If calling, please ask for Democratic Services

Wairarapa Committee

Tuesday 3 June 2025, 10.00am

Committee Room, Greater Wellington Regional Council | Te Pane Matua Taiao,
34 Chapel Street, Masterton

Quorum: *four members, including two regional councillors*

Members

Adrienne Staples, Councillor (Chair)	Greater Wellington Regional Council
Gary Caffell, Mayor	Masterton District Council
Martin Connelly, Mayor	South Wairarapa District Council
Penny Gaylor, Councillor	Greater Wellington Regional Council
Hon. Ron Mark, Mayor	Carterton District Council
Daran Ponter, Councillor	Greater Wellington Regional Council
Amber Craig	Rangitāne ō Wairarapa

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

Wairarapa Committee

1 Purpose

Consider areas and matters of strategic importance to the Wairarapa, and recommend to Council on these matters.

2 Specific responsibilities

2.1 Apply Council's Te Tiriti o Waitangi principles when conducting the Committee's business and making decisions.

2.2 The areas to consider and recommend on to Council include, but are not limited to:

- a Flood protection
- b Land management
- c Biosecurity
- d Biodiversity
- e Climate
- f Public transport
- g Natural resource management
- h Broader areas of common interest to the territorial authorities and Council.

2.3 Consider potential arrangements for a catchment-based governance approach for the Wairarapa, and recommend to Council, as appropriate.

3 Members

3.1 The Councillor elected by the Wairarapa constituency.

3.2 Two other Councillors, appointed by Council.

3.3 Three other members, appointed by Council as follows:

- a The Mayor of Carterton District Council
- b The Mayor of Masterton District Council
- c The Mayor of South Wairarapa District Council.

3.4 Two other members, appointed by Council for each person's skills, attributes or knowledge that will assist the work of the Committee, being:

- a One member, nominated by Ngāti Kahungunu ki Wairarapa
- b One member, nominated by Rangitāne ō Wairarapa.

4 Alternate members

4.1 For the members in sections 3.1 and 3.2, Council may nominate a pool of up to three alternate Councillors for appointment by Council. If one of those members is unable to attend a meeting any person from this pool may sit at the table, speak and vote in their place.

4.2 Each territorial authority in section 3.3 may nominate an alternate elected member for appointment by Council. If an appointed member is unable to attend a meeting their alternate member may sit at the table, speak and vote in their place.

4.3 Each iwi authority in section 3.4 may nominate an alternate member for appointment by Council. If an appointed member is unable to attend a meeting their alternate member may sit at the table, speak and vote in their place.

5 Quorum

Four members, including two Councillors.

6 Voting entitlement

6.1 All members have equal speaking and voting rights.

6.2 Council's Standing Orders apply to the Committee; except that the Chair, in the case of an equality of votes, does not have a casting vote (and therefore the motion is defeated, and the status quo is preserved).

7 Servicing

The Committee is serviced by Greater Wellington.

8 Committee consideration

8.1 Matters of strategic importance to the Wairarapa constituency shall first be referred (including during the development of proposed Greater Wellington plans and policies) to the Wairarapa Committee or its members for their consideration.

8.2 Proposals developed by Wairarapa-focused advisory bodies formally established by Council shall be considered by the Committee for direct recommendation to Council for decision.

9 Council's decisions on the Committee's recommendations

9.1 Council's decisions on the Committee's recommendations are reported to the Committee.

9.2 Where Council makes any decision that is materially different from the Committee's recommendation, Council's report to the Committee will set out the reason(s) for that decision.

10 Remuneration and expenses

10.1 The expenses of the elected members shall be met by the council they represent.

10.2 Non-elected members (who are not otherwise being remunerated) may claim Greater Wellington's standard daily meeting attendance allowances and expenses.

11 Meeting frequency

The Committee shall meet six times each year, with additional meetings as required.

Wairarapa Committee

Tuesday 3 June 2025, 10.00am

Committee Room, Greater Wellington Regional Council | Te Pane Matua Taiao,
34 Chapel Street, Masterton

Public Business

No.	Item	Report	Page
1.	Apologies		
2.	Conflict of interest declarations		
3.	Public participation		
4.	Confirmation of the Public Minutes of the Wairarapa Committee meeting on Tuesday 25 March 2025	25.131	6
5.	Public Transport Update	25.198	9
6.	Waipoua River Urban Reach – Preferred Flood Risk Management Option	25.236	33
7.	Waipoua River and Mangatārere Stream Flood Hazard Maps	25.235	54
8.	Wairarapa Flood Risk Management Update	25.234	143
9.	Whaitua update – Wairarapa Coast	25.187	155

Please note these minutes remain unconfirmed until the Wairarapa Committee meeting on 3 June 2025.

Report 25.131

Public minutes of the Wairarapa Committee meeting on Tuesday 25 March 2025

Committee Room, Greater Wellington Regional Council
34 Chapel Street, Masterton at 10.03 am.

Members Present

Councillor Staples (Chair)	Greater Wellington Regional Council
Mayor Caffell	Masterton District Council
Mayor Connelly	South Wairarapa District Council
Amber Craig (from10.06am)	Rangitāne ō Wairarapa
Councillor Gaylor	Greater Wellington regional Council
Councillor Ponter	Greater Wellington Regional Council

Councillor Ponter and Councillor Gaylor participated at this meeting remotely via Microsoft Teams and counted for the purpose of quorum in accordance with clause 25A of Schedule 7 to the Local Government Act 2002.

Karakia timatanga

The Committee Chair opened the meeting with a karakia timatanga.

Public Business

1 Apologies

Moved: Mayor Caffell / Mayor Connelly

That the Committee accepts the apology for absence from Hon. Mayor Mark.

The motion was **carried**.

2 Declarations of conflicts of interest

There were no declarations of conflicts of interest.

3 Public participation

There was no public participation.

4 Confirmation of the Public minutes of the Wairarapa Committee meeting of 29 October 2024 - Report 24.589

Moved: Mayor Caffell / Mayor Connelly

That the Wairarapa Committee confirms the Public minutes of the Wairarapa Committee meeting of 29 October 2024 - Report 24.589

The motion was **carried**.

5 Improving Wairarapa Committee Connections – Report 25.105

Nicola Patrick, Director Catchment, spoke to the report.

Moved: Mayor Caffell / Cr Connelly

That the Wairarapa Committee:

1 Notes the purpose and intention of improving engagement, organisation and planning of the committee's business is to fulfil its strategic purpose.

2 Notes that a number of other governance forums exist with potential overlap to the work of the committee.

3 Agrees that officers will develop a cohesive and strategic forward work programme, considering the list provided in this report, for consideration by the Committee.

4 Requests that Greater Wellington officers investigate coordinating the Wairarapa Committee meetings with the Combined Council Forum and other relevant governance meetings.

5 Notes that the Wairarapa Moana Statutory Board has developed an interim position statement and is asking relevant agencies to engage with it on an ongoing basis to form enduring rangatira-ki-te-rangatira relationship.

6 Requests Greater Wellington officers engage with Mana Whenua further on enhancing or not their participation in the Committee.

The motion was **carried**.

Amber Craig arrived at the meeting at 10.06am during the above item.

6 Public Transport Update – March 2025 – Report 25.96 [For Information]

Samantha Gain, Group Manager Metlink and Tonia Haskell, Managing Director, Transdev, spoke to the report.

7 Wairarapa Flood Risk Management Update – March 2025 – Report 25.89 [For Information]

Hamish Fenwick, Team Leader Flood Operations and Francie Morrow, Team Leader Knowledge – Water Resilience, spoke to the report.

8 **Waipoua River Urban Reach Flood Risk Management Options – Report 25.110** [For Information]

Francie Morrow, Team Leader Knowledge – Water Resilience, spoke to the report.

Noted: The Committee requested that officers circulate the summary of submissions to the Committee members as soon as it is available.

Karakia whakamutunga

The Committee Chair closed the meeting with a karakia whakamutunga.

The meeting closed at 11.29am

Councillor A. Staples

Chair

Date:

Wairarapa Committee
3 June 2025
Report 25.198

For Information

PUBLIC TRANSPORT UPDATE

Te take mō te pūrongo
Purpose

1. To inform the Wairarapa Committee (the Committee) of Metlink activities and performance relating to public transport in the Wairarapa.

Te tātaritanga
Analysis

2. The paragraphs below provide an update on Metlink activities in the Wairarapa.

Rail performance – Wairarapa Line issues and bus replacement services

Current service impacts on Wairarapa Line – update

3. Due to on-going staffing challenges due to a limited roster of Train Managers, bus replacement train services (BRT) continue to be operated on the Wairarapa train line on the timetabled 3:38pm departure from Masterton and 6:18pm departure from Wellington on weekdays, and the additional Friday only service which departs Wellington at 10:25pm.

4. A presentation on the current service impacts on the Wairarapa Line is attached as **Attachment 1** to this report. Officers and a Transdev representative will speak to the presentation at the meeting.

Bus replacement services

5. Bus replacements are used to replace train services in the following situations:

   a during planned Blocks of Lines (BOL) when the rail network cannot be fully used due to planned capital works and/or maintenance work

   b when an unplanned event occurs that means we cannot run our normal train timetable e.g. earthquake, flood and staff shortages.

6. Metlink has developed an action plan to improve bus replacement services; the action plan was attached to the previous performance report presented for consideration at the Committee's 25 March 2025 meeting (refer Report 25.96 Public Transport Update).

Performance of Easter/ANZAC bus replacement services

7. Initial observations from Metlink and Transdev staff during the Easter/ANZAC Blocks of Line on Hutt Valley (partial), Wairarapa (partial) and Johnsonville (whole) Lines were presented to the Committee on 9 April 2025 (Public Transport Update Report 25.147).

8. Further analysis of customer behaviour and satisfaction on rail lines over the Easter/ANZAC Blocks of Line has been undertaken during May. Customer satisfaction analysis focused on:

    a the three 'working days' between the long weekends (22-24 April)

    b Wairarapa and Hutt Valley Lines where partial Blocks of Line, which necessitated transfers between bus replacement services and trains, provided a less familiar pattern of travel for most passengers.

9. On-platform interviews were conducted with 125 customers across the Wairarapa and Hutt Valley Lines, who identified that they travelled on peak services over the three 'working days' between the long weekends (or who identified that they took leave specifically to avoid planned bus replacement services).

10. Key findings from the Customer satisfaction analysis will be presented to the Transport Committee at its meeting on 10 June 2025 (refer report 25.257 Performance of the Easter/ANZAC Rail Replacement Services which will be available on our website: https://www.gw.govt.nz/your-region/events-and-meetings/transport-committee-meeting-7/ no later than two working days before the meeting).

Update on activities – Rail

Lower North Island Rail Integrated Mobility

11. The 2023 Government budget included funding for the capital investment of new rolling stock and associated infrastructure to deliver improved passenger rail services on the Manawatū Line (MUL) and Wairarapa Line (WRL) based on the LNIRIM Detailed Business Case (DBC); this includes:

    a 18 new Independently Powered Electric Multiple Unit vehicles (IPEMU Vehicles) to replace the existing carriages and locomotives currently used to deliver MUL and WRL services

    b A new maintenance depot for the IPEMU Vehicles

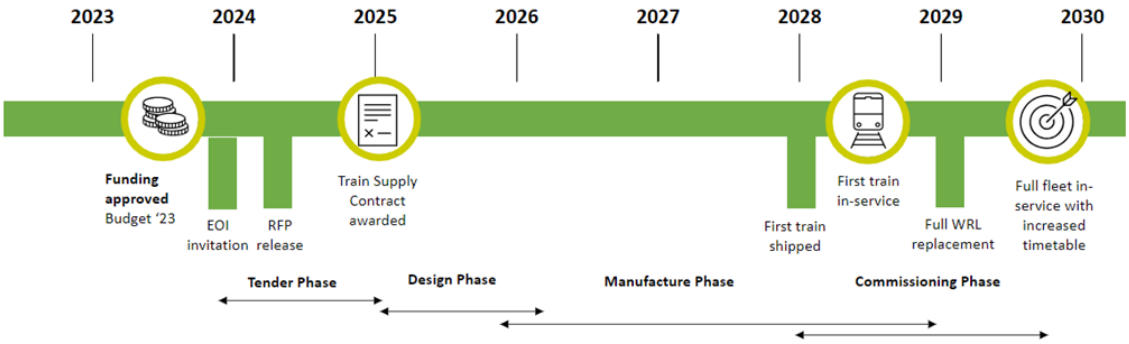
    c Station and platform upgrades

    d Rail Network upgrades, including passing loops and stabling facilities.

12. It is expected that the new trains will double peak-time services between Palmerston North and Wellington on the Manawatū line and double them between Masterton and Wellington on the Wairarapa Line.

13. The target for contract award is scheduled for mid-2025.

14. The following diagram sets out the indicative timeline for the Programme.



Draft Te Mahere Waka Whenua Tūmatanui o te Rohe o Pōneke Wellington Regional Public Transport Plan 2025-35

15. The draft Te Mahere Waka Whenua Tūmatanui o te Rohe o Pōneke Wellington Regional Public Transport Plan (Draft RPTP) has been consulted on, and hearings were held on 6-7 May 2025.

16. Summary and analysis of the key public consultation feedback on the Draft RPTP from a Wairarapa perspective are set out below:

    a 7% (68) of submissions on the Draft RPTP were from submitters self-identified as living in the Wairarapa.

    b Twenty-two comments were made about public transport services to, from and within Wairarapa, particularly the prevalence of buses replacing trains. The majority of these submitters were rail users and called for increased reliability, frequency and efficiency in services delivered, with a strongly negative perception of the quality of service to and from the Wairarapa region expressed.

    c A small number of these submitters argued that the Wairarapa Line needs more prominence and narrative in the RPTP.

    d Seventeen comments from across Wairarapa were made in relation to potential demand management charging for Park and Ride. Specifically, Wairarapa submitters argued that Park and Ride locations in the region should not incur fees for Park and Ride due to the lack of alternative options for residents in those areas, particularly frequent and reliable connector bus services.

    e Horizons Regional Council's submission suggested inserting reference to investigating a regional connector service north of Masterton extending into the Horizons region to improve Wairarapa-Tararua connectivity.

17. Through deliberations, the Transport Committee resolved that it acknowledges and shares the immense frustration surrounding rail performance to and from the Wairarapa and reaffirms the Committee's commitment to taking urgent action with regard to operation of the services and maintenance and renewal of the infrastructure to provide better services and better value for money to the community.

18. The draft RPTP is currently being revised to reflect Transport Committee resolutions and submitter feedback. The final RPTP will be presented to the Council for adoption in late June 2025 and, subject to Council direction, will come into effect 20 working days after adoption.

Update on performance

19. A PowerPoint presentation on Wairarapa public transport performance will be presented to the Committee at this meeting. A copy is attached as **Attachment 2**.

Ngā āpitihanga
Attachment

Number	Title
1	Wairarapa Line Service Issues
2	Metlink Public Transport Performance – Presentation

Ngā kaiwaitohu
Signatories

Writers	David Mawson – Manager Rail Network Delivery Emmet McElhatton – Manager, Policy
Approvers	Paul Tawharu – Senior Manager Operations, Metlink Hamish Burns – Senior Manager Assets and Infrastructure, Metlink (Acting) Samantha Gain – Kaiwhakahaere Matua, Waka-ā-atea | Group Manager, Metlink

He whakarāpopoto i ngā huritaonga **Summary of considerations**
Fit with Council's roles or Committee's terms of reference The purpose of the Committee is to consider areas and matters of strategic importance to the Wairarapa. This is an information report on public transport matters in the Wairarapa.
Contribution to Annual Plan / Long term Plan / Other key strategies and policies This report provides an update on the delivery of public transport activities in the Wairarapa. Delivering public transport is a key activity in the Long Term Plan.
Internal consultation No other departments were consulted in preparing this report.
Risks and impacts: legal / health and safety etc. There are no risks arising from this report.

Attachment 1 to Report 25.198

WAIRARAPA RAIL NETWORK UPDATE

SERVICE LEVEL IMPACTS

3 JUNE 2025 – WAIRARAPA COMMITTEE

metlink

Proudly part of Greater Wellington Te Pane Matua Taiao

Purpose

To provide an update on current issues facing Wairarapa commuters, and provide an update on mitigations underway

AGENDA

1. **Who's who and who does what**
2. **Major impacts on WRL services – past, current, future**
3. **Challenges: Staffing**
   - Transdev staffing levels
   - What's being done
   - Expected timeframe for improvements
4. **Challenges: Rail Network**:
   - Network infrastructure
   - Temporary Speed Restrictions (role and impact)
   - Rail replacement services – action plan to improve

3. Summary of actions

Who's who?

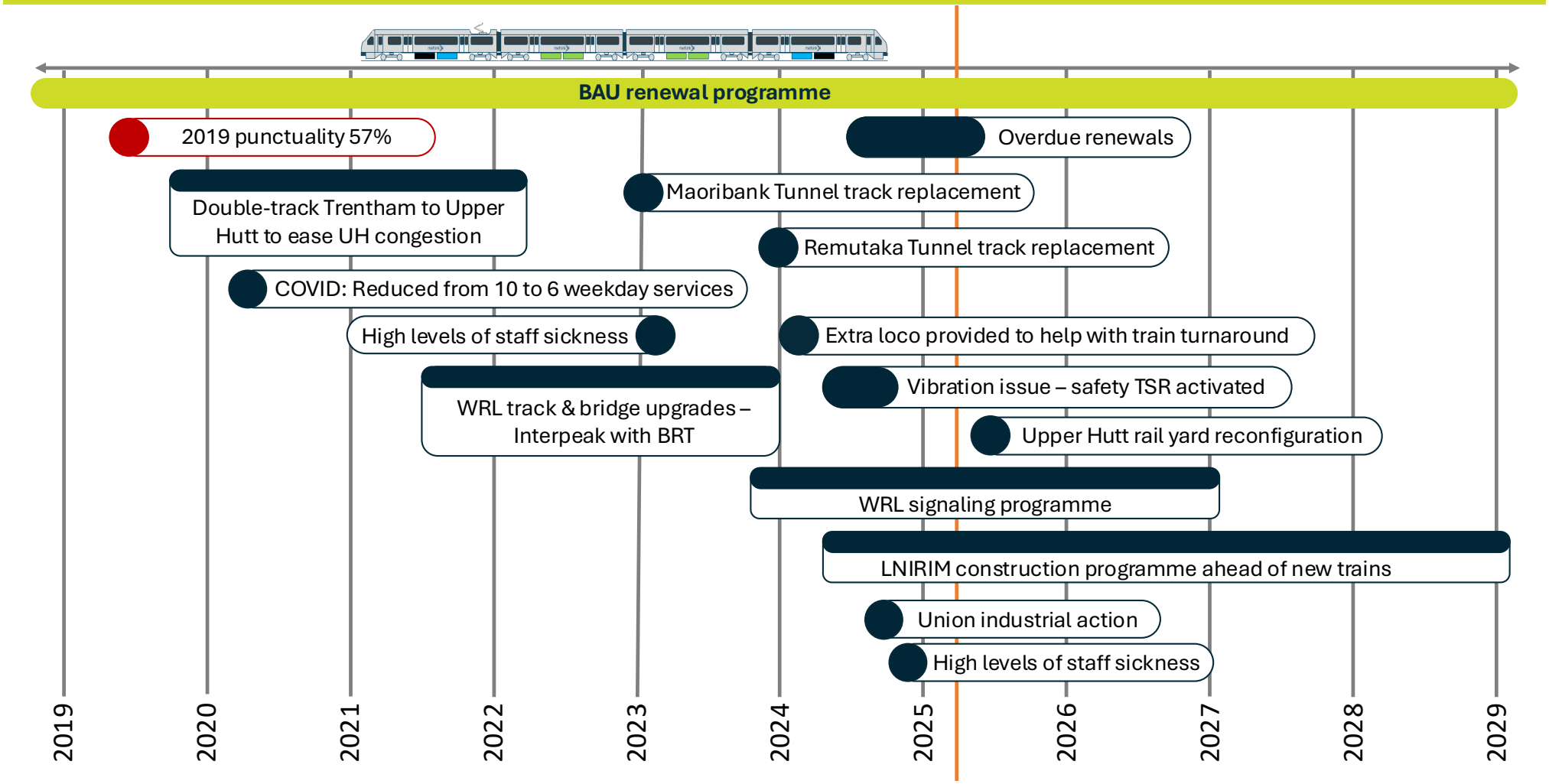
Attachment 1 to Report 25.198

The key organisations involved in the governance, operation and monitoring of the Wairarapa Line Rail Services are:

metlink® Greater Wellington Te Pane Matua Taiao	Procures metro rail passenger services (via Metlink brand), has strategic oversight for the Wellington public transport network and owns the fleet of commuter passenger trains on the Network
transdev the mobility company	Contracted by Greater Wellington to operate metropolitan passenger rail services and maintain Metlink's rolling stock (through a sub-contract with Hyundai Rotem).
KiwiRail	State-owned enterprise, which owns and maintains the rail network (on behalf of the Crown) and operates freight and long-distance passenger services

WRL – major impacts

Attachment 1 to Report 25.198



Service Impacts - Staffing

Under the current rail partnering contract, it is the responsibility of the rail operator (Transdev) to recruit and train its frontline staff (this includes train drivers, train managers and passenger operators).

The Wairarapa Line requires Train Managers with **specialised training**, including industry standard licenses for safety procedures for the Remutaka Tunnel and shunting operations in Masterton Yard.

A full establishment of 12-14 Line Train Managers are needed to provide for full coverage of WRL services across the week, which allows a buffer for reasonable leave requirements.

Currently a full weekday WRL timetable requires a minimum of six Train Managers, but ideally seven in case of leave. **Currently only five Line Train Managers are consistently available for rostering.**

It takes approximately 6 months for full specialised Wairarapa Line training, and training is restricted due to the need for one-on-one training on the job.

Service Impacts – What we're doing

Attachment 1 to Report 25.198

- **Enforcing contractual provisions** to the extent the Contract allows
- **Entered into Transdev recovery plan:** To outline Transdev's approach to returning to contracted service provision (available on Metlink website)
- **To provide consistency of service:** Until staffing resources allow, Metlink has agreed with Transdev to bus replace the following services, which carry the least number of passengers:
  - the weekday 3:38pm departure from Masterton, and the 6:18pm departure from Wellington
  - the Friday only 10.25pm departure from Wellington

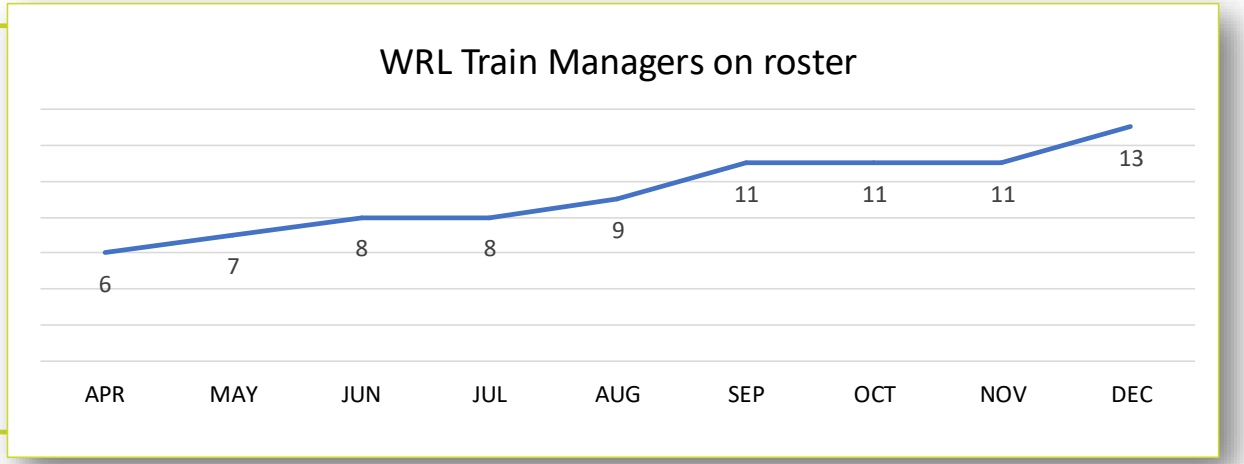
  Please note, further train services may be bus replaced if more Train Managers become unavailable at short notice.
- **To improve communications:** Metlink aims to improve communication with passengers by:
  - Publishing weekly situation reports on the Metlink website, explaining factors affecting Wairarapa trains and upcoming impacts to services.
  - Consistent updates to Wairarapa commuters, councillors, mayors, MPs, and the Transport Minister.

Timeframe for staffing improvements

Attachment 1 to Report 25.198

This is going to take time – there is no quick fix.

Transdev are working hard to stabilise staffing levels and expect improvements as new recruits complete their training. Based on the training requirements, Transdev expect to have sufficient number of Train Managers by September 2025.



While weekday commuter services will be prioritised with trains, buses will continue to replace trains as required. We are monitoring the situation daily and making adjustments where possible to minimise the impact on passengers.

Passengers can expect trains to be running as normal unless otherwise specified by Metlink service alerts, on real-time information boards, or announced on platform.

Challenges: Network Infrastructure

Historically there has been an under-investment in the Rail Network

- Over the next ten years KiwiRail is planning to deliver a large volume of overdue rail infrastructure maintenance and renewals across the entire network to address a significant backlog of work on the rail network (on top of regular BAU maintenance).
- The Wairarapa Line is less exposed *currently* as existing and past investment programmes have targeted the Wairarapa region; however, that has meant disruption to train users.






WRL – major projects that support Wairarapa rail services

Attachment 1 to Report 25.198

Role of speed restrictions

Speed restrictions are used to ensure the safety of passenger and freight services on parts of the network where renewals are taking place, or to prolong the asset condition until they can be delivered.

Whilst a buffer is built into rail timetables to allow for 'normal' maintenance, a higher-than-expected level of speed restrictions will impact travel times until sufficient funding is found, and renewal work can be undertaken on the rail network.

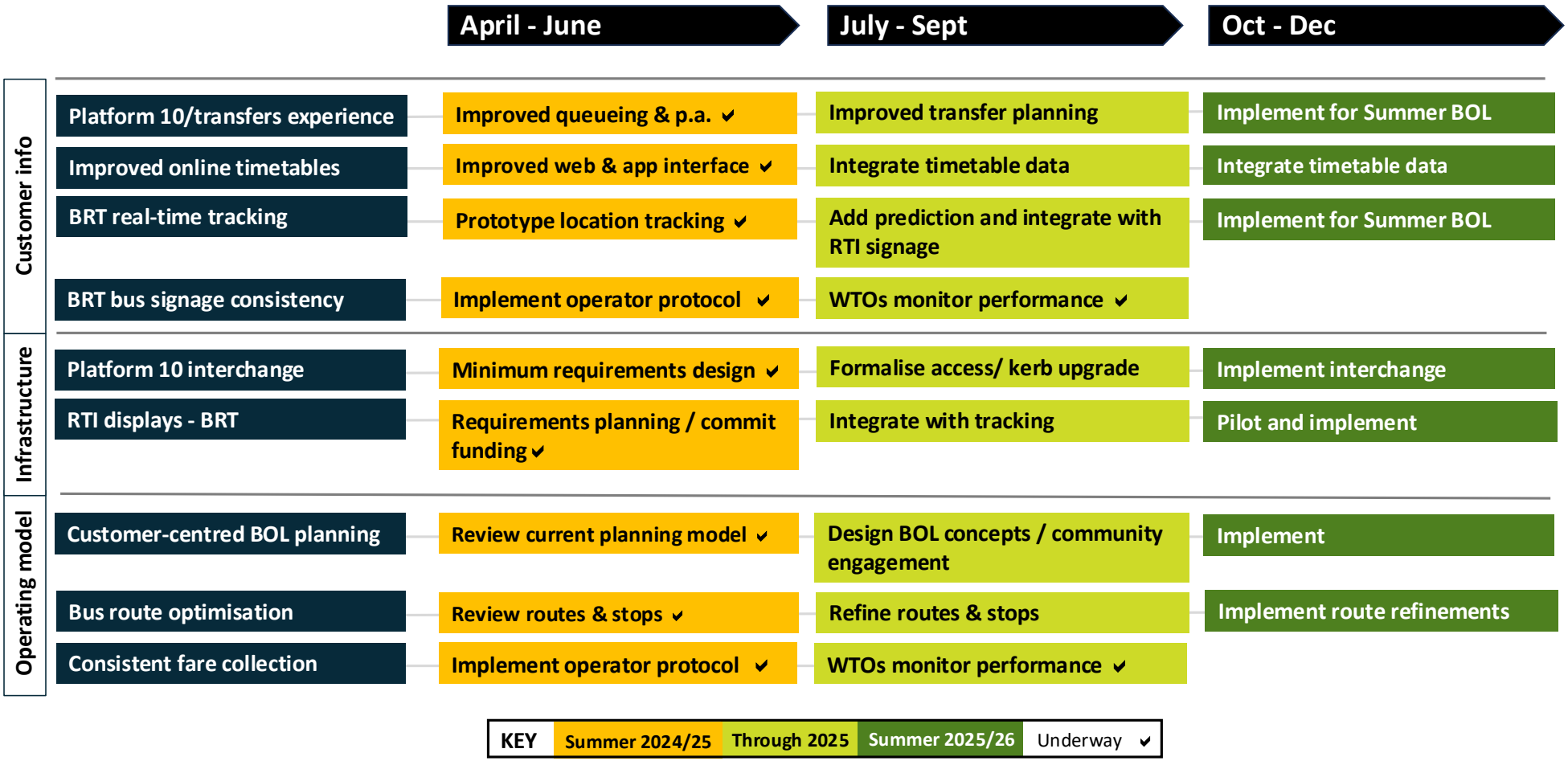
Wellington Rail Network - Current Speed Restrictions

Current Speed Restrictions (TSR)

- JVL • 1 min
- KPL • 2:36 to 3:29 mins
- MEL • 30 sec
- HVL • 34 secs to 3:02 mins
- WRL • 7:21 to 9:47 mins

BRT Improvement Action Plan (2025 - early 2026)

Attachment 1 to Report 25.198



Summary of actions

Attachment 1 to Report 25.198

- Provide proactive communications to customers– including detailed updates on the Metlink website and targeted SM messaging
- Facilitate discussions between stakeholders
- Develop and implement the BRT action plan
- Contract management

- Provide proactive communications, including to customers in partnership with Metlink
- Resource identification
- Recruitment of staff
- Relevant training of staff
- Recovery planning
- Support planned Block of Line planning
- Organise contracts for Rail Replacement buses (BRT)

- Proactive communication with partners about upcoming requirements
- Provision of infrastructure for metro line services
- Scheduling of the rail maintenance and renewals
- Locomotive provision
- Minimising train delay through project worksites (off-peak)

Attachment 2 to Report 25.198

PUBLIC TRANSPORT PERFORMANCE - APRIL

FOCUS ON WAIRARAPA

WAIRARAPA COMMITTEE

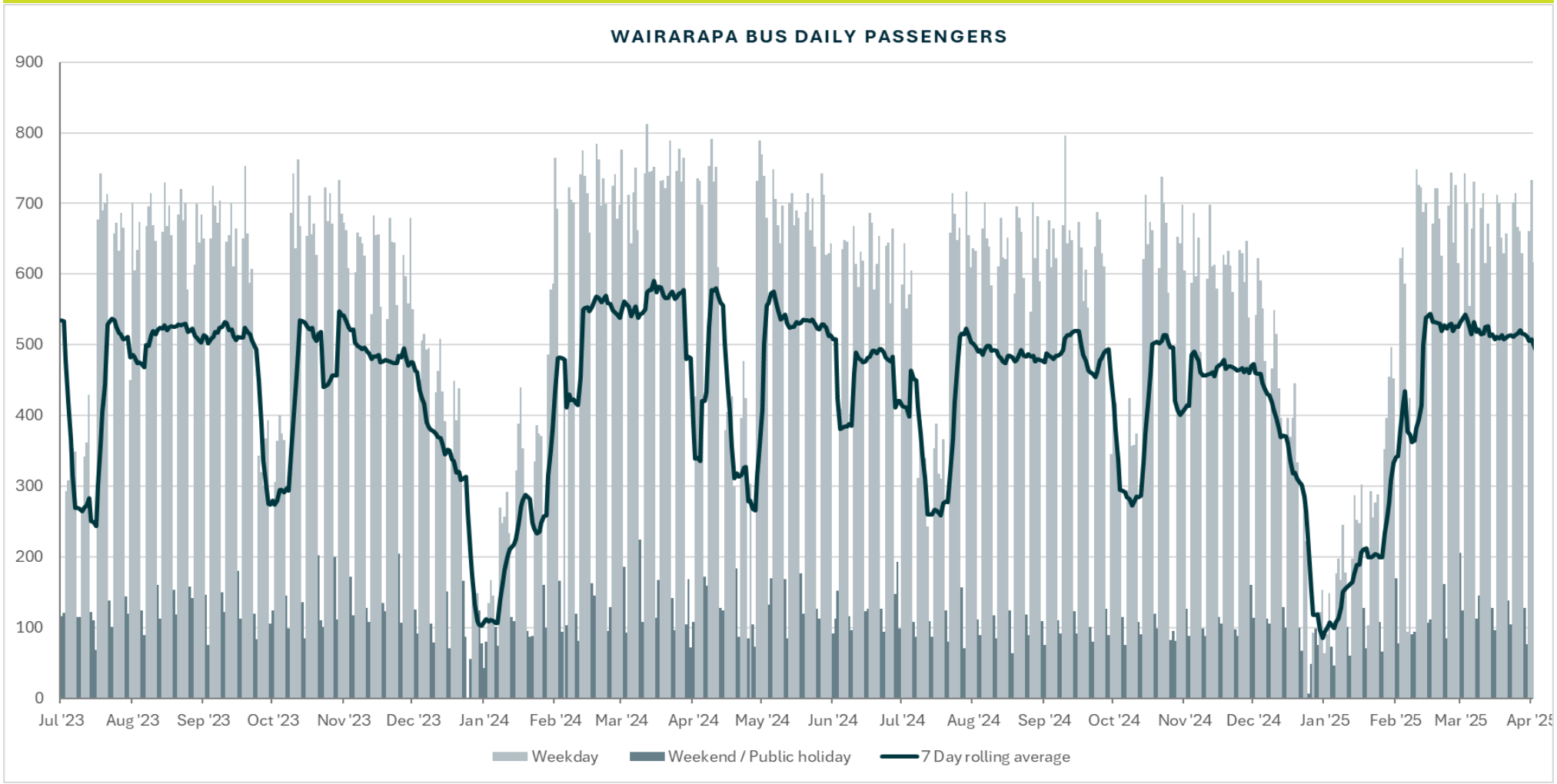
3 June 2025

Samantha Gain, Group Manager Metlink

metlink

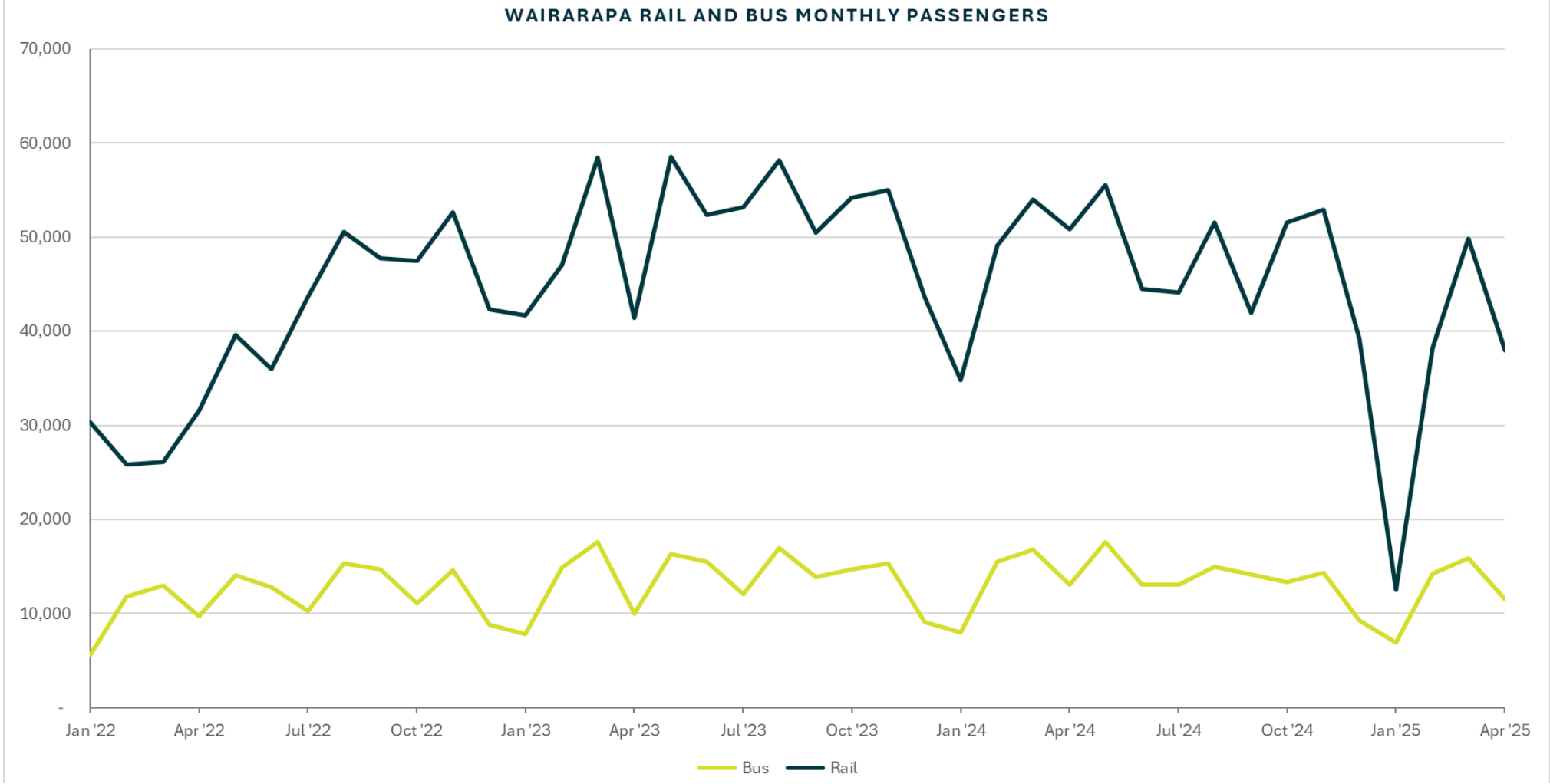
Wairarapa bus patronage – Boardings (day)

Attachment 2 to Report 25.198



Wairarapa rail/bus patronage – Boardings (MTH)

Attachment 2 to Report 25.198

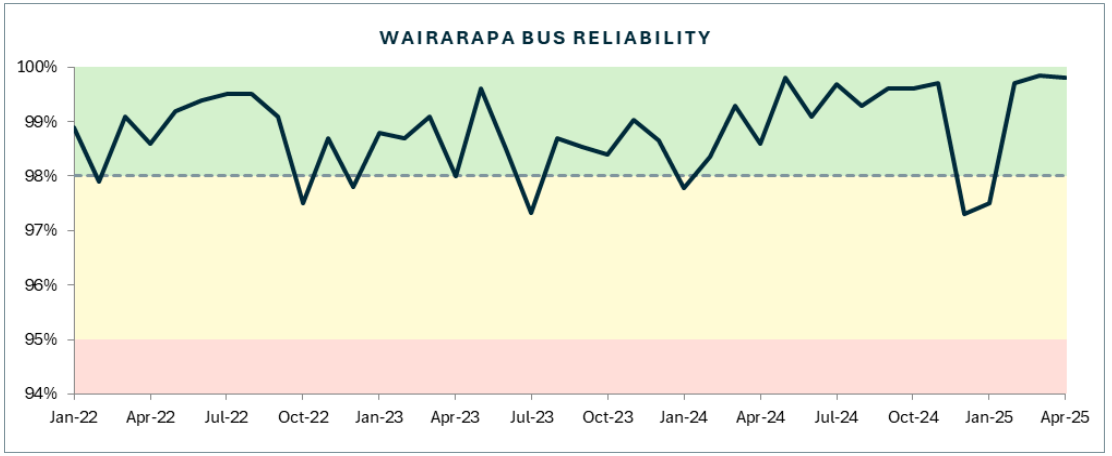


Wairarapa bus reliability & punctuality

Attachment 2 to Report 25.198

The bus reliability measure shows the percentage of scheduled services that actually ran, as tracked by Snapper systems.

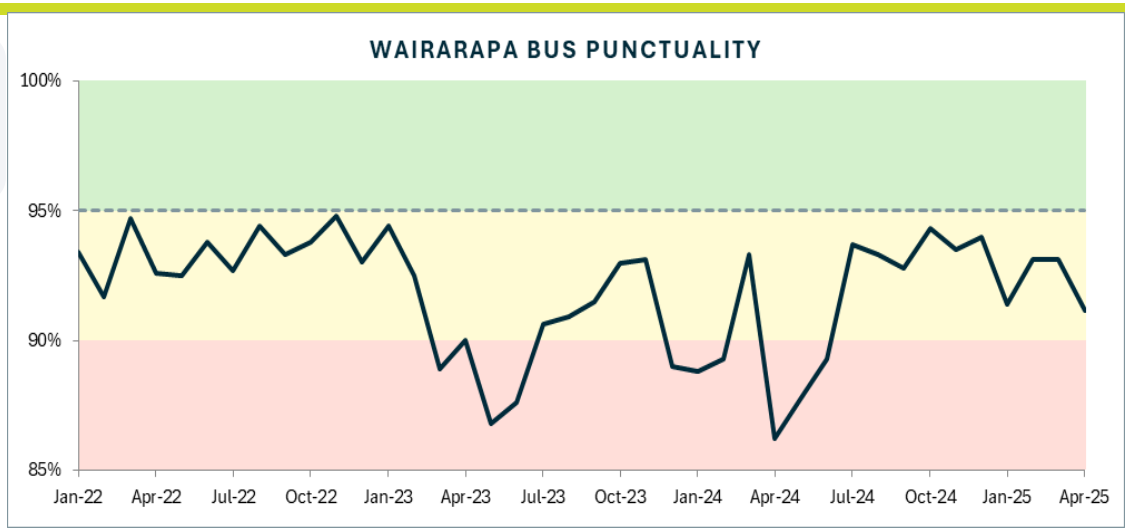
April 2025 bus reliability was **99.8%** (meets KPI)



Bus punctuality is measured as the percentage of scheduled services that depart from origin, leaving between 1 minute early and 5 minutes late.

Punctuality is impacted by buses waiting for late arriving trains (contract KPIs not impacted in these instances).

April 2025 bus punctuality was **91.2%** (needs improvement).

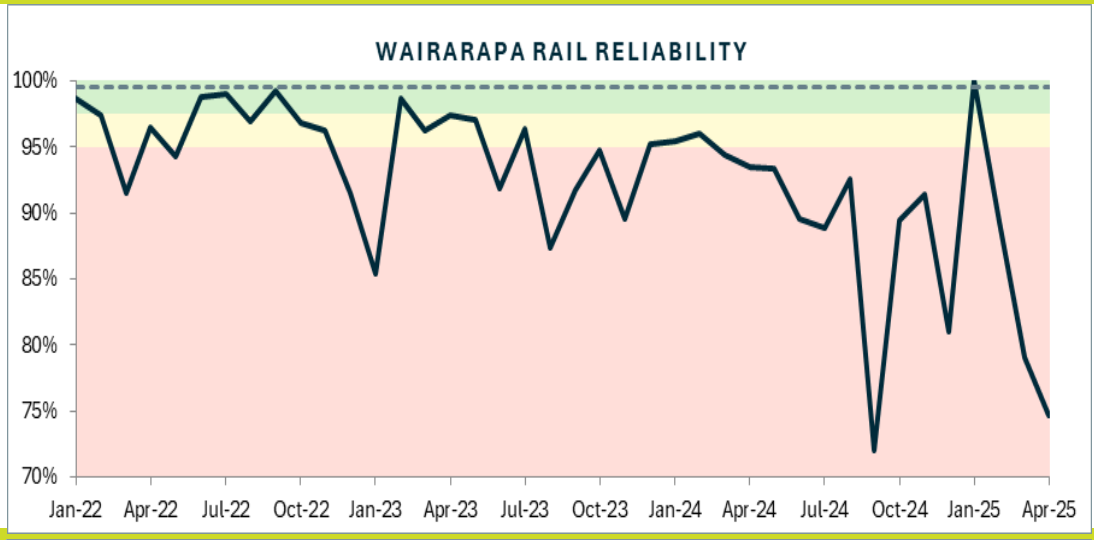


Wairarapa rail reliability & punctuality

Attachment 2 to Report 25.198

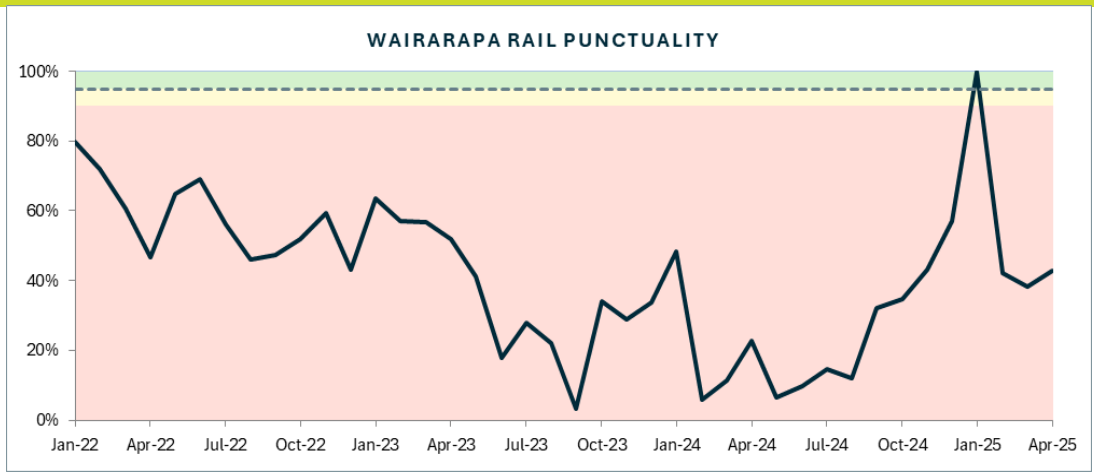
The rail reliability measure shows the percentage of scheduled services that depart from the origin and key stations no earlier than 30 seconds before the scheduled time, meet the consist size for the scheduled service, and stop at all timetabled stations. It does not factor bus replacement services.

April 2025 rail reliability was **74.7%.** Staff shortages continue to impact reliability



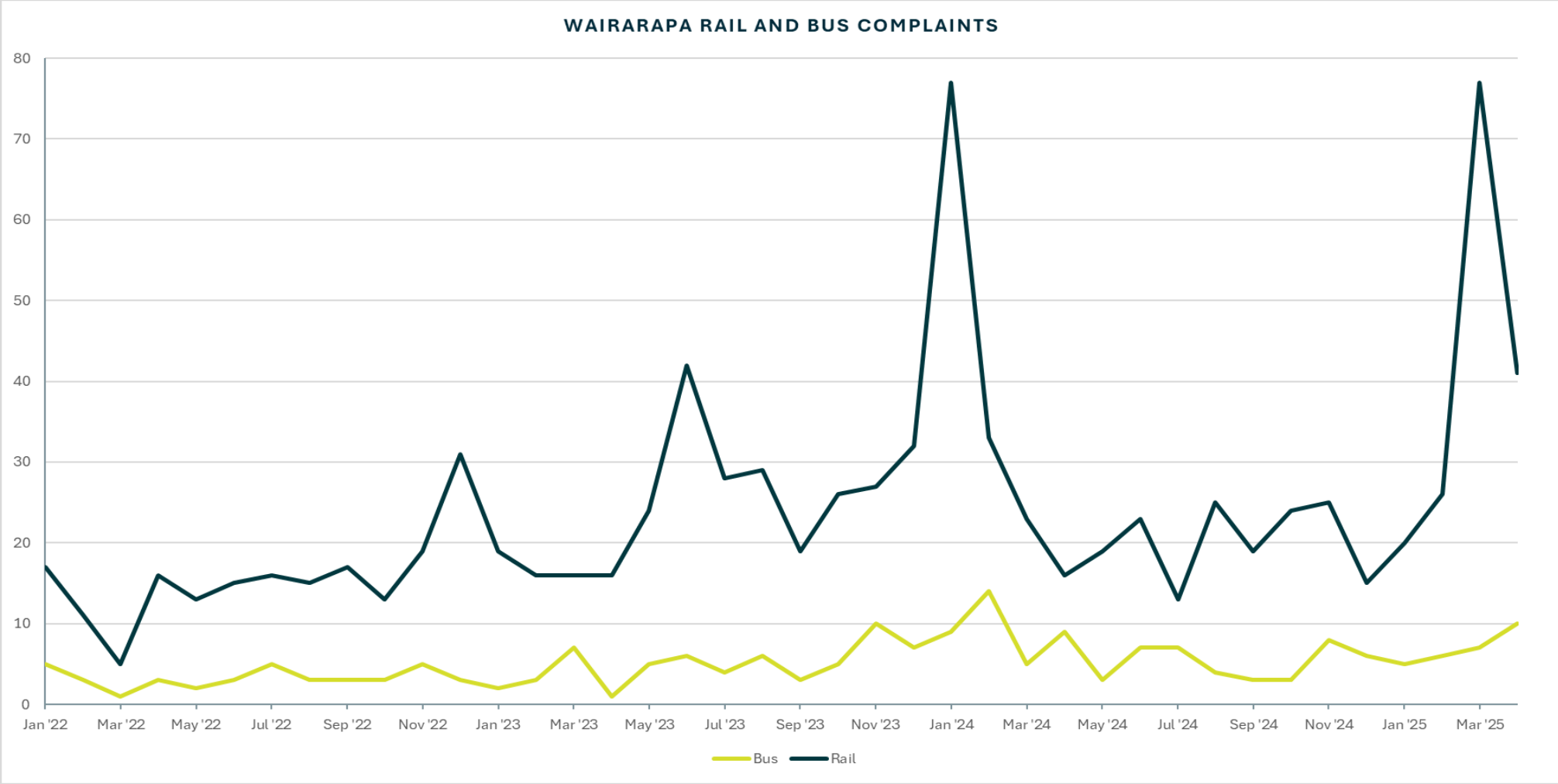
The rail punctuality measure records the percentage of services arriving at key interchange stations and final destination within five minutes of the scheduled time. It does not factor bus replacement services.

