22

4.3. ***Figure 4.1*** shows the total weight of materials collected at kerbside, the weight of diverted materials (recycling and organics) and the weight of landfilled materials from the collection service.

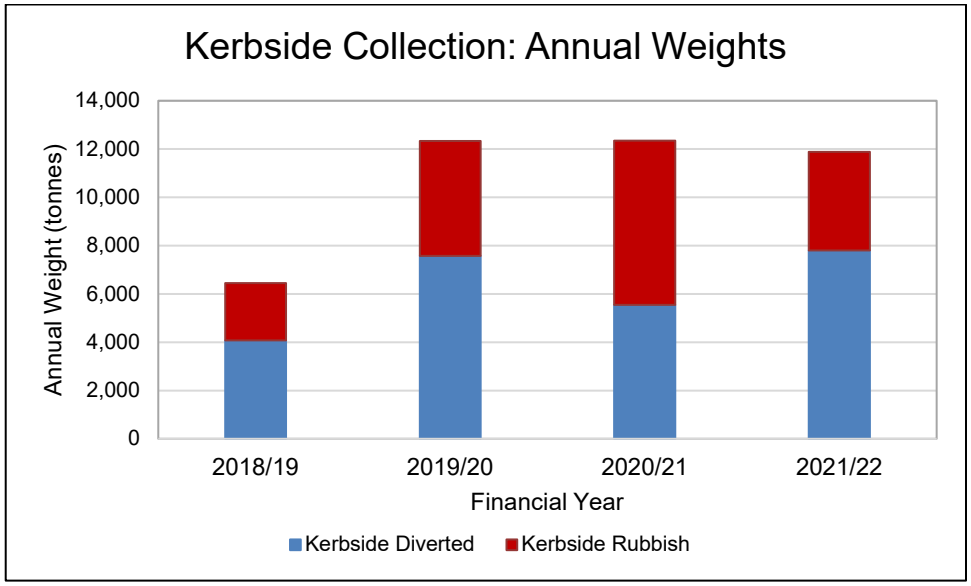


Figure 4.1: Weight of Kerbside Materials Collected from 2018/19 to 2021/22

4.4. The optional organics collection service has almost doubled the quantity of divertible materials collected by Council at kerbside, but this has only marginally increased the percentage diverted, from 63% to 66%, owing to the fact that the optional rubbish bin service has also increased the quantity of rubbish that Council collects at kerbside.

4.5. Kerbside organic weights have increased owing to the continuing uptake of bins, and also the particularly long growing season this year.

4.6. Although kerbside recycling contamination levels have dropped, kerbside recycling weights have not recovered to the levels seen prior to the arrival of COVID in 2019/20, and sits 21% (838 tonnes) below 2016/17 weights. This could be a result of a change in the mix of recycling collected compared to three years ago.

4.7. There is less mixed and soft plastics (which is good and indicates people have got the message from the advertising and audits), less HDPE/No. 2 plastic and steel (which is not as good as these are more valuable), more cardboard and PET/No. 1 plastics (a good result) and around the same proportions of paper, aluminium and glass.