April 2025 rail punctuality was **42.7%.** Speed restrictions on the Wairarapa Line continue to impact punctuality, following Easter tunnel TSRs were lifted



Wairarapa Complaints

Attachment 2 to Report 25.198



Wairarapa Committee
3 June 2025
Report 25.236

For Decision

WAIPOUA RIVER URBAN REACH – PREFERRED FLOOD RISK MANAGEMENT OPTION

Te take mō te pūrongo
Purpose

1. To advise the Wairarapa Committee of the preferred flood risk management option for the urban reach of the Waipoua River.

He tūtohu
Recommendations

That the Committee:

1 **Recommends** that the Environment Committee endorse the preferred flood risk management option.

Te horopaki
Context

2. Greater Wellington Regional Council (Greater Wellington) has been working with members of the community, Masterton District Council and mana whenua (known collectively as the Waipoua Project Team) to progress Stage 1 of the Major Project Response on the Waipoua Urban Reach from the Te Kāuru Upper Ruamāhanga Floodplain Management Plan (Te Kāuru).

3. The Waipoua Project Team have previously completed updating the flood hazard maps for the Waipoua River. These maps are also being presented to the Wairarapa Committee at this meeting under Waipoua River and Mangatārere Stream Flood Hazard Maps - report 25.235.

4. To address the risk defined by the flood hazard maps, the Waipoua Project Team has recommended a preferred flood risk management option for the urban reach of the Waipoua River. The preferred option and the process to reach this recommendation is detailed in 'Preferred Option Report – Waipoua River Flood Risk Management', which can be accessed via this link: https://www.gw.govt.nz/your-region/emergency-and-hazard-management/flood-protection/our-work/rivers-and-streams/upper-ruamahanga-river/waipoua-river-flood-risk-management/

Process to determine preferred option

5. To determine a preferred flood risk management option the Waipoua Project Team have undergone an optioneering process which includes the following stages:
    - Develop a long list of options (brainstorming all possibilities)
    - Reduce list of options (high-level assessment to discard options which do not meet project needs)
    - Refine and combine options to develop a short list (more detailed assessment)
    - Engage with community on short list of options, and
    - Develop the preferred option (using a multi-criteria analysis and the outcomes of the engagement).

Long list of flood risk management options

6. The Waipoua Project Team first considered a long list of options. This included structural measures, river management responses, options for the upper catchment, emergency management and planning controls.
7. To aid in assessing options on the long list, specialist inputs were provided which included:
    - Geomorphology assessment
    - Flood damages assessment
    - Geotechnical assessment of existing stopbanks, and
    - Hydraulic modelling of selected long list options.
8. The reports associated with these inputs are appended to the preferred option report.
9. Through this assessment, many of the long list options were discounted from consideration on the basis that there were more concerns or drawbacks than benefits.

Short list of flood risk management options

10. A process of combining and rationalising the remaining options into realistic combinations then took place. This was supported by Tonkin + Taylor and further expert inputs, such as additional hydraulic modelling. This resulted in four short list options.
11. There were measures common across the four options, which were assessed as providing effective flood or erosion protection for certain areas. These were:
    - Mahunga Drive bund
    - Akura Road swale and floodwall/bund
    - Cameron Cresent bund, and
    - Channel widening and berm lowering around the bridges.

12. The four short list options provided variations of stopbank upgrades, river management works, and upper catchment considerations. A summary of the four options is provided below.

Option 1: Improving and extending existing stopbanks

13. Stopbanks and bunds raised in their existing locations and some areas extended.

Option 2: Improving stopbanks and undertaking extensive channel work

14. Berm lowering and widening of the river channel, in addition to stopbanks and bunds raised in their existing locations.

Option 3: Retreated stopbanks on true left bank

15. Stopbanks raised in their existing locations on the true right bank and in retreated locations (where possible) on the true left bank.

Option 4: A reduction in flows of 5% to be achieved by upstream catchment processes, upgrades to stopbanks still required

16. Implementing nature-based solutions in the upstream catchment to reduce flood peaks by 5%. Stopbanks and bunds were assumed to be upgraded in their existing locations but could be lower than other concepts due to reduced flows.

Community engagement on short list of flood risk management options

17. The short list options were presented to the community through an engagement process that ran from 17 February to 16 March 2025.

18. For community engagement the four short list options were communicated as ‘concepts’ to better reflect the high-level of design and the flexibility to mix and combine them. This change was to enable feedback to be gathered from the community about specific aspects of each concept rather than the community having to select an option in its entirety.

19. During the engagement, it was communicated that the final preferred option would likely be a combination of several of the concepts.

20. The following engagement activities were undertaken:

- Email briefing to Greater Wellington Councillor Adrienne Staples (31 January 2025)
- Masterton District Council elected members briefing (26 February 2025)
- Engagement with targeted affected parties including:
    - i Two visits to talk with Mawley Park management
    - ii Akura Road landowner meeting
    - iii Oxford Street residents letter drop
- Engagement events:
    - i Train station brochure handouts at Masterton, Solway and Renell Street stations on the mornings of 25, 26 and 27 February, respectively
    - ii Masterton Library drop-in sessions on 26 February and 4 March 2025

iii Presentation and drop-in at Lakeview School on 27 February 2025

iv Stall in Charlie's Lane on 1 March 2025

v Wairarapa Farmers Market stall on 8 March 2025

vi Stall at Queen Elizabeth Park on 9 March 2025

- Flyers distributed to all letterboxes in the Masterton urban area
- Three sponsored social media posts
- Newspaper advertisements in two editions of the Wairarapa Times Age
- Information on the Greater Wellington website
- Have Your Say online form as well as physical feedback forms

21. Masterton District Council prepared a written submission on the flood risk management options. Key points raised in the submission were:
    - Key priorities: risk to life, the potential impacts to assets, the environment and possible impacts on insurance.
    - Recognition of the need to protect the town, community assets and private property as well as the importance of the community being able to identify and connect with the river. An outcome that results in a fair balance between these benefits was encouraged.
    - Indicated that a combination of attributes in the final recommended option would be preferred.
22. Greater Wellington provided a written response to the feedback and identified that Masterton District Council are a key stakeholder in this work, and it is hoped that they will actively contribute to the future detailed design phase and inform the desired level of service for key assets.
23. An engagement summary report was prepared. This is appended to the preferred option report.
24. Following the engagement period, an update was presented to the Wairarapa Committee at the 25 March 2025 meeting. This included a summary of the engagement undertaken and identified the analysis to determine a preferred flood risk management option which was then underway.

Te tātaritanga
Analysis

Multi criteria analysis

25. A multi-criteria analysis (MCA) was undertaken to aid in determining the preferred flood risk management option. The method for the MCA process was recommended by an independent planner from Tonkin + Taylor and it was determined and agreed by the Waipoua Project Team that the criteria would not be weighted.

26. The MCA included input from Masterton District Council officers, Greater Wellington officers, mana whenua, community members, as well as subject matter experts. The process was facilitated by the group's independent community facilitator.

27. The criteria used in the MCA were: Te Mana o te Wai, feasibility, consentability, cultural, environmental, social, flooding behaviour, and economic. These criteria align with the aims of the Te Kāuru Upper Ruamāhanga Floodplain Management Plan.

28. The scores for each option were not summed because of concerns that some criteria or scorers would unfairly influence the results. Instead, the results were visualised and compared using spider/radar plots.

29. Masterton District Council officers provided their own scoring for the MCA analysis, which was compared to the results of the Waipoua Project Team. It was agreed the scoring was largely consistent.

30. Inputs from Masterton District Council officers was limited to commentary on the technical aspects of the four options. Separate to their input, they were supporting their councillors to make a submission, which would represent Masterton District Council's official position. This is described above in paragraph 21. Masterton District Council officers did not participate in any decision-making regarding the preferred option.

The preferred option

31. The preferred option was determined using the results of the MCA process, as well as feedback from the community and Masterton District Council.

32. The preferred option combines structural flood protection upgrades in the urban reach, nature-based solutions upstream of Masterton and non-structural responses within the wider catchment. It is a combination of the four short list options.

33. The preferred option is presented in detail in the preferred option report. The link to this report is provided in paragraph 4. A summary is provided in the points below and a concept map of the preferred option is provided in **Attachment 1**.

- **Structural measures:** (new/upgraded stopbanks, flood walls and bunds) in the urban reach of the river, to provide an immediate reduction in the flood risk and provide continuous defences to the urban area once implemented.
    - The majority of the stopbanks are recommended to be upgraded in their existing positions. However, there are two areas where further investigations are recommended with the potential to retreat the stopbanks.
    - It is recommended that an investigation is undertaken to determine the alignment of the true left stopbank between the rail and SH2 bridges. Options to retreat the stopbank should be considered wherever possible, including behind, through or in front of Mawley Park. This could affect the future land use of Mawley Park. The exact alignment is to be determined by Greater Wellington and Masterton District Council.

- Downstream of the sports bowl on the true left bank, it is proposed that the existing stopbank will remain on its current alignment, but it will not be upgraded. This means the level of service will be lower than the other sections of stopbank in the urban reach and flood flows could preferentially spill on the left bank. It is proposed that in the medium term, the level of service of this section of stopbank should be further investigated and consideration should be given to actively lowering the level of service. This could result in lowering the stopbank and/or engineering a spill location.

- **Increased channel capacity:** Targeted lowering of the river berms and widening of the channel in the urban reach to increase flood conveyance.
- **Nature-based solutions:** In the catchment upstream of Masterton, use of nature-based solutions is proposed to help manage the flood risk in the long-term and also provide wider benefits for the environment and the community.
  - The extent and type of nature-based solutions has not yet been determined but Greater Wellington is overseeing a Ministry for the Environment funded feasibility study for the Waipoua catchment.
  - It is recommended that the results of the feasibility study are reviewed and that opportunities to implement nature-based solutions in the upper catchment are prioritised.
- **Planning controls**: Use of planning controls to prevent inappropriate development in risky areas (which would lead to the flood risk continuing to increase over time).
- **Emergency management and flood warning improvements**: These will both improve safety in areas that are not protected by new/upgraded defences, and help to manage the residual risk, i.e. what happens if the defences fail, or when a larger flood comes than the one that was designed for.

Ngā hua ahumoni
Financial implications

34. There will be financial implications for implementing the preferred flood risk management option for the Waipoua River. At this stage, high level cost estimates have been completed for each of the short list flood risk management options and suggest that the cost to implement these will be similar and are in the order of $30 million. However, this does not include the costs for implementing nature-based solutions in the upper catchment.

35. This report is seeking recommendation that the Environment Committee endorse the preferred flood risk management option. The endorsement relates to progressing the preferred option to the next phase of work: detailed design. The endorsement does not relate to a financial commitment to implement the preferred option. It is anticipated that implementation of the final detailed design will be funded through the Long Term Plan.

36. Cost optimisation of the preferred flood risk management option will be undertaken during detailed design.

37. The costs to implement the preferred flood risk management option would be split 50/50 across existing local and regional funding rating bases. The local share would be collected from the Te Kāuru scheme rating base and the regional share would be collected across all ratepayers across the Wellington region. Both of these are Greater Wellington rates, not local authority rates.

38. Based on current rating classification this equates to an average total rate increase of approximately $10 per $100,000 Capital Value (CV) for 25 years for rate payers within the Te Kāuru scheme. For rate payers across the Wellington region (outside of the Te Kāuru scheme) the increase in rates would be approximately $0.50 per $100,000 CV for 25 years. For example:

    - For a property worth $500,000 within the Te Kāuru scheme (for example in Masterton), the rate would be increased by approximately $50 for a period of 25-years. For a property worth $5,000,000, the rate would be increased by approximately $500 for 25-years.
    - For a property worth $500,000 outside of the Te Kāuru scheme (for example in Waikanae), the rate would be increased by $2.50 for a period of 25-years. For a property worth $5,000,000, the rate would be increased by approximately $25 for 25-years.

39. The rating implications could be less if funding from central government is available.

Ngā Take e hāngai ana te iwi Māori
Implications for Māori

40. Greater Wellington is required to manage land and water within a range of statutory requirements, including giving effect to Te Mana o Te Wai and considering Te Tiriti o Waitangi in the development and implementation of the Council's strategies, plans, programmes and initiatives.

41. Implementation with mana whenua partners is guided by Te Whāriki – the new Māori Outcomes Framework as part of Council's Long Term Plan 2024–34.

42. The Waipoua Project Team includes members of local iwi and mana whenua. The multi-criteria analysis process incorporated criteria for Te Mana o te Wai as well as cultural, environmental and social values.

Te huritao ki te huringa o te āhuarangi
Consideration of climate change

43. The Waipoua flood risk management options project supports the 2015 Climate Change strategy, which states 'we will help the region adapt to climate change'. The project increases climate change resilience to flooding within the Masterton district.

44. Greater Wellington currently assesses options to address flood risk based on the predicted impacts of climate change over the next 100 years. The flood hazard mapping incorporates a predicted climate change to 2100 for rainfall using the Representative Concentration Pathway (RCP) 6.0 scenario.

45. The preferred option will require rock supply. Greenhouse gas emissions from rock supply will be considered during implementation.

Ngā tikanga whakatau
Decision-making process

46. The matters requiring decision in this report were considered by officers against the decision-making requirements of Part 6 of the Local Government Act 2002.

Te hiranga
Significance

47. Officers considered the significance (as defined by Part 6 of the Local Government Act 2002) of the matters for decision, taking into consideration Council's *Significance and Engagement Policy* and Greater Wellington's *Decision-making Guidelines*. Officers consider that the matter is of medium significance. This is due to the improved level of service and consequent decrease in risk provided by the preferred option, as well as the financial implications, for the community within the Te Kāuru scheme.

Te whakatūtakitaki
Engagement

48. In February and March 2025, a four-week engagement process was undertaken to present the four short list flood risk management options/concepts to the community. Feedback from Masterton District Council was also received. A summary of this engagement is noted in paragraphs 17 to 22 of this report.

49. The preferred option was presented to the Upper Ruamāhanga River Management Advisory Committee on 5 May 2025.

    - The first motion was to seek agreement that the preferred option is consistent with Te Kāuru. The motion was carried by majority vote.
    - The second motion was to seek a recommendation to present the preferred option to the Wairarapa Committee. This motion was carried unanimously.

50. A report for information was presented to Masterson District Councillors by their officers on 14 May 2025.

    - The report was to inform the elected members of Greater Wellington's response to Masterton District Council's submission and to share the preferred option. Greater Wellington officers were invited to the meeting to answer questions.
    - The Masterton District Council elected members supported ongoing discussions between Masterton District Council and Greater Wellington.

51. Should the preferred option be endorsed by the Environment Committee, further engagement is proposed to present the preferred option to the community. Additional consultation with Masterton District Council, landowners and other stakeholders will also be undertaken in future phases of work to implement the preferred option.

Ngā tūāoma e whai ake nei
Next steps

52. Greater Wellington officers will speak to the Waipoua urban reach – preferred flood risk management option presentation (**Attachment 2**) at the Committee meeting on 3 June 2025.

53. It is intended that Masterton District Council will be a key stakeholder and actively contribute to future stages of the project (implementation) and confirm the desired level of service for key assets, including Mawley Park.

54. The preferred option is intended to be presented to the Environment Committee of Greater Wellington for endorsement (19 June 2025).

55. The nature-based solutions project is due for completion in July 2025.

Ngā āpitihanga
Attachments

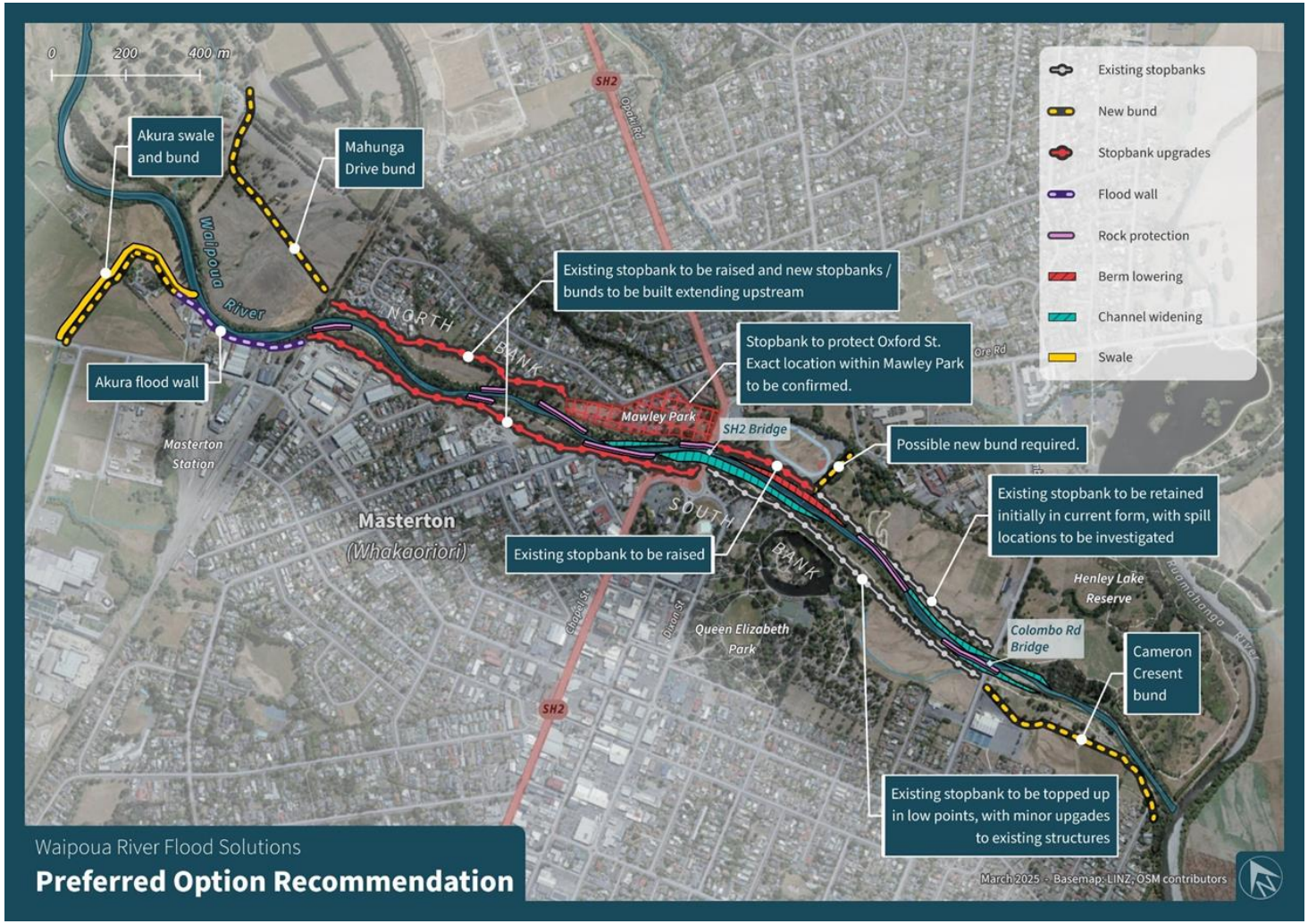
Number	Title
1	Preferred option concept map
2	Waipoua urban reach – preferred flood risk management option presentation

Ngā kaiwaitohu
Signatories

Writers	Ella Boam – Senior Project Manager, Investigations – Water Resilience
Approvers	Francie Morrow - Team Leader Knowledge – Water Resilience Evan Harrison – Manager, Knowledge David Hipkins – Director, Knowledge and Insights Lian Butcher – Group Manager, Environment

He whakarāpopoto i ngā huritaonga **Summary of considerations**
Fit with Council's roles or with Committee's terms of reference The Committee is to consider areas and matters of strategic importance to the Wairarapa and recommend to Council on these matters. The Waipoua River catchment is within the Wairarapa.
Contribution to Annual Plan / Long Term Plan / Other key strategies and policies The project contained within this report delivers on Greater Wellington's strategic priority area of te tū pakari a te rohe/regional resilience, and support delivery of Greater Wellington's strategic priority area of te oranga o te wai māori me te rerenga rauropi/freshwater quality and biodiversity.
Internal consultation Specific projects consult with groups and departments across Greater Wellington where relevant to the project. This includes Flood Operations – Delivery Function, Environment Restoration – Delivery Function, Catchment Function, various teams across Knowledge and Insights Function, and Finance.
Risks and impacts - legal / health and safety etc. The purpose of implementation floodplain management plans in implementing asset management procedures is to reduce the risk to communities and improve the region's resilience. Greater Wellington has adopted procedures and processes to minimise risks. Working with community committees enables a wider understanding of the risks before adoption of work programmes.

Attachment 1 to Report 25.236



Attachment 1: Preferred option (urban reach elements)

Attachment 2 to Report 25.236

Waipoua River urban reach
Preferred Option for flood risk management

Francie Morrow – Team Leader, Knowledge Water Resilience

Ella Boam – Senior Project Manager, Investigations

Greater Wellington
Te Pane Matua Taiao

Attachment 2 to Report 25.236

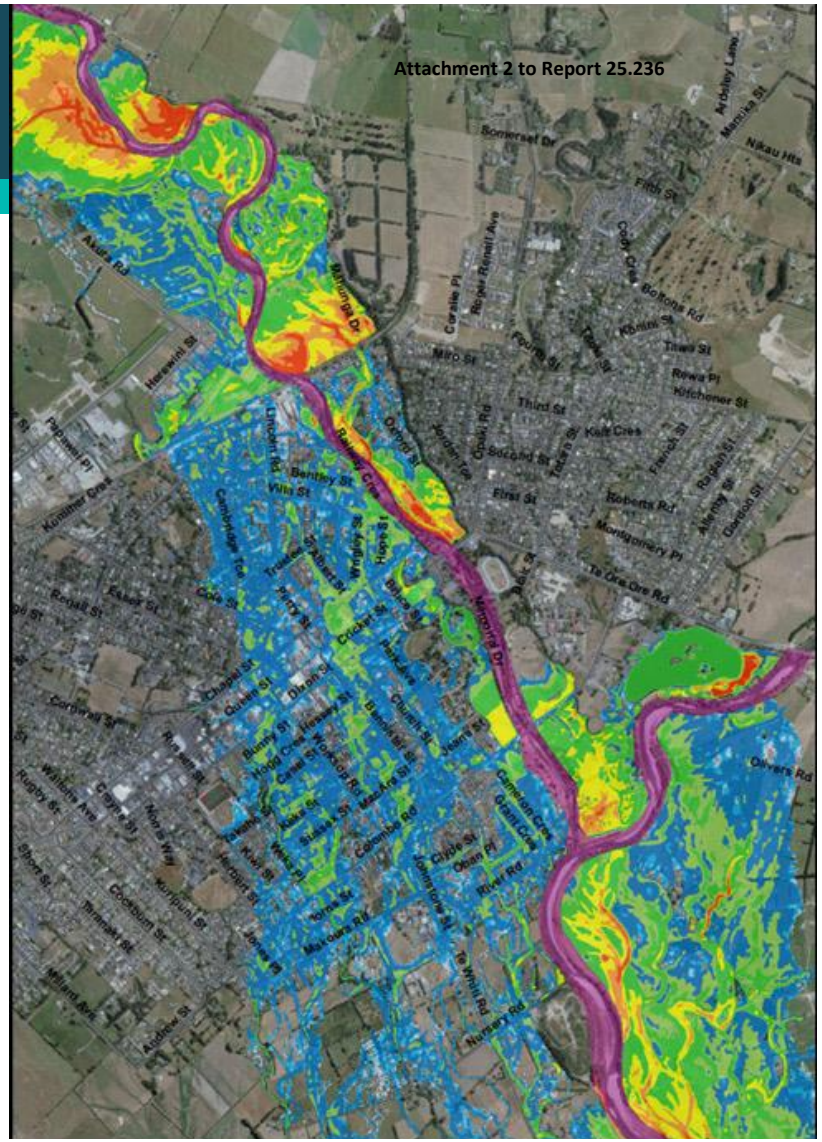
Purpose of this report and presentation

That the Committee:

- **Recommends** that the Environment Committee endorse the preferred flood risk management option

Project background

- Stage 1 of the Major Project Response on Waipoua Urban Reach from the Te Kāuru Upper Ruamāhanga Floodplain Management Plan
- Flood hazard modelling for the urban reach was first completed to define the hazard (report 25.235)
- Develop a feasible design to reduce the risk of flooding to Masterton in a 1% AEP + climate change event



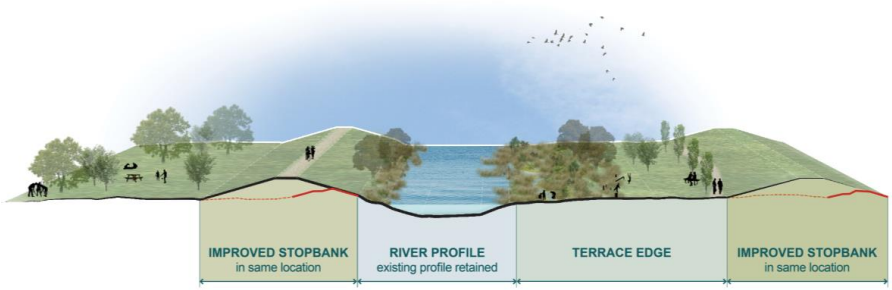
Attachment 2 to Report 25.236

Process to determine the preferred option

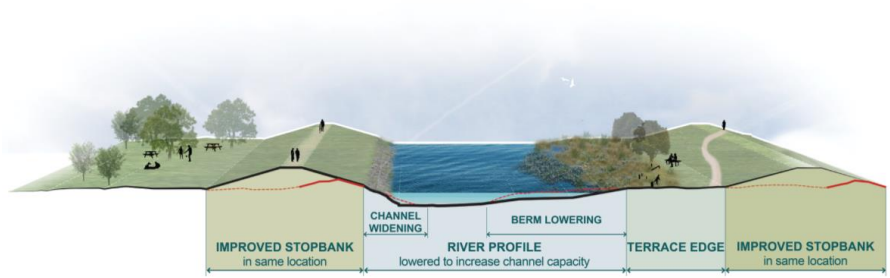
- Develop a long list of options (brainstorming all possibilities)
- Reduce list of options (high-level assessment to discard options which don't meet project needs)
- Refine and combine options to develop a short list (more detailed assessment)
- Engage with community on short list of options
- Develop the preferred option

Shortlist options

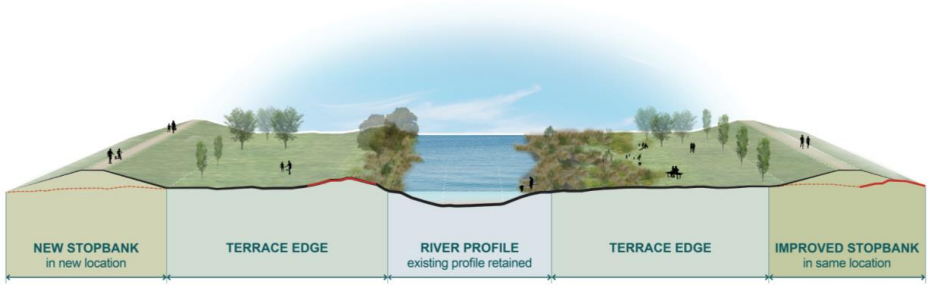
Option 1: Upgrade existing stopbanks



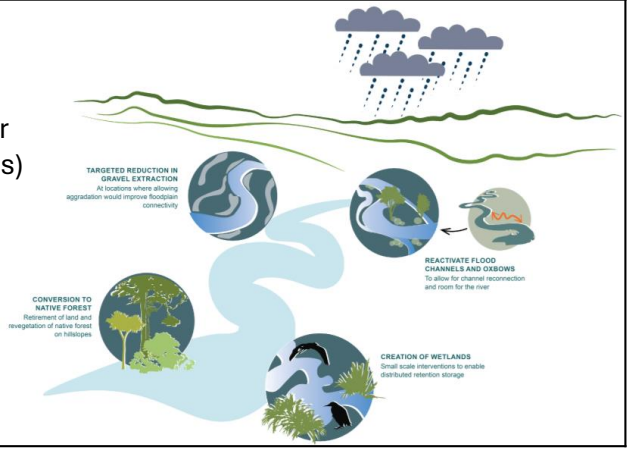
Option 2: In-channel works
(and upgrade existing stopbanks)



Option 3: Move stopbanks further from the river



Option 4: Nature based solutions
(in conjunction with other flood management options)

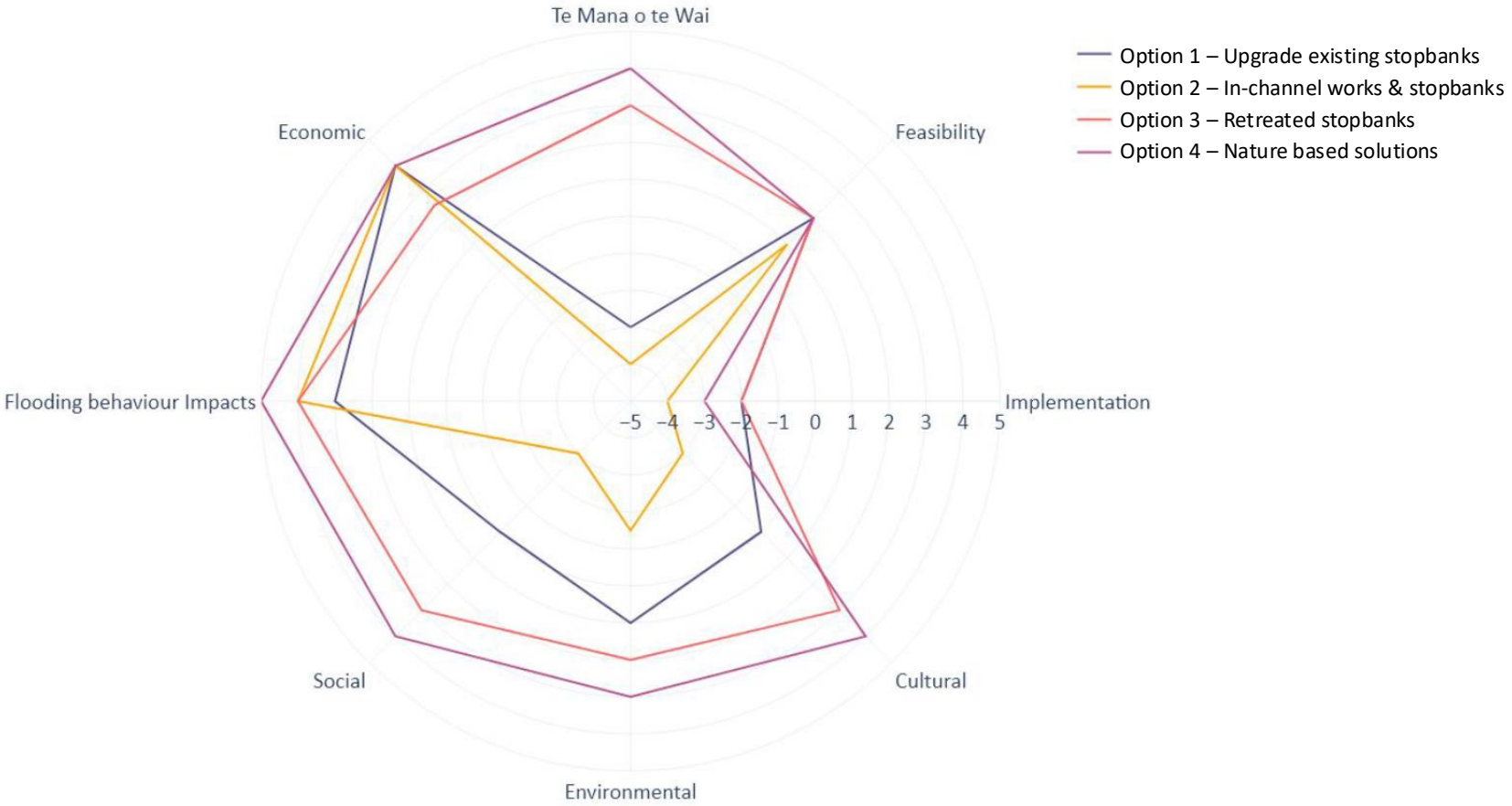


Community engagement

- The community are largely in favour of implementing nature-based solutions but acknowledge that other flood risk management concepts are also needed
- Upgrading the existing stopbanks was next highly favoured
- The concepts of retreating some stopbanks and the idea of in channel works were closely rated but were more polarising
- Comments were largely centred on:
  - Environmental effects
  - The river in a more ‘natural’ state (both flow and character)
  - Existing assets
  - Cost of upgrading the existing flood protection scheme

Attachment 2 to Report 25.236

Multi-criteria analysis (MCA)

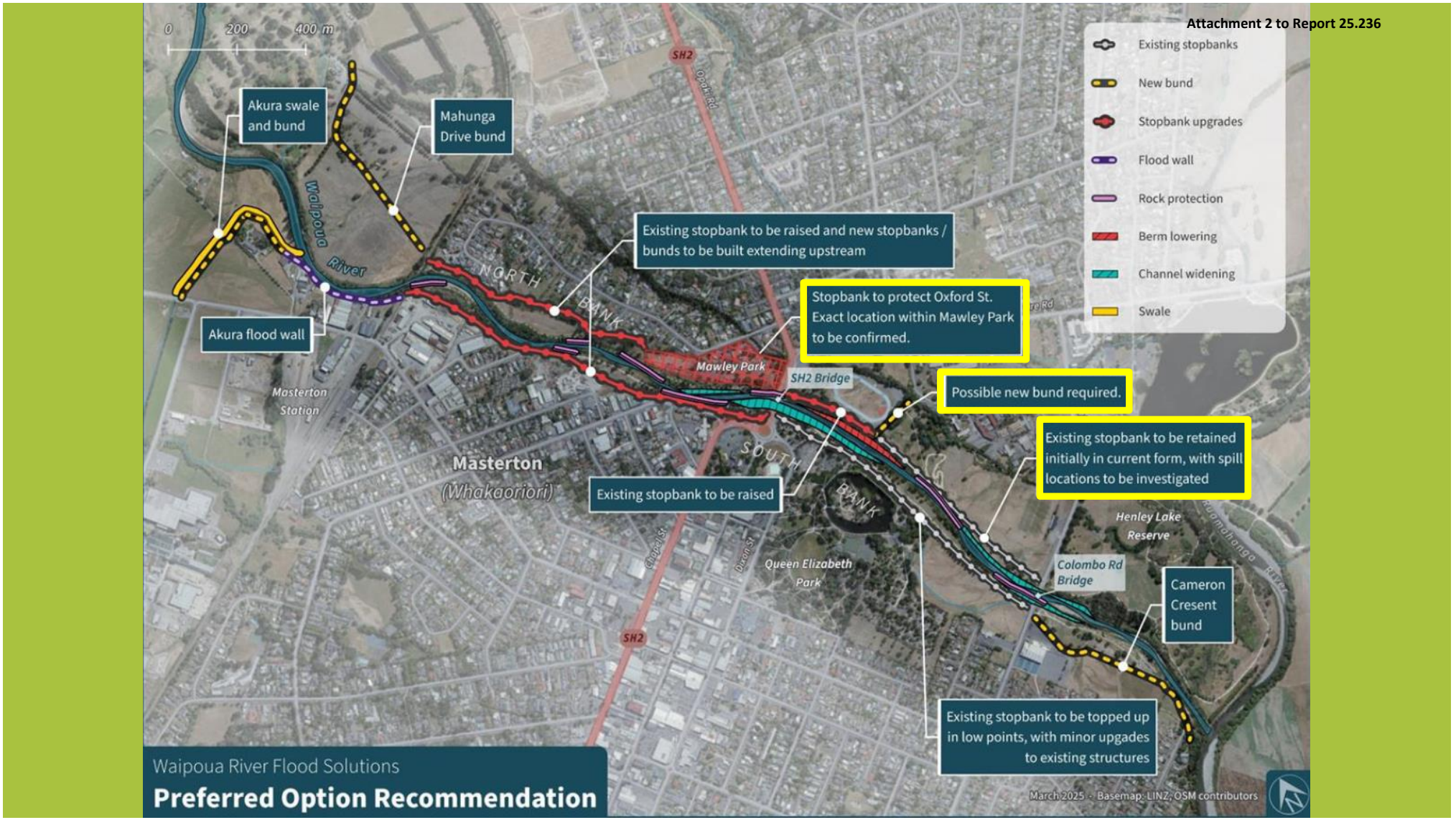


Attachment 2 to Report 25.236

Preferred option recommendation

1. Structural upgrades (in urban reach):
   - Upgrades to existing stopbanks
   - New stopbanks, bunds and floodwall, including investigations into a retreated alignment (Mawley Park and between Sports Bowl and Colombo Road)
   - Targeted lowering of river berms and/or channel widening
2. Nature based solutions (upstream of Masterton)
3. Non-structural upgrades:
   - Planning controls
   - Education, emergency planning and flood warning improvements

Attachment 2 to Report 25.236



Next steps

Purpose of report and presentation

That the Committee:

- **Recommends** that the Environment Committee endorse the preferred flood risk management option

Next steps

- If preferred option is endorsed by Environment Committee, future phases of work will be to undertake detailed design and costing of the preferred option, consenting and planning for implementation (including staging).
- Continue to work with Masterton District Council
- The nature-based solutions project is due for completion in July 2025.

Wairarapa Committee
3 June 2025
Report 25.235

For Decision

WAIPOUA RIVER AND MANGATĀRERE STREAM FLOOD HAZARD MAPS

Te take mō te pūrongo
Purpose

1. To advise the Wairarapa Committee of the final Waipoua River and Mangatārere Stream flood hazard maps.

He tūtohu
Recommendations

That the Committee:

1 **Notes** that the flood hazard maps have been developed in accordance with Greater Wellington's Flood Hazard Modelling Standard.

2 **Recommends** that the Environment Committee endorse the Waipoua River and Mangatārere Stream flood hazard maps.

Te horopaki
Context

2. Flooding is a significant hazard in the Wellington Region that poses a risk to both life and property. Flooding is commonly experienced from three main sources: rivers, coastal inundation, and stormwater flooding. These hazard maps relate to fluvial (river) flooding.

3. Updating the flood risk modelling for the Waipoua River and Mangatārere Stream is key for understanding the probability and likely extent of flooding for the current and predicted future climate. This information can then be used to understand the issues from flooding that need to be managed.

Greater Wellington's Flood Hazard Modelling Standard

4. Flood hazard modelling is the process carried out by Greater Wellington Regional Council (Greater Wellington) to understand flood risk from significant water courses in the Wellington Region. It consists of three key elements: collection of survey information; hydrological modelling; and hydraulic modelling. The flood hazard modelling outputs are the flood maps that are included in district plans, which provide the basis of structural works and river management decision making, and inform civil defence and emergency management actions.

5. Greater Wellington developed the Flood Hazard Modelling Standard (FHMS), which was finalised in May 2021, to outline the protocols to be followed by any person working on Greater Wellington flood hazard modelling projects. The protocols in the FHMS have been developed to ensure that flood hazard modelling projects are undertaken in a robust and consistent way that is in line with accepted industry practice. They are designed to still allow for flexibility in approach and recognise that the optimal approach may be dependent on catchment or project specific factors. The protocols require that every stage of the process is well documented in reports or spreadsheet logs and registers.

6. Figure 1 provides an overview of the FHMS.[1]

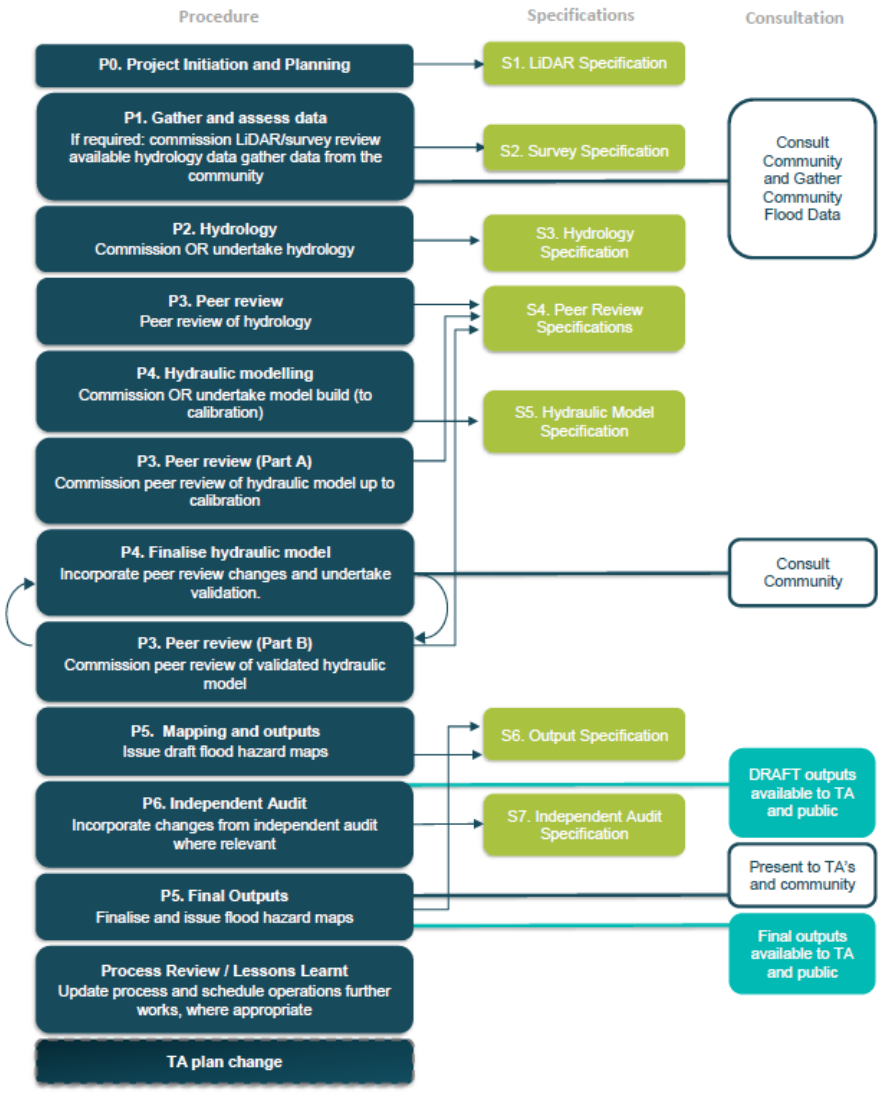


Figure 1: Flood Hazard Modelling Standard overview

[1] https://www.gw.govt.nz/assets/GWRC-Flood-Hazard-Modelling-Standard-R1-May-2021.pdf

Model development – Waipoua River

7. The Te Kāuru Upper Ruamāhanga Floodplain Management Plan (Te Kāuru) was adopted by Council on 25 June 2019.

8. Te Kāuru outlines a major project response to address the flood risk to the Masterton urban area (page 131). This is a five staged approach. Stage 1, 'investigations and option consideration' outlines a need to 'update flood hazard maps [for the Waipoua River] to incorporate the best information available'.

9. The Waipoua Project Team was established in late 2019 to develop a plan for managing the flood risk to the Masterton urban area. At this time, the project team was made up of members of the local community, Ra Smith from Kahungunu ki Wairarapa, Greater Wellington officers, and a Masterton District Council officer. Rangitāne o Wairarapa were also involved in the team at various stages.

10. The initial focus of the Waipoua Project Team was to develop updated flood hazard maps for the Waipoua River. The Project Team worked closely with the consultant hydrologists and hydraulic modellers and were heavily involved in the model development and scrutinising the input data.

11. The outcome of this process was the development of robust flood hazard maps based on the most up to date available information.

Model development – Mangatārere Stream

12. Flood hazard modelling for the Mangatārere Stream was initiated prior to the adoption of the FHMS in 2021. However, the overall process still aligns with the procedures, as shown in Figure 1.

13. Similar to the urban reach of the Waipoua River, the flood hazard modelling process was led by a community project team, which was established in early 2019.

14. This team comprised members from the Mangatārere Restoration Society, Greater Wellington Officers, a Carterton District Council Officer, Carterton District Council Councillors, and other local community members. Iwi were invited to partake in the work and were involved in the initial stages but did not attend any meetings from mid-2021.

15. The project team ensured the wider community was kept up to date on the project, by sharing key decisions made in their meetings on the Mangatārere Restoration Society's Facebook page.

16. The project team were heavily involved in seeking local knowledge and data to support the modelling process. This included seeking flood photos and old newspaper articles relating to historical flood events. Once collated, a display of this information was provided to the community. This had a secondary benefit of raising awareness of potential flood risk within the community.

17. The team undertook site visits within the catchment, worked closely with technical experts and were heavily involved in ensuring updated information was collected to help inform the flood modelling process.

18. The team also undertook engagement with landowners within the catchment to share draft outputs and seek feedback to aid in the model calibration.

19. The outcome of this process was the development of robust flood hazard maps based on the most up to date available information.

Community engagement

20. As specified in the FHMS, an engagement process was undertaken to present the draft flood hazard maps to the community. The purpose of the engagement was to share the flood hazard maps for each catchment with the community.

21. The flood hazard maps for the Waipoua River and the Mangatārere Stream were shared across the same engagement period. The official engagement period was from 14 November 2022 to 6 December 2022.

22. Engagement activities across both catchments included information provided on the Greater Wellington website, social media campaigns, flyer drops to local households and information provided in the local newspapers.

23. For the Mangatārere Stream, in-person engagement activities included two drop-in stalls at the Carterton Farms Market, as well as two other drop-in sessions at the Carterton Events Centre.

24. For the Waipoua River, a drop-in session and a presentation was held at Lakeview School as well as a drop-in session outside Paper Plus in Charlie's Lane.

25. An engagement summary report was prepared following these events.

Te tātaritanga
Analysis

Finalisation of the flood hazard maps

26. Development of the Waipoua River and Mangatārere Stream flood hazard maps has aligned with Greater Wellington's FHMS. The hazard maps were finalised following independent audits undertaken by Pattle Delamore Partners. The independent audits are provided as **Attachment 1** and **Attachment 2**.

27. The independent audits concluded that the modelling process followed for both the Waipoua River and Mangatārere Stream is fit for purpose and meets in the intent of the FHMS.

28. Peak flood depth and flood hazard maps have been produced for a range of design flood events for both the Waipoua River and Mangatārere Stream. The design events are assessed based on a probability of occurring in any given year and described as having an annual exceedance probability (AEP). The design flood events that have been modelled are:

    - 39% AEP (also known as the mean annual flood)
    - 20% AEP (sometimes referred to as a 5-year flood)
    - 10% AEP (sometimes referred to as a 10-year flood)
    - 5% AEP (sometimes referred to as a 20-year flood)
    - 2% AEP (sometimes referred to as a 50-year flood)

- 1% AEP (sometimes referred to as a 100-year flood)
- 0.1% AEP (sometimes referred to as a 1000-year flood)

29. Each of these sized events were modelled for both the current climate (using historic climate data) and for a future climate using predicted impacts of climate change with a Representative Concentration Pathway (RCP) 6.0 scenario.

30. Additional modelling for the 1% AEP event included a series of uncertainty runs to represent possible scenarios that are not included in the base modelling. This includes scenarios such as different channel roughness or bridge blockages which could affect the nature of the flood hazard. This scenario also includes climate change.

31. As outlined in the FHMS and Greater Wellington procedure, allowance for these uncertainties (as well as climate change) have been included in the flood hazard mapping overlays for the Wairarapa Combined Plan.

32. A copy of the flood depth maps for each of the design flood events is provided in **Attachment 3** (Waipoua River) and **Attachment 5** (Mangatārere Stream).

33. A copy of the flood hazard maps for the 1% AEP design flood event, which includes climate change and the uncertainty runs, is provided in **Attachment 4** (Waipoua River) and **Attachment 6** (Mangatārere Stream).

Wairarapa Combined District Plan flood hazard overlays

34. Land use planning, through district plans, is one of the available tools for managing flood risk. It plays a vital role in ensuring that use and development within areas susceptible to flooding is appropriate.

35. Flood hazard is a function of the depth and velocity of flood waters at a particular location. It informs the likely risk to people and property as a result of flooding. Flood hazard is typically low in shallow, slow-moving waters, and increases as the depth and velocity of flood waters increase.

36. Greater Wellington has recommended an approach for the Wairarapa Combined District Plan where flood hazard is categorised in the following three areas for the 1% AEP event (including climate change and allowance for uncertainties) in their district plan:

    - Low Hazard Areas, where flow is typically slow, and flooding is shallow. The Low Hazard Areas include Inundation Areas as well as Residual Flood Hazard Areas.
    - Moderate Hazard Areas, where flow is deeper, or faster moving, or development is likely to increase flood impacts nearby. The Moderate Hazard Areas include Overland Flowpaths and Erosion Hazard Areas, where there is the potential for future development to be affected by fluvial erosion.
    - High Hazard Areas, where flow is deep or fast, including River / Stream Corridors.

37. Finalised flood hazard overlays using 'low', 'moderate' and 'high' hazard categorisations for the urban reach of Waipoua River, and the Mangatārere Stream have been provided to inform the Wairarapa Combined District Plan. Flood hazard overlays have also been provided for other rivers in the Upper Ruamāhanga catchment.

38. In addition to the flood hazard overlays, flood vulnerability areas for the whole Wairarapa region were also provided to inform the Wairarapa Combined District Plan. The food vulnerability areas are based on Greater Wellington's Regional Model.

Ngā hua ahumoni
Financial implications

39. No additional financial implications are proposed as the flood hazard modelling for the Waipoua River, and the Mangatārere Stream is complete.

Ngā Take e hāngai ana te iwi Māori
Implications for Māori

40. Greater Wellington is required to manage land and water within a range of statutory requirements, including giving effect to Te Mana o Te Wai and considering Te Tiriti o Waitangi in the development and implementation of the Council's strategies, plans, programmes and initiatives.

41. Implementation with mana whenua partners is guided by Te Whāriki – the new Māori Outcomes Framework as part of Council's Long Term Plan 2024–34.

42. Local iwi and mana whenua were invited to participate in the development of the flood hazard maps for both the Waipoua River and the Mangatārere Stream. Representatives involved in this work were included in email correspondence throughout the projects.

Te huritao ki te huringa o te āhuarangi
Consideration of climate change

43. Climate change is considered as part of the Flood Hazard Modelling Standard process. Climate projections are modelled as part of the hydrology allowing Greater Wellington to consider increased hazard impacts.

Ngā tikanga whakatau
Decision-making process

44. The matters requiring decision in this report were considered by officers against the decision-making requirements of Part 6 of the Local Government Act 2002.

Te hiranga
Significance

45. Officers considered the significance (as defined by Part 6 of the Local Government Act 2002) of the matters for decision, taking into consideration Council's *Significance and Engagement Policy* and Greater Wellington's *Decision-making Guidelines*. Officers consider that the matter is of low significance due to the administrative nature of the decision. The matters do not impact on Council's capability and capacity, and it is consistent with existing Council policy and practice.

Te whakatūtakitaki
Engagement

46. The process to develop the flood hazard maps for both the Waipoua River and Mangatārere Stream was led by community members within the respective project teams.

47. In August 2021, a three-week flood hazard map engagement process was undertaken to collect data from the community regarding past flood events. The engagement for both the Waipoua River and Mangatarere Stream was completed during this time. This fulfils the requirement to gather community flood data for the FHMS. A summary of this engagement is noted in paragraphs 20 to 25 of this report.

Ngā tūāoma e whai ake nei
Next steps

48. These flood hazard maps are intended to be presented to the Environment Committee for endorsement.

Ngā āpitihanga
Attachments

Number	Title
1	Waipoua River flood hazard assessment independent audit
2	Mangatārere Stream flood hazard assessment independent audit
3	Flood depth maps for the Waipoua River
4	Flood hazard maps for the Waipoua River
5	Flood depth maps for the Mangatārere Stream
6	Flood hazard maps for the Mangatārere Stream

Ngā kaiwaitohu
Signatories

Writers	Ella Boam – Senior Project Manager – Investigations, Knowledge Water Resilience
Approvers	Francie Morrow – Team Leader Knowledge Water Resilience Evan Harrison – Manager Knowledge Lian Butcher – Kaiwhakahaere Matua Taiao | Group Manager Environment

He whakarāpopoto i ngā huritaonga **Summary of considerations**
Fit with Council's roles or with Committee's terms of reference The Committee is to consider areas and matters of strategic importance to the Wairarapa and recommend to Council on these matters. Both the Waipoua River and Mangatārere Stream catchments are within the Wairarapa.
Contribution to Annual Plan / Long Term Plan / Other key strategies and policies The project contained within this report delivers on Greater Wellington's strategic priority area of te tū pakari a te rohe/regional resilience, and support delivery of Greater Wellington's strategic priority area of te oranga o te wai māori me te rerenga rauropi/freshwater quality and biodiversity.
Internal consultation Specific projects consult with groups and departments across Greater Wellington where relevant to the project. This includes Flood Operations – Delivery Function, Environment Restoration – Delivery Function, Catchment Function, various teams across Knowledge and Insights Function, and Finance.
Risks and impacts - legal / health and safety etc. The purpose of implementation floodplain management plans in implementing asset management procedures is to reduce the risk to communities and improve the region's resilience. Greater Wellington has adopted procedures and processes to minimise risks. Working with community committees enables a wider understanding of the risks before adoption of work programmes.

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solutions for your environment

10 June 2024

Andy Brown
Team Leader – Knowledge Water, Knowledge & Insights
Greater Wellington Regional Council
PO Box 11646
WELLINGTON 6011

Dear Andy

INDEPENDENT AUDIT, WAIPOUA FLOOD HAZARD ASSESSMENT

This letter summarises the independent audit that PDP have undertaken of the Waipoua Flood Hazard Assessment, in accordance with the Greater Wellington Regional Council (GW) Flood Hazard Modelling Standard dated May 2021 (FHMS or the Standard). Reporting for this audit is in two parts – in August of last year we provided a preliminary report that identified issues related to the hydraulic modelling requiring further investigation/ clarification, principally related to the approximation of the Waipoua Railway Bridge in the model. This subsequent report completes the project audit.

As noted in the discussion below this project has faced some challenges and has passed through a number of hands encompassing both the hydrology and hydraulics. It has however (with the additional technical work undertaken in parallel with the audit) been completed to a standard that is defendable.

The headwaters of the Waipoua River are located in the Blue Range of the Tararua Ranges; the catchment is bounded by the Waingawa River broadly to the west and the Ruamahanga River to the north and east. The upper reach follows the alignment of the Ruamahanga (at one point just over a kilometre apart), passing through Masterton before joining the Ruamahanga on the southern edge of Masterton.

The audit follows the FHMS, specifically Procedure 6 Independent Audit. It is informed by the information provided by GW Project Manager, Floodplain Management Plans Francie Morrow and a workshop with project modeller Matt Gardner (Land River Sea Consulting Limited - LRSC). Project hydrologist Vicki Henderson (Barnett and MacMurray), hydrology peer reviewer Jacobs and hydraulics peer reviewer Stantec did not attend the workshop.

The project has had a lengthy (approximately 10 year) gestation for a range of reasons and that has resulted in a significant compendium of technical reports (in excess of a dozen), particularly related to catchment hydrology; the audit has focussed on the most recent/ final hydraulic and hydrological reports and the peer reviews of those documents. Sections of some of the other documentation provided has been referred to but that does not by any means constitute an exhaustive review, consistent with the audit scope; understanding the complex evolution of this project has been challenging at times. Notwithstanding that the relevant steps of the FHMS have been completed.

In a vein very similar to the Mangatere (understandable given the close proximity and similarities) the catchment hydrology has clearly proved problematic. The more recent technical work has helped in drawing a line under the previous work and should provide GW with confidence in this aspect of the

project, notwithstanding some of the data limitations summarised later in this report. The hydrology peer review (Jacobs, January 2022) appears to succinctly capture the key issues, synthesise previous technical work and constructively work through matters identified with Vicki.

Contrasting that, impressions with the hydraulics peer review are that it does not appear (the peer reviewer was not available/ contactable) to have considered the fundamental efficacy of the model; the audit has necessarily strayed into that domain, contrary to the Standard[1]. There may well be some lessons in that regard that could be incorporated into future reviews of that section of the Standard.

Those boundaries were further blurred with the LRSC involvement - initially engaged ostensibly to undertake a review/ audit ("previous independent audit (was actually more like a peer review, but called an independent audit" – extract from the audit brief supplied by GW) of the previous GW/ WSP modelling. LRSC were then subsequently engaged to progress/ complete the hydraulic modelling (noting the 2018 review by Tonkin and Taylor and the subsequent Stantec review of the LRSC work).

Our August 2023 report noted, amongst other things, matters raised by LRSC in their review/ audit capacity that were not subsequently addressed in their work/ reporting and not identified with the Stantec review. Accordingly the deviations at times appear less than reasonable but the end output (final model report) is satisfactory with the added assurance processes (DamWatch report and comments provided by Phil Wallace) completed as part of the audit process.

Waipoua also has some similarities to Mangatarere in regard to community engagement – the fine line between engaging/ building understanding and being too overtly influenced or directed, particularly where residential property values may be at stake. There has clearly been extensive public consultation with this project but managing expectations can be problematic, particularly as it inevitably involves a governance dimension.

There is evidence to suggest that the line related to informing vs being directed has at times become somewhat fine e.g. the notes provided record (amongst other things) that in August 2019 "a public meeting was organised by the community at Lake View School in Masterton. Approximately 150 people were in attendance. A resolution was passed approving the establishment of a project team". For the author that (a public meeting passing a resolution) suggests engagement beyond informing.

We understand from GW staff that pressure from that project team (including former/ retired and voluble GW staff) lead to the appointment of LRSC as the final iteration of the hydraulic modelling, on the basis that this group felt that they could 'trust' the approach taken by LRSC, given the LRSC review/ audit commentary on the previous GW/ WSP modelling work. In the author's view those review/ audit findings are somewhat brutal at times but the subsequent LRSC work seems to ignore many of those findings.

The apparent influence of the project team on the modelling is further reinforced by comments such as "agreed upon with the Waipoua Project Team" included in the LRSC report. This clearly (as has been acknowledged by GW staff) is less than desirable in regard to process, a function in part of how politically-charged this type of work can quickly become, particularly where residential properties are impacted.

In regard to conclusions and recommendations, the key consideration (bullet point seven, section 2 of the Standard related to audits) is whether the modelling and peer reviews are robust and defendable, particularly with the twists and turns and some of the overlaps this project has had.

[1] Section 2, Procedure 6 of the Standard: "the auditor is not required to assess the technical detail of the models, as a detailed technical review is undertaken during the peer review. The auditor is encouraged to liaise with the project team (i.e. the modeller and peer reviewers) for clarification, where needed."

The key technical consideration with this project is how the hydraulic modelling has approximated the Railway Bridge, and in particular the degree to which debris will accumulate at the Bridge during an extreme flood event; there is a direct cause and effect relationship between that and potential inundation of Masterton that the model sensitivity analyses demonstrated. With the addition of the DamWatch opinion on this particular aspect of the modelling the work is in our view defendable[2], noting again that this is consistent with LRSC's own recommendations from their earlier audit/ review of the GW/ WSP work (identifying the need for a panel of experts to determine how the Railway Bridge should be approximated with the hydraulic modelling).

General conclusions and recommendations:

1. Catchment hydrology. Notwithstanding the circumstances (and with the benefit of hindsight) obtaining additional opinions on catchment hydrology doesn't appear to have helped either the Mangatarere or Waipoua project. Equally both have benefitted from seemingly robust, concise peer reviews that have attempted to draw a line under the twists and turns and work constructive with the technical lead to agree a broad set of parameters.

   Limited datasets (temporally and spatially) are clearly at the root of the many iterations – inevitably hydrology relies on extrapolation of often limited datasets and the inclination to seek further advice understandable. While there is no perfect remedy, both projects may have benefited from a comprehensive southeastern Tararua Range/ eastern Wairarapa hydrology assessment prior to the modelling commencing. That appears to be a learning that has been applied to the Kapiti work. There may also be merit in an approach that utilises a panel of experts rather than a technical lead and peer reviewer approach, a suggestion for consideration with future reviews of the Standard.

2. Community engagement/ consultation. The fine line between building understanding and harnessing the knowledge in the community related to determining flood hazard and the 'tail wagging the dog' and there is no magic formula in that regard. In our view some clear communication at the start of the process would be advantageous – outlining roles and responsibilities and the importance of impartial but well-informed technical advice, ideally with the local constituency Councillor championing that, and the importance of robust/ comprehensive community engagement. The language used in that regard is particularly important.

   The nub of this work is clearly property values vs public safety/ future damage costs/ prudent land use planning, the latter so graphically demonstrated with last years' ETC Gabrielle event in the Hawkes Bay. Regular briefings to the relevant TA in a public-excluded format could help but as noted there is no one single panacea.

3. Peer Reviewer. The Stantec peer review associated with the Waipoua project is in our view significantly short of the mark - it is difficult to see how their report would have fulfilled the GW brief that they were presumably working to (at its core presumably Section 2, page 44 of the FHMS – "a detailed hands-on interrogation of the model"). The FHMS does attempt to be prescriptive in this regard and one possible response would be to tighten up on just what is required particularly related to hydraulic modelling (a tension to resolve as Stantec are the FHMS authors) but in our view further codification might be counterproductive.

[2] Bullet point 7, Section 2, Procedure 6 of the Standard

The focus needs to be (as noted with the audit scope) that the modelling is robust and defendable – output focussed (the key variables/ factors that influence model output – their settings and sensitivity to adjustment) and cognisant of the factors that influence model output, such as bed level change. Peer review selections clearly need to consider technical expertise alongside proven judgement/ experience in approximating natural systems through computer modelling, inevitably a subjective thing. That part of the FHMS may benefit from some edits to make it more output/ results focussed.

We'd recommend that the peer reviewer be engaged at the start of the project and that there are regular check-in sessions. It is important to the success of the project that these interactions strike the right tone and that the peer reviewer feels free to 'challenge' in a constructive way. In our view the approach taken by LRSC with those interactions (both in regard to their critique of the initial GW/ WSP work and in the course of undertaking this audit) has had some deficiencies to it. In our view this is also an improvement action for future reviews of the Standard but also noting the challenges in codifying that dynamic.

Limitations

This report has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Greater Wellington Regional Council. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the report. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

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Yours faithfully

PATTLE DELAMORE PARTNERS LIMITED

Ramon Strong

Technical Director – Water Resources

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18 July 2023

Andy Brown
Team Leader – Knowledge Water, Knowledge & Insights
Greater Wellington Regional Council
PO Box 11646
WELLINGTON 6011

Dear Andy

INDEPENDENT AUDIT, MANGATARERE FLOOD HAZARD ASSESSMENT

This letter summarises the independent audit that PDP have undertaken of the Mangatarere Flood Hazard Assessment. Managatarere Stream is located between the Waiohine and Waingawa Rivers in the Wairarapa, running in a generally southern/ southwestern direction between Carterton and the Tararuas before joining the Waiohine and then (around 5km downstream) the Ruamahanga River.

The audit follows the Greater Wellington Regional Council (GW) Flood Hazard Modelling Standard dated May 2021 (FHMS or the Standard) and is informed by the information provided by GW Environmental Planner, Flood Protection Amanda Death on 21 April 2023. That information was provided in a form consistent with the headings/ steps outlined in the FHMS (project initiation, gather and assess data, hydrology, peer review, hydraulic modelling, outputs and independent audit) along with a summary timeline of the project. Amanda's summary was particularly helpful in understanding how the project has evolved in the manner that it has.

The audit has consisted of the review of that summary, the information provided and a workshop that took place at GW offices on 8 June. In attendance for that workshop were Andy Brown, Amanda Death and Kirsty Duff from GW, Charlotte Lockyer from Stantec (peer reviewer), Tom Kerr from Tom Kerr Hydrology (project hydrologist) and Matt Gardiner from Land, Water, Sea Consulting (project hydraulic modeller). The workshop consisted of a general discussion of the project and a series of questions derived from the high level review of the documentation provided. The workshop ran for approximately 90 minutes.

The general findings of the audit are appended in the form consistent with Appendix P6 of the FHMS. The first point to note with the audit is that the catchment hydrology has clearly proved problematic, a function of both the dataset and the nature of the catchment (part Tararua foothills and part lowland) reflected in part by the number of consultants that have been involved at various times. The more recent technical work has helped in drawing a line under the previous work and should provide GW with confidence in this aspect of the project, notwithstanding some of the data limitations summarised later in this report.

The workshop did discuss at some length the discounting of the 2017 event both in the hydrological assessment and with the model calibration. The discussion is not reproduced here but concluded with general agreement around the basis for discounting that event and the steps taken to ensure the accuracy of the model output was not compromised. That decision appears to have been made in a robust way.

The margins applied to both the hydrology and hydraulic modelling and the robust sensitivity analysis included with the hydraulic modelling appear to compensate for the relatively short dataset that forms the basis of the hydraulic analysis. Only one very minor issue was identified with the hydraulic modelling during the workshop – sensitivity analysis related to road heights where roads bisect the flatter parts of the floodplain around Carterton.

Workshop discussion also covered the limited mana whenua engagement with the project. GW noted (8 June workshop) that mana whenua representatives were involved in this project from its initiation until around mid-2020. At this point one representative indicated they were not interested in being involved in the modelling investigations and wanted to be more involved in when discussions focused on options to mitigate the risk. There were also concerns raised about attending meetings while COVID-19 was circulating in the community. The other representative reduced their participation with the project, with no formal reason given. Around late 2021/early 2022, when COVID restrictions had eased, the previous facilitator reached out to mana whenua to get a representative back in the room. However, this did not eventuate, resulting in no mana whenua representatives being present in the later stages of the modelling. They have however, still been included in email correspondence throughout the project.

An issue to note is the community engagement - the summary provided referred to the community engagement as seeking a 'mandate' from the community, and clearly the nature of a floodplain hazard assessment is that not all residents will necessarily be happy with the results. The workshop traversed a couple of issues that arose with the preliminary community engagement related to the initial model output. Specifically a suggestion from a resident that the LiDAR on which the modelling is based didn't reflect more recent changes in ground contour and another where a resident was not able to understand due to elevation how a particular area could be flooded. Those matters appear to have been well handled and the decisions made by staff and consultants robust but nonetheless it is possible to be too community lead with the risk that self-interests begin to drive the outputs.

In regard to data gaps there is clearly a lack of rainfall and river/ stream flow record – not so much a spatial issue as a temporal one; the length of record is quite short (well-illustrated with Figure 3-1 of Tom's report) to derive extreme values from. There is no remedy for this other than the passage of time – GW have in the last 20 years significantly increased the number of recording sites in the catchment/ general area. That does give an added level of uncertainty even with the best statistical methods applied and that needs to be carefully conveyed when the information is placed in the public domain.

In summary the process is fit for purpose and does in my opinion meet the intent of the Flood Hazard Modelling Standard. Clearly the manner in which the information is communicated to the public is important – it is a comprehensive statement around flood hazard as it applies to this part of the Wairarapa but equally the accuracy of the outputs are a function of the data used to drive those outputs. Equally flood hazard is a dynamic thing and the nature of that hazard is such that the hazard will continue to evolve and change over time. The options assessment will need to be cognisant of both of those things.

Limitations

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Yours faithfully

PATTLE DELAMORE PARTNERS LIMITED

Ramon Strong

Technical Director Water Resources

Attachment 2 to Report 25.235

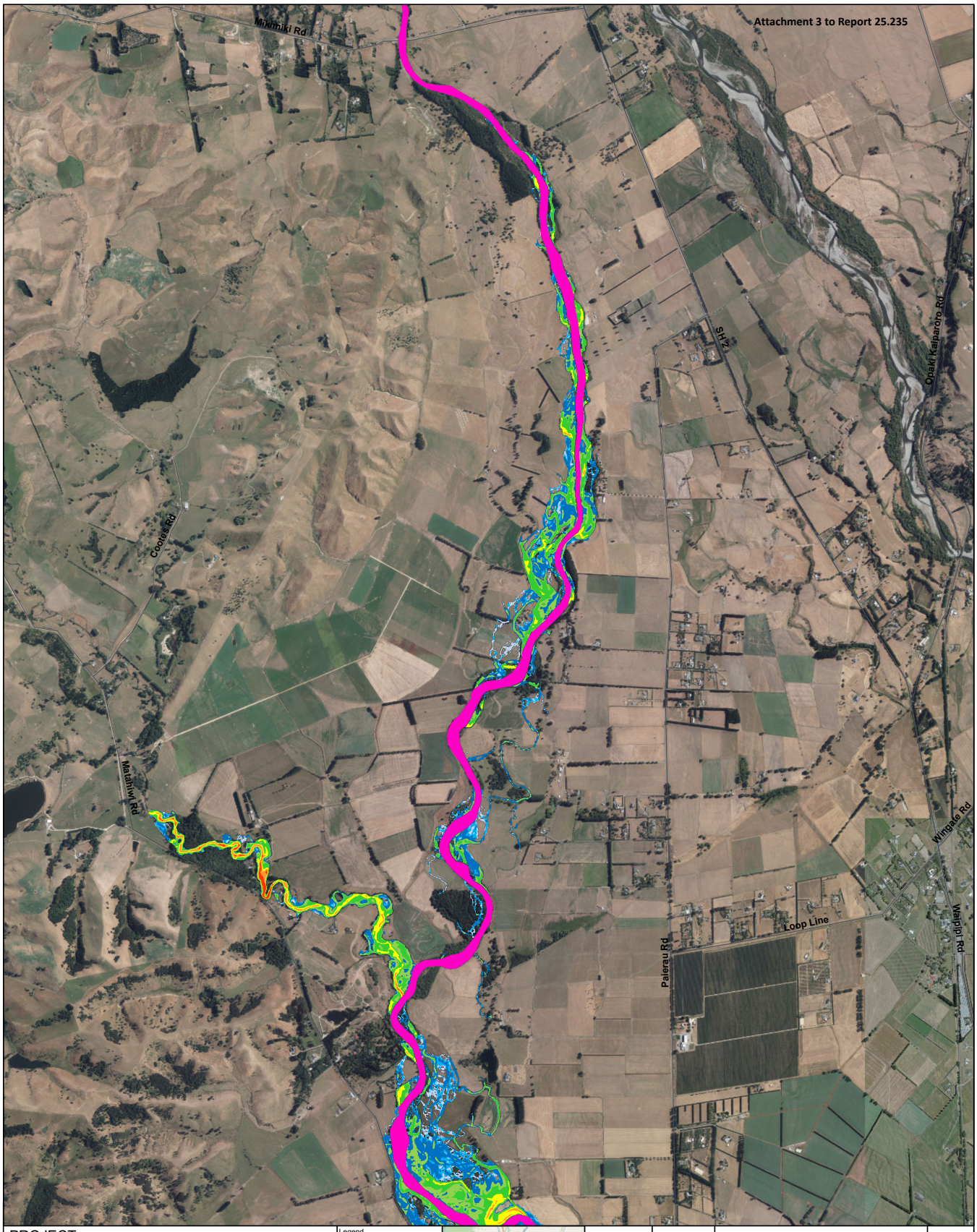
Independent Audit

Element	Audit - V1 (time/date of issue)		Project team comments - V1 (time/date of issue)	Review - V2 (time/date of issue)		Project team comments - V2 (time/date of issue)	Review - V3 (time/date of issue)		Project team comments - V3 (time/date of issue)	Review - V4 (time/date of issue)	
	Auditor's Comments	Review rating	PM's Comments	Auditor's Comments	Review rating	PM's Comments	Auditor's Comments	Review rating	PM's Comments	Auditor's Comments	Review rating
Overall FHMS process											
Project initation and planning documents required under Procedure 0 have been completed.		Ok									
All steps in the FHMS flowchart have been undertaken, up to independent audit	A somewhat convoluted start to the project that pre-dates the FHMS.	Minor									
Community and TA consultation has been undertaken at the correct stages of the FHMS flowchart, at minimum		Ok									
Gather and Assess Data											
Historic flood data was gathered from the community	Process appears robust but the data obtained was limited.	Ok									
LiDAR and/or survey work was undertaken in accordance with the requirements of Specification 1 and Specification 2 of the FHMS.	Spsecifically put to Matt from LWS as hydraulic modeller during the 8 June workshop. Matt was of the view that the base survey data was fit for purpose for the modelling undertaken.	Ok									
Data has been gathered and assessed in accordance with Procedure 1 of the FHMS.		Ok									
Recommendations from the data assessment have been actioned where appropriate.		Ok									
Hydrological Modelling											
Hydrological modelling has been undertaken by a suitably qualified professional.	A few twists and turns early on the hydrology but Tom (brought in later in the project - October 2021) is clearly a SME in that area.	Ok									
The hydrological modelling has been documented in a clear report, and other documentation such as the completed model log are available.		Ok									
Peer Review - Hydrology											
Peer review of the hydrological modelling has been undertaken		Ok									
Reviewers comments on the hydrological modelling have been addressed	Hydrological modelling spans five separate reports	Ok									
Peer review of the hydrological model has been documented in the peer review spreadsheet, for all iterations		Ok									
A report has been prepared on the hydrological model peer review		Ok									
The hydrological model peer review report is clear and documents all required aspects		Ok									
A close out document has been prepared for the hydrological model peer review		Ok									
The hydrological model close out document indicates that all changes have been made to the peer reviewers satisfaction		Ok									
The peer reviewer is considered independent according to the definition in Procedure 3 of the FHMS		Ok									
Hydraulic Modelling											
Hydraulic modelling has been undertaken by a suitably qualified professional.		Ok									
The hydraulic modelling has been documented in a clear report, and other documentation such as the completed model log are available.		Ok									
Peer Review - Hydraulic Model											
Peer review of the hydraulic modelling has been undertaken		Ok									
Reviewers comments on the hydraulic modelling have been addressed		Ok									
Peer review of the hydraulic model has been documented in the peer review spreadsheet, for all iterations		Ok									
A report has been prepared on the hydraulic model peer review		Ok									
The hydraulic model peer review report is clear and documents all required aspects		Ok									
A close out document has been prepared for the hydraulic model peer review		Ok									
The hydraulic model close out document indicates that all changes have been made to the peer reviewers satisfaction		Ok									
The peer reviewer is considered independent according to the definition in Procedure 3 of the FHMS		Ok									
Outputs											
Have the full set of outputs (procedure 6) been produced?	Assume the reference is meant to be procedure 5. Suggest GW consider rationalising the number of model outputs required.	Ok									
Are mapped extents reasonable?		Ok									
Has the mapping been prepared in accordance with Procedure 6 of the FHMS? E.g. style etc.	Assume the reference is meant to be procedure 5.	Ok									
Outputs have been reviewed as part of the peer review, and any action items have been addressed.		Ok									
Community/TA Concerns											
The community and TA have been consulted on regarding the relevant draft outputs		Ok									
Specific concerns raised by the community and/or TA have investigated and addressed.	Discussion from the workshop did suggest that this project has, at times, been more community led than desirable (see cover letter comments).	Minor									

Attachment 3 to Report 25.235

Greater Wellington
Te Pane Matua Taiao

ATTACHMENT 3 - Flood depth maps for the Waipoua River



PROJECT
Waipoua River Flood Modelling

MAP 1 of 2

PEAK DEPTH MAP

39.35% AEP Flow, Historic Climate

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth (m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+

Masterton

LANDRIVERSEA CONSULTING

REVISION	01
DATE	1/03/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

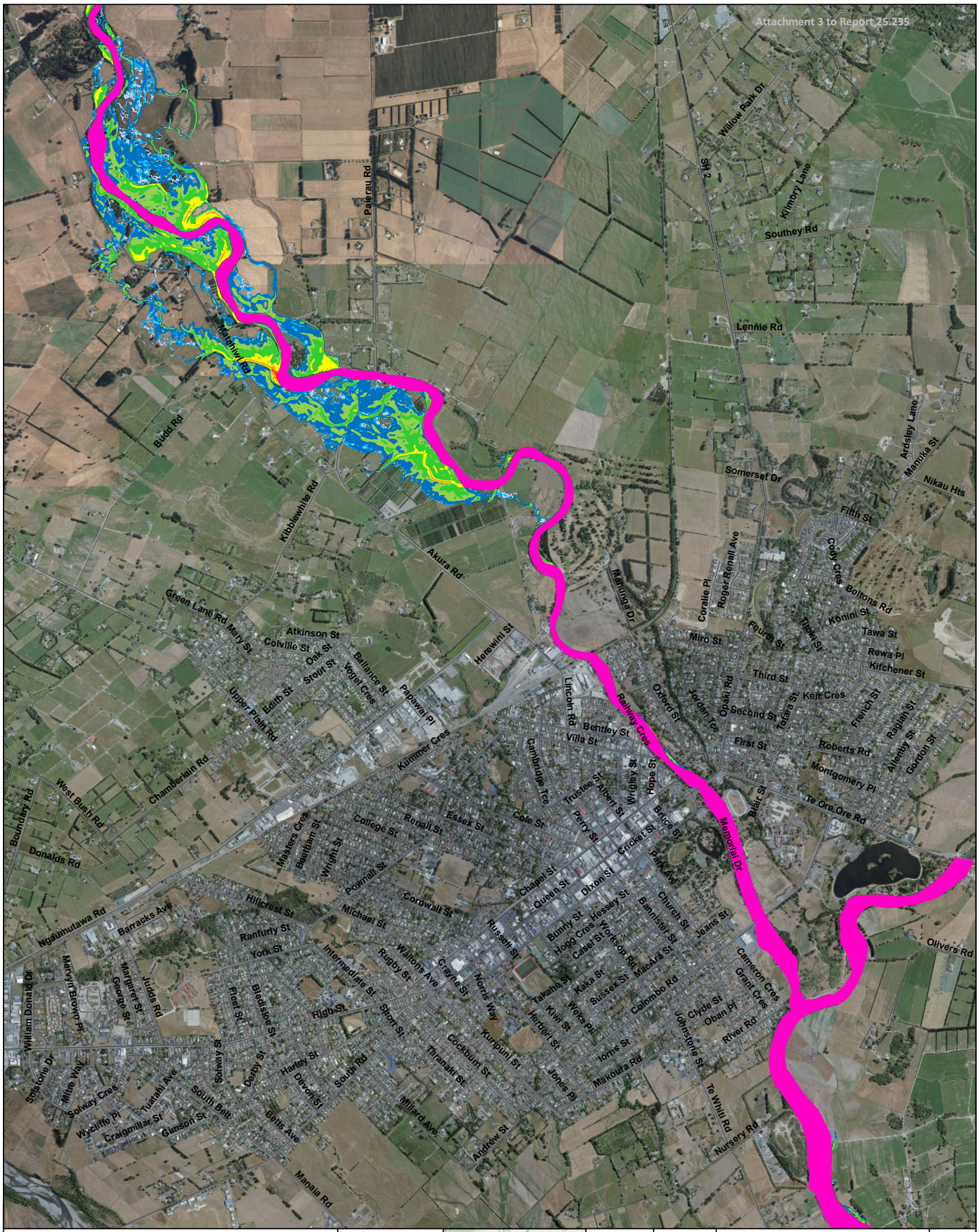
0 250 500 1,000 Meters

N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 2 of 2
PEAK DEPTH MAP

39.35% AEP Flow, Historic Climate

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth (m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+

REVISION	01
DATE	1/03/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

0 250 500 1,000 Meters

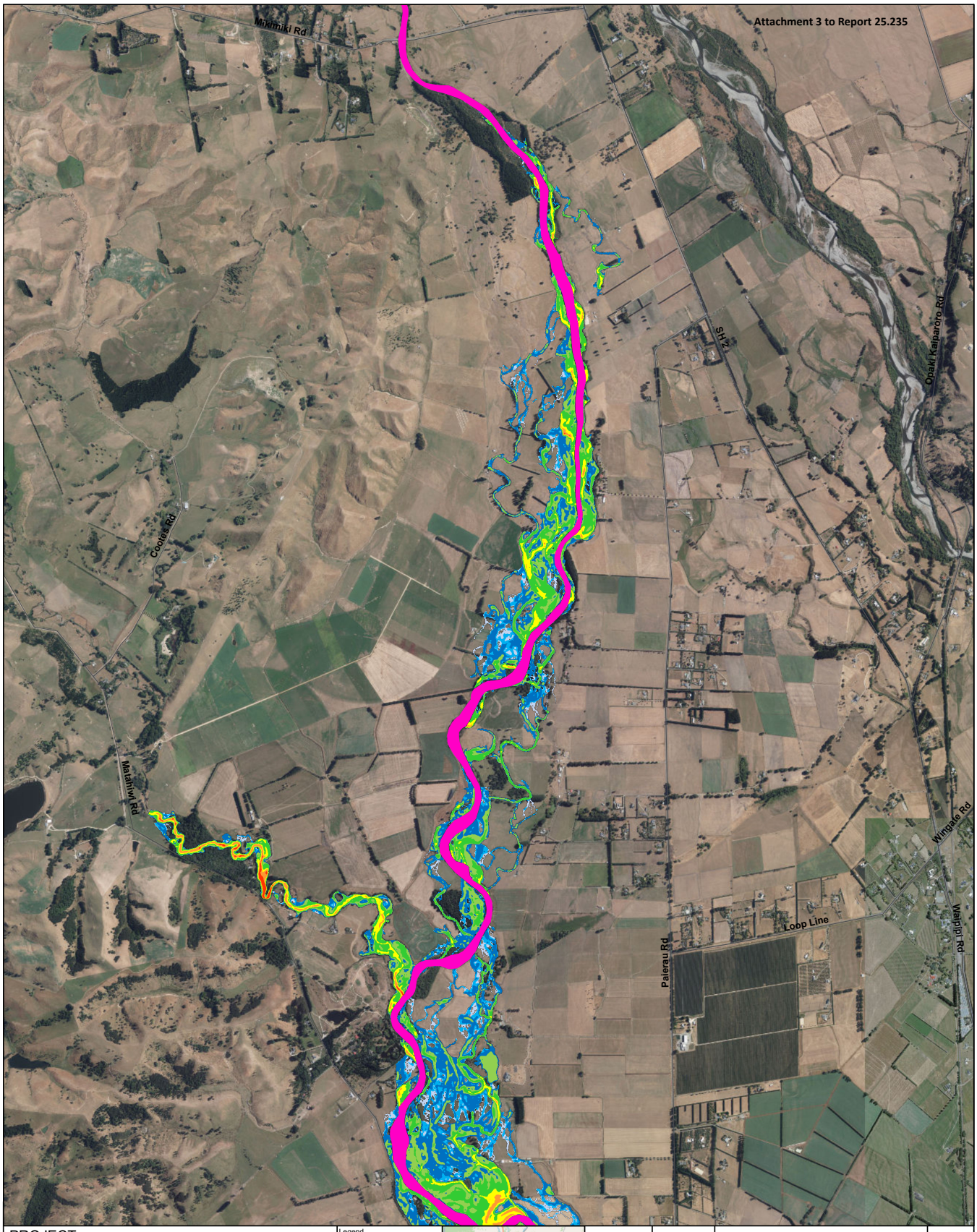
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 1 of 2
PEAK DEPTH MAP

20% AEP Flow, Historic Climate

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth (m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+

REVISION	01
DATE	26/02/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

0 250 500 1,000 Meters

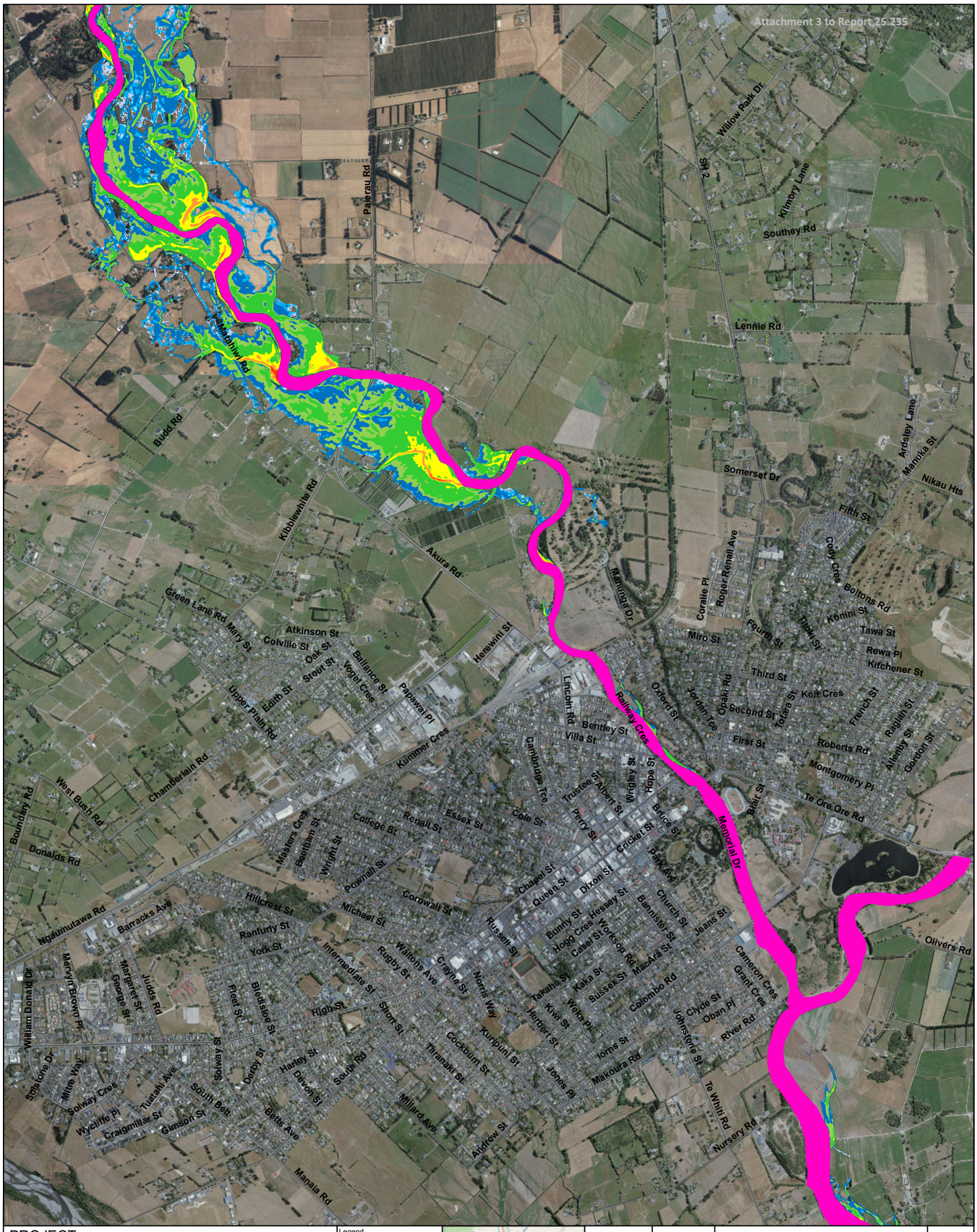
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 2 of 2
PEAK DEPTH MAP

20% AEP Flow, Historic Climate

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth (m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+

REVISION	01
DATE	26/02/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

0 250 500 1,000 Meters

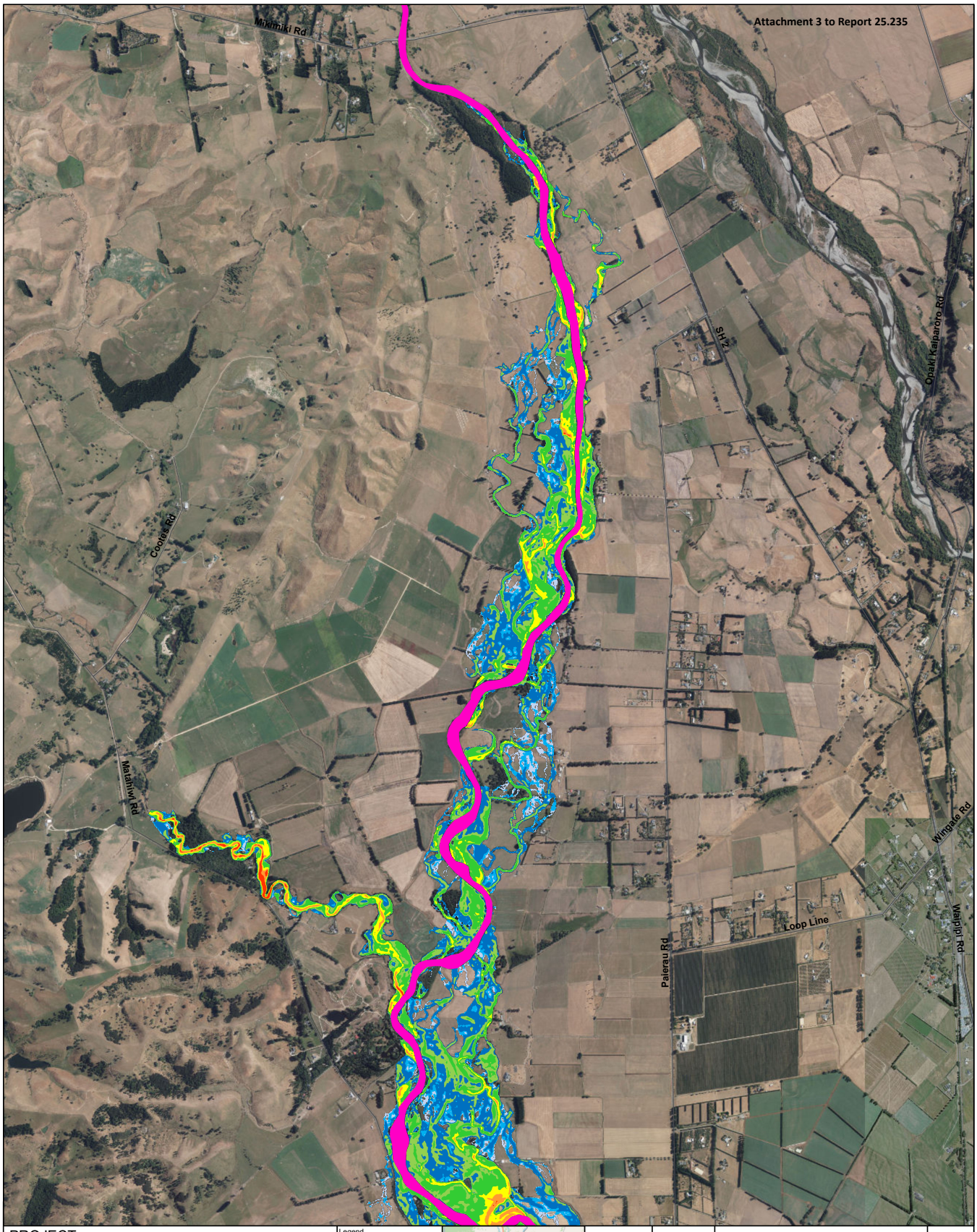
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 1 of 2
PEAK DEPTH MAP

10% AEP Flow, Historic Climate

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
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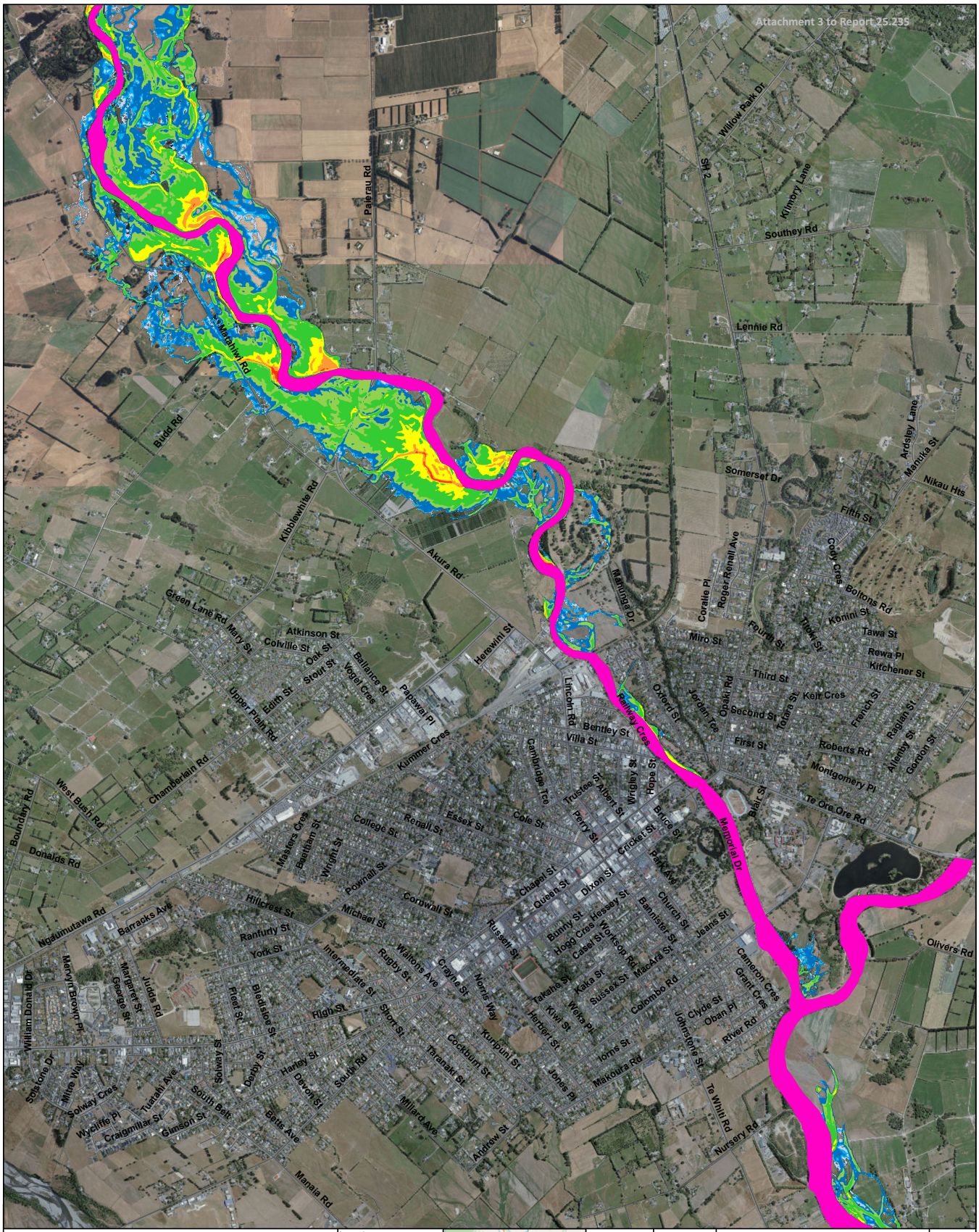
Greater Wellington Te Pane Matua Taiao



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Waipoua River Flood Modelling