4.8. The annual totals of different waste types are shown graphically in **Figure 4.2**.

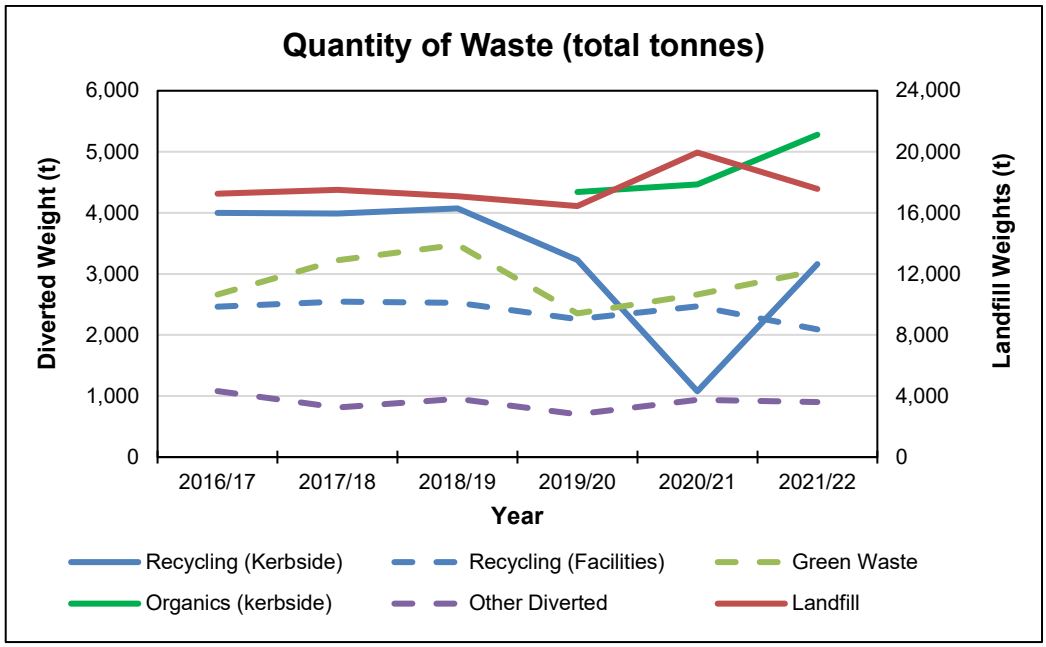


Figure 4.2: Total Annual Quantity of Waste

4.9. The organics service caused a decrease in greenwaste coming into SRRP in 2019/20 but greenwaste levels have increased over the last two years, most likely owing to the longer than 'normal' growing seasons that have been experienced over this period.

4.10. Recycling at our facilities (SRRP, OTS and Cust RRF) have also dropped from previous levels and are 15% (372 tonnes) down from 2016/17 totals. The main factors for this are decreases in the weight of scrap metal, glass, paper and plastic received at SRRP and of mixed recycling brought in to OTS, although this has been slightly offset by increases in mixed recycling from Cust RRF and commercial collectors.

4.11. It should be noted that waste quantities generally closely follow economic patterns, with more waste generated in a 'strong' economy, and less in a 'weak' economy. Therefore the drop in per-capita landfill weights may be a result of a slowing down in the economy, although the increase in per-capita diversion weights do not reflect this trend.

4.12. Education Services. COVID-19 has impacted on the number of classroom sessions that Eco Educate and Enviroschools could hold in schools, owing to internal restrictions in many schools. It has also limited the number of community workshops Eco Educate could facilitate, and the events that they usually attend to educate the public about waste minimisation, during the 2021/22 year.

4.13. In order to assist the Council with messaging about acceptable kerbside materials, Eco Educate undertook recycling bin audits of bins set out by schools, starting toward the end of 2021. They provided detailed reports to each school with the results, and have provided this information to Council so that we can monitor each school's progress in meeting our recycling acceptance criteria.

4.14. Implications for Community Wellbeing

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

4.16. 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.

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.

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, given the amount of awareness around sustainability in the community.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

6.1. Financial Implications

There are no financial implications in this report, as it is for information only.

This budget is included in the Annual Plan/Long Term Plan. Staff note that the Finance Team will report on the financial performance of Solid Waste accounts in their end-of-year financial reporting.

6.2. Sustainability and Climate Change Impacts

The recommendations in this report do not have sustainability and/or climate change impacts, as the report is for information only.

6.3. Risk Management

There are no risks arising from the adoption/implementation of the recommendations in this report, as the report is for information only.

6.4. Health and Safety

There are no health and safety risks arising from the adoption/implementation of the recommendations in this report, as the report is for information only.

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

Waste Minimisation Act 2008 in relation to Councils giving effect to the NZ Waste Strategy, and in accordance with their Waste Management & Minimisation Plans.

7.3. Consistency with Community Outcomes

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

- ***Core utility services are sustainable, low emissions, resilient, affordable; and provided in a timely manner***

    - The demand for water is kept to a sustainable level

    - Waste recycling and re-use of solid waste is encouraged and residues are managed so that they minimise harm to the environment

- ***There is a healthy and sustainable environment for all***

    - People are actively encouraged to participate in improving the health and sustainability of our environment

7.4. Authorising Delegations

The Solid & Hazardous Waste Working Party have the delegated authority to decide on all matters relating to Solid and Hazardous Waste that do not have an effect on the Annual Plan and Budget.