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AUTHOR
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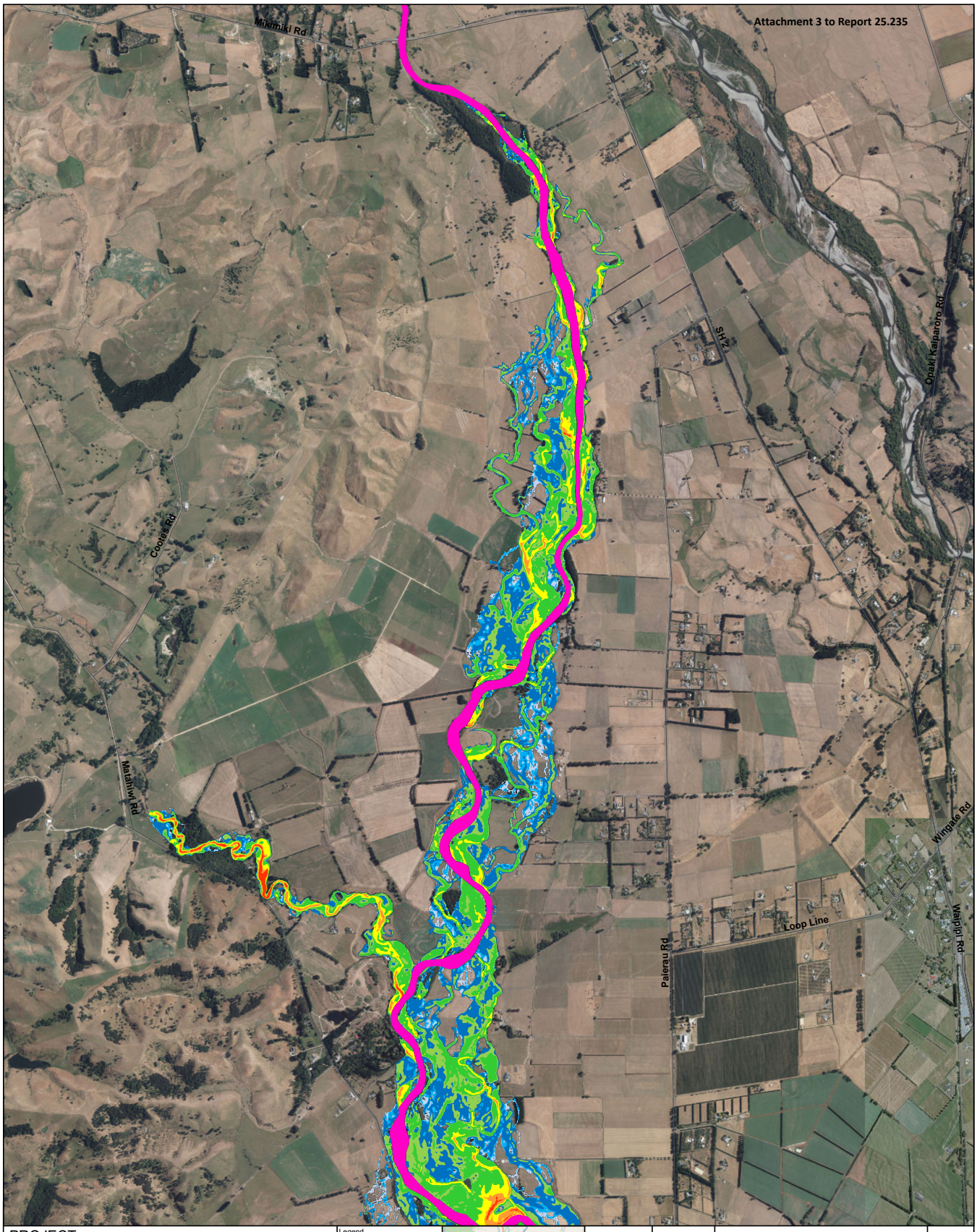

PROJECT
Waipoua River Flood Modelling

MAP 1 of 2
PEAK DEPTH MAP

5% AEP Flow, Historic Climate

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
- 0
- 0 - 0.05
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- 0.3 - 0.5
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0 250 500 1,000 Meters

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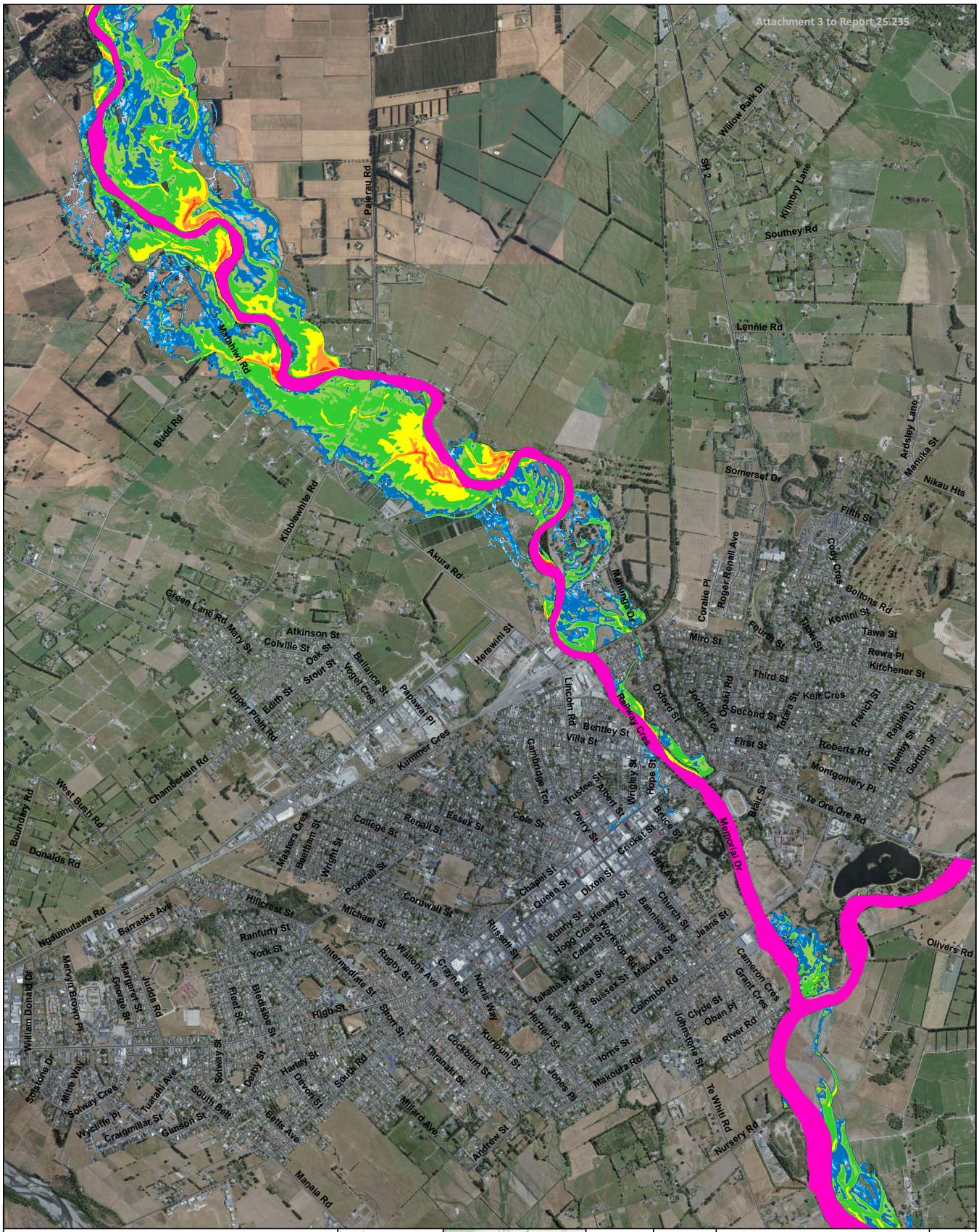
LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 2 of 2
PEAK DEPTH MAP

5% AEP Flow, Historic Climate

AUTHOR
Matthew Gardner

Legend
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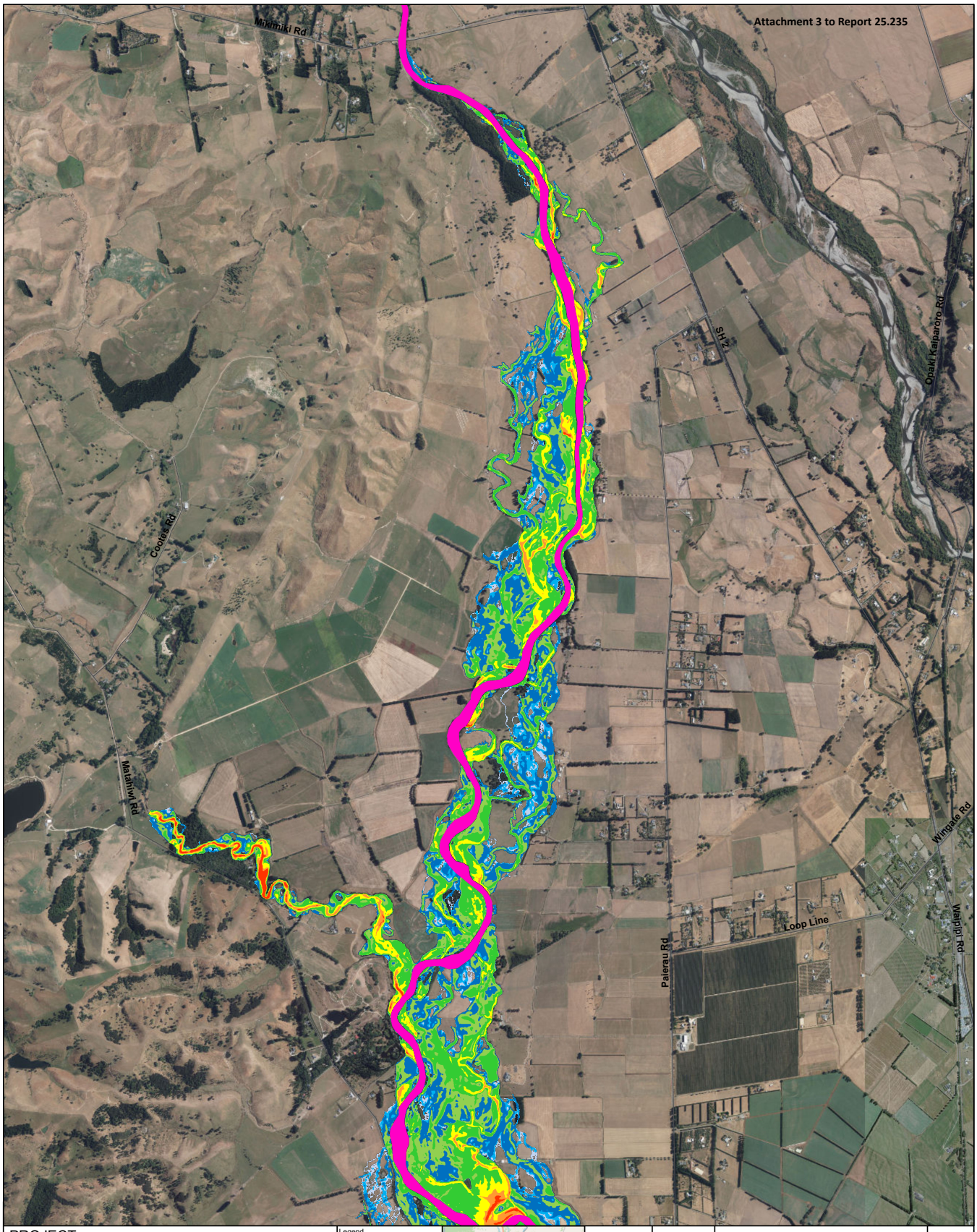
LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 1 of 2
PEAK DEPTH MAP

2% AEP Flow, Historic Climate

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+

REVISION	01
DATE	26/02/2023
A3 SCALE	1:22,000
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0 250 500 1,000 Meters

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Model Information:
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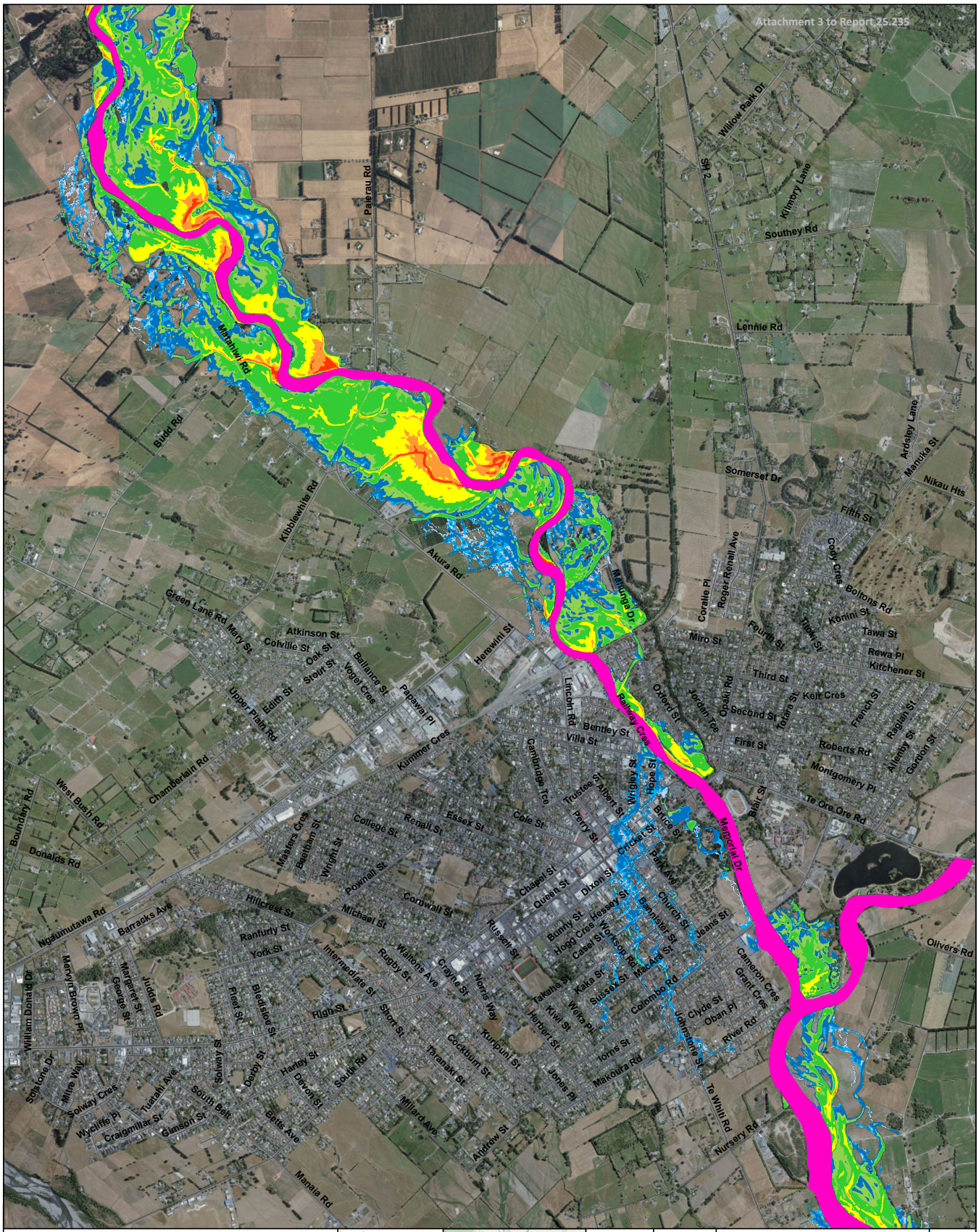
Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 2 of 2
PEAK DEPTH MAP

2% AEP Flow, Historic Climate

AUTHOR
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Legend
- 1D Channel
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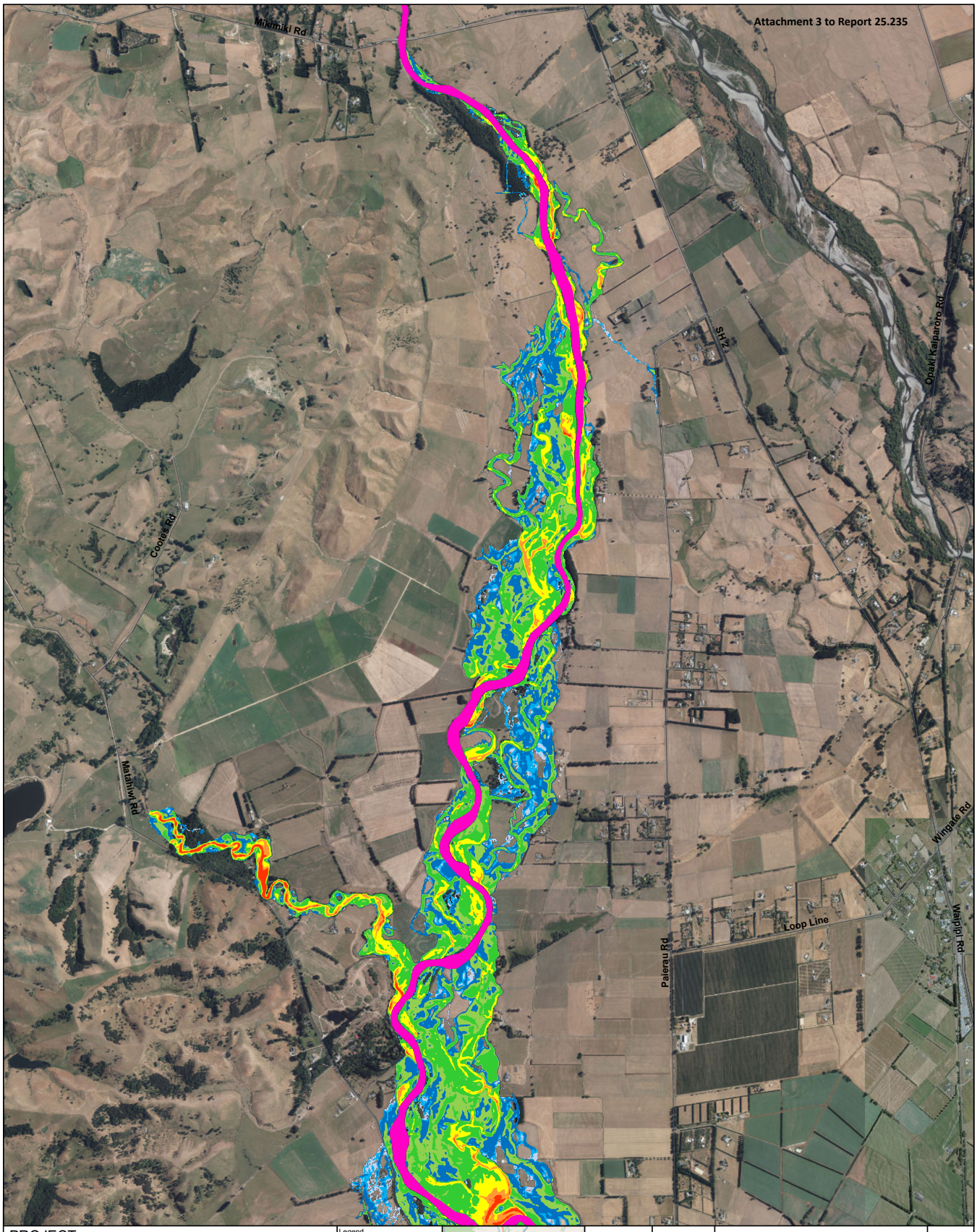

PROJECT
Waipoua River Flood Modelling

MAP 1 of 2
PEAK DEPTH MAP

1% AEP Flow, Historic Climate

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
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REVISION	01
DATE	26/02/2023
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0 250 500 1,000 Meters

N

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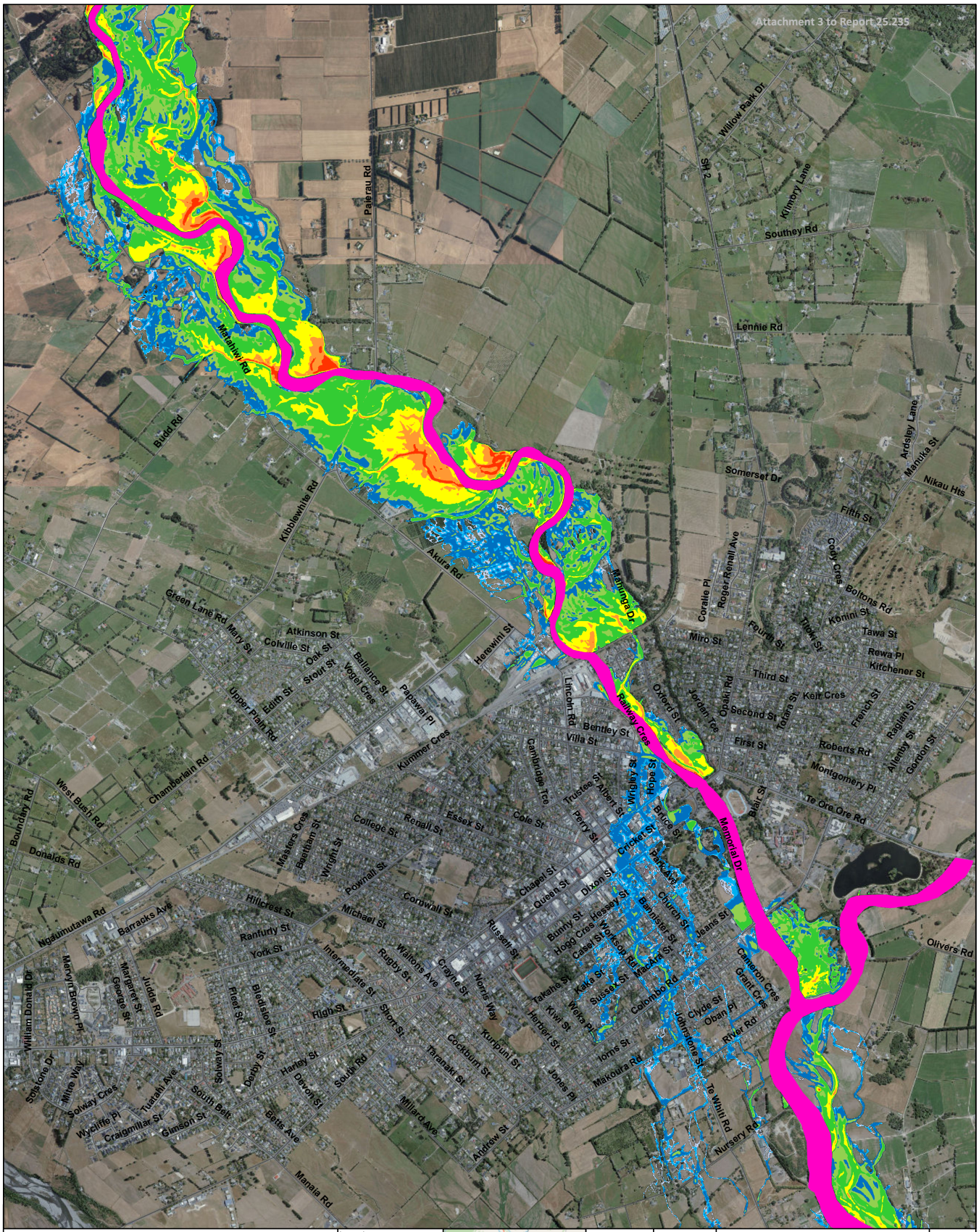

PROJECT
Waipoua River Flood Modelling

MAP 2 of 2
PEAK DEPTH MAP

1% AEP Flow, Historic Climate

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
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REVISION	01
DATE	26/02/2023
A3 SCALE	1:22,000
CREATED BY	BS
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0 250 500 1,000 Meters

N

Model Information:
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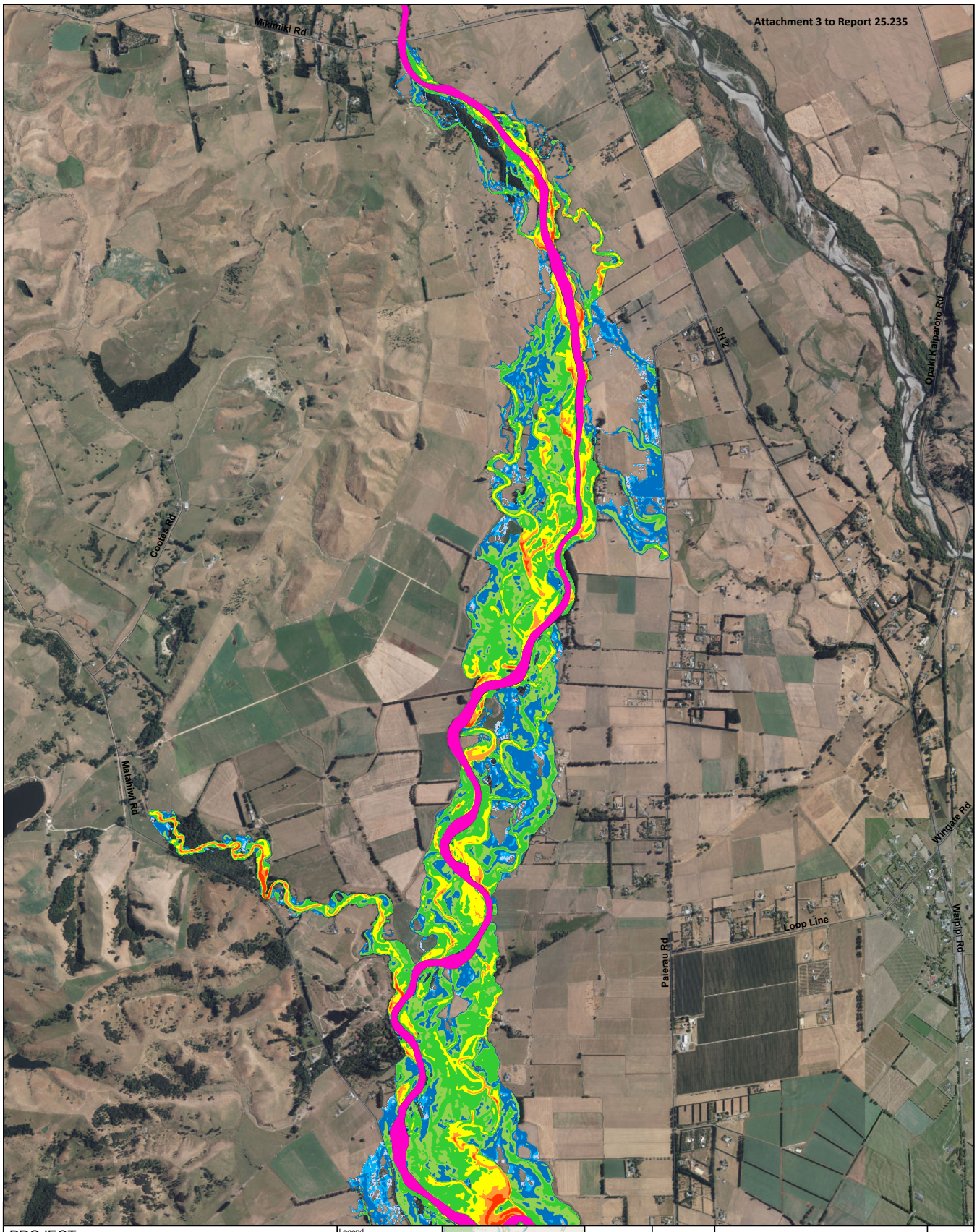
LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 1 of 2
PEAK DEPTH MAP

0.1% AEP Flow, Historic Climate

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+

REVISION	01
DATE	26/02/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

0 250 500 1,000 Meters

N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

LANDRIVERSEA CONSULTING

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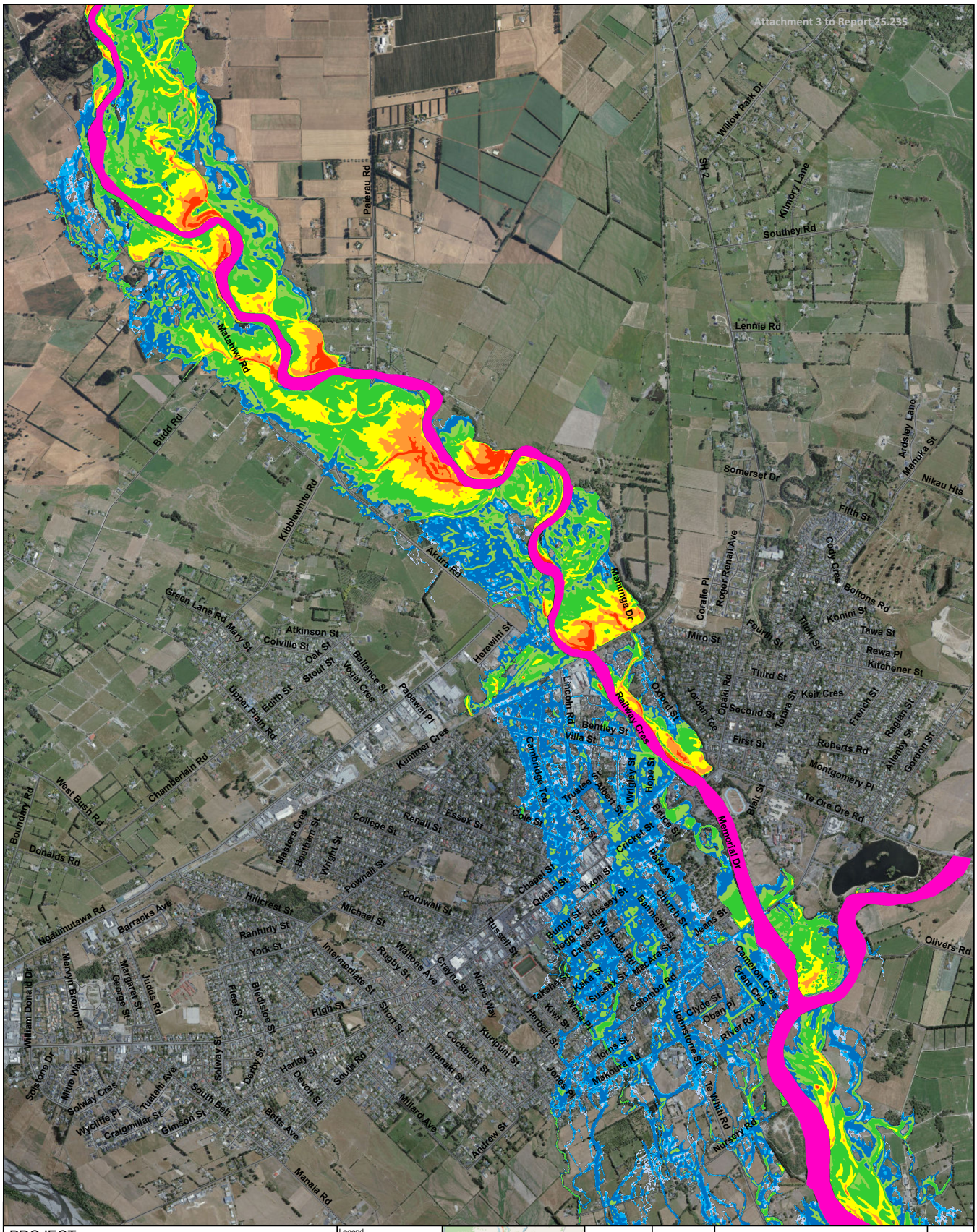

PROJECT
Waipoua River Flood Modelling

MAP 2 of 2
PEAK DEPTH MAP

0.1% AEP Flow, Historic Climate

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
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LANDRIVERSEA CONSULTING

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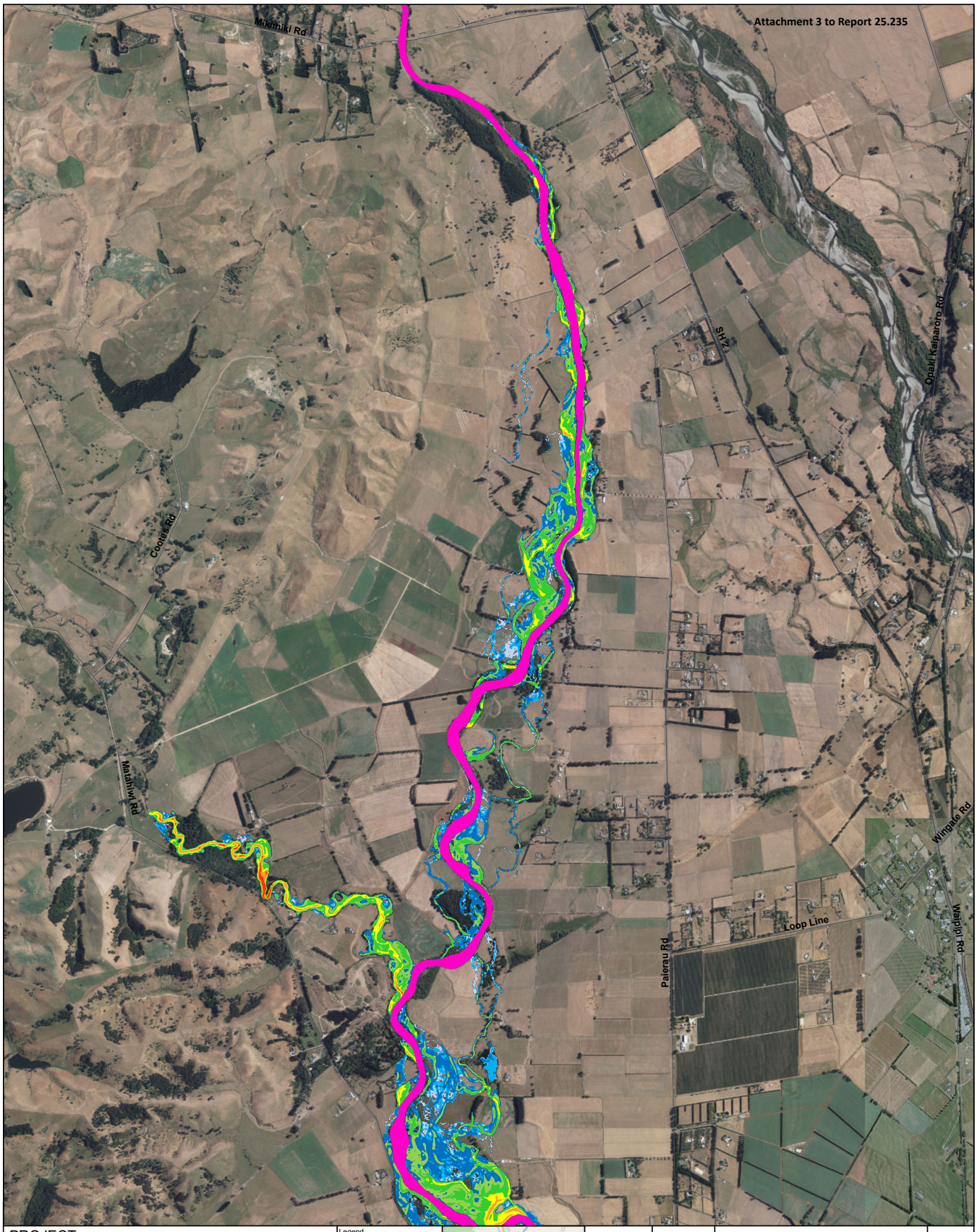


PROJECT
Waipoua River Flood Modelling

MAP 1 of 2
PEAK DEPTH MAP

39.35% AEP Flow, Future Climate (RCP6)

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+

Masterton

LANDRIVERSEA CONSULTING

REVISION	01
DATE	1/03/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

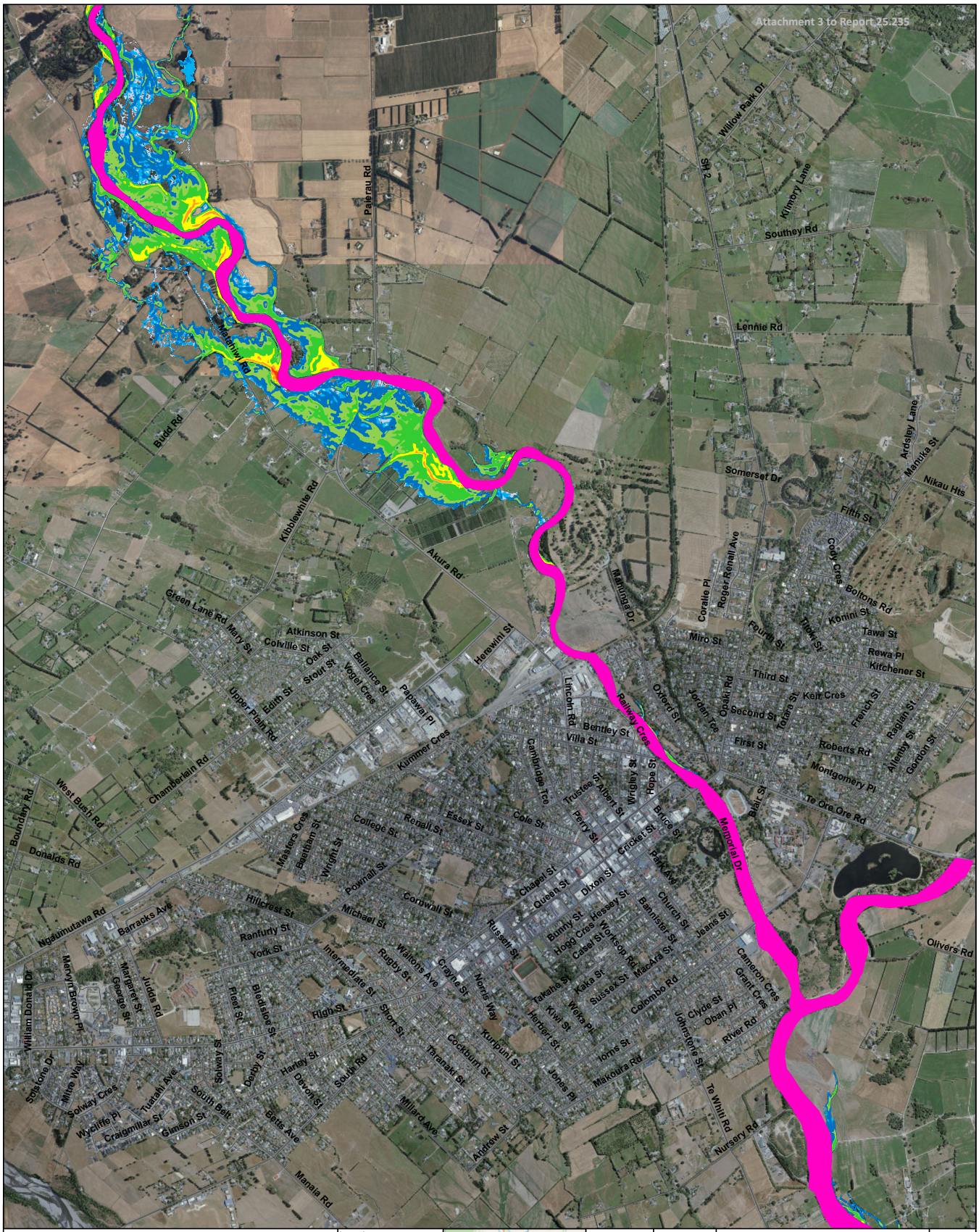
0 250 500 1,000 Meters

N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 2 of 2
PEAK DEPTH MAP

39.35% AEP Flow, Future Climate (RCP6)

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
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REVISION	01
DATE	1/03/2023
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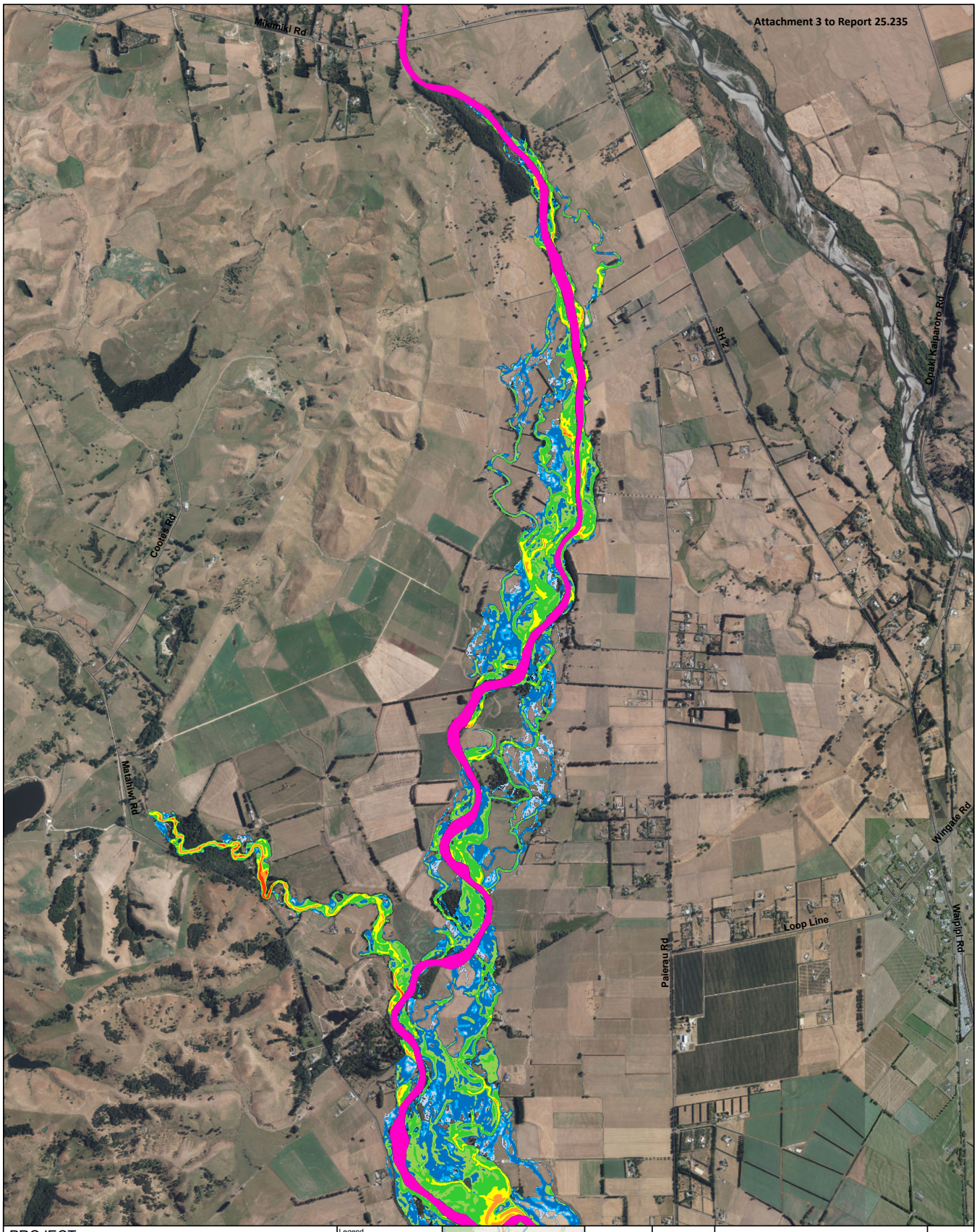
LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 1 of 2

PEAK DEPTH MAP

20% AEP Flow, Future Climate (RCP6)

AUTHOR
Matthew Gardner

Legend
- 1D Channel
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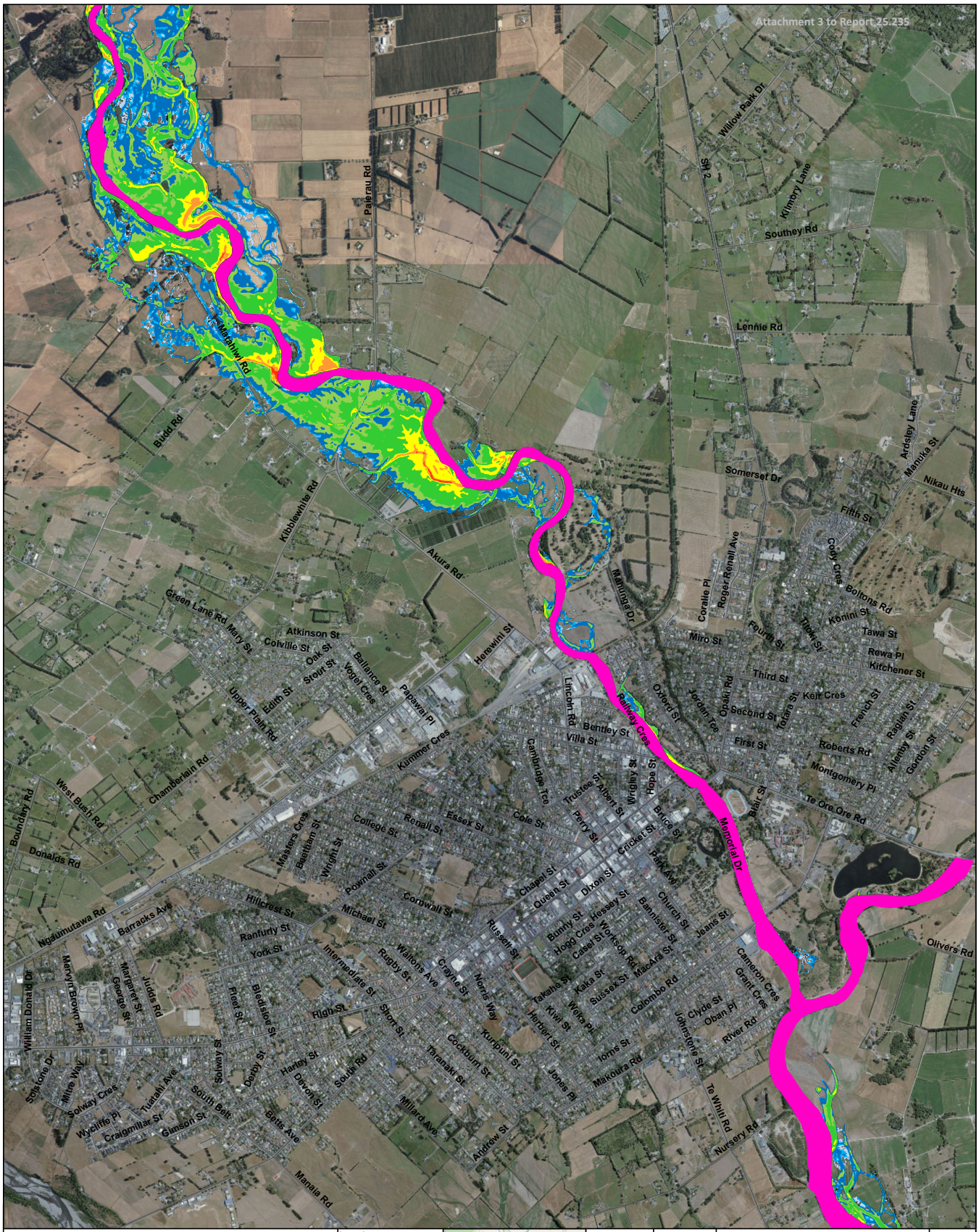

PROJECT
Waipoua River Flood Modelling

MAP 2 of 2

PEAK DEPTH MAP

20% AEP Flow, Future Climate (RCP6)

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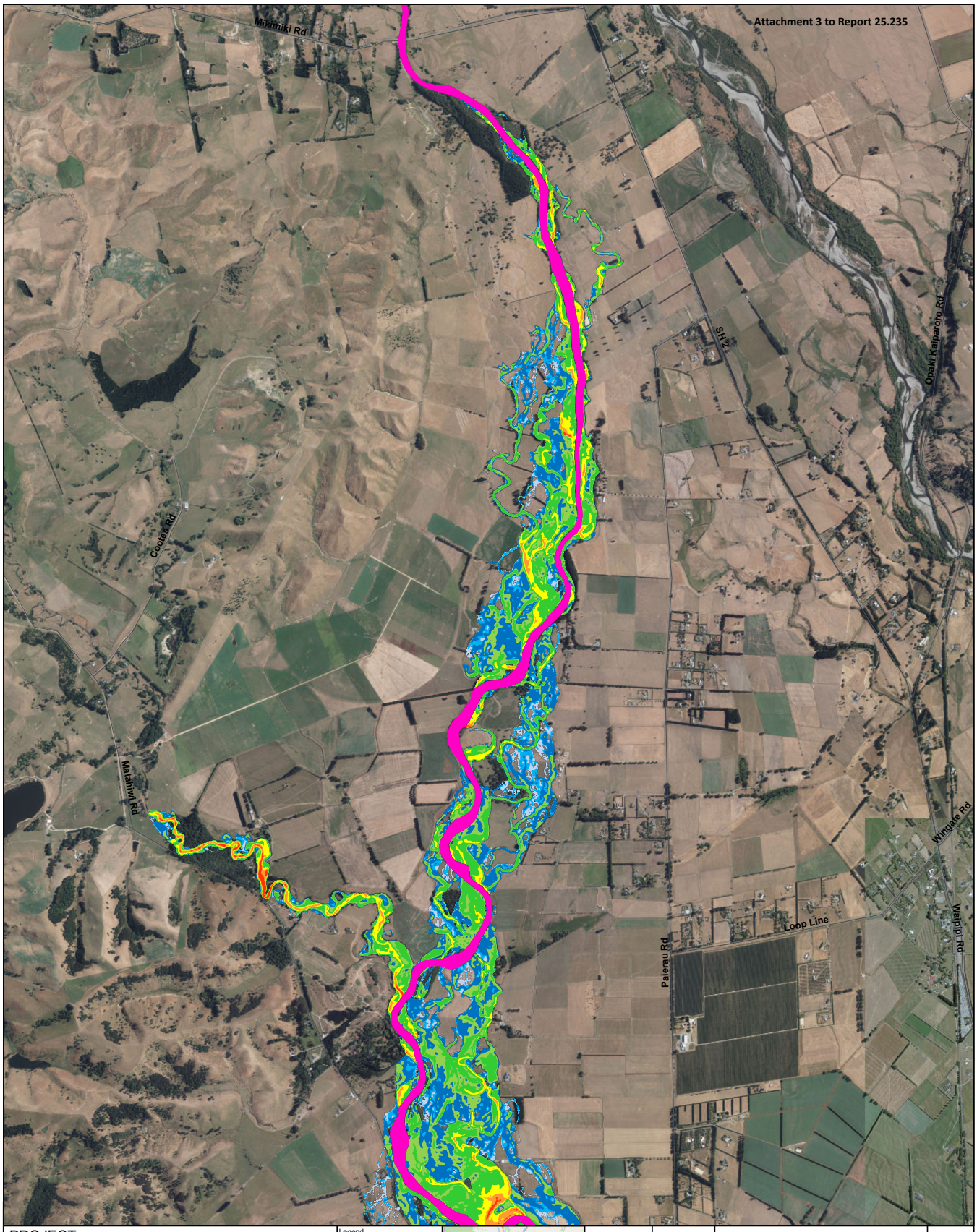

PROJECT
Waipoua River Flood Modelling

MAP 1 of 2

PEAK DEPTH MAP

10% AEP Flow, Future Climate (RCP6)

AUTHOR
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Masterton

LANDRIVERSEA CONSULTING

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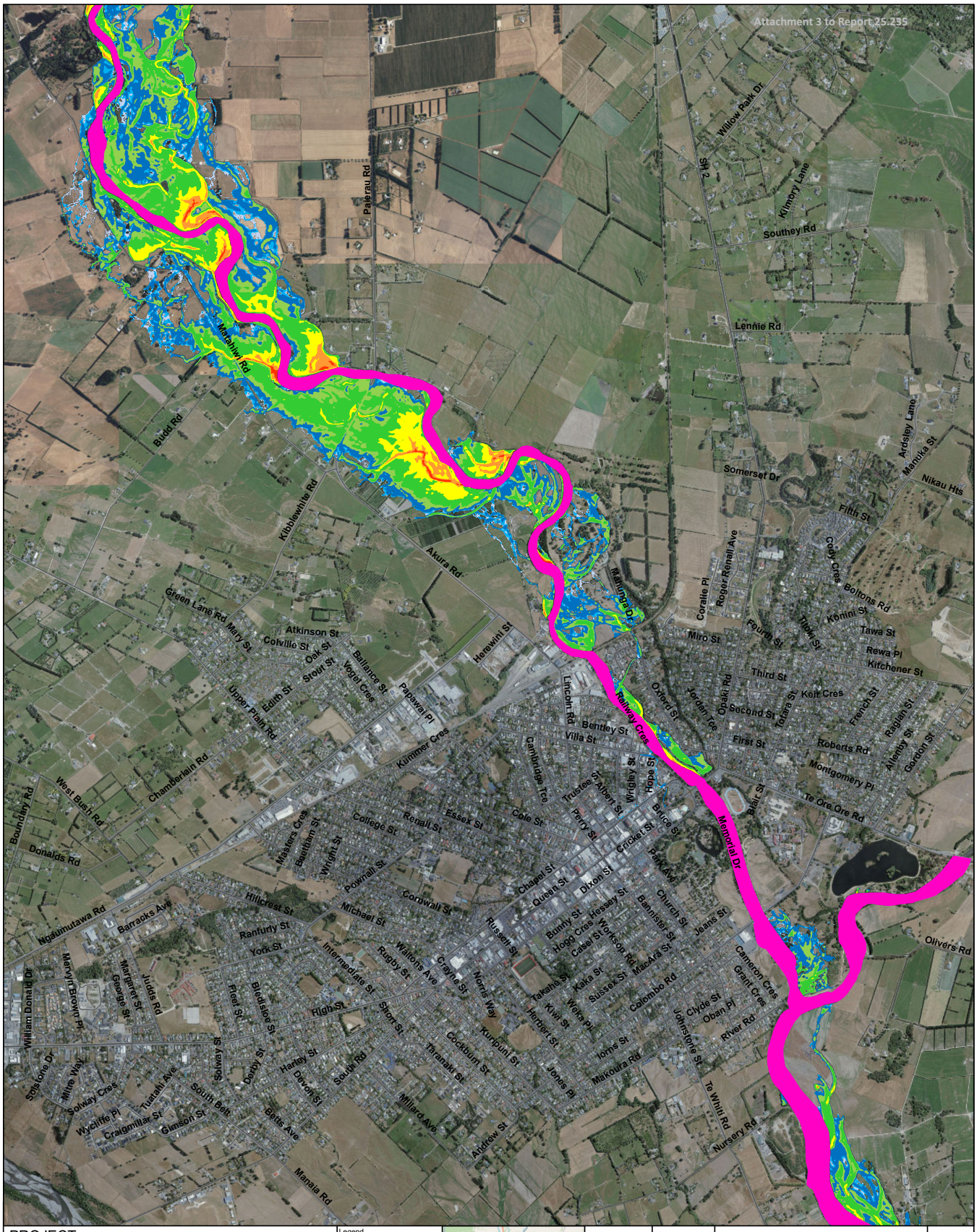

PROJECT
Waipoua River Flood Modelling

MAP 2 of 2

PEAK DEPTH MAP

10% AEP Flow, Future Climate (RCP6)

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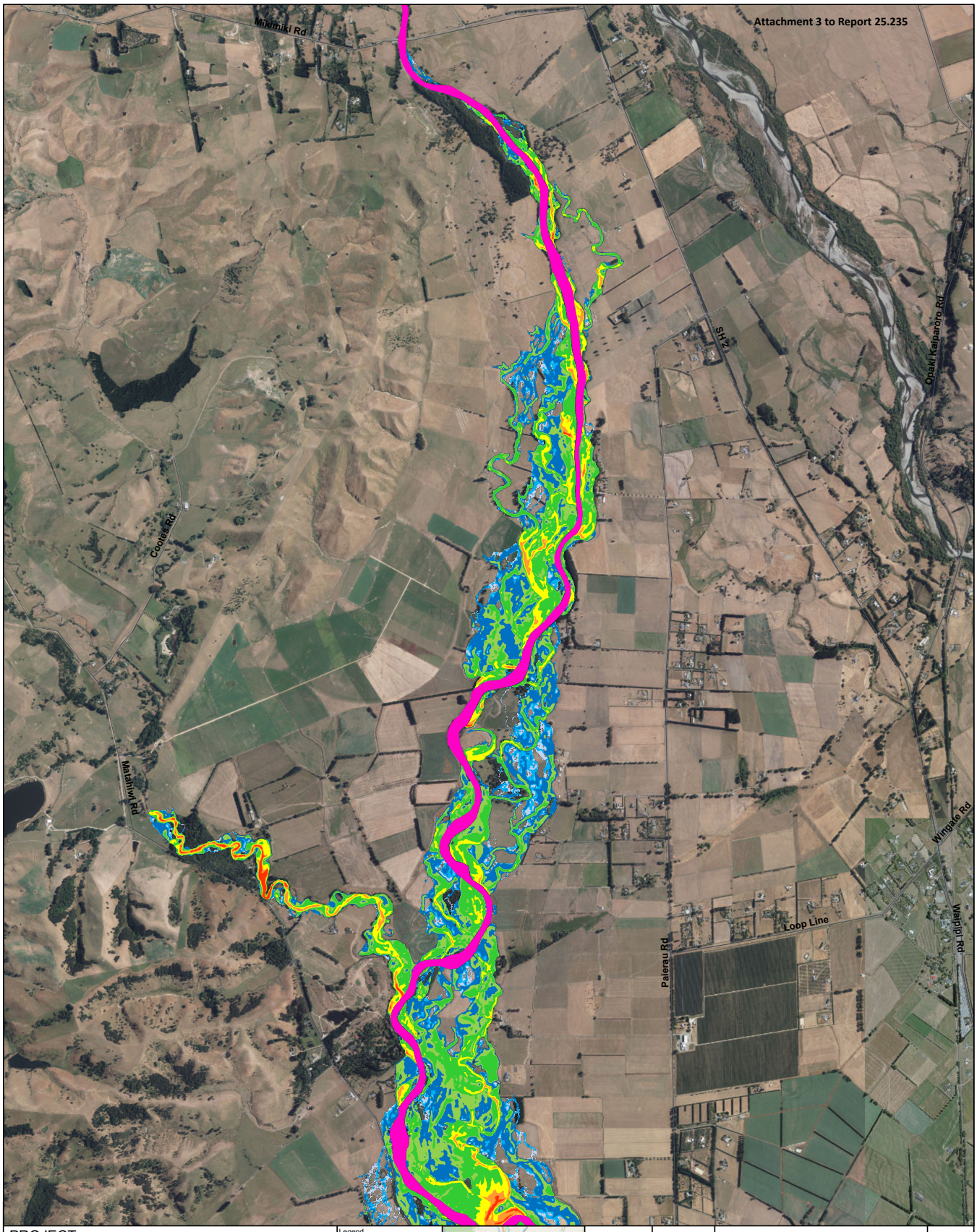

PROJECT
Waipoua River Flood Modelling

MAP 1 of 2

PEAK DEPTH MAP

5% AEP Flow, Future Climate (RCP6)

AUTHOR
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Legend
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- Roads

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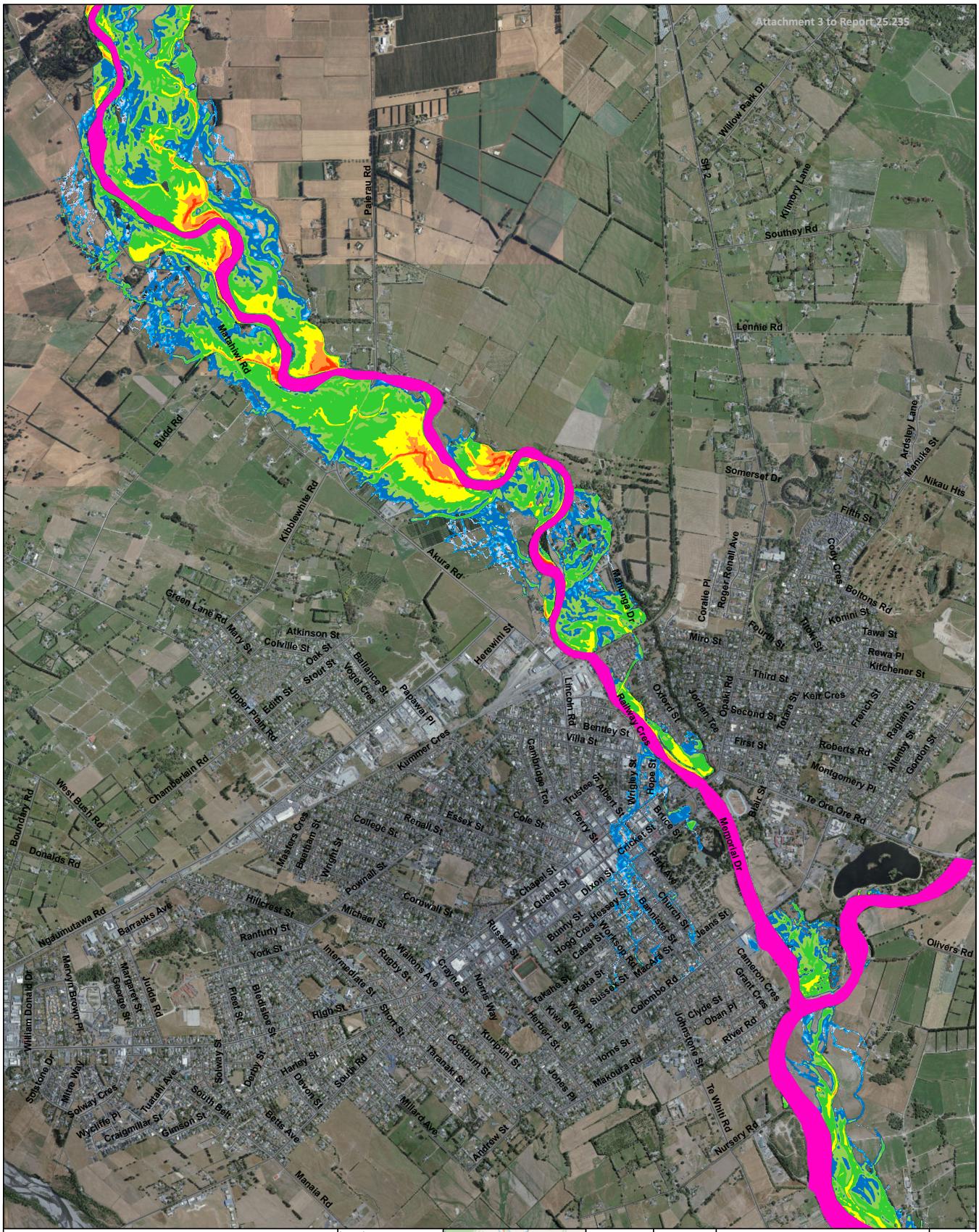

PROJECT	**Waipoua River Flood Modelling**
MAP 2 of 2	**PEAK DEPTH MAP**
	5% AEP Flow, Future Climate (RCP6)
AUTHOR	**Matthew Gardner**

REVISION	01
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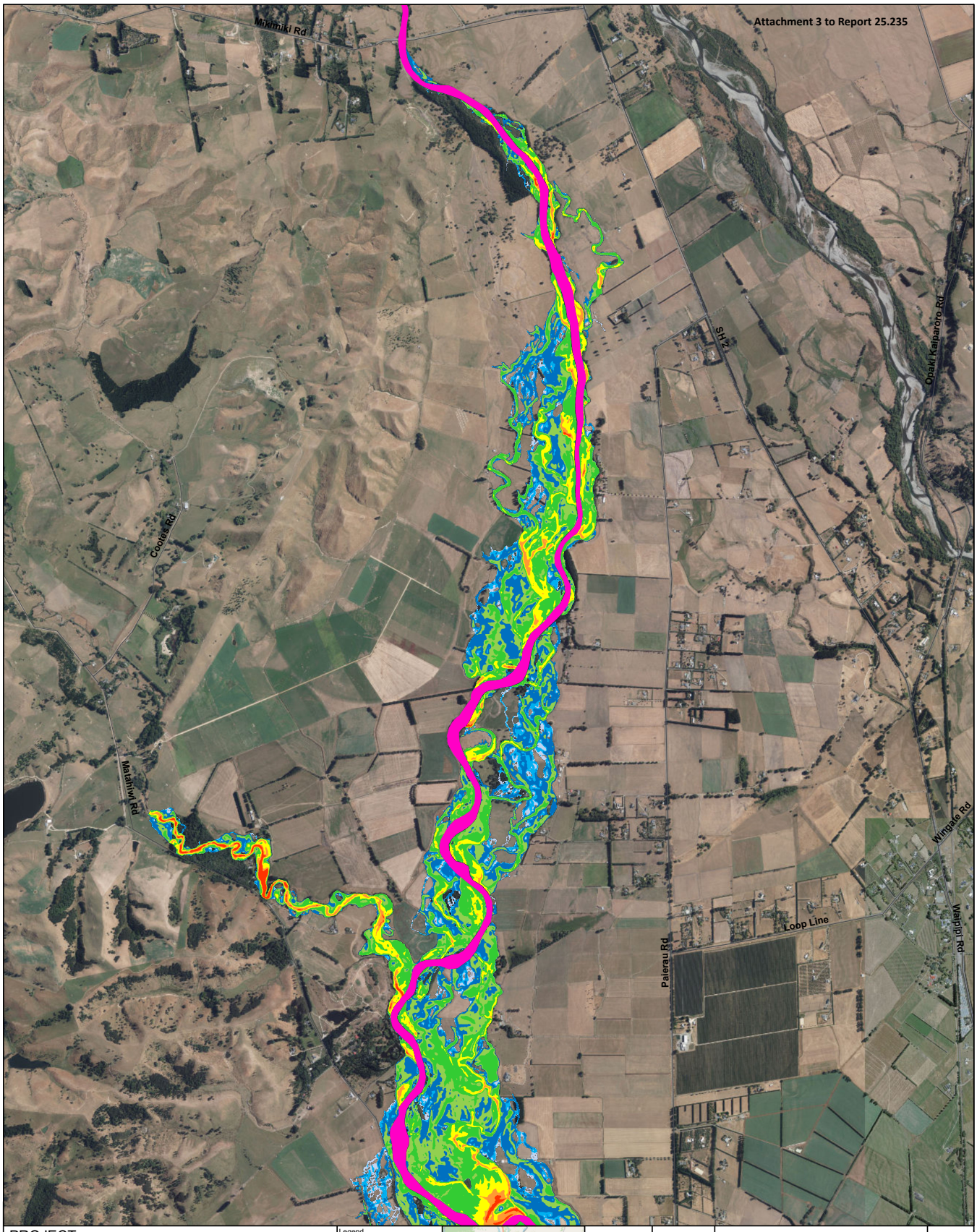

PROJECT
Waipoua River Flood Modelling

MAP 1 of 2
PEAK DEPTH MAP

2% AEP Flow, Future Climate (RCP6 - 2050)

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+

Masterton

LANDRIVERSEA CONSULTING

REVISION	01
DATE	1/03/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

0 250 500 1,000 Meters

N

Model Information:
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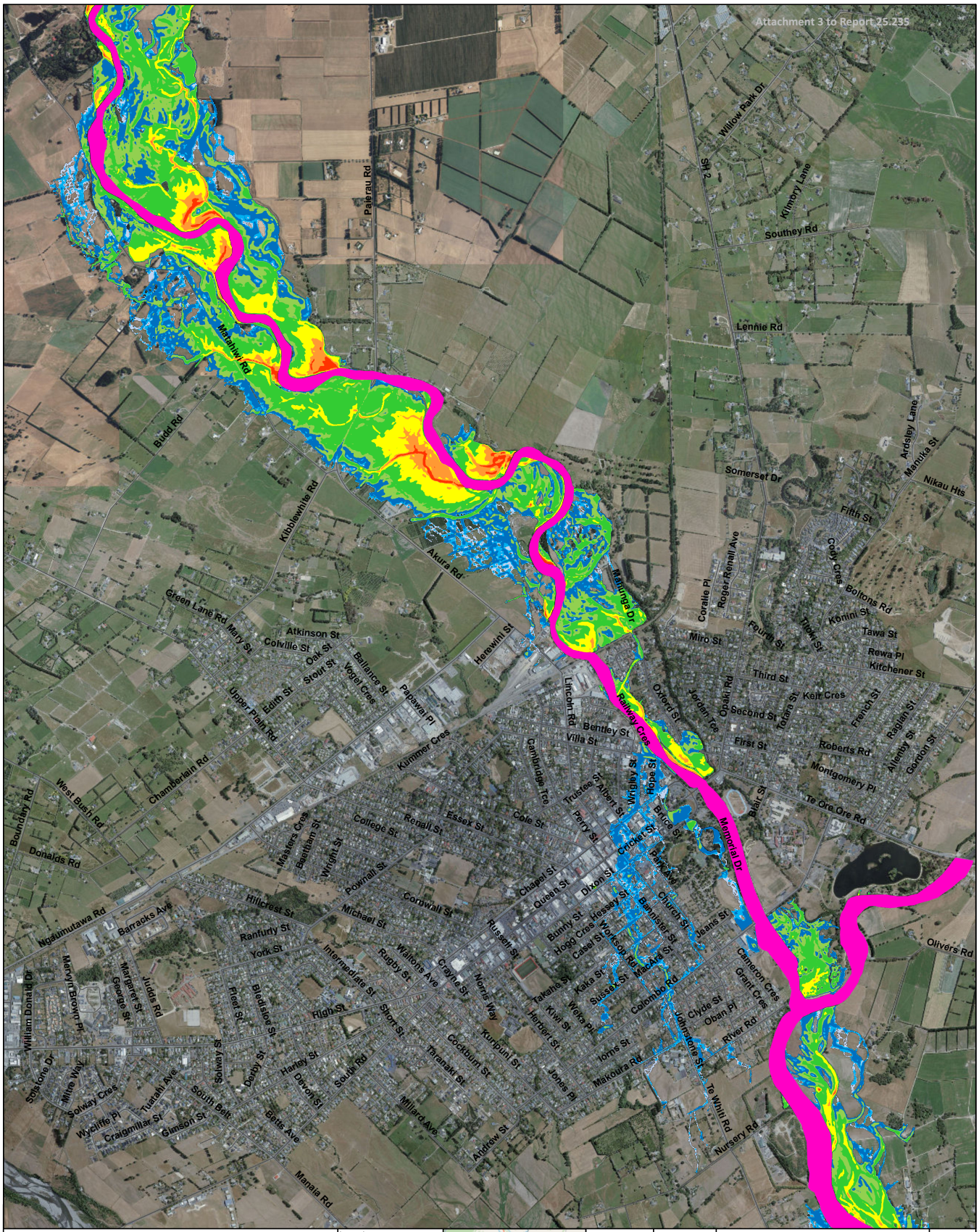
Vertical Datum: Wairarapa Local Datum

Model Completed:

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 2 of 2
PEAK DEPTH MAP

2% AEP Flow, Future Climate (RCP6 - 2050)

AUTHOR
Matthew Gardner

REVISION	01
DATE	1/03/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

Model Information:
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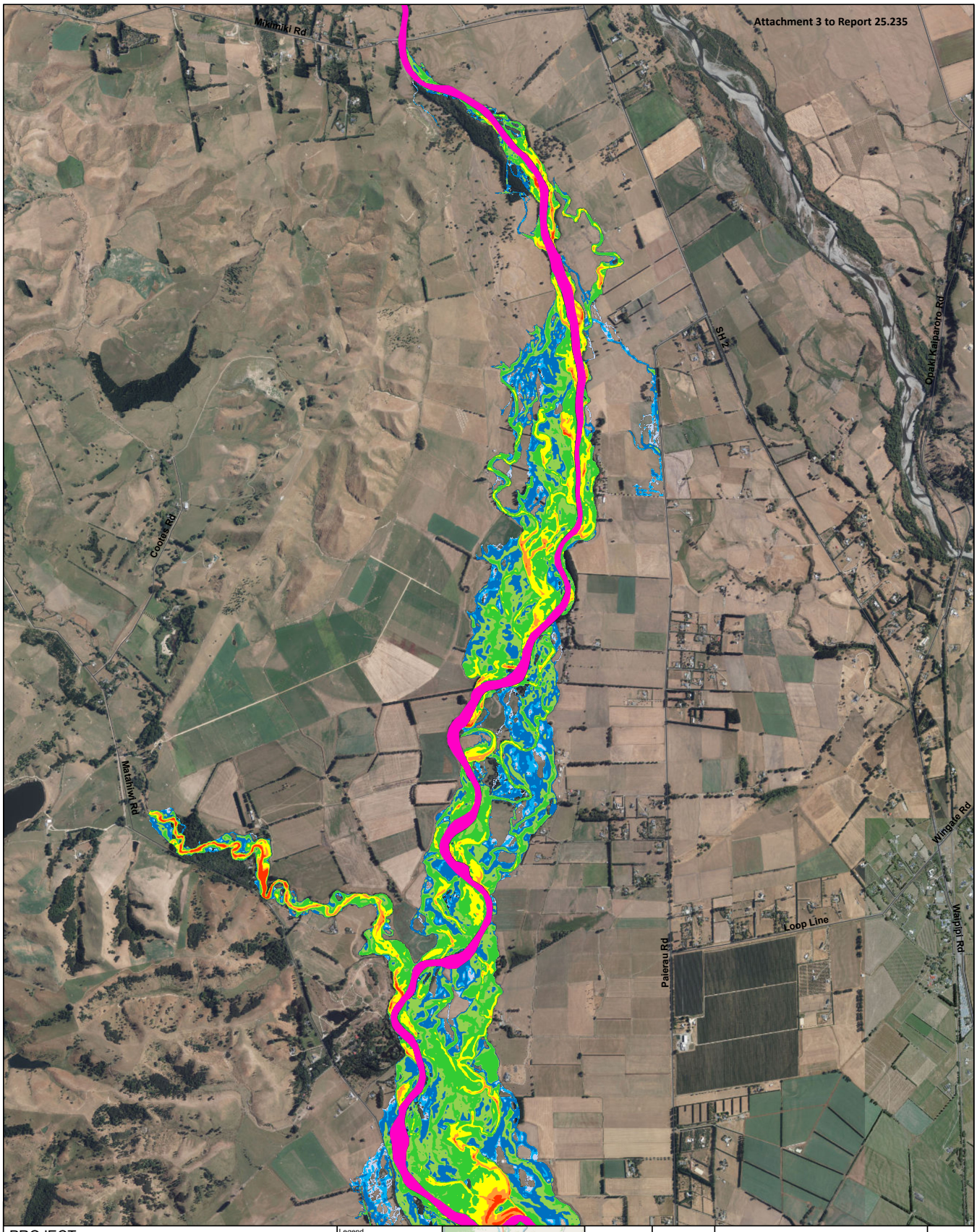
Vertical Datum: Wairarapa Local Datum

Model Completed:

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 1 of 2

PEAK DEPTH MAP

2% AEP Flow, Future Climate (RCP6)

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
- 0
- 0 - 0.05
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Masterton

LANDRIVERSEA CONSULTING

REVISION	01
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REVISED BY	MG

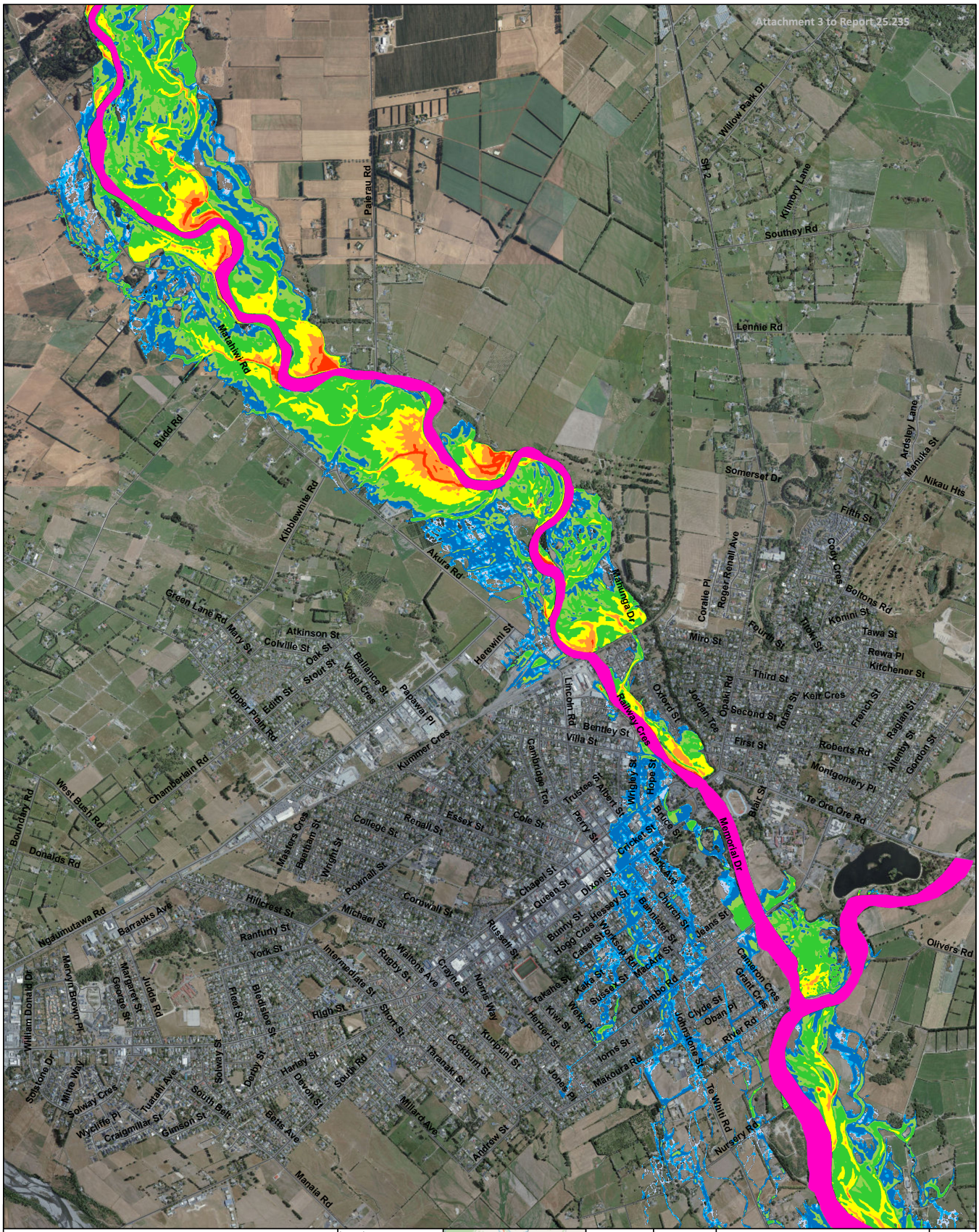
0 250 500 1,000 Meters

N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 2 of 2

PEAK DEPTH MAP

2% AEP Flow, Future Climate (RCP6)

AUTHOR
Matthew Gardner

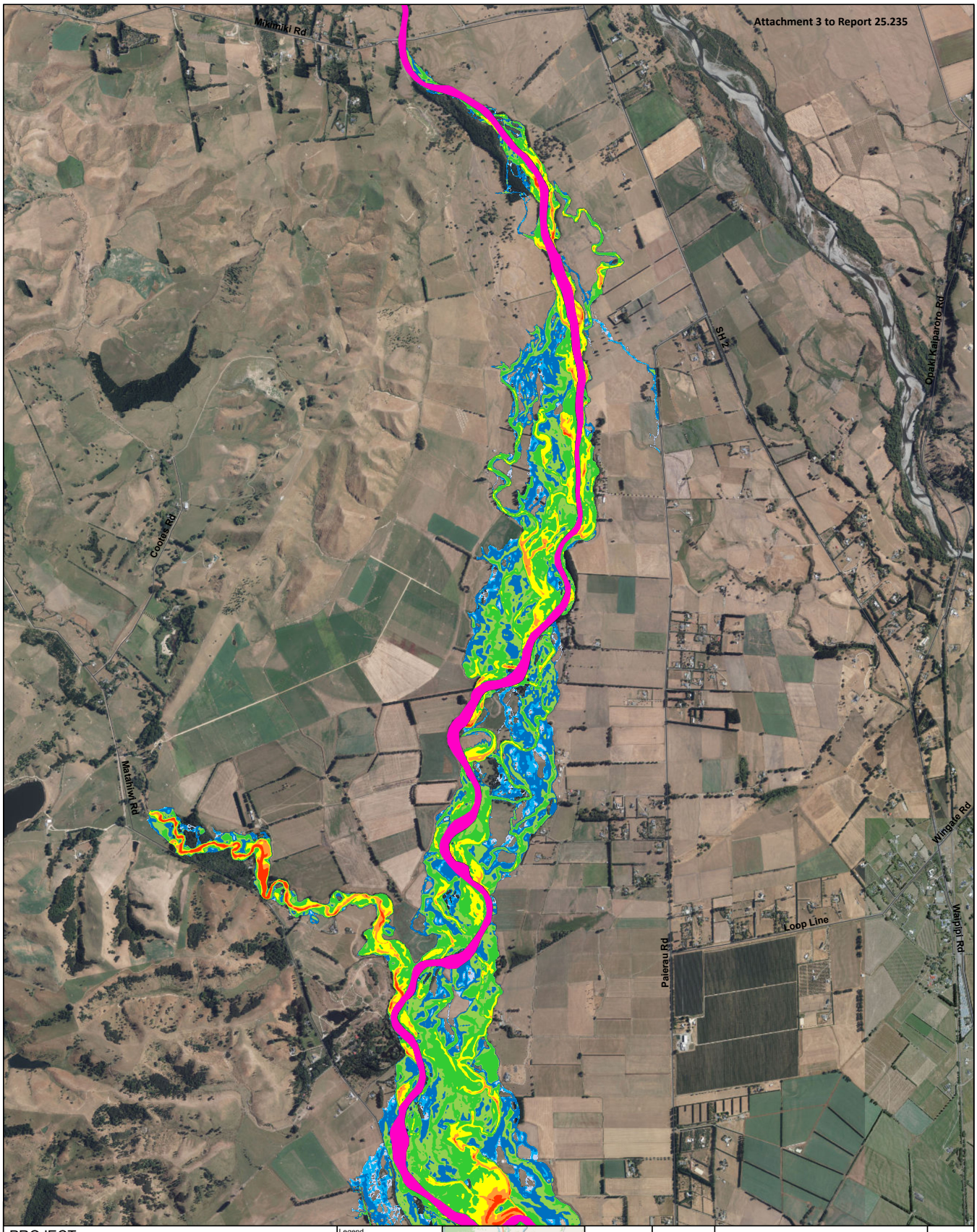
REVISION	01
DATE	26/02/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 1 of 2
PEAK DEPTH MAP

1% AEP Flow, Future Climate (RCP6 - 2050)

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth (m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+

Masterton

LANDRIVERSEA CONSULTING

REVISION	01
DATE	1/03/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

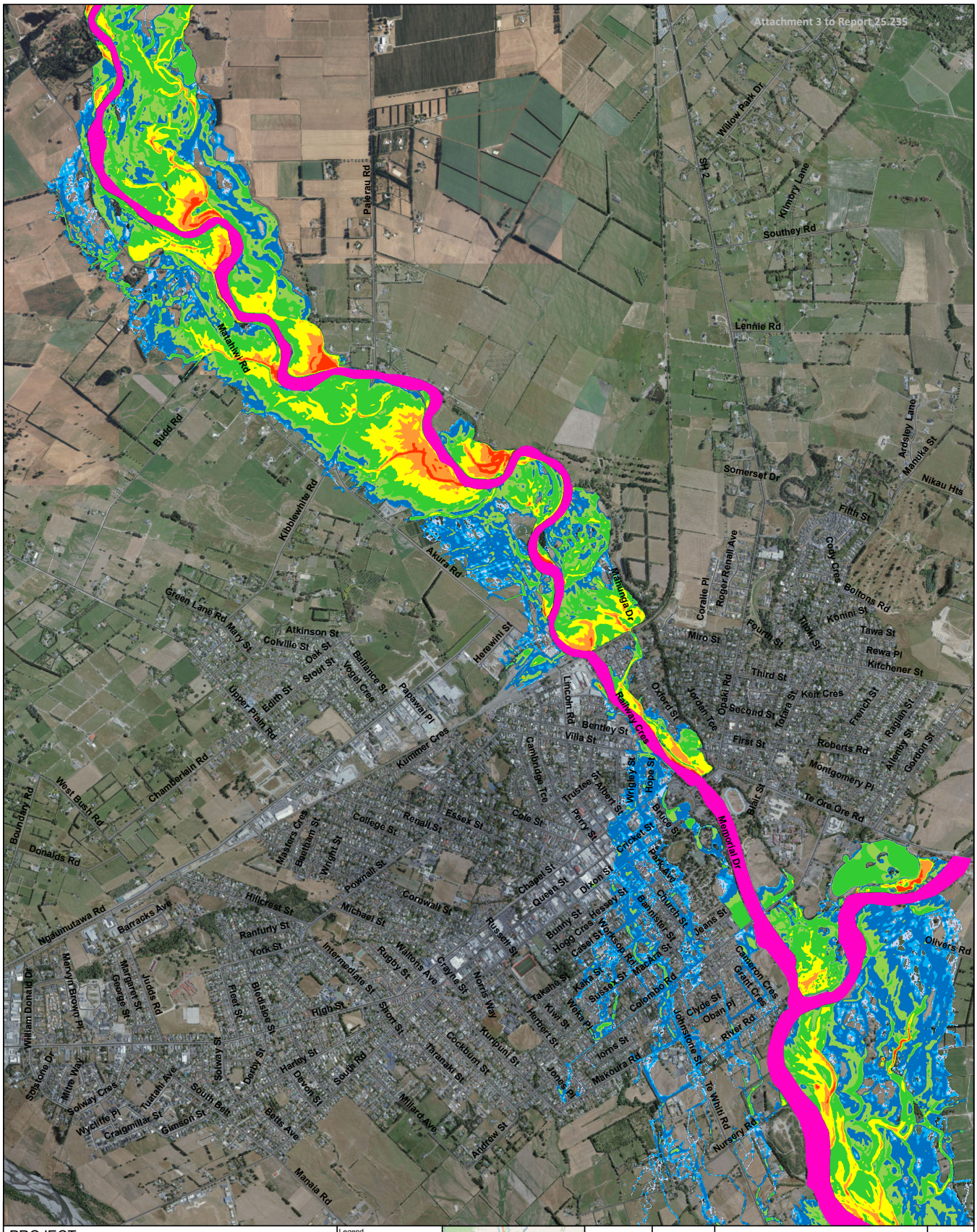
0 250 500 1,000 Meters

N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 2 of 2
PEAK DEPTH MAP

1% AEP Flow, Future Climate (RCP6 - 2050)

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth (m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+

REVISION	01
DATE	1/03/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

0 250 500 1,000 Meters

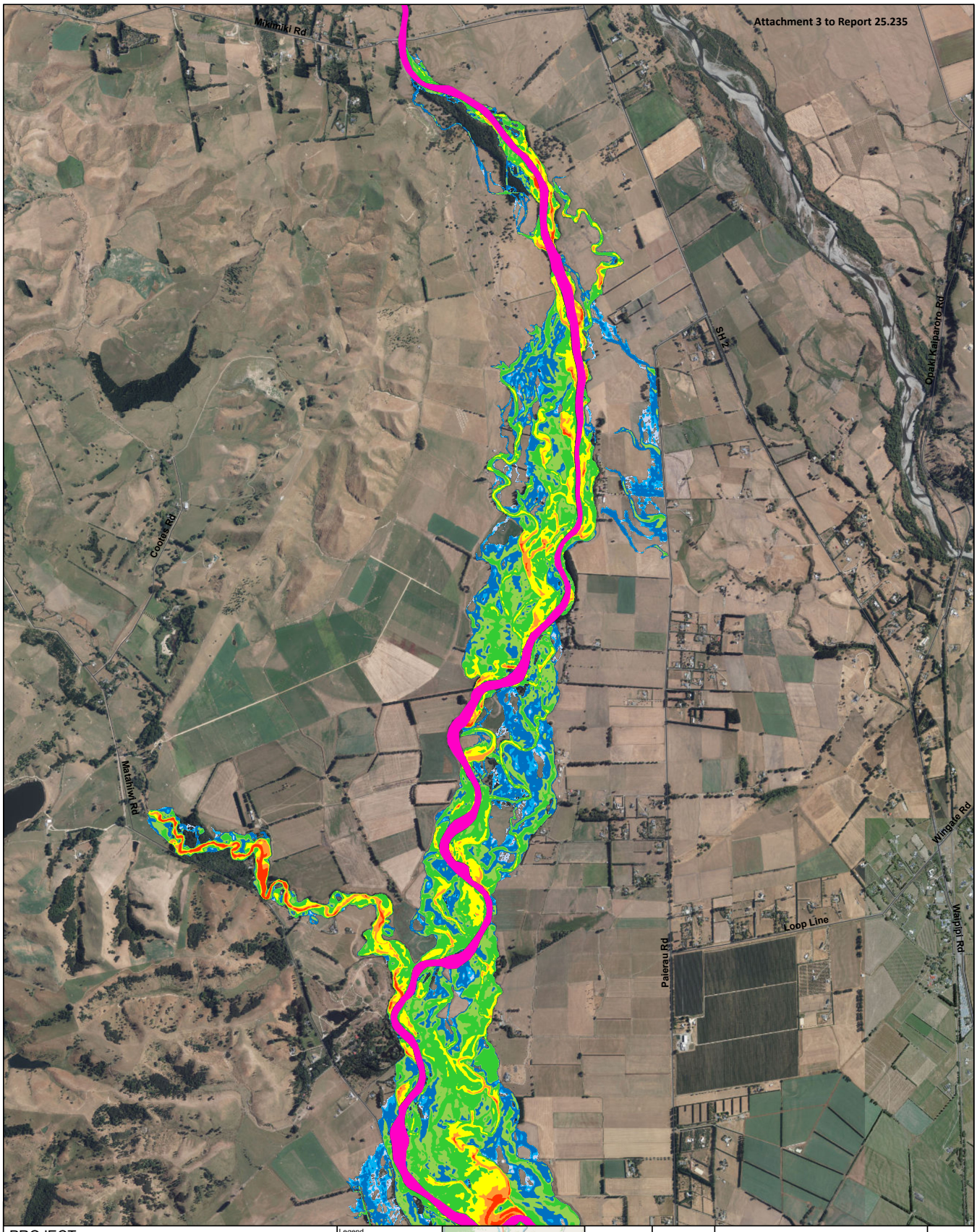
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 1 of 2

PEAK DEPTH MAP

1% AEP Flow, Future Climate (RCP6)

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+

REVISION	01
DATE	26/02/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

0 250 500 1,000 Meters

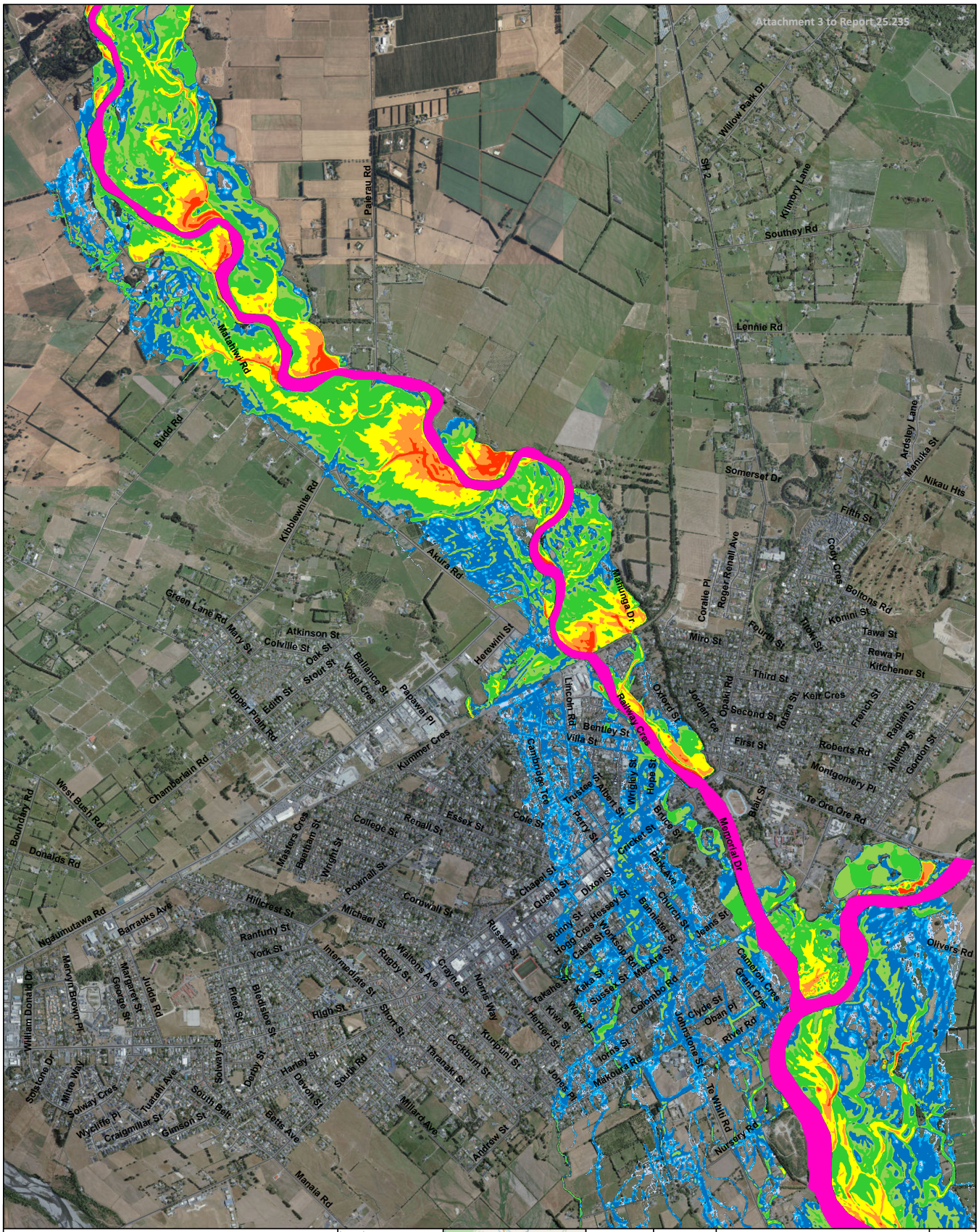
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 2 of 2

PEAK DEPTH MAP

1% AEP Flow, Future Climate (RCP6)

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+

REVISION	01
DATE	26/02/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

0 250 500 1,000 Meters

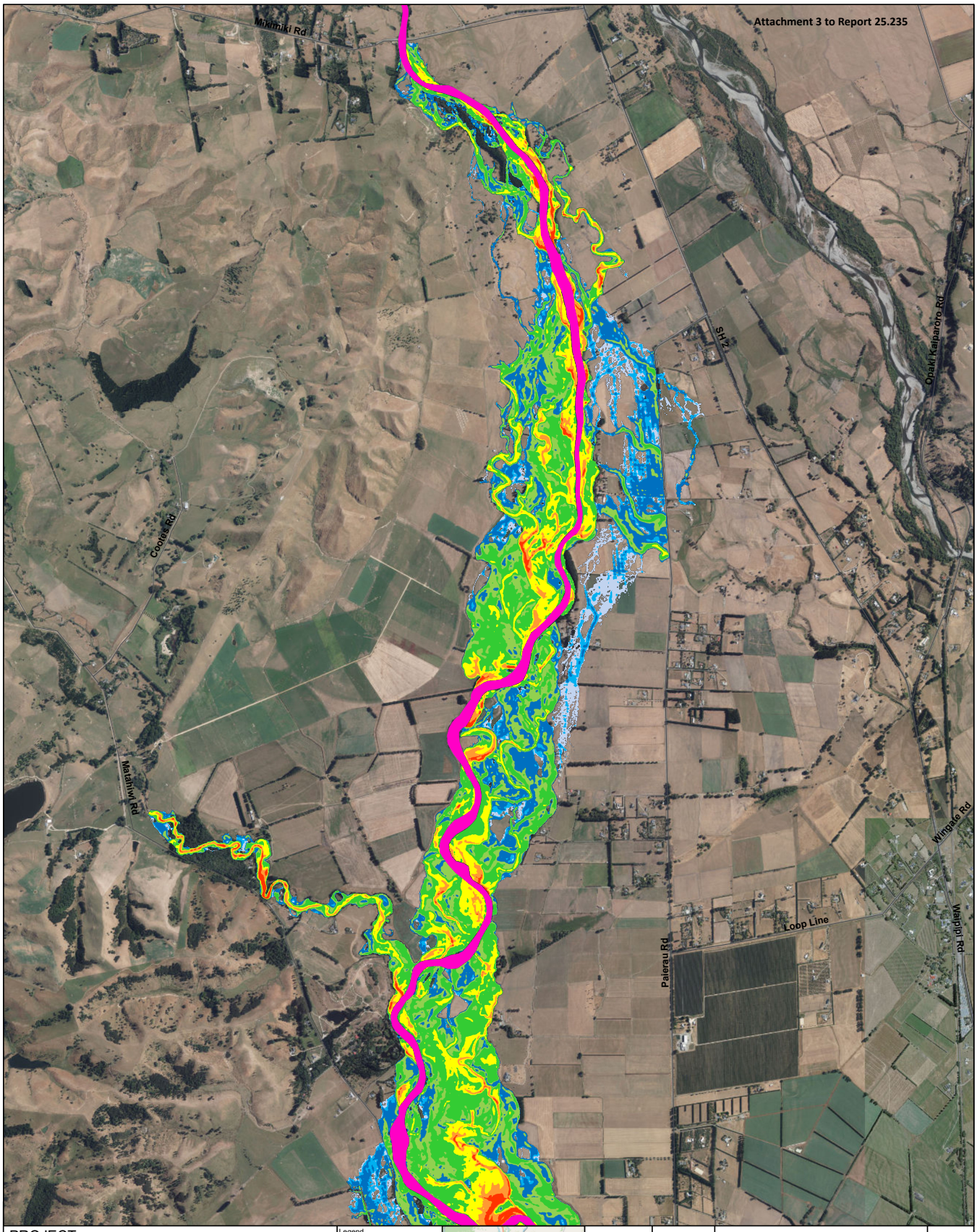
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 1 of 2
PEAK DEPTH MAP

0.1% AEP Flow, Future Climate (RCP6)

AUTHOR
Matthew Gardner

Legend
- 1D Channel
- Roads

Peak water depth(m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+

REVISION	01
DATE	1/03/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

0 250 500 1,000 Meters

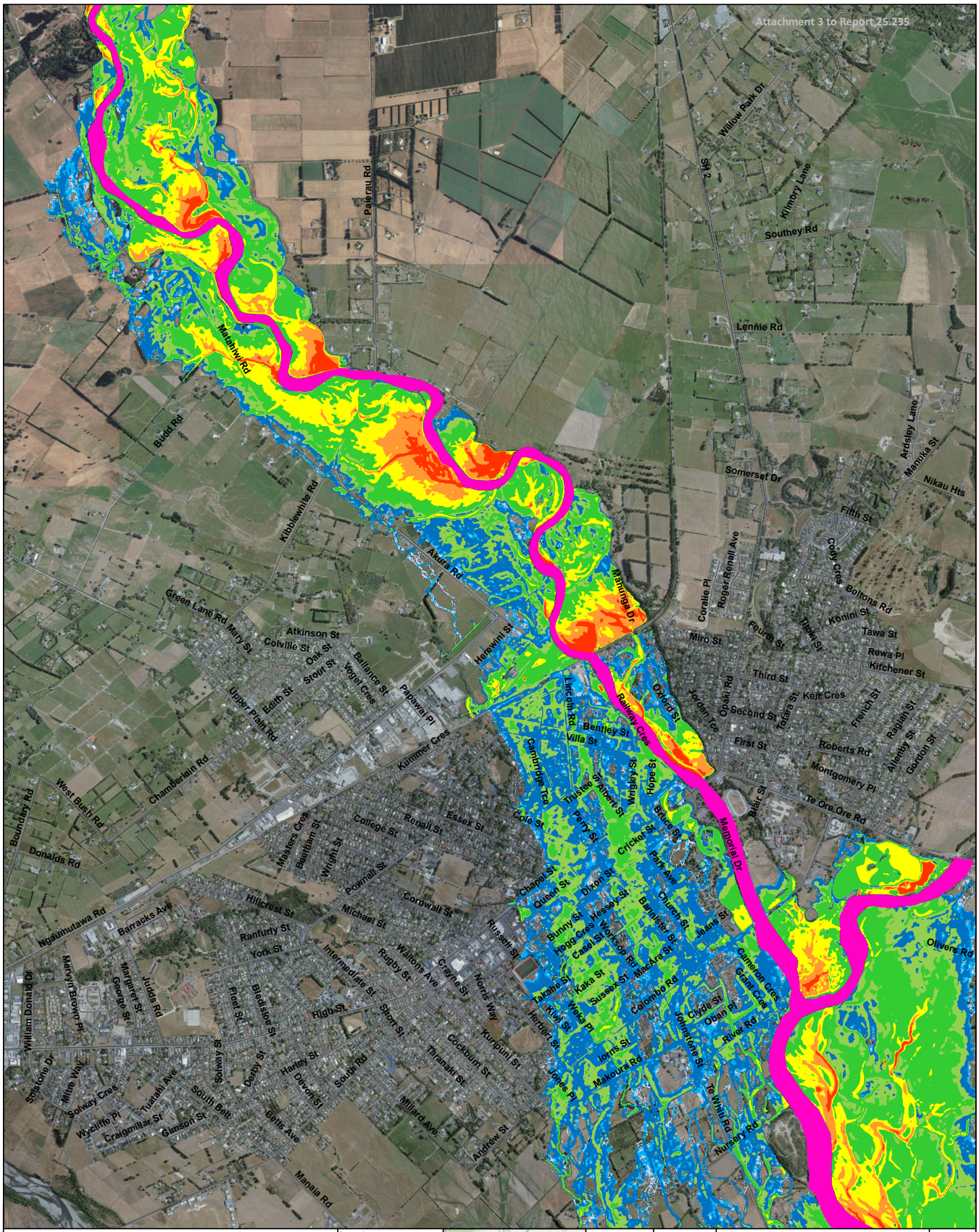
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT	**Waipoua River Flood Modelling**
MAP 2 of 2	**PEAK DEPTH MAP**
	0.1% AEP Flow, Future Climate (RCP6)
AUTHOR	**Matthew Gardner**

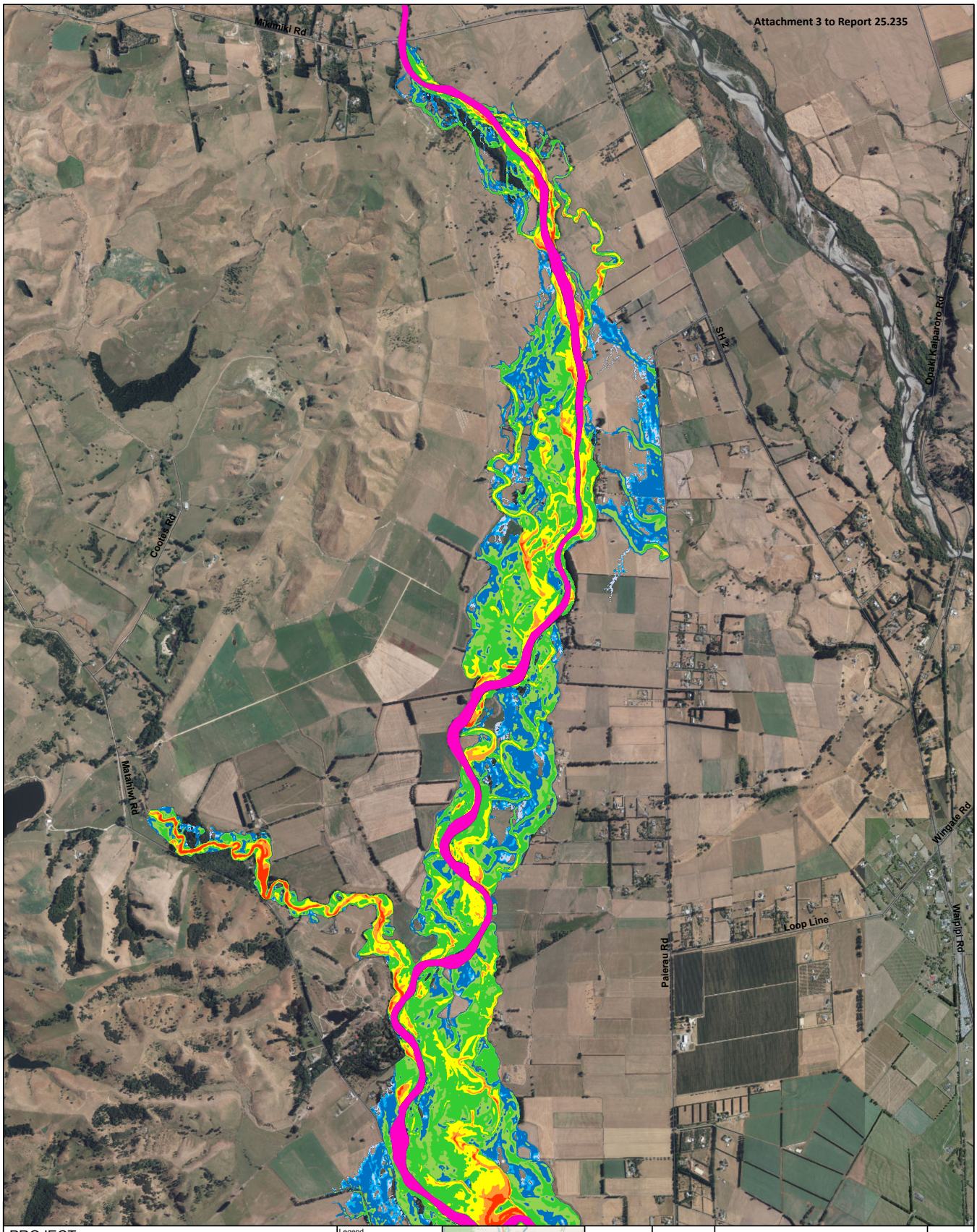
REVISION	01
DATE	1/03/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Waipoua River Flood Modelling

MAP 1 of 2
PEAK DEPTH MAP

Combined Sensitivity Runs
1% AEP Flow, Future Climate (RCP6)

AUTHOR
Matthew Gardner

Legend
1D Channel
Peak water depth (m)
0
0 - 0.05
0.05 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1
1 - 1.5
1.5 - 2
2+
Roads

REVISION	01
DATE	3/03/2023
A3 SCALE	1:22,000
CREATED BY	BS
REVISED BY	MG

0 250 500 1,000 Meters

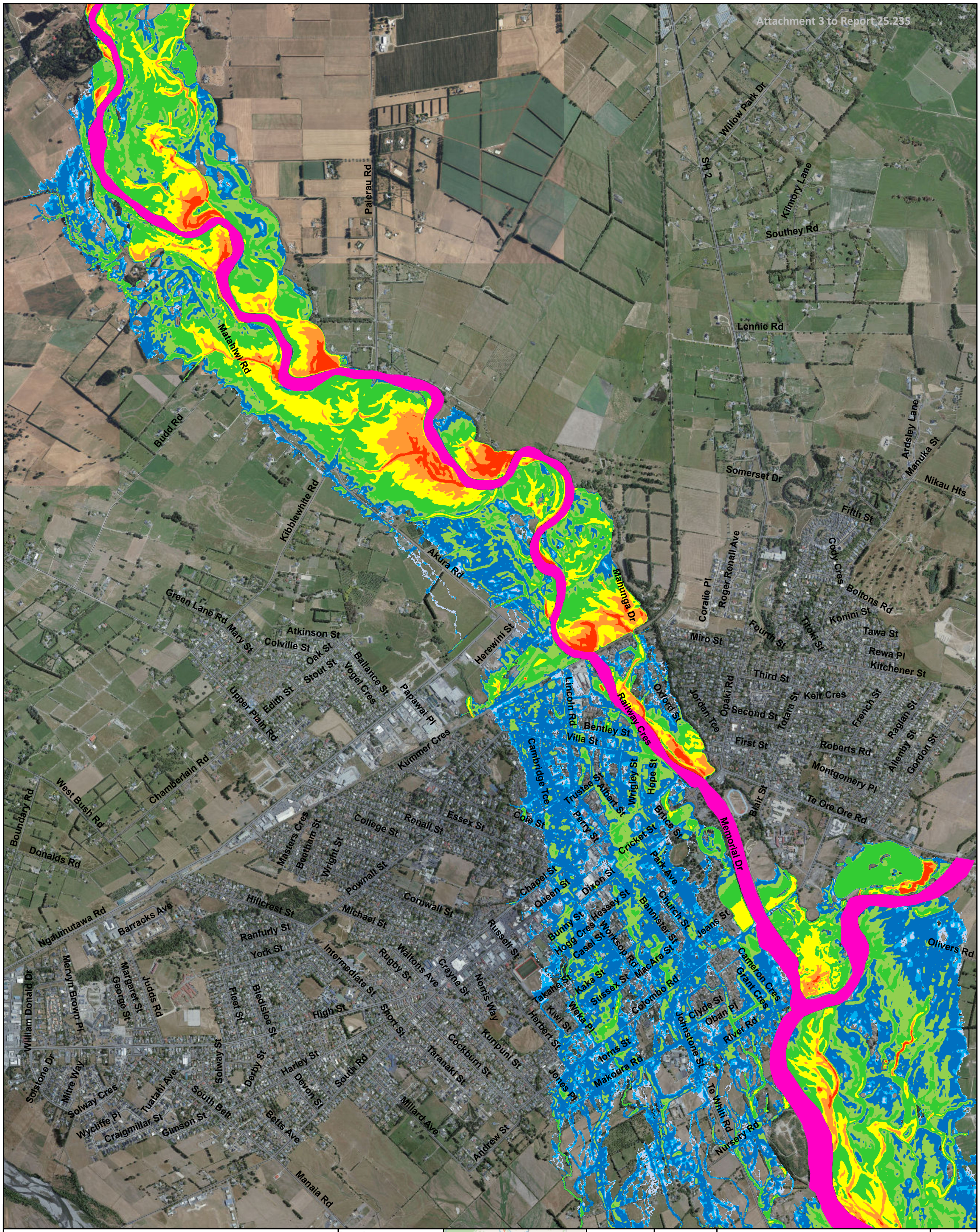
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao


Attachment 3 to Report 25.235
Willow Park Dr
SH 2
Paierau Rd
Kilmory Lane
Southey Rd
Lennie Rd
Matahiwi Rd
Budd Rd
Ardsley Lane
Manuka St
Nikau Hts
Somerset Dr
Fifth St
Kibblewhite Rd
Akura Rd
Roger Renall Ave
Coralie Pl
Cody Cres
Boltons Rd
Manuka Dr
Green Lane Rd
Mary St
Atkinson St
Colville St
Oak St
Stout St
Ballance St
Vogel Cres
Horewini St
Miro St
Fourth St
Titoki St
Konini St
Tawa St
Rewa Pl
Kitchener St
Third St
Kerr Cres
Edith St
Upper Plain Rd
Papawai Pl
Lincoln Rd
Railway Cres
Oxford St
Jordon Tce
Opaki Rd
Second St
Totara St
French St
Raglan St
Bentley St
Villa St
First St
Roberts Rd
Allenby St
Gordon St
Kummer Cres
Chamberlain Rd
Montgomery Pl
Boundary Rd
West Bush Rd
Cambridge Tce
Trustee St
Albert St
Wrigley St
Hope St
Bute St
Te Ore Ore Rd
Essex St
Renall St
College St
Cole St
Perry St
Cricket St
Bruce St
Memorial Dr
Donalds Rd
Masters Cres
Boettam St
Wright St
Pownall St
Chapel St
Queen St
Dixon St
Park Ave
Hillcrest St
Cornwall St
Michael St
Hessey St
Bannister St
Church St
Jeans St
Ngaumutawa Rd
Barracks Ave
Ranfurly St
York St
Russell St
Bunny St
Hogg Cres
Casel St
Workshop Rd
Olivers Rd
Cameron Cres
Glen Cres
Marjory Brown Pl
Margaret St
George St
Judds Rd
Intermediate St
Rugby St
Waltons Ave
Crayne St
Norris Way
Takahe St
Kaka St
Sussex St
MacAra St
Colombo Rd
William Donald Dr
Pearl St
Bledisloe St
High St
Short St
Kuripuni St
Harpert St
Kiwi St
Weka Pl
Clyde St
Oban Pl
River Rd
Johnstone St
Solway St
Derby St
Harley St
South Rd
Cockburn St
Taranaki St
Jones Pl
Iorns St
Makoura Rd
Te Whiti Rd
Nursery Rd
Colstone Dr
Mitre Way
Solway Cres
Tuatahi Ave
South Belt
Devon St
Wycliffe Pl
Craigmillar St
Gimson St
Betts Ave
Millard Ave
Andrew St
Manaia Rd

PROJECT **Waipoua River Flood Modelling**		REVISION	01
MAP 2 of 2 **PEAK DEPTH MAP**		DATE	3/03/2023
Combined Sensitivity Runs 1% AEP Flow, Future Climate (RCP6)		A3 SCALE	1:22,000
AUTHOR **Matthew Gardner**		CREATED BY	BS
		REVISED BY	MG

Legend
- 1D Channel
- Peak water depth (m)
- 0
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2+
- Roads

0 250 500 1,000 Meters

N

Masterton

LANDRIVERSEA CONSULTING

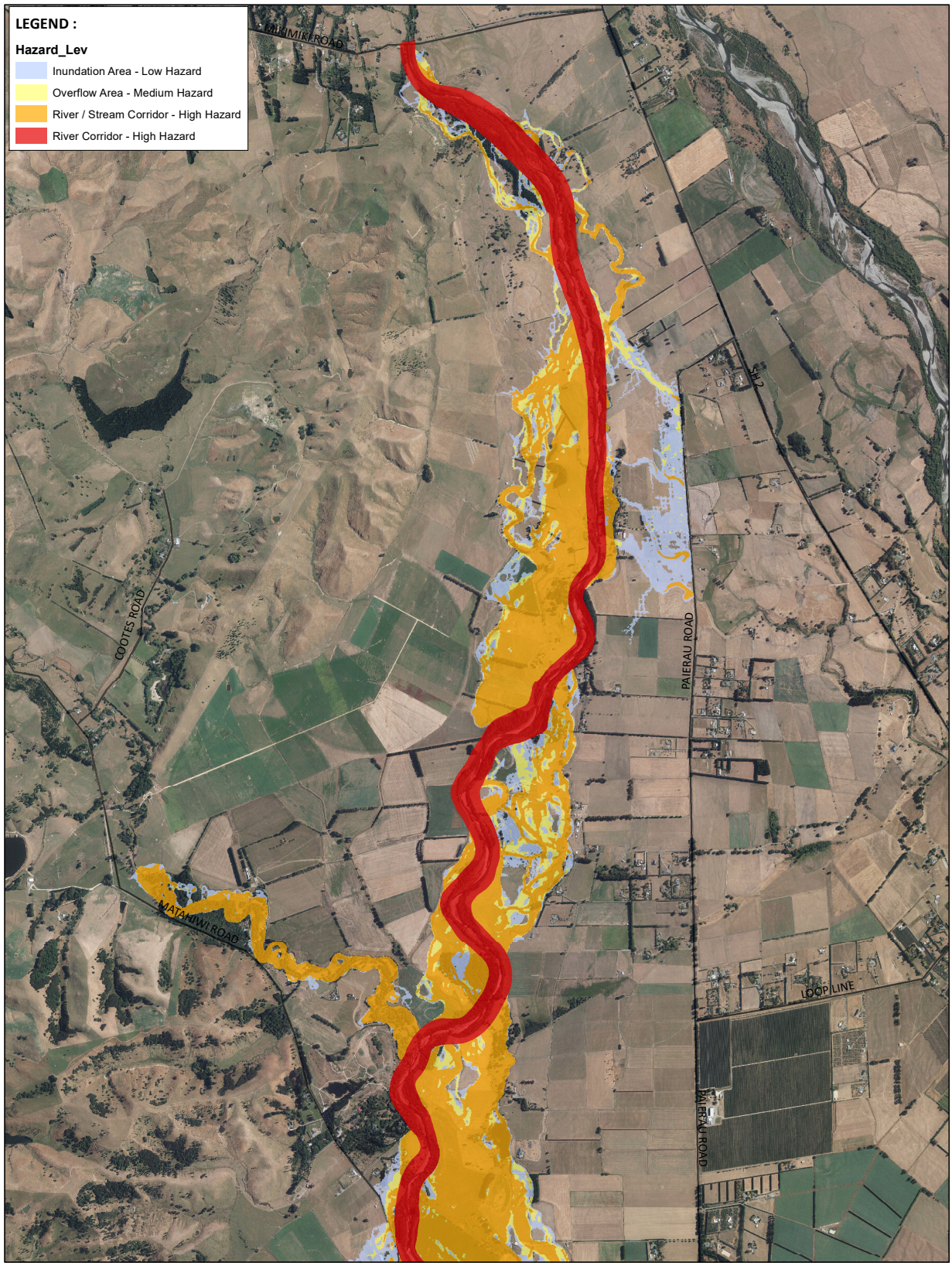
Greater Wellington Te Pane Matua Taiao

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum

Model Completed:

ATTACHMENT 4 - Flood hazard map for the Waipoua River

Attachment 4 to Report 25.235



WAIPOUA RIVER HAZARD MAP
Combined Sensitivity Runs 1% AEP Flow, Future Climate (RCP6)
Map (1 of 2)

N

Greater Wellington
Te Pane Matua Taiao

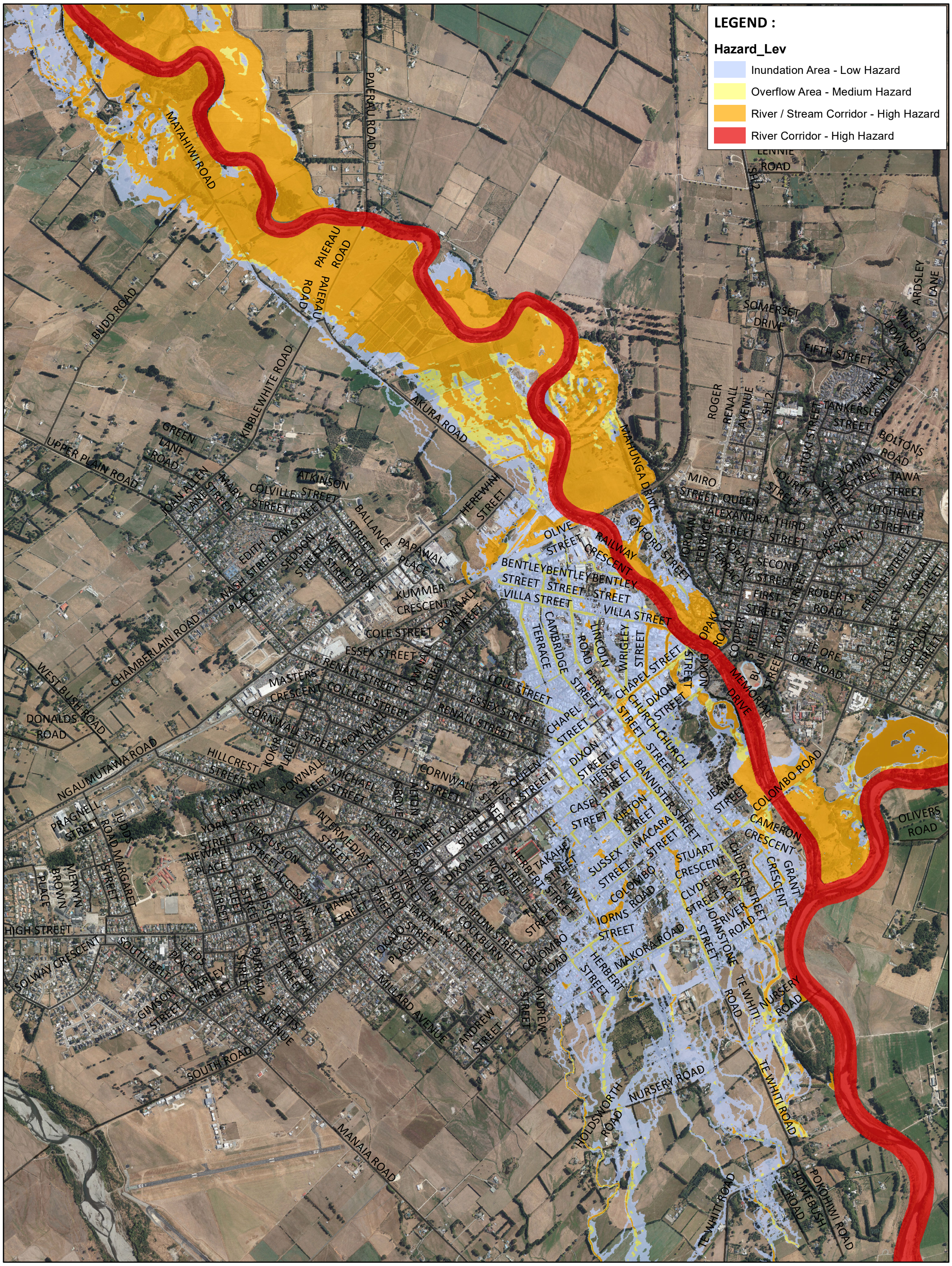
0 230 460 920 Metres

A3 Scale: 1:22,000

DISCLAIMER:
The flood hazard information shown on this plan is based on the best available data at the time of preparation. Specific interpretation of flood risk in any areas shown to be affected by flooding should be obtained by written request from the Greater Wellington Regional Council. The GWRC and other agencies involved in the preparation of this plan assume no responsibility for any interpretation or action taken by any agency or individual in relation to information provided on the plan.

User Name: HeatherSG
Plotted 4:20:21 pm, 19/05/2025
SOURCE OF FLOOD LEVELS :
Database Connections\gwraster_nztm (Raster).sde\gwraster_nztm.SDEADMIN.FLOODPROT_MANGATARERE_1AEPCC_DEPTH_2018

Regional Orthophotography : 2017 GWRC



WAIPOUA RIVER HAZARD MAP
Combined Sensitivity Runs 1% AEP Flow, Future Climate (RCP6)
Map (2 of 2)

N

0 230 460 920 Metres

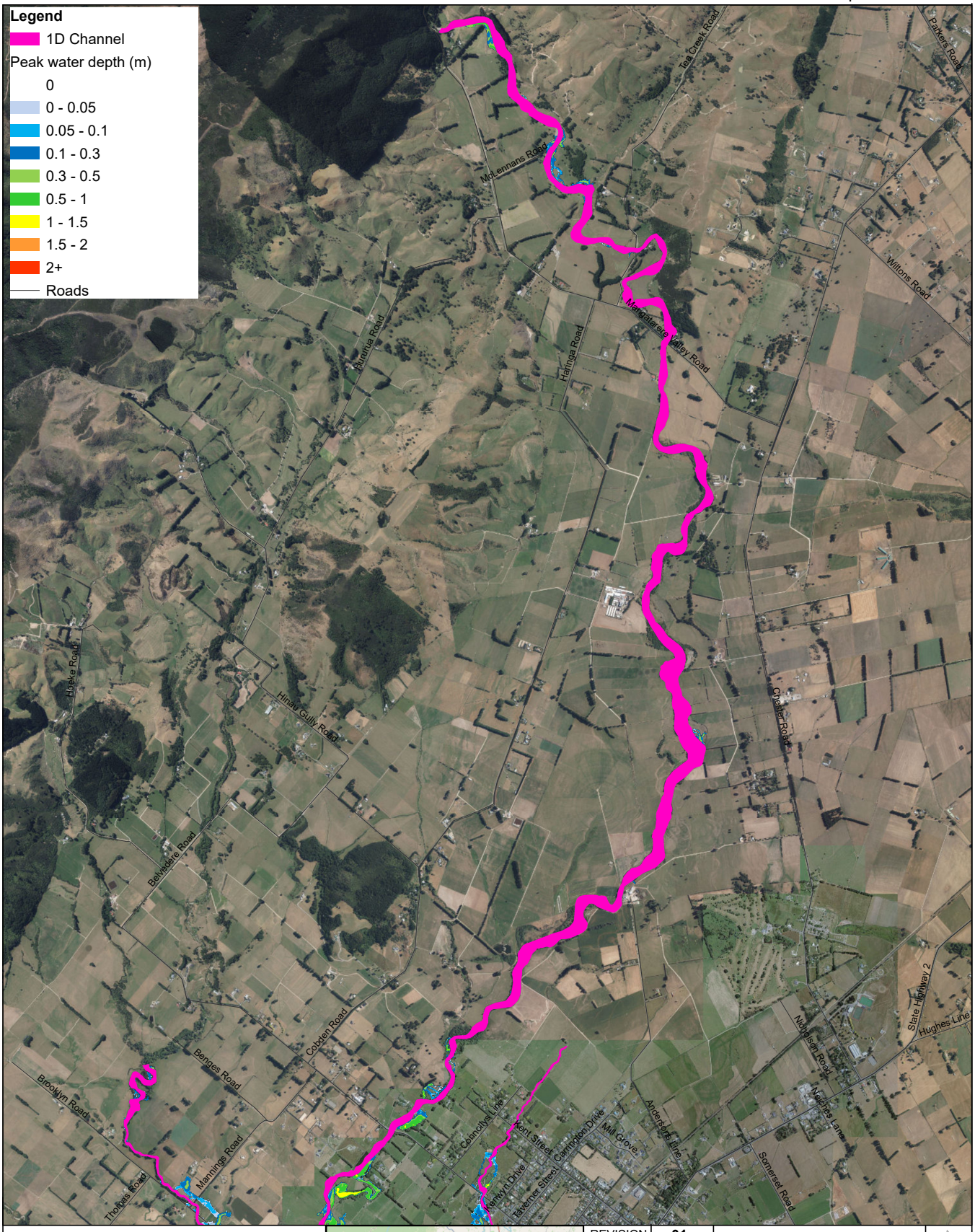
A3 Scale: 1:22,000

DISCLAIMER:
The flood hazard information shown on this plan is based on the best available data at the time of preparation. Specific interpretation of flood risk in any areas shown to be affected by flooding should be obtained by written request from the Greater Wellington Regional Council. The GWRC and other agencies involved in the preparation of this plan assume no responsibility for any interpretation or action taken by any agency or individual in relation to information provided on the plan.

User Name: HeatherSG
Plotted 4:24:09 pm, 19/05/2025
SOURCE OF FLOOD LEVELS :
Database Connections\gwraster_nztm (Raster).sde\gwraster_nztm.SDEADMIN.FLOODPROT_MANGATARERE_1AEPCC_DEPTH_2018

Regional Orthophotography : 2017 GWRC

ATTACHMENT 5 - Flood depth maps for the Mangatārere Stream



PROJECT
Mangatarere Stream Flood Modelling

MAP (1 of 2)

PEAK DEPTH MAP

39.35% AEP Flow, Historic Climate

REVISION	01
DATE	3/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

0 300 600 1,200 Meters

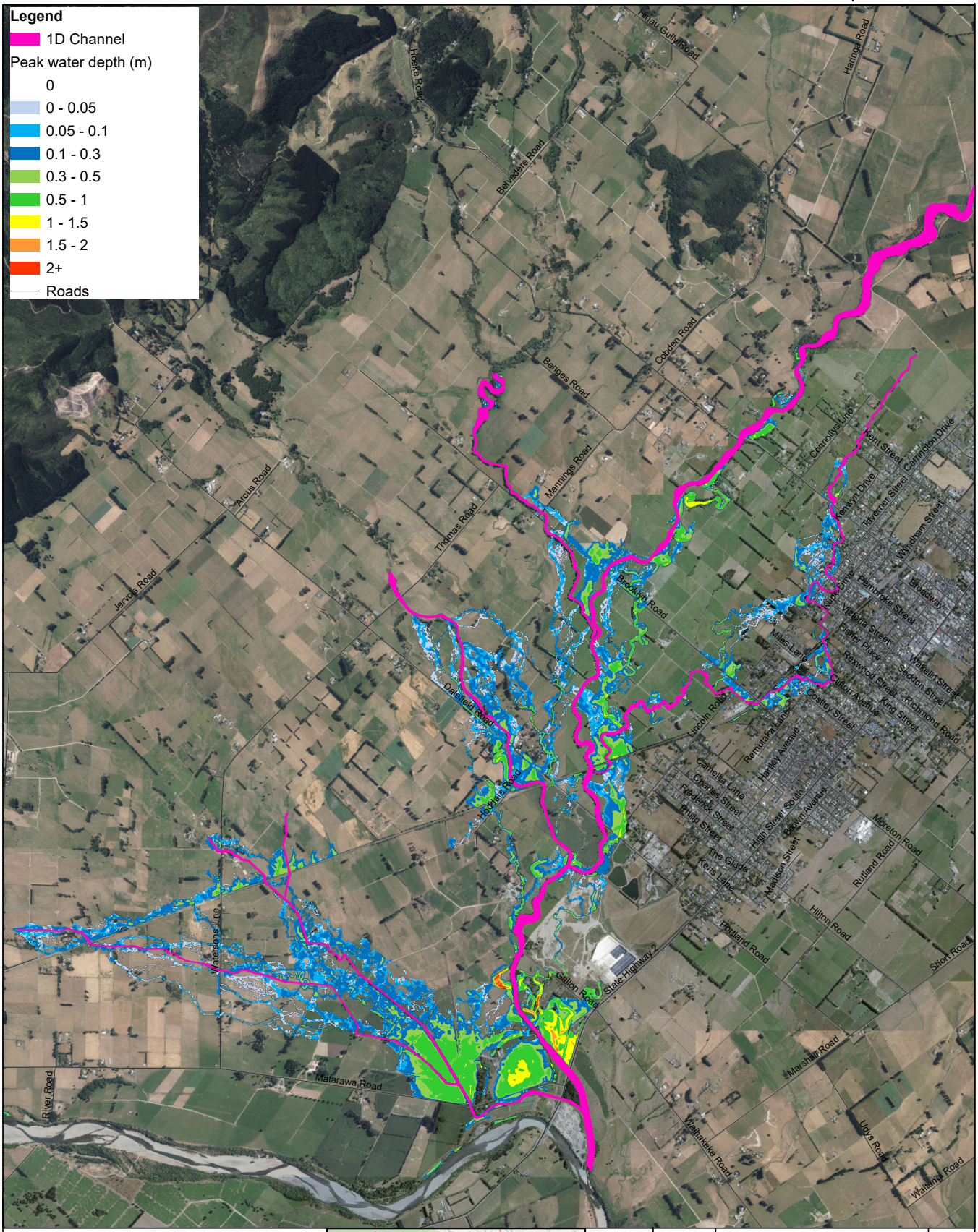
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

AUTHOR
Matthew Gardner



PROJECT		REVISION	01
Mangatarere Stream Flood Modelling		DATE	3/03/2023
MAP (2 of 2)		A3 SCALE	1:25,000
PEAK DEPTH MAP		CREATED BY	BS
		REVISED BY	MG
39.35% AEP Flow, Historic Climate		AUTHOR	**Matthew Gardner**

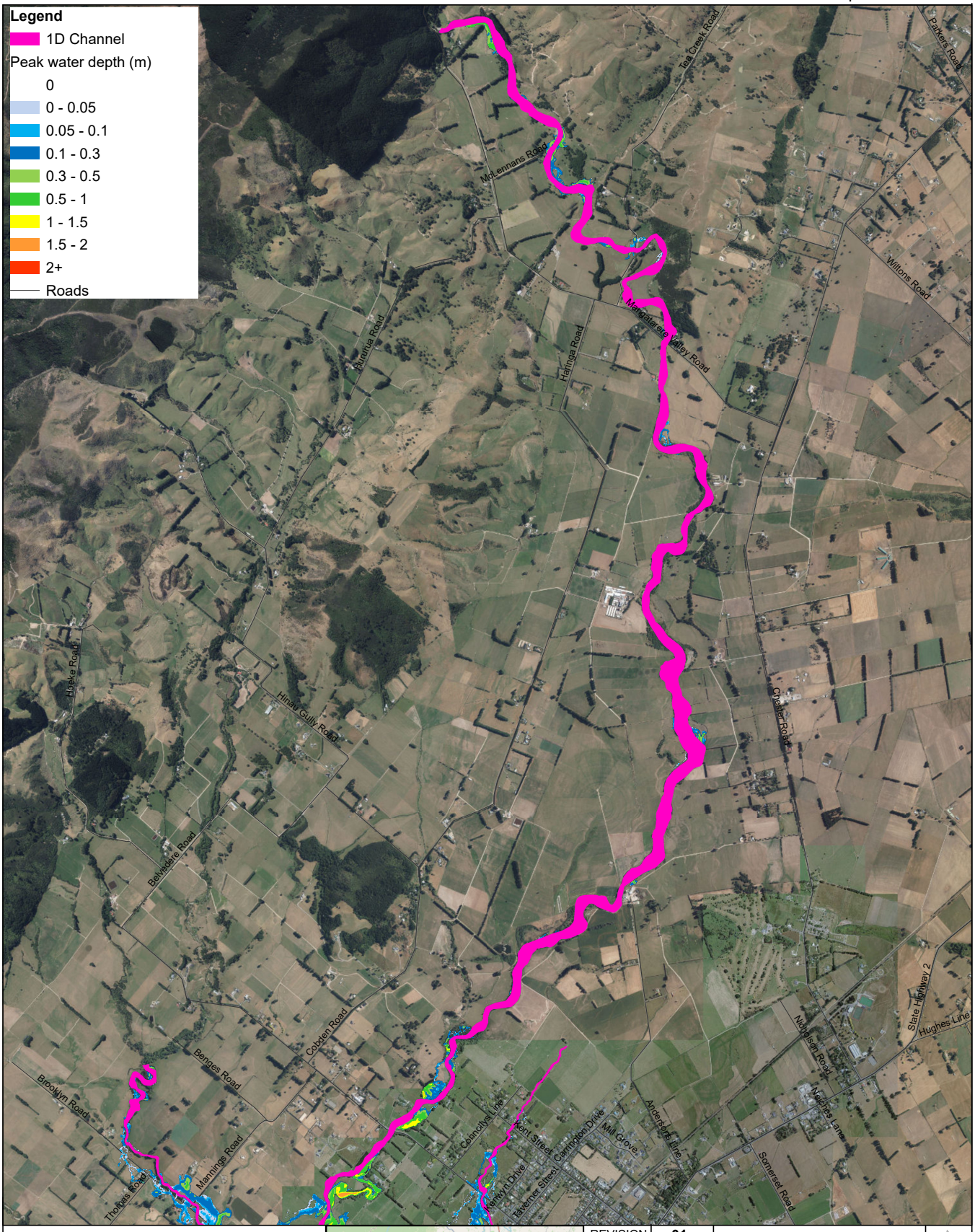
0 300 600 1,200 Meters

N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

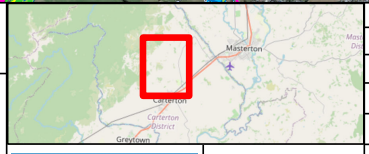


PROJECT
Mangatarere Stream Flood Modelling

MAP (1 of 2)

PEAK DEPTH MAP

20% AEP Flow, Historic Climate



REVISION	01
DATE	3/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

0 300 600 1,200 Meters

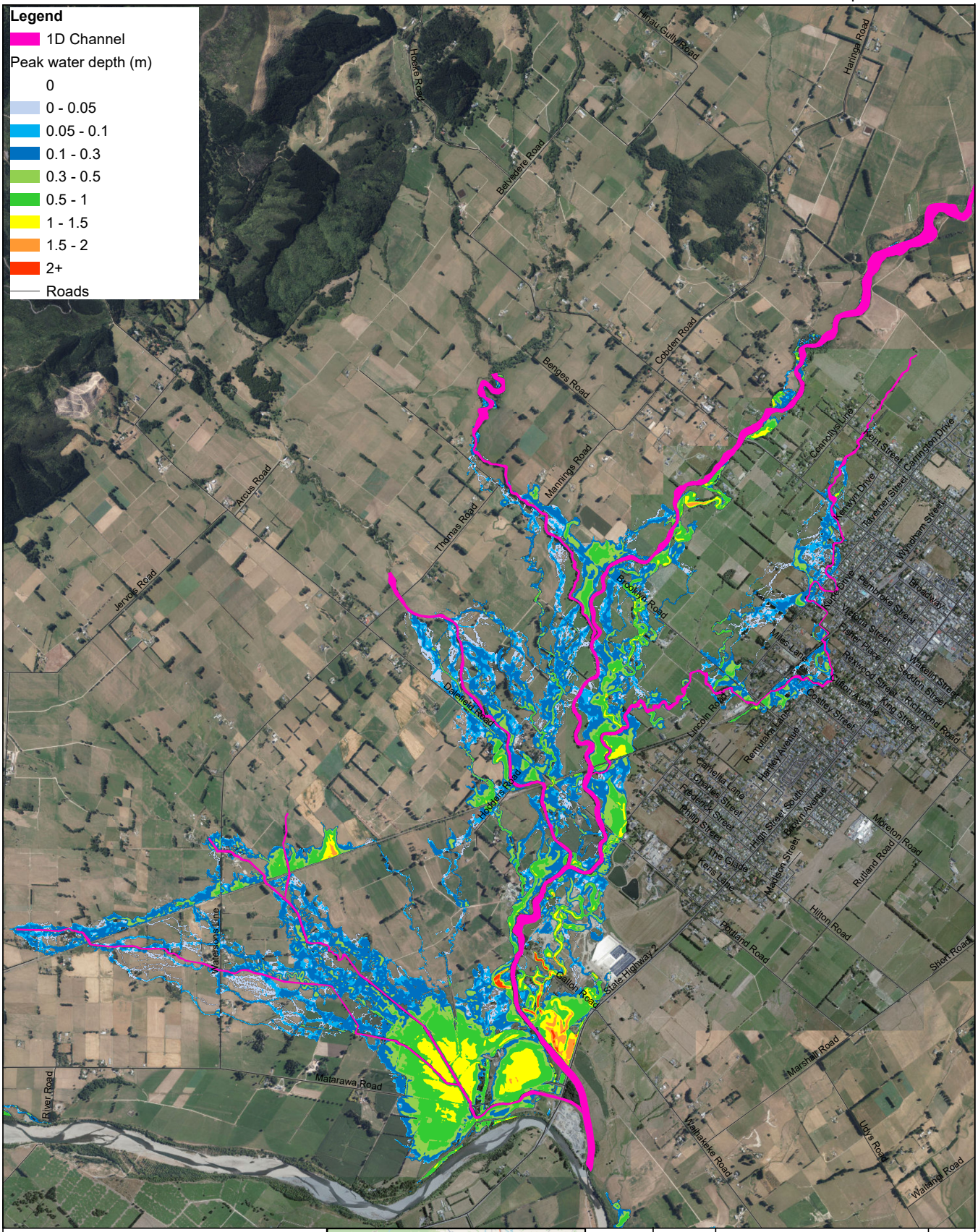
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

AUTHOR
Matthew Gardner

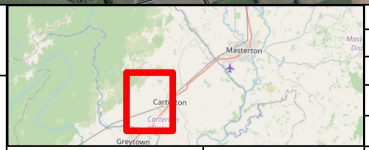


PROJECT
Mangatarere Stream Flood Modelling

MAP (2 of 2)

PEAK DEPTH MAP

20% AEP Flow, Historic Climate



LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

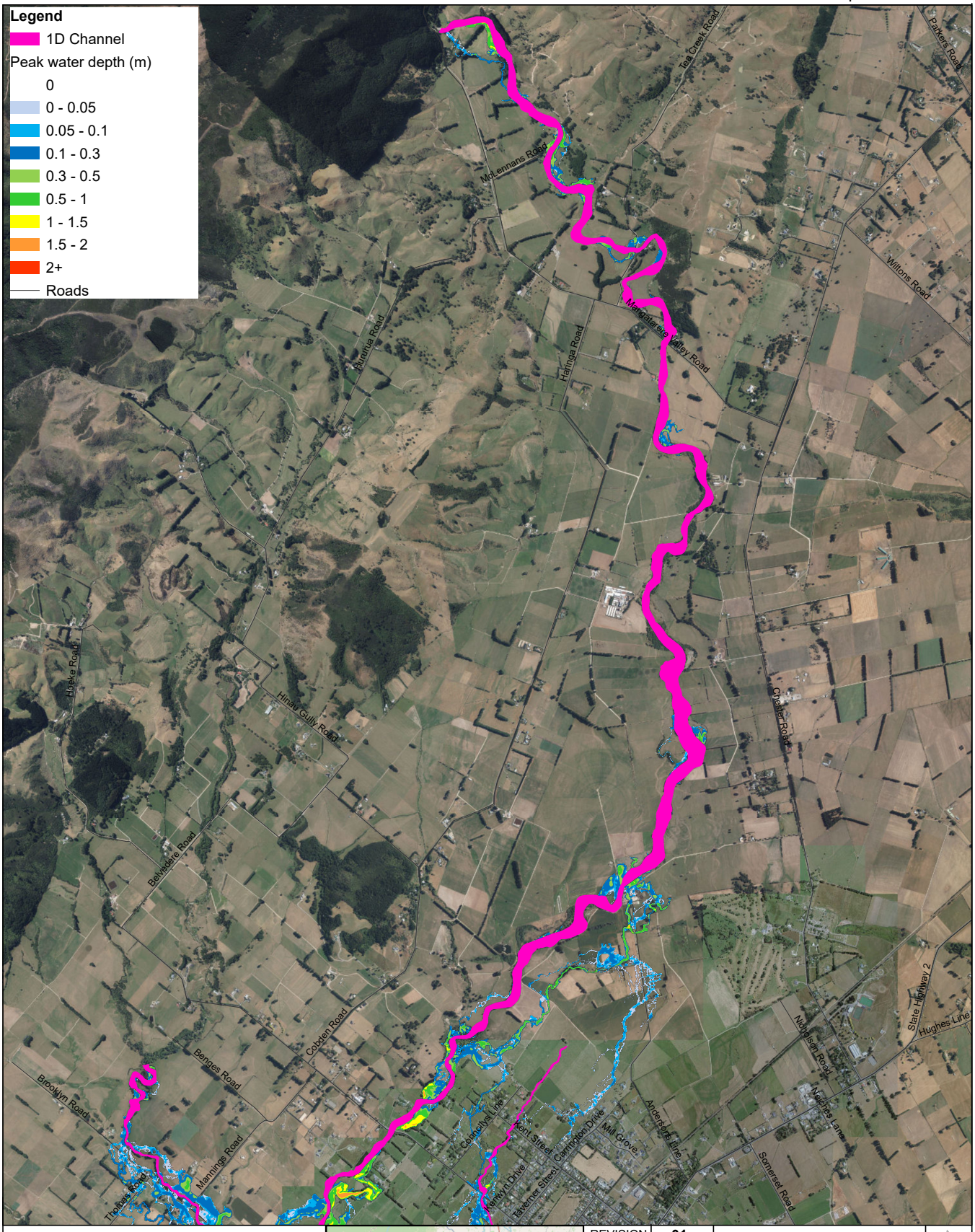
REVISION	01
DATE	3/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

0 300 600 1,200 Meters

N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

AUTHOR
Matthew Gardner



PROJECT
Mangatarere Stream Flood Modelling

MAP (1 of 2)

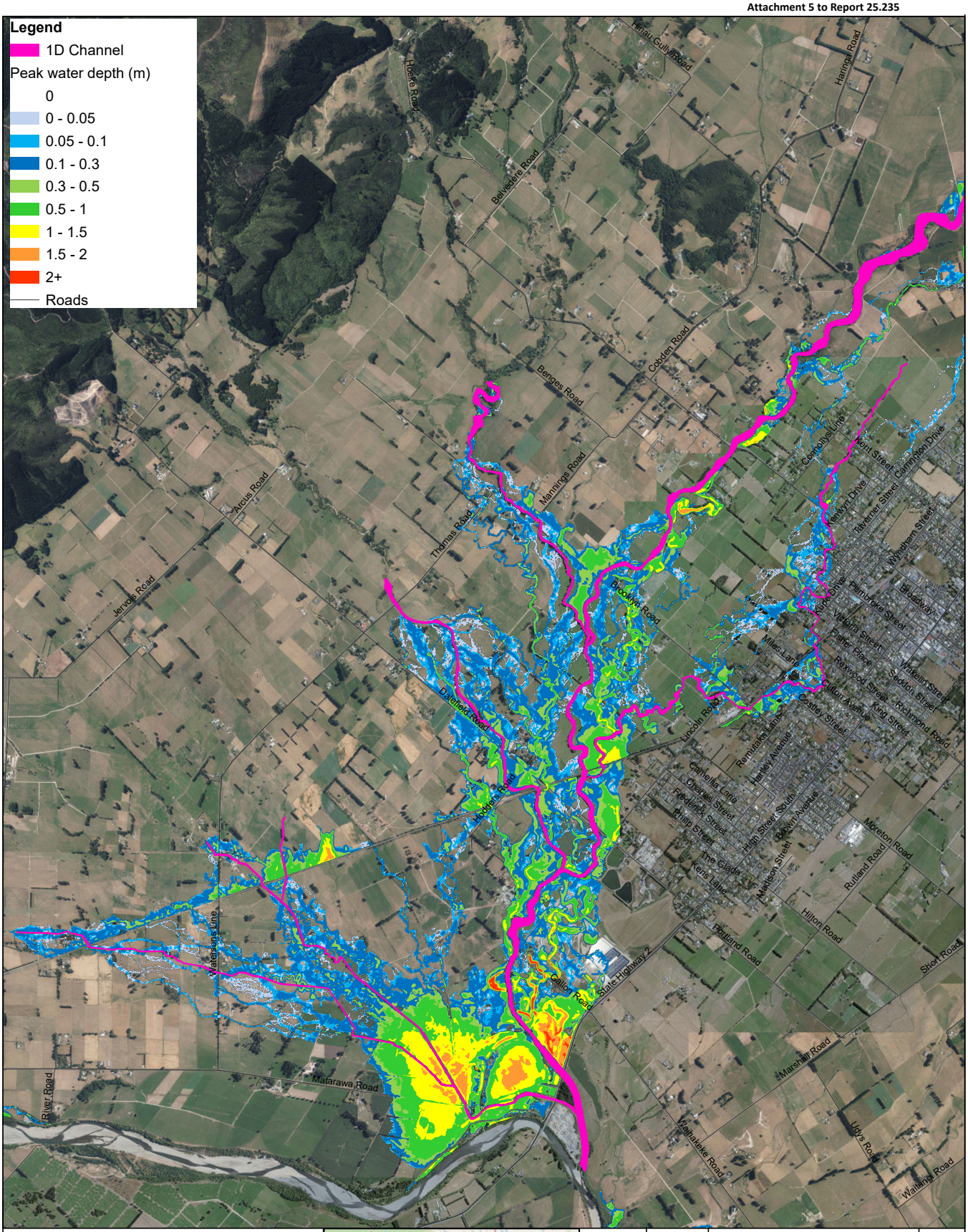
PEAK DEPTH MAP

10% AEP Flow, Historic Climate

REVISION	01
DATE	3/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

AUTHOR
Matthew Gardner



PROJECT
Mangatarere Stream Flood Modelling

MAP (2 of 2)

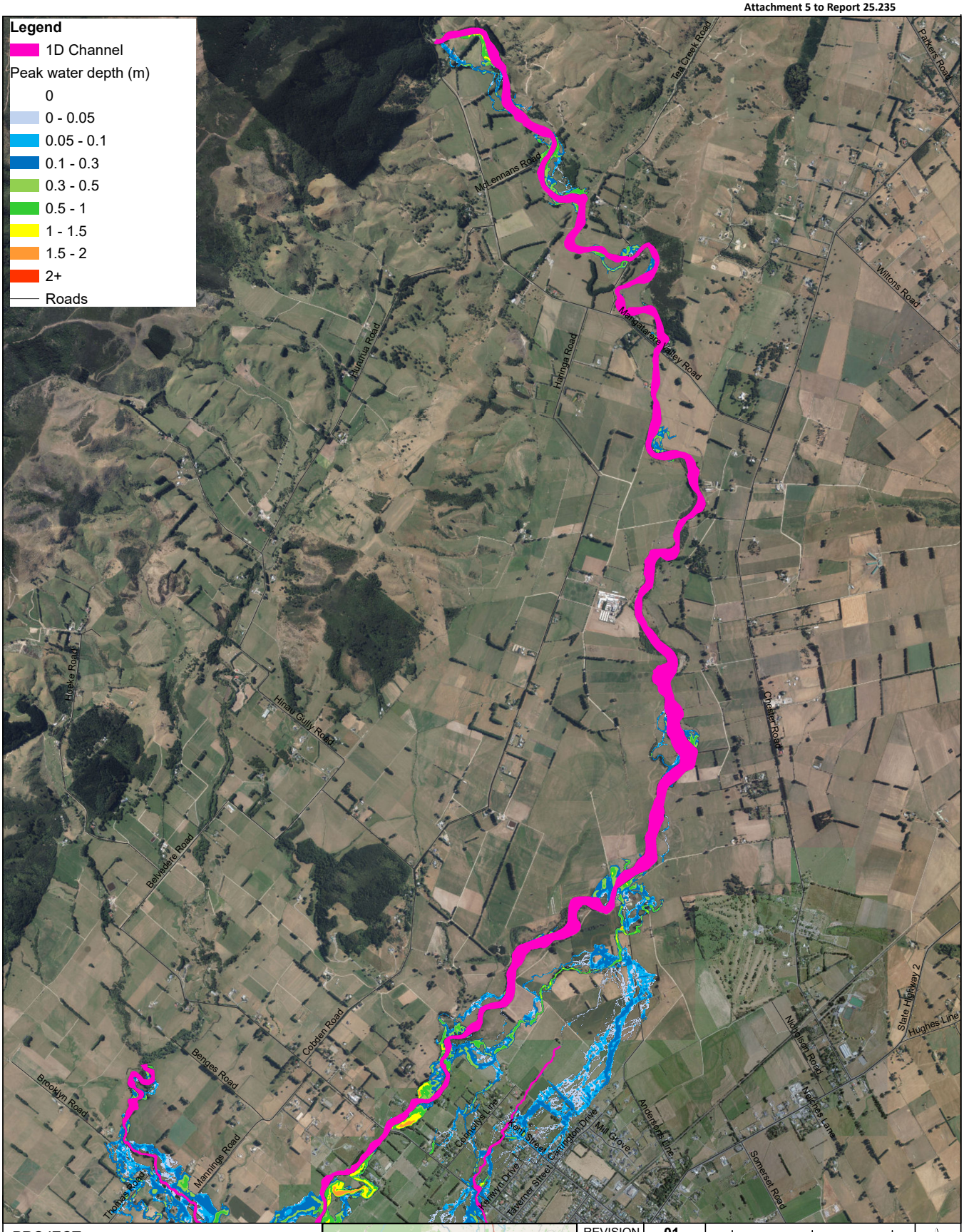
PEAK DEPTH MAP

10% AEP Flow, Historic Climate

REVISION	01
DATE	3/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

AUTHOR
Matthew Gardner



PROJECT
Mangatarere Stream Flood Modelling

MAP (1 of 2)

PEAK DEPTH MAP

5% AEP Flow, Historic Climate

REVISION	01
DATE	3/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

0 300 600 1,200 Meters

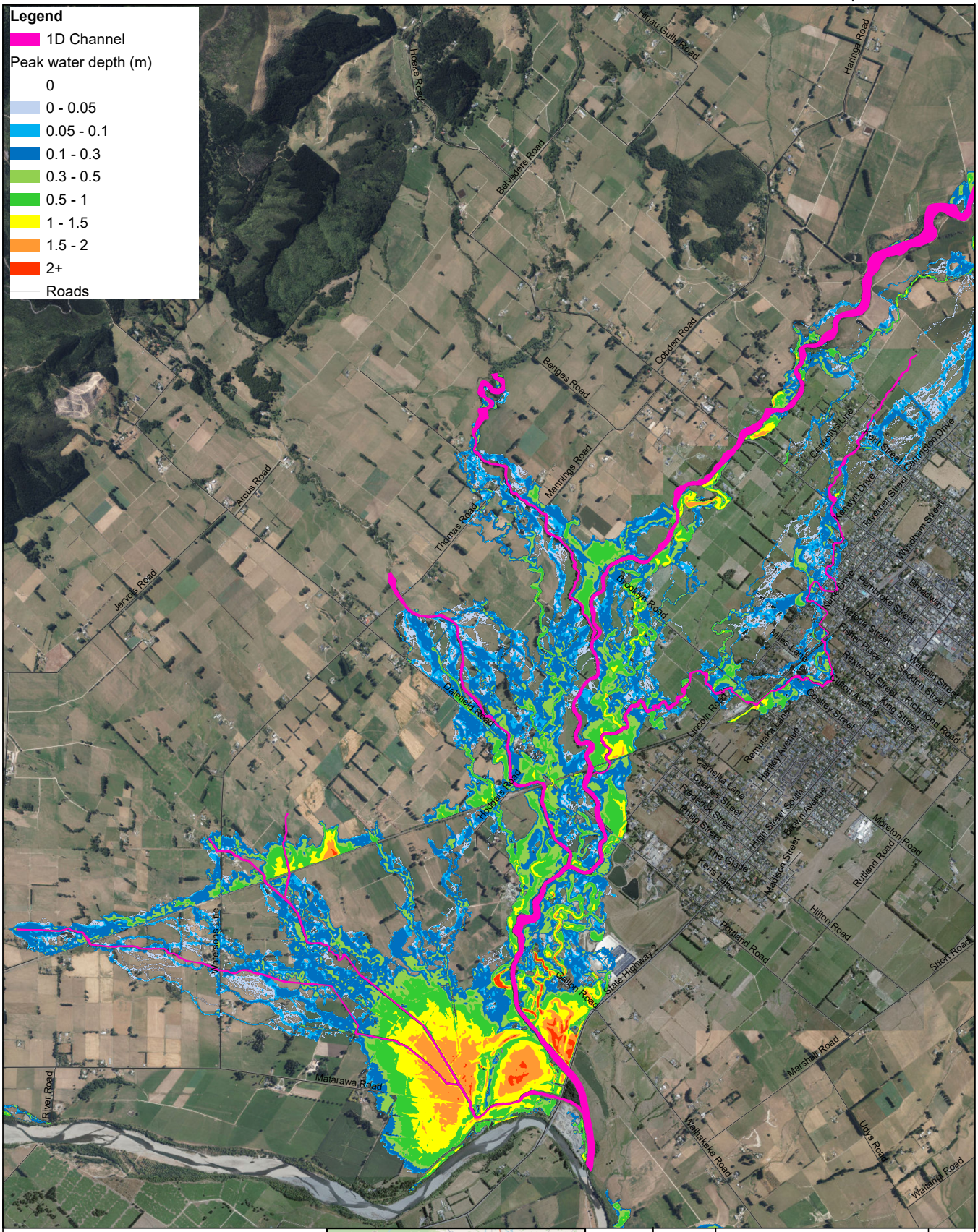
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

AUTHOR
Matthew Gardner

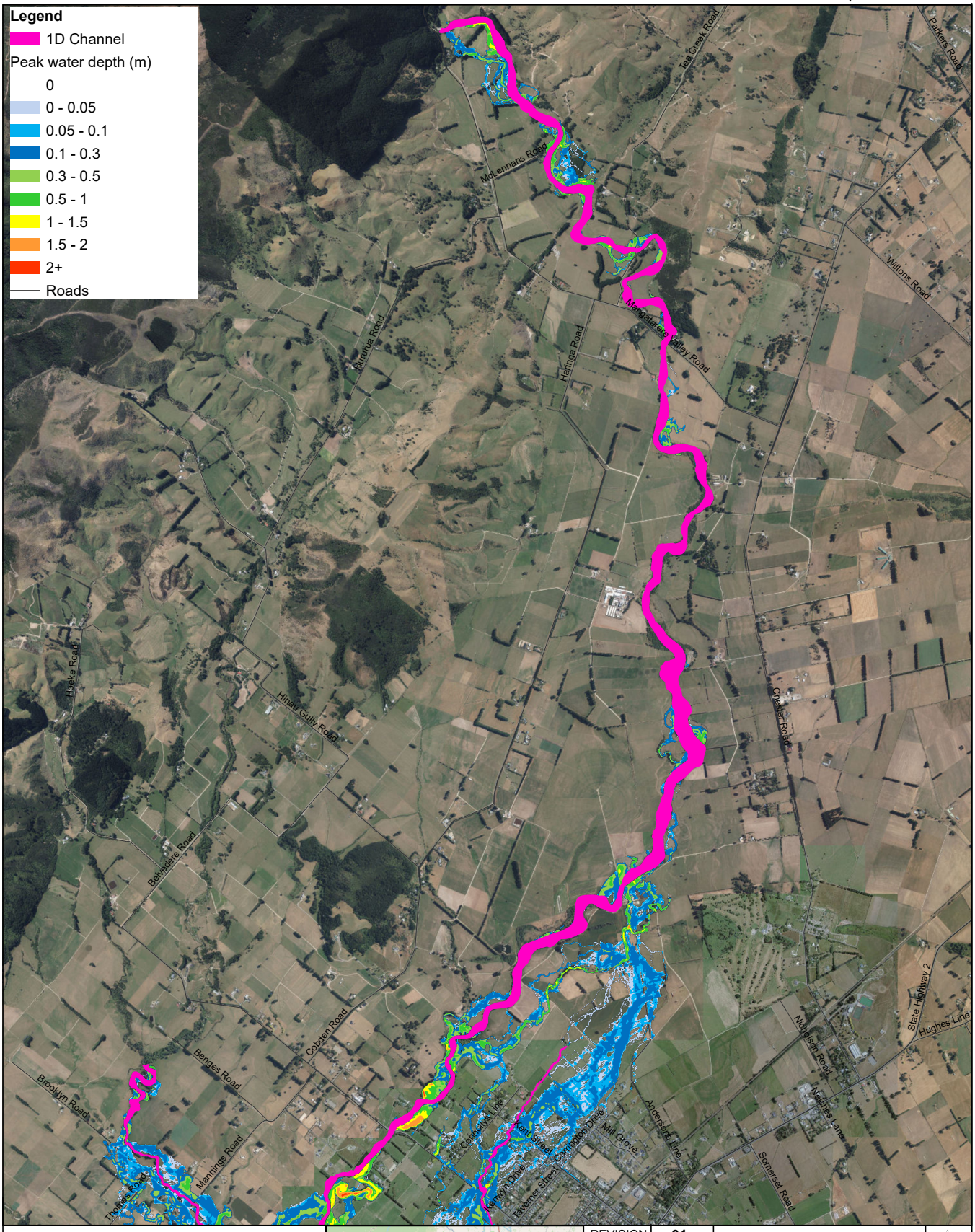


PROJECT **Mangatarere Stream Flood Modelling**		REVISION	01
		DATE	3/03/2023
MAP (2 of 2) **PEAK DEPTH MAP**		A3 SCALE	1:25,000
		CREATED BY	BS
		REVISED BY	MG
5% AEP Flow, Historic Climate	LANDRIVERSEA CONSULTING; Greater Wellington Te Pane Matua Taiao	AUTHOR	**Matthew Gardner**

0 300 600 1,200 Meters

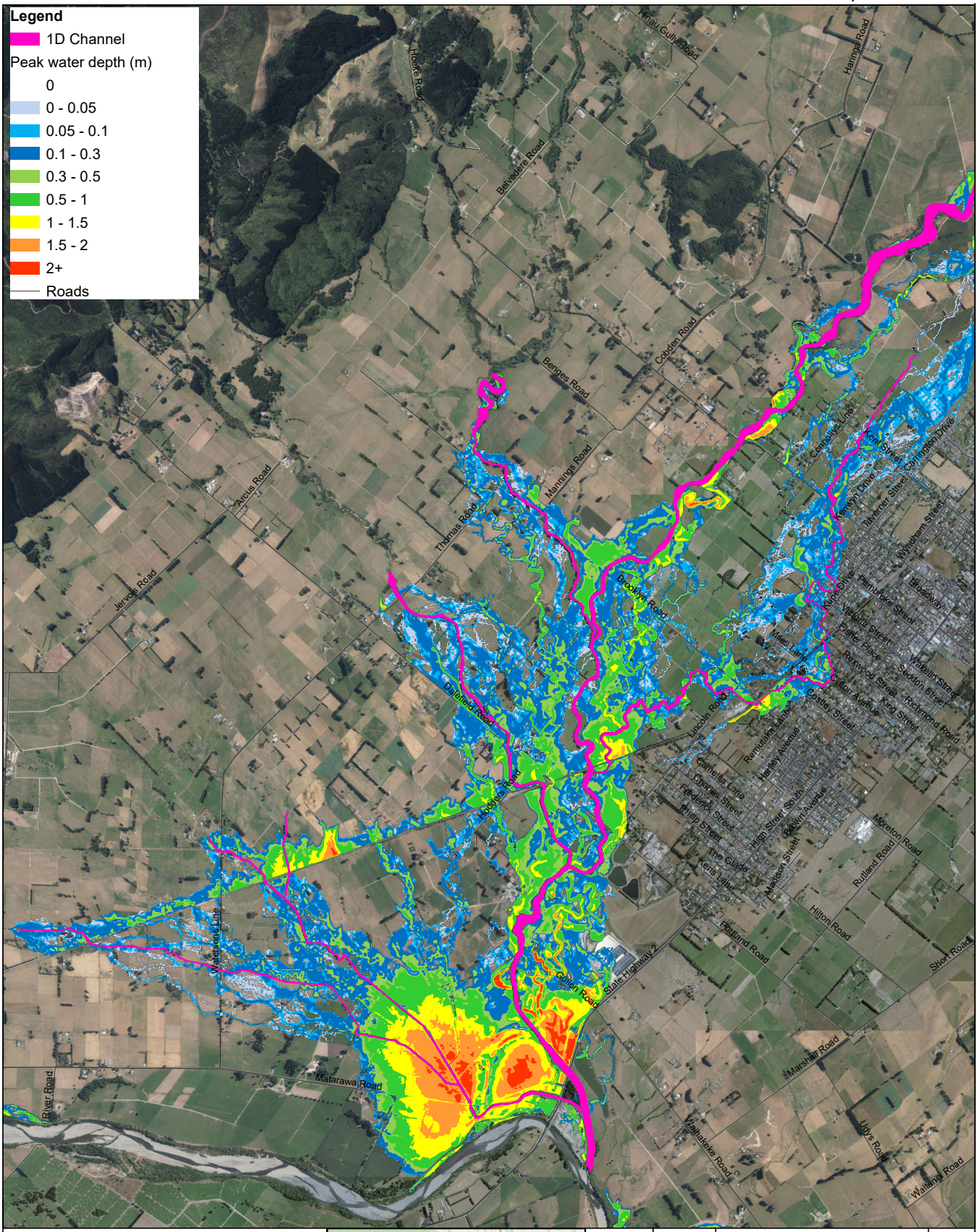
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022



PROJECT **Mangatarere Stream Flood Modelling**		REVISION	01
		DATE	3/03/2023
MAP (1 of 2)		A3 SCALE	1:25,000
PEAK DEPTH MAP		CREATED BY	BS
		REVISED BY	MG
2% AEP Flow, Historic Climate	LANDRIVERSEA CONSULTING / Greater Wellington Te Pane Matua Taiao	AUTHOR **Matthew Gardner**	

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

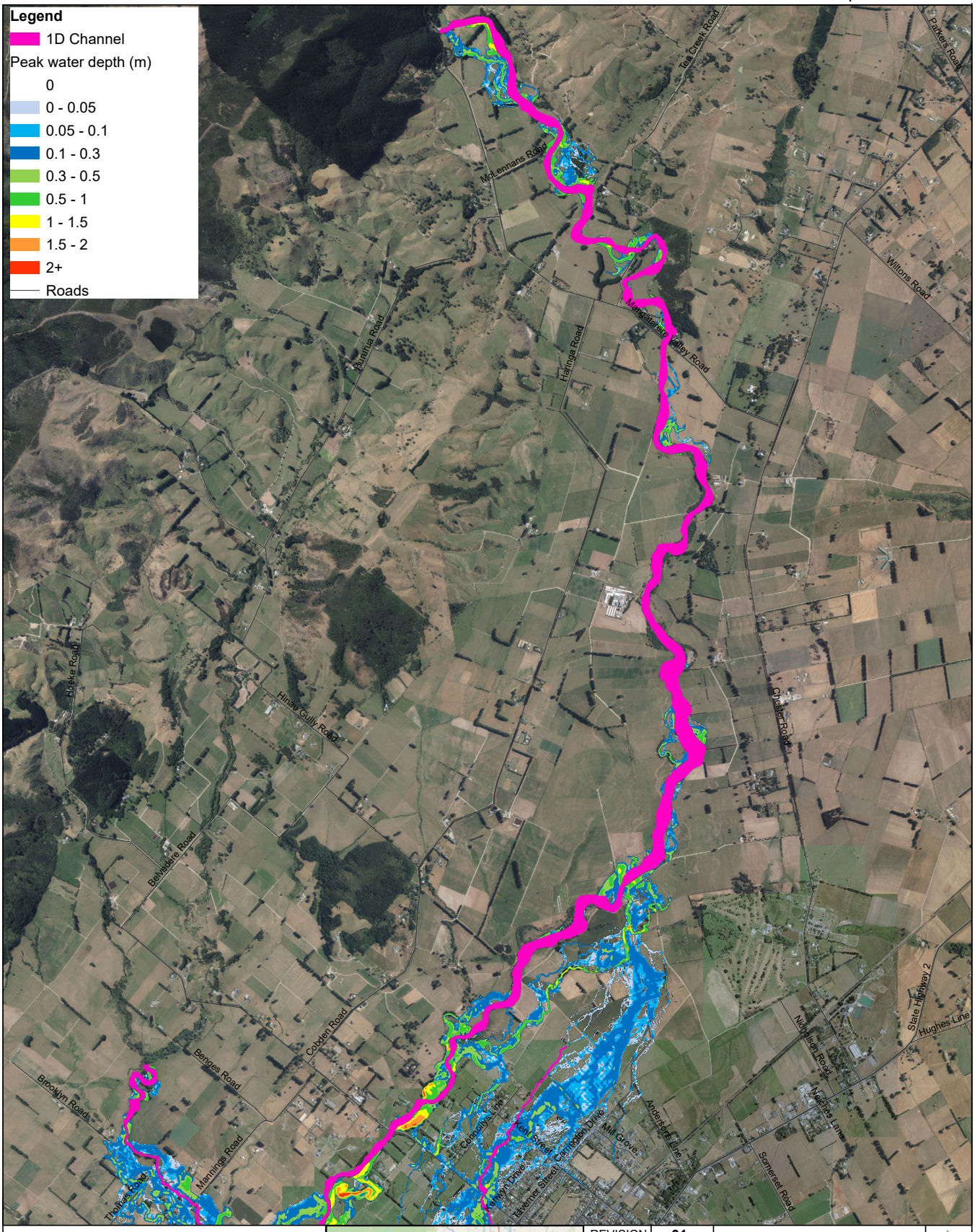


PROJECT **Mangatarere Stream Flood Modelling**		REVISION	01
		DATE	3/03/2023
MAP (2 of 2) **PEAK DEPTH MAP**		A3 SCALE	1:25,000
		CREATED BY	BS
		REVISED BY	MG
2% AEP Flow, Historic Climate	LANDRIVERSEA CONSULTING Greater Wellington Te Pane Matua Taiao	AUTHOR **Matthew Gardner**	

0 300 600 1,200 Meters

N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

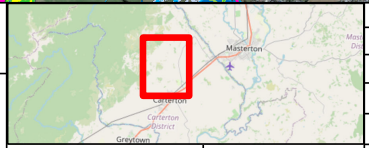


PROJECT
Mangatarere Stream Flood Modelling

MAP (1 of 2)

PEAK DEPTH MAP

1% AEP Flow, Historic Climate



REVISION	01
DATE	3/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

0 300 600 1,200 Meters

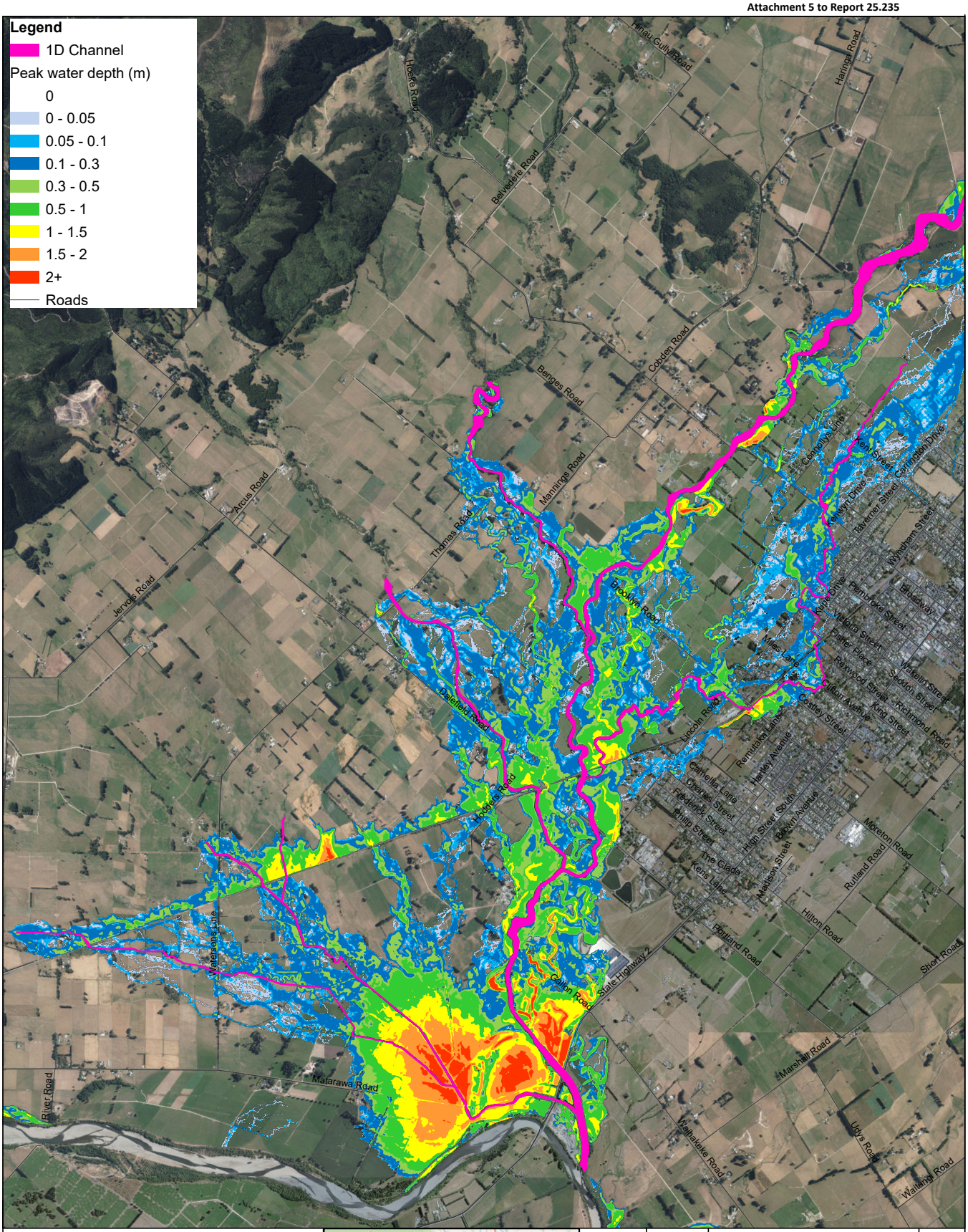
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

AUTHOR
Matthew Gardner



PROJECT
Mangatarere Stream Flood Modelling

MAP (2 of 2)

PEAK DEPTH MAP

1% AEP Flow, Historic Climate

REVISION	01
DATE	3/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

0 300 600 1,200 Meters

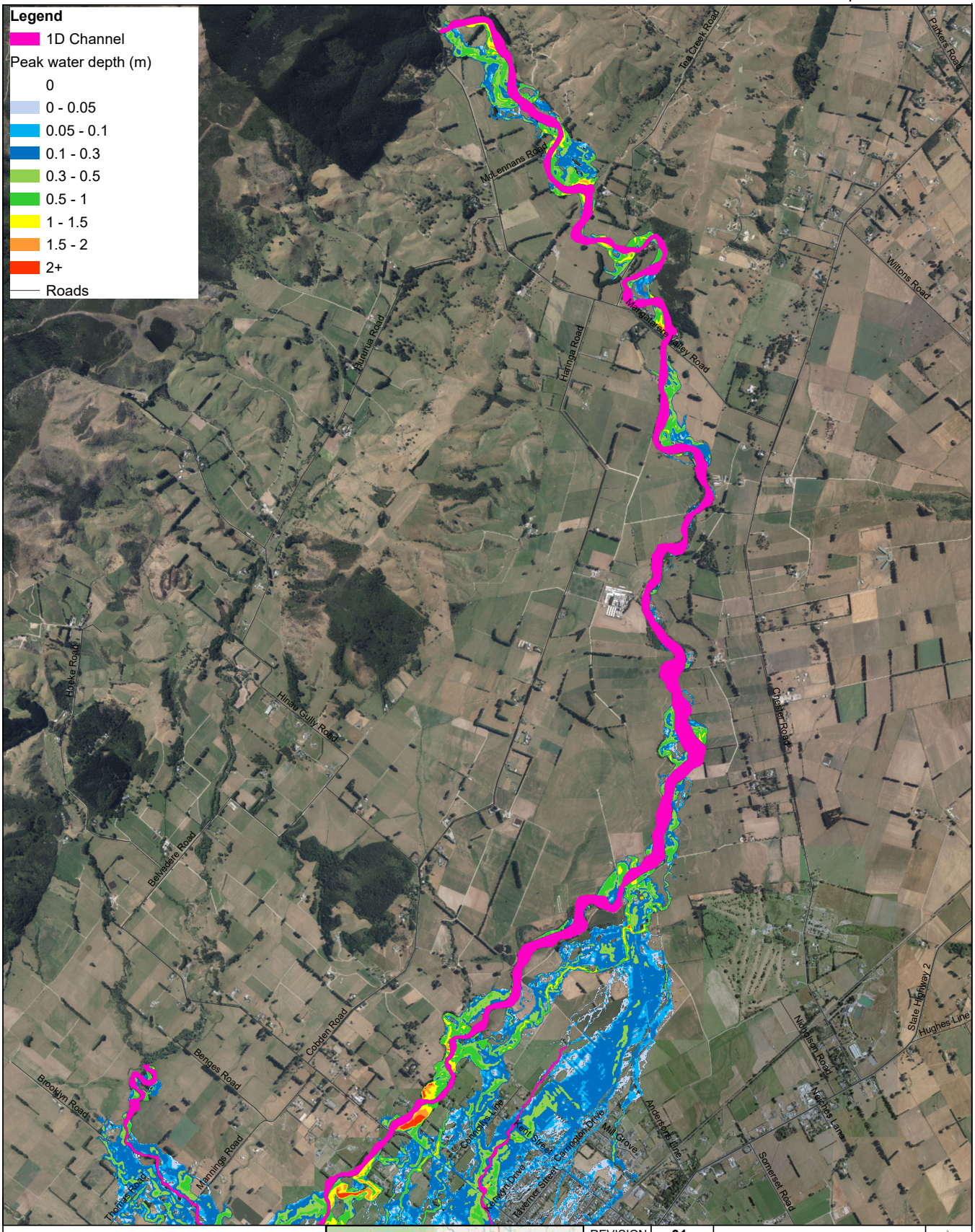
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

AUTHOR
Matthew Gardner

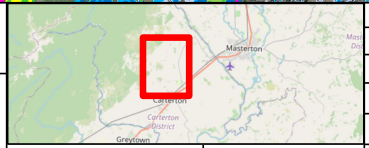


PROJECT
Mangatarere Stream Flood Modelling

MAP (1 of 2)

PEAK DEPTH MAP

0.1% AEP Flow, Historic Climate



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DATE	3/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

0 300 600 1,200 Meters

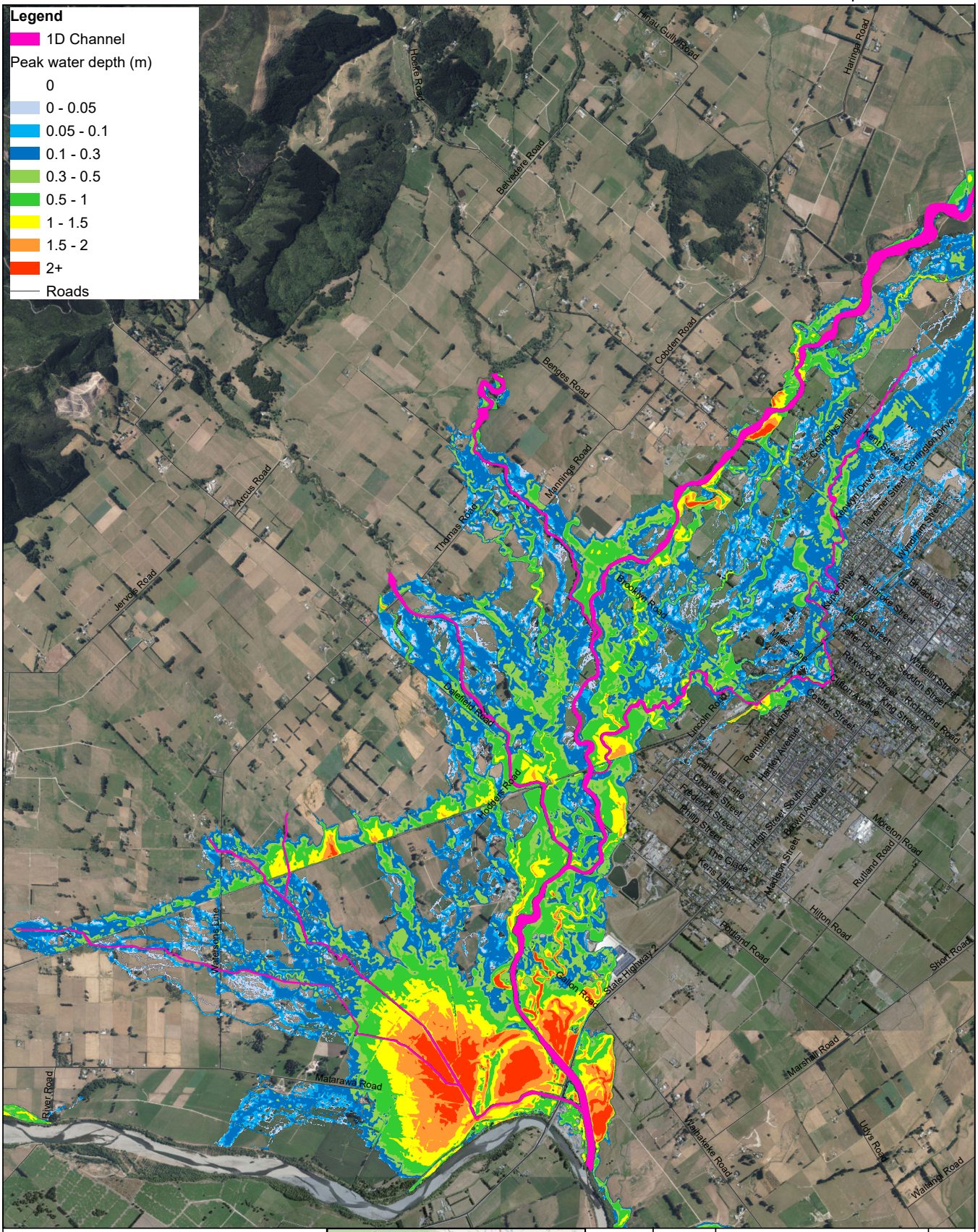
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

AUTHOR
Matthew Gardner

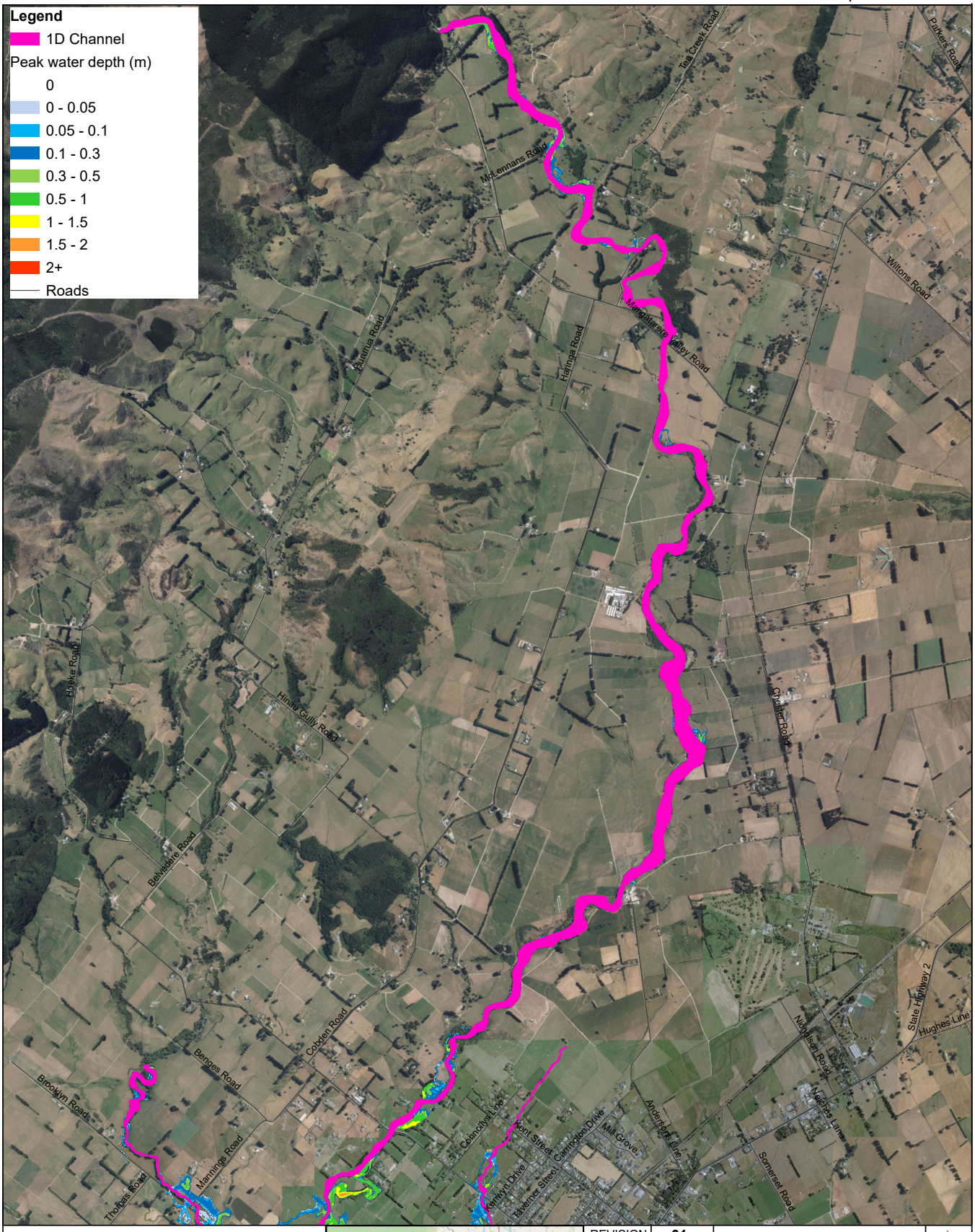


PROJECT **Mangatarere Stream Flood Modelling**		REVISION	01
		DATE	3/03/2023
MAP (2 of 2) **PEAK DEPTH MAP**		A3 SCALE	1:25,000
		CREATED BY	BS
		REVISED BY	MG
0.1% AEP Flow, Historic Climate	LANDRIVERSEA CONSULTING Greater Wellington Te Pane Matua Taiao	AUTHOR **Matthew Gardner**	

0 300 600 1,200 Meters

N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022



PROJECT
Mangatarere Stream Flood Modelling

MAP (1 of 2)

PEAK DEPTH MAP

39.35% AEP Flow
Future Climate (RCP6)

REVISION	01
DATE	3/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

0 300 600 1,200 Meters

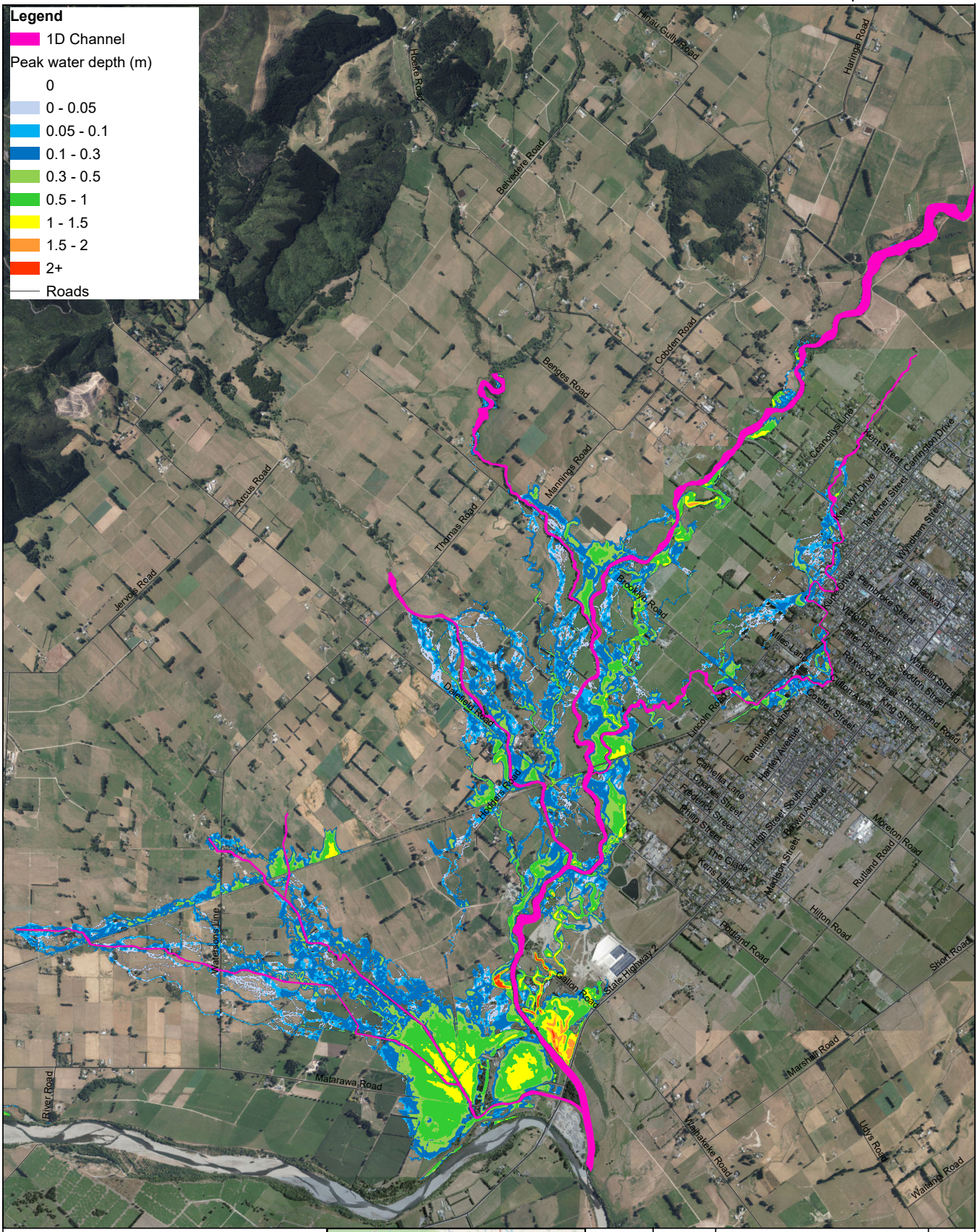
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

AUTHOR
Matthew Gardner

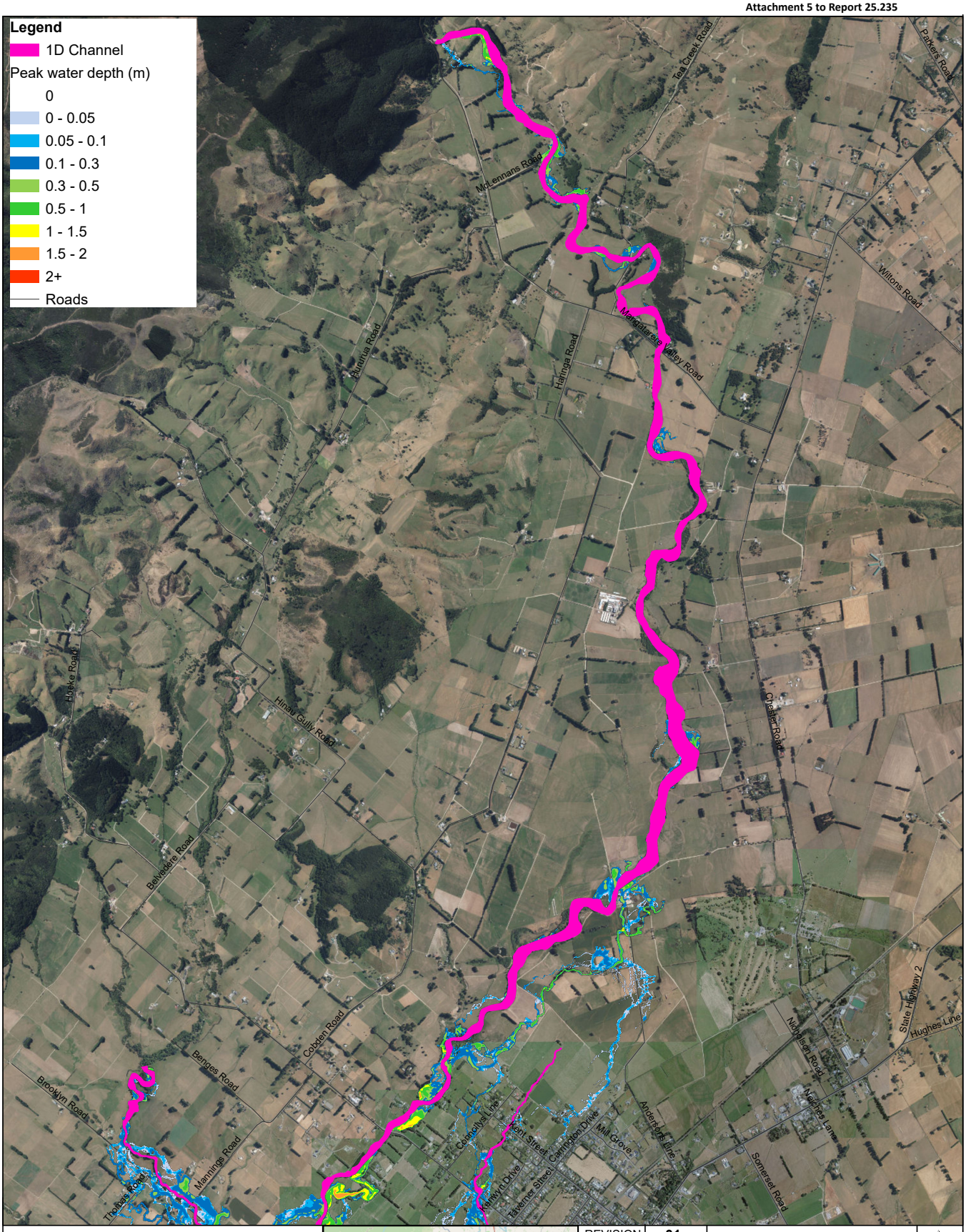


PROJECT **Mangatarere Stream Flood Modelling**		REVISION	01
		DATE	3/03/2023
MAP (2 of 2) **PEAK DEPTH MAP**		A3 SCALE	1:25,000
		CREATED BY	BS
		REVISED BY	MG
39.35% AEP Flow **Future Climate (RCP6)**	LANDRIVERSEA CONSULTING Greater Wellington Te Pane Matua Taiao	AUTHOR **Matthew Gardner**	

0 300 600 1,200 Meters

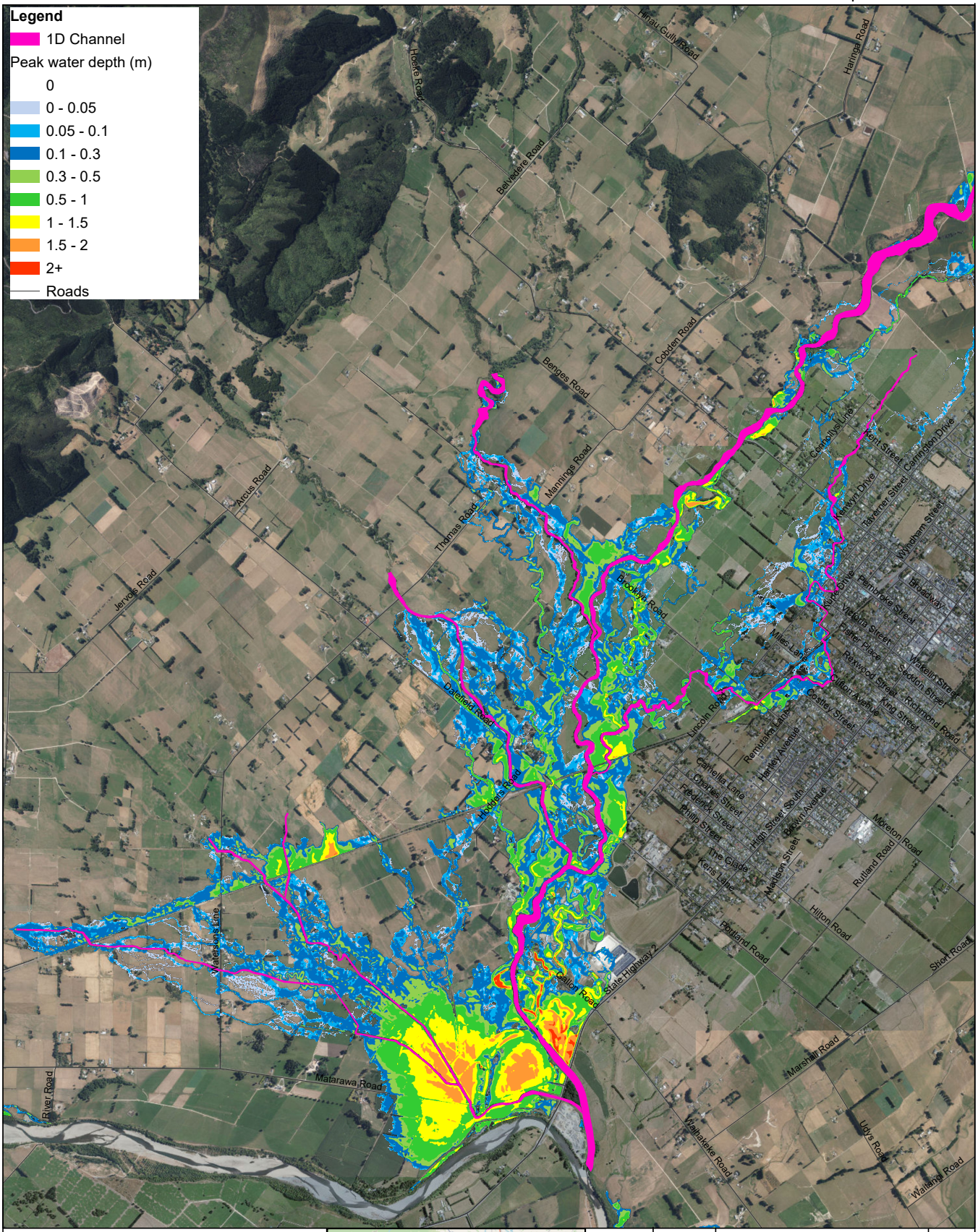
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022



PROJECT **Mangatarere Stream Flood Modelling**		REVISION	01
		DATE	3/03/2023
MAP (1 of 2)		A3 SCALE	1:25,000
PEAK DEPTH MAP		CREATED BY	BS
		REVISED BY	MG
20% AEP Flow, Future Climate (RCP6)	LANDRIVERSEA CONSULTING; Greater Wellington Te Pane Matua Taiao	AUTHOR **Matthew Gardner**	

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

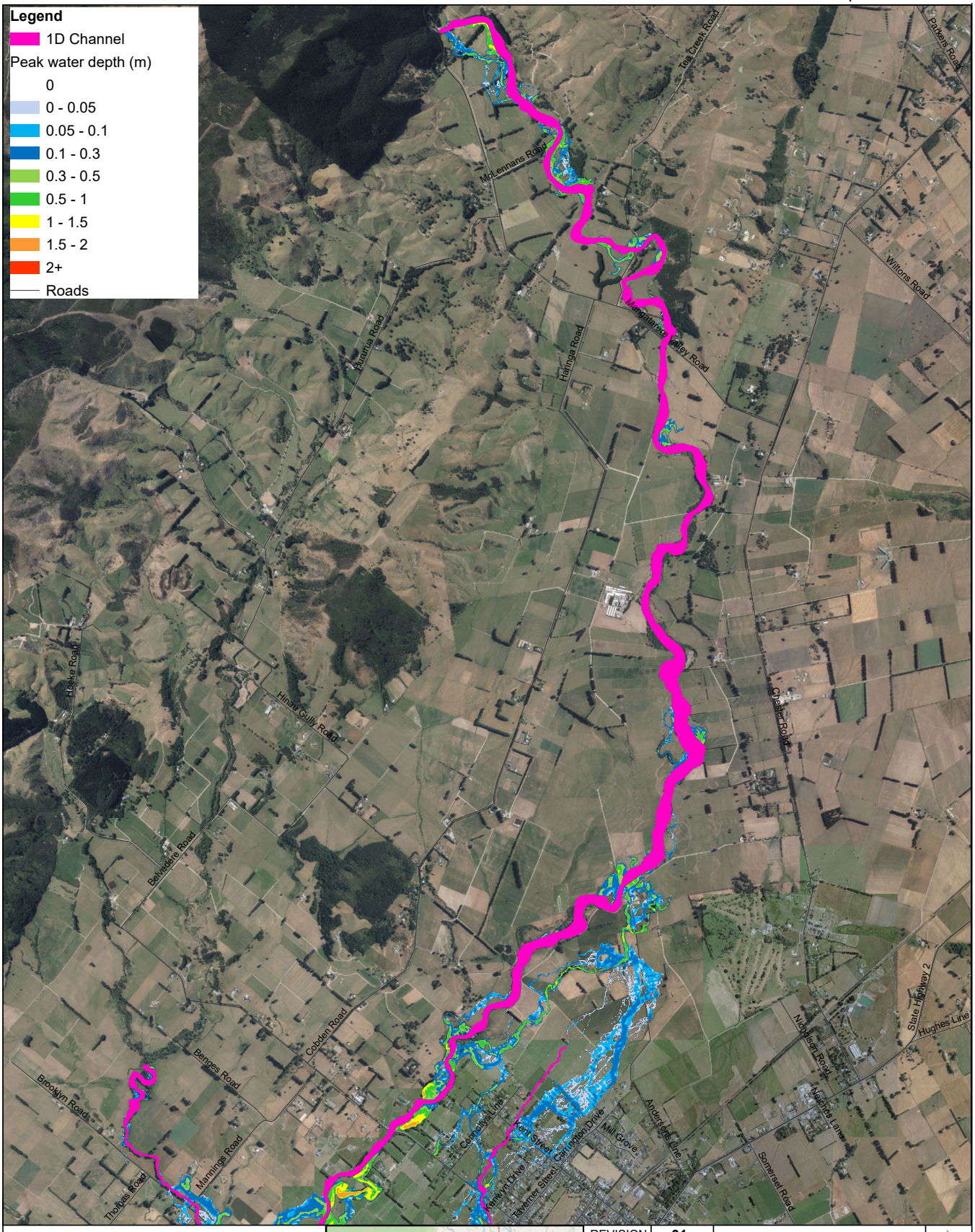


PROJECT **Mangatarere Stream Flood Modelling**		REVISION	01
		DATE	3/03/2023
MAP (2 of 2) **PEAK DEPTH MAP**		A3 SCALE	1:25,000
		CREATED BY	BS
		REVISED BY	MG
20% AEP Flow, Future Climate (RCP6)	LANDRIVERSEA CONSULTING / Greater Wellington Te Pane Matua Taiao	AUTHOR **Matthew Gardner**	

0 300 600 1,200 Meters

N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022



PROJECT
Mangatarere Stream Flood Modelling

MAP (1 of 2)

PEAK DEPTH MAP

10% AEP Flow, Future Climate (RCP6)

REVISION	01
DATE	1/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

0 300 600 1,200 Meters

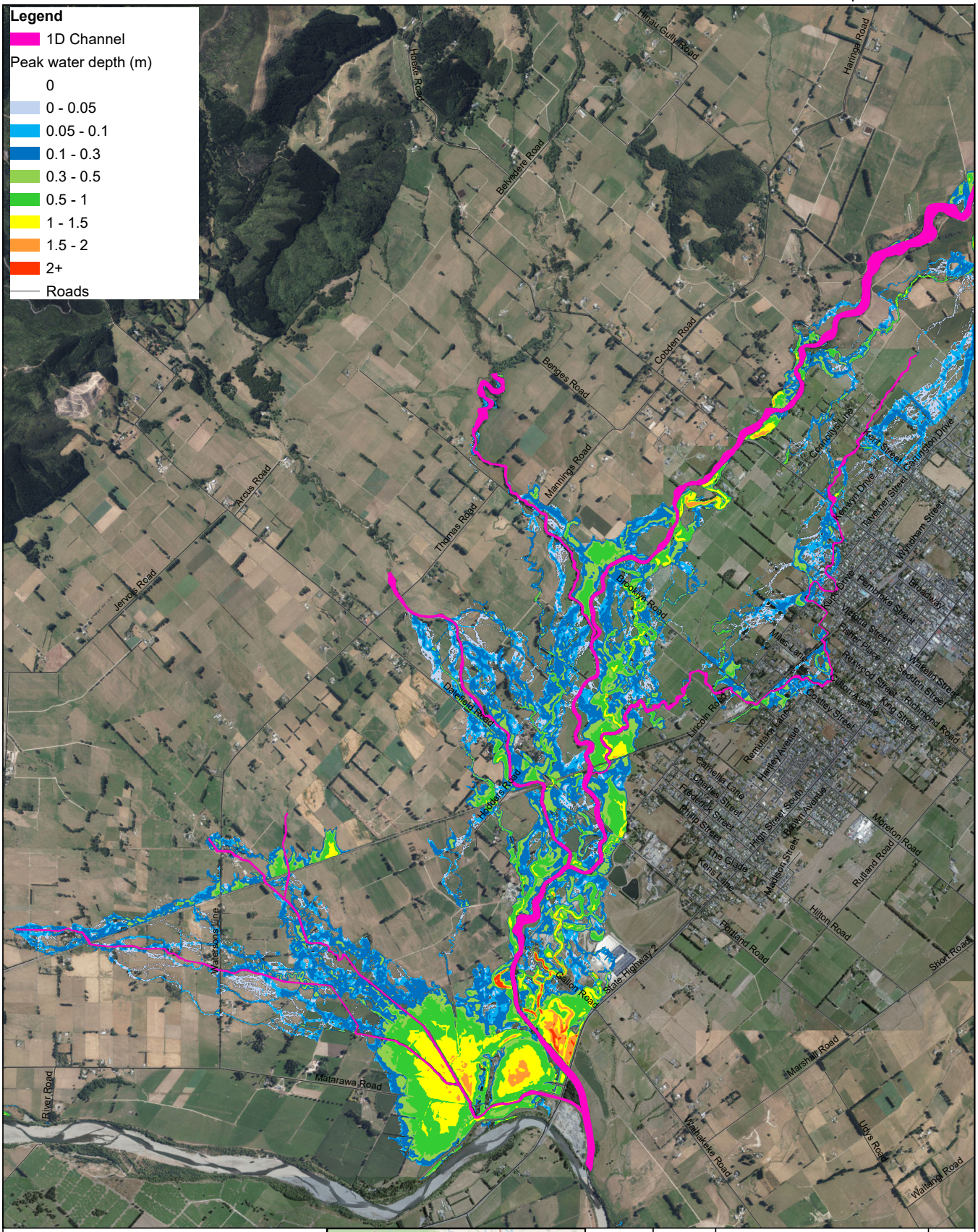
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

AUTHOR
Matthew Gardner



PROJECT
Mangatarere Stream Flood Modelling

MAP (2 of 2)

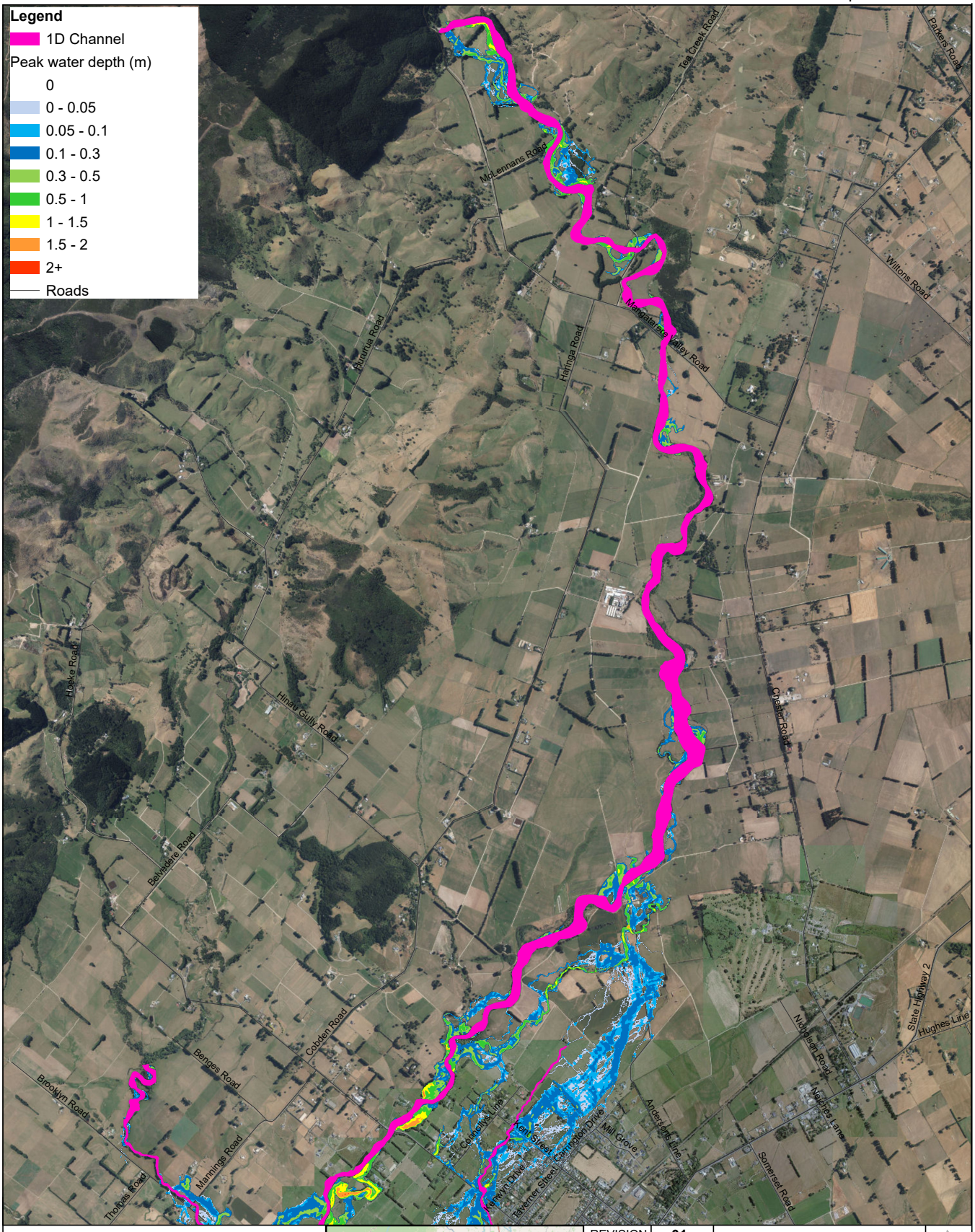
PEAK DEPTH MAP

10% AEP Flow, Future Climate (RCP6)

REVISION	01
DATE	1/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

AUTHOR
Matthew Gardner

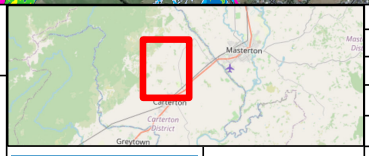


PROJECT
Mangatarere Stream Flood Modelling

MAP (1 of 2)

PEAK DEPTH MAP

5% AEP Flow, Future Climate (RCP6)



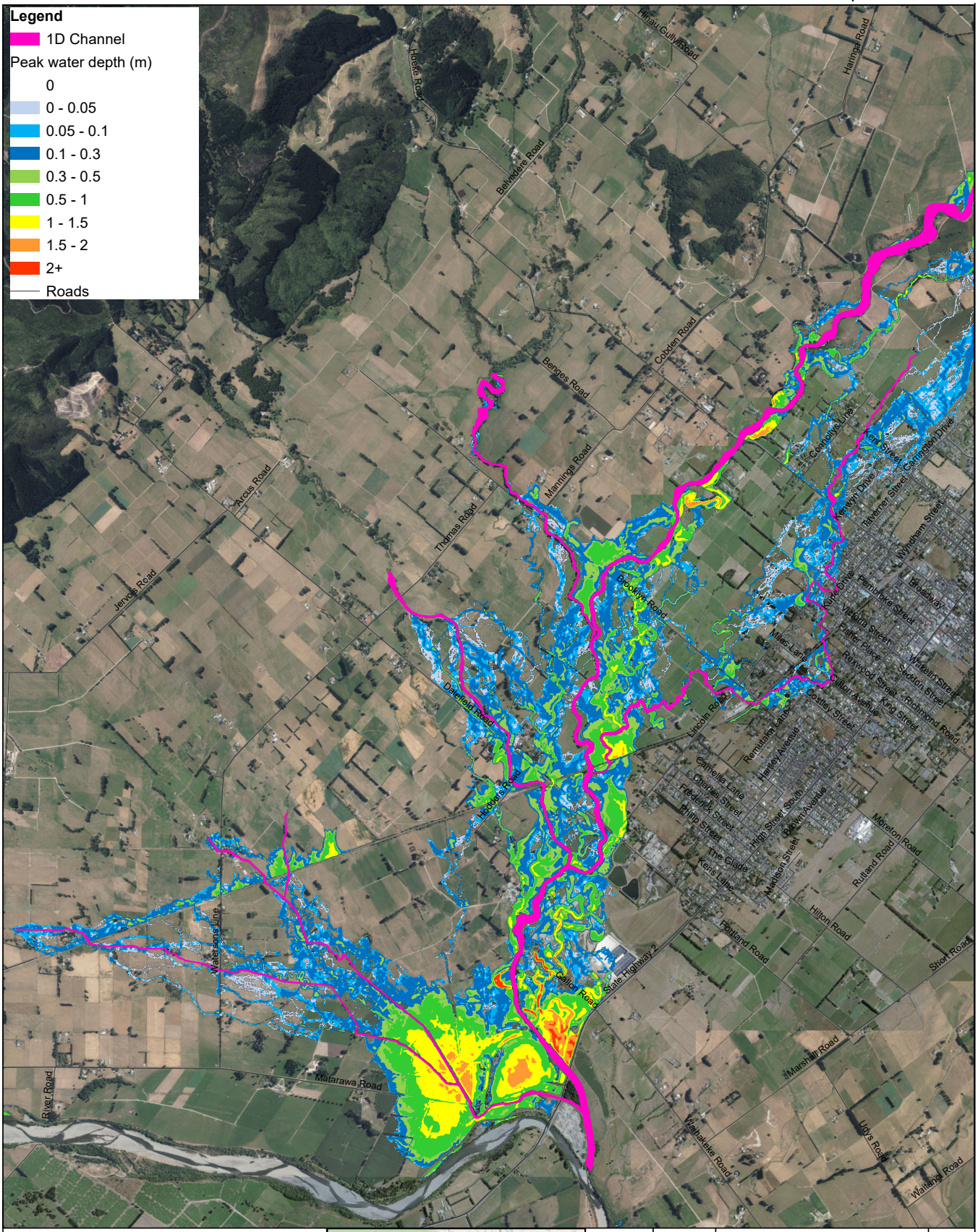
REVISION	01
DATE	1/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

AUTHOR
Matthew Gardner



PROJECT
Mangatarere Stream Flood Modelling

MAP (2 of 2)

PEAK DEPTH MAP

5% AEP Flow, Future Climate (RCP6)

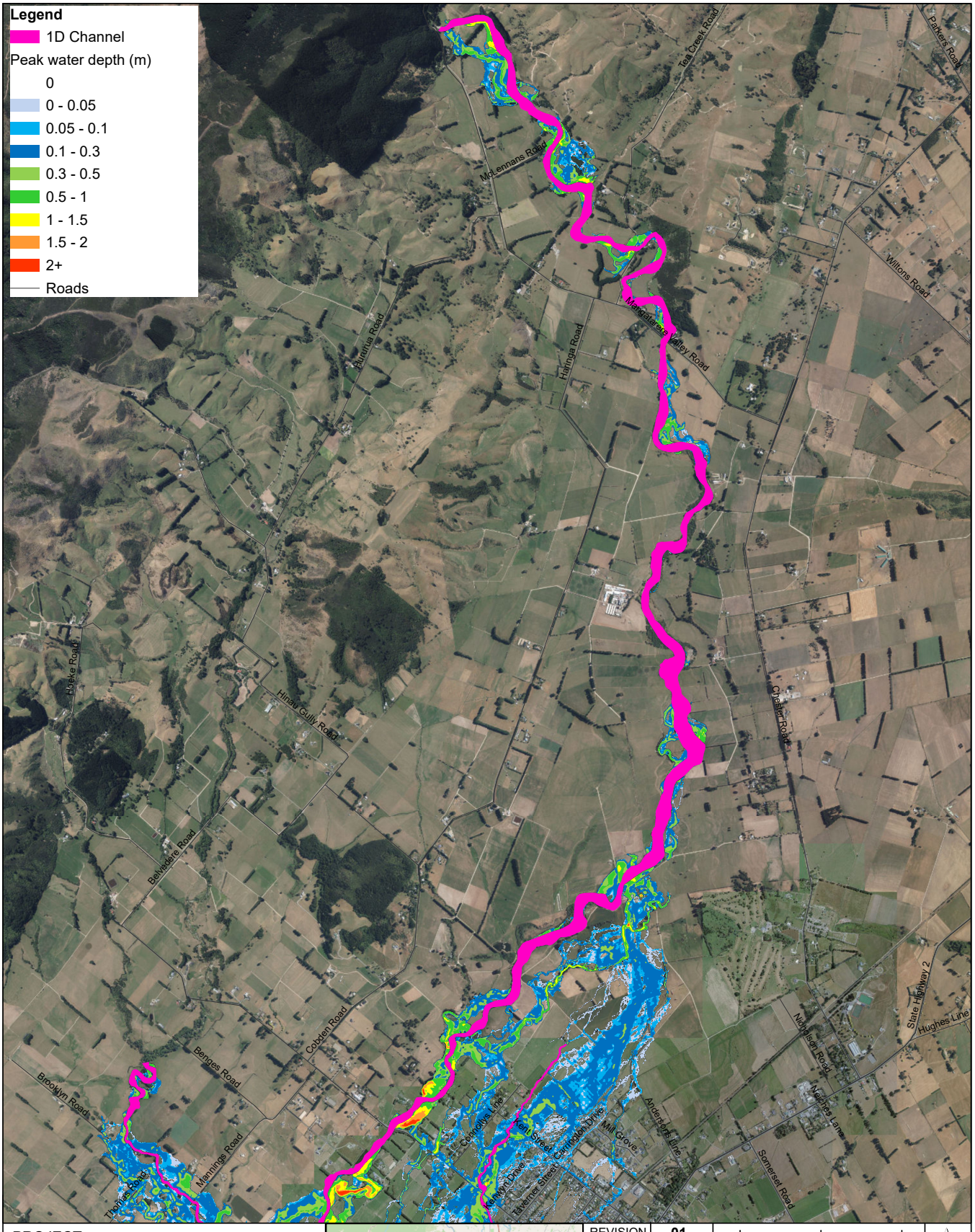
REVISION	01
DATE	1/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

AUTHOR
Matthew Gardner



PROJECT **Mangatarere Stream Flood Modelling**		REVISION	01
		DATE	6/03/2023
MAP (1 of 2)		A3 SCALE	1:25,000
PEAK DEPTH MAP		CREATED BY	BS
		REVISED BY	MG
2% AEP Flow, Future Climate (RCP6)		AUTHOR	**Matthew Gardner**

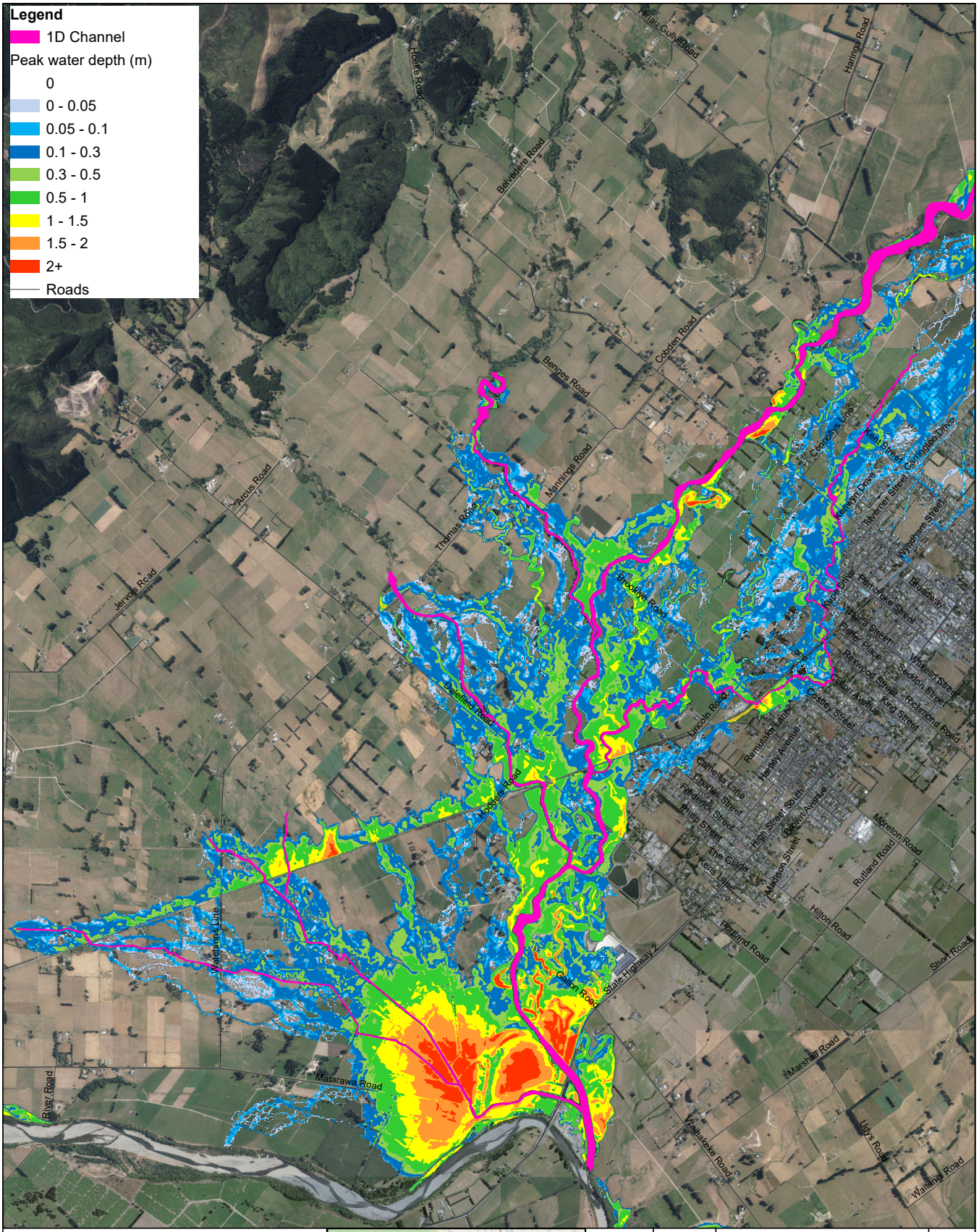
0 300 600 1,200 Meters

N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao



PROJECT
Mangatarere Stream Flood Modelling

MAP (2 of 2)

PEAK DEPTH MAP

2% AEP Flow, Future Climate (RCP6)

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

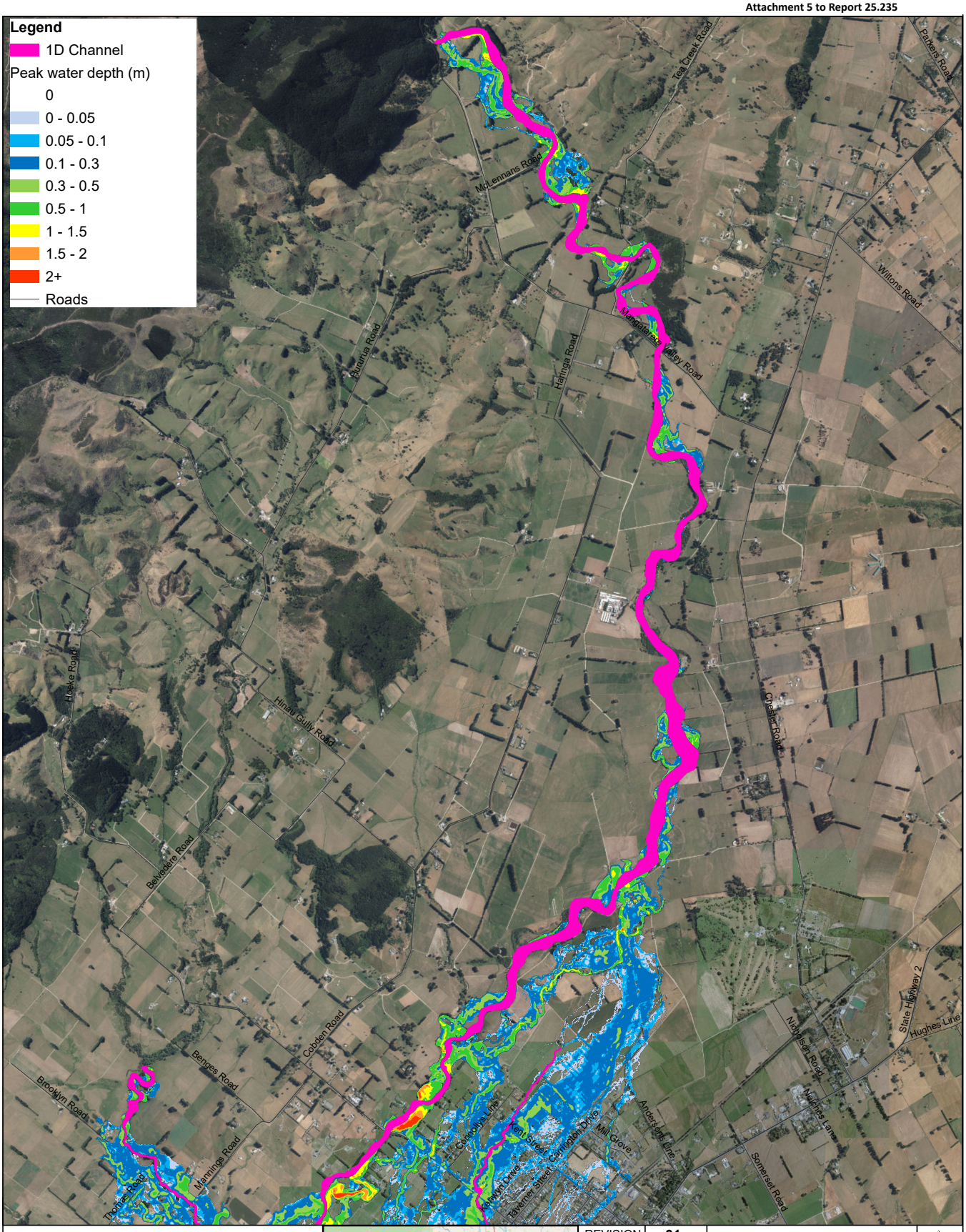
REVISION	01
DATE	6/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

0 300 600 1,200 Meters

N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

AUTHOR
Matthew Gardner

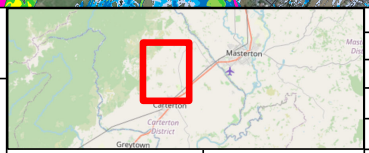


PROJECT
Mangatarere Stream Flood Modelling

MAP (1 of 2)

PEAK DEPTH MAP

1% AEP Flow, Future Climate (RCP6)



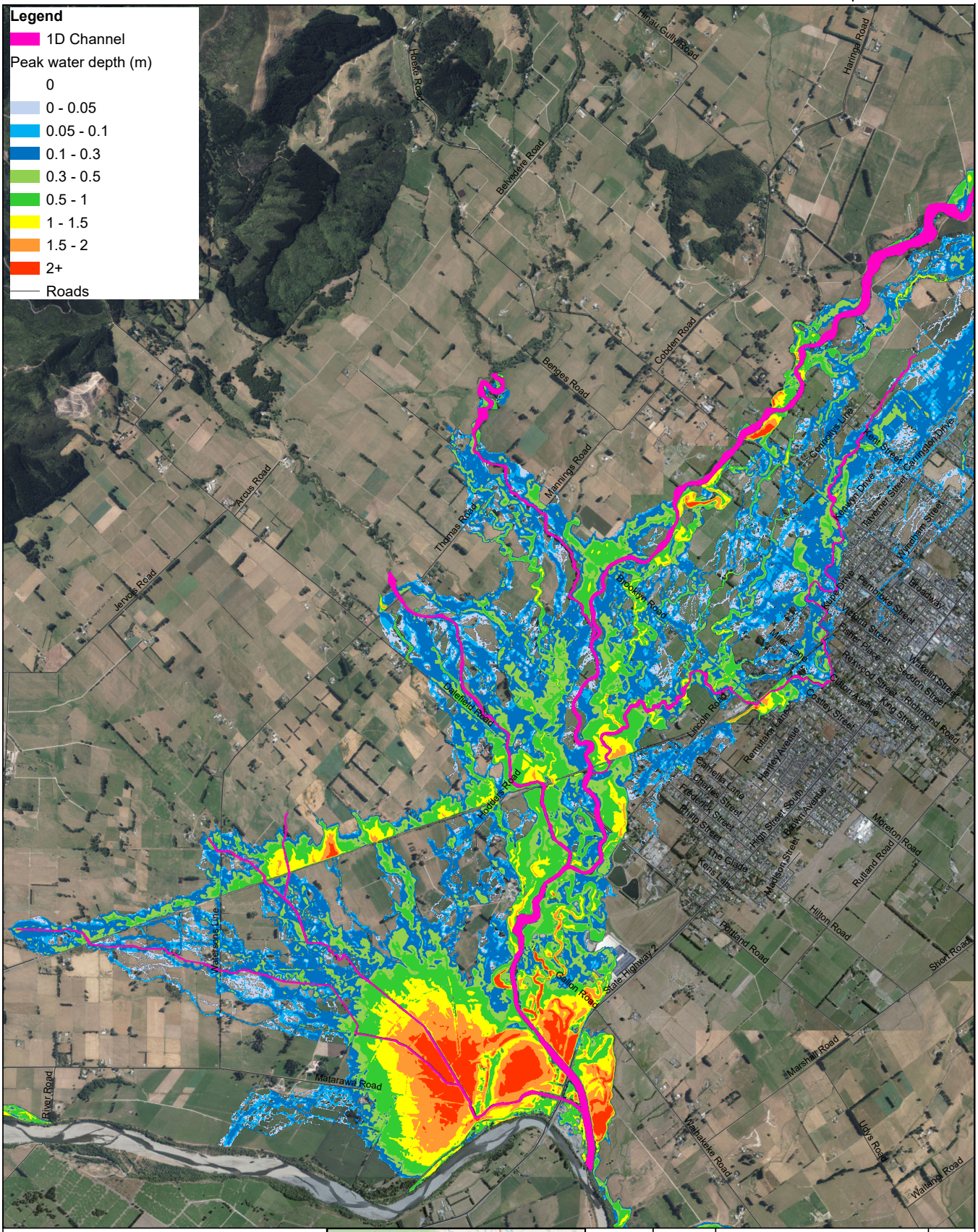
REVISION	01
DATE	1/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

AUTHOR
Matthew Gardner



PROJECT **Mangatarere Stream Flood Modelling**		REVISION	01
		DATE	1/03/2023
MAP (2 of 2)		A3 SCALE	1:25,000
PEAK DEPTH MAP		CREATED BY	BS
		REVISED BY	MG
1% AEP Flow, Future Climate (RCP6)		AUTHOR	**Matthew Gardner**

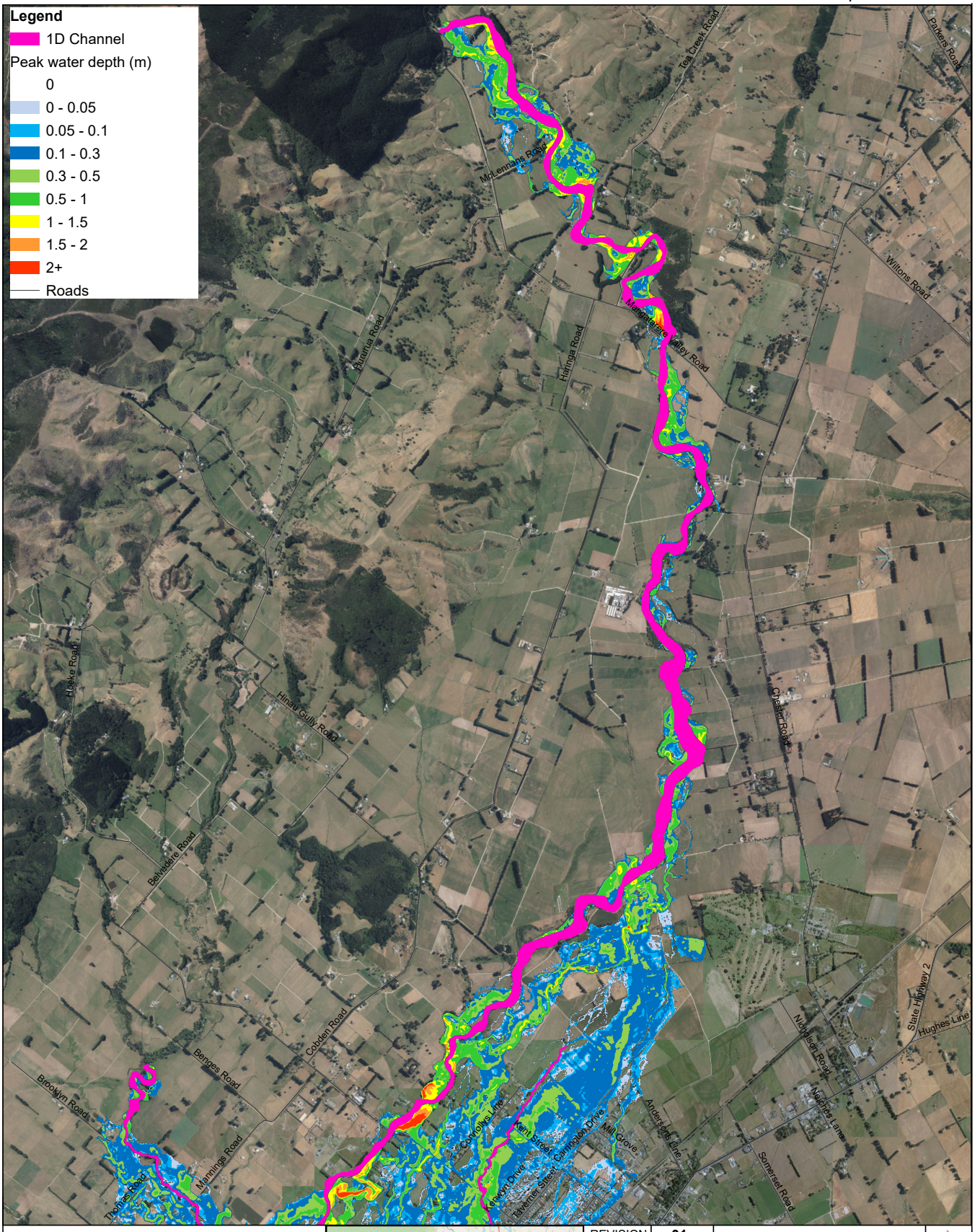
0 300 600 1,200 Meters

N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

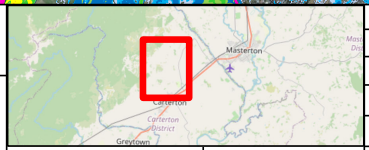


PROJECT
Mangatarere Stream Flood Modelling

MAP (1 of 2)

PEAK DEPTH MAP

0.1% AEP Flow, Future Climate (RCP6)



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DATE	1/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

AUTHOR
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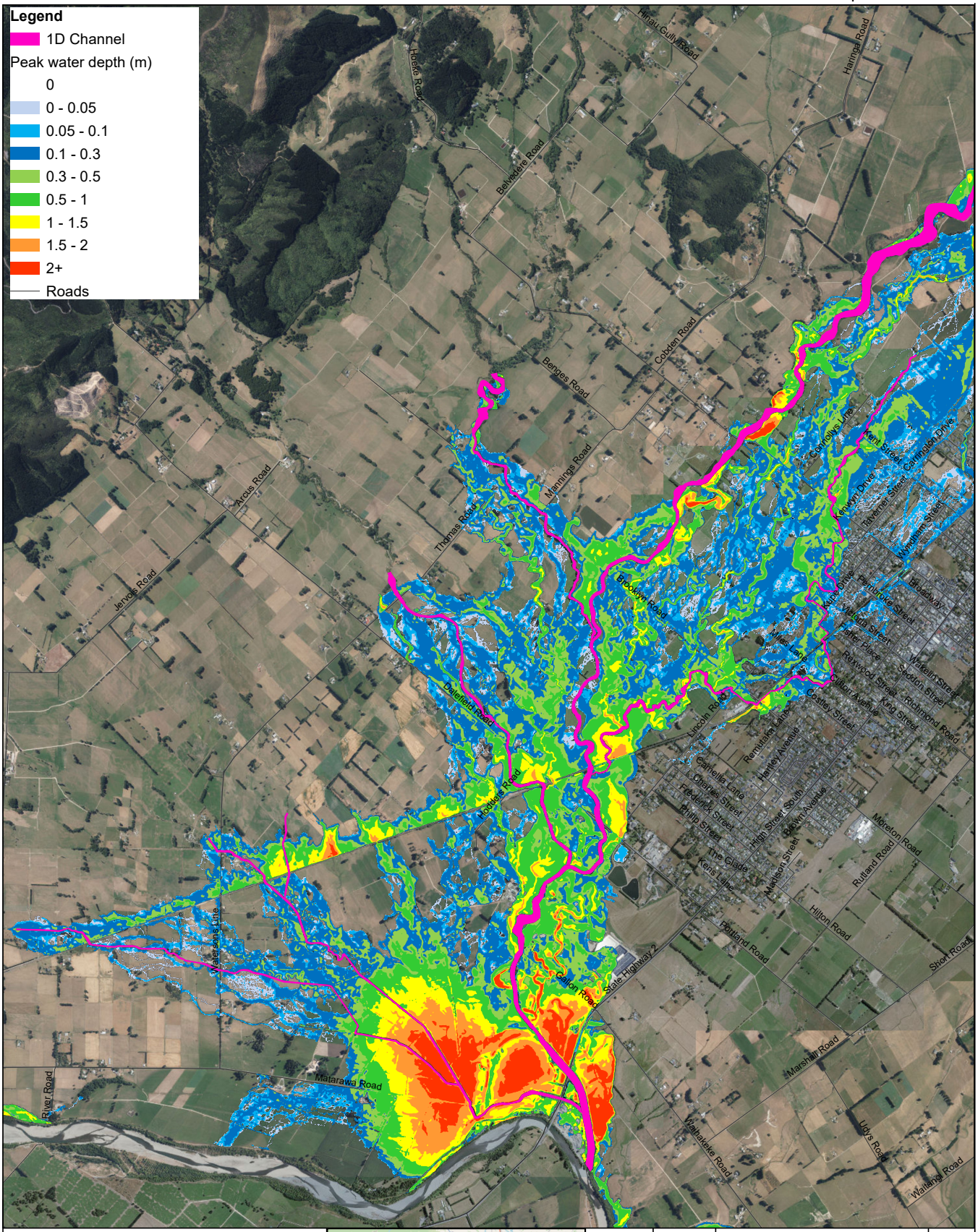
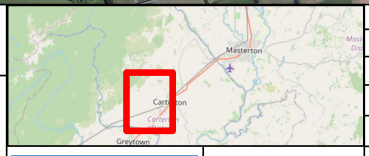


PROJECT
Mangatarere Stream Flood Modelling

MAP (2 of 2)

PEAK DEPTH MAP

0.1% AEP Flow, Future Climate (RCP6)



REVISION	01
DATE	1/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

0 300 600 1,200 Meters

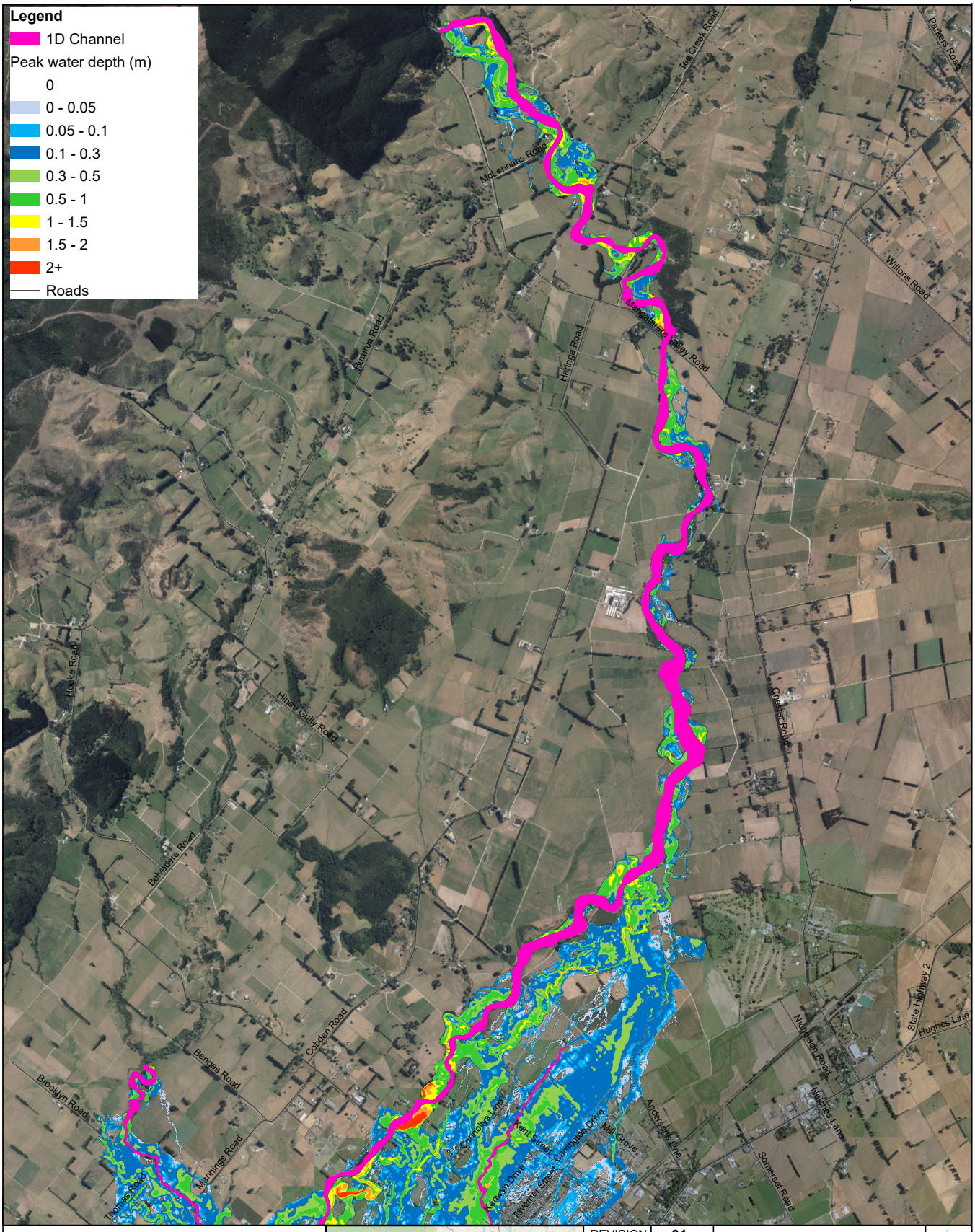
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

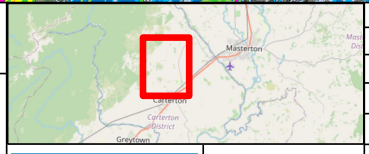
AUTHOR
Matthew Gardner



PROJECT
Mangatarere Stream Flood Modelling

MAP (1 of 2)
PEAK DEPTH MAP

Combined Sensitivity Runs
1% AEP Flow, Future Climate (RCP6)



REVISION	01
DATE	1/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

0 300 600 1,200 Meters

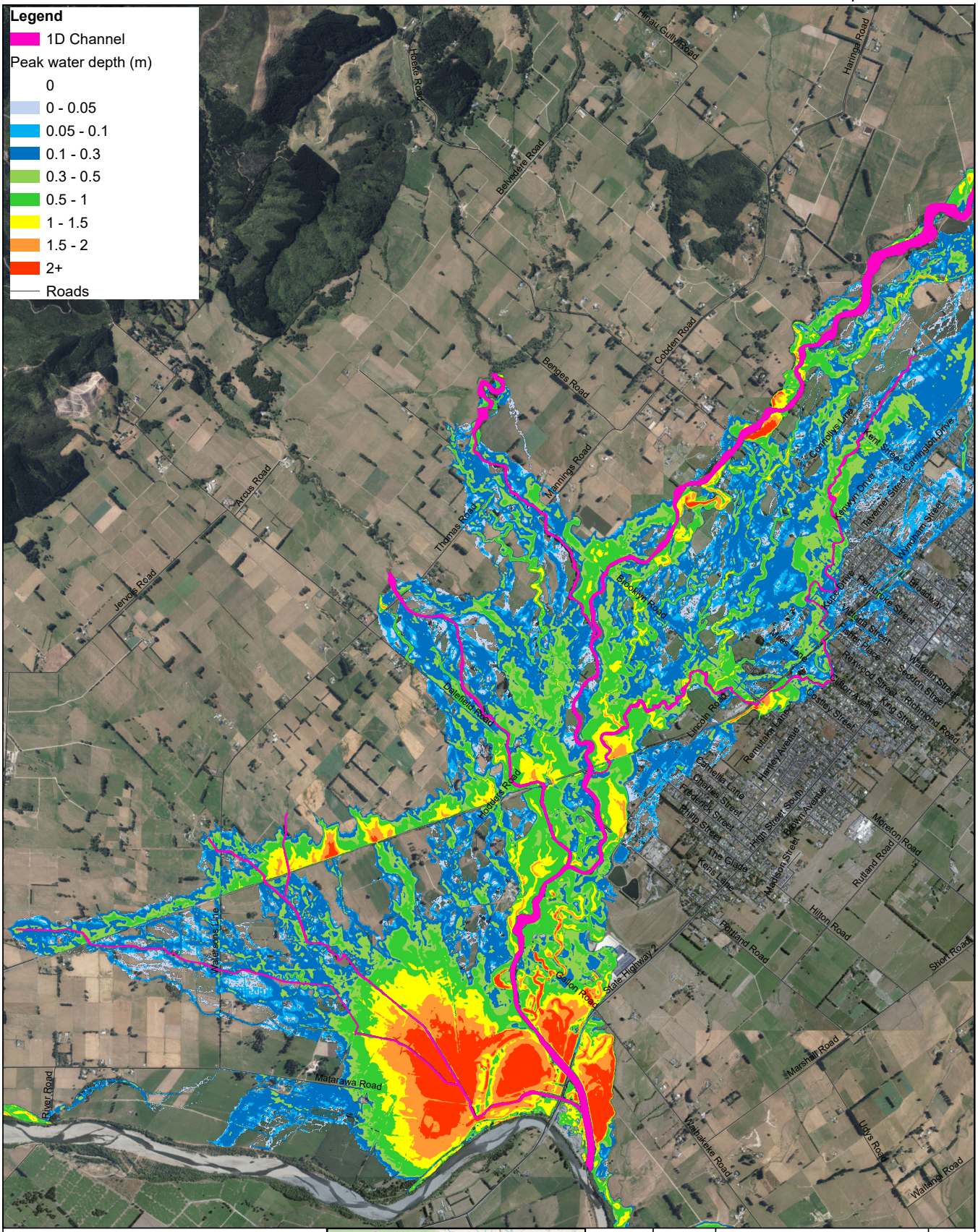
N

Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING

Greater Wellington Te Pane Matua Taiao

AUTHOR
Matthew Gardner



PROJECT
Mangatarere Stream Flood Modelling

MAP (2 of 2)
PEAK DEPTH MAP

Combined Sensitivity Runs
1% AEP Flow, Future Climate (RCP6)

REVISION	01
DATE	1/03/2023
A3 SCALE	1:25,000
CREATED BY	BS
REVISED BY	MG

0 300 600 1,200 Meters
N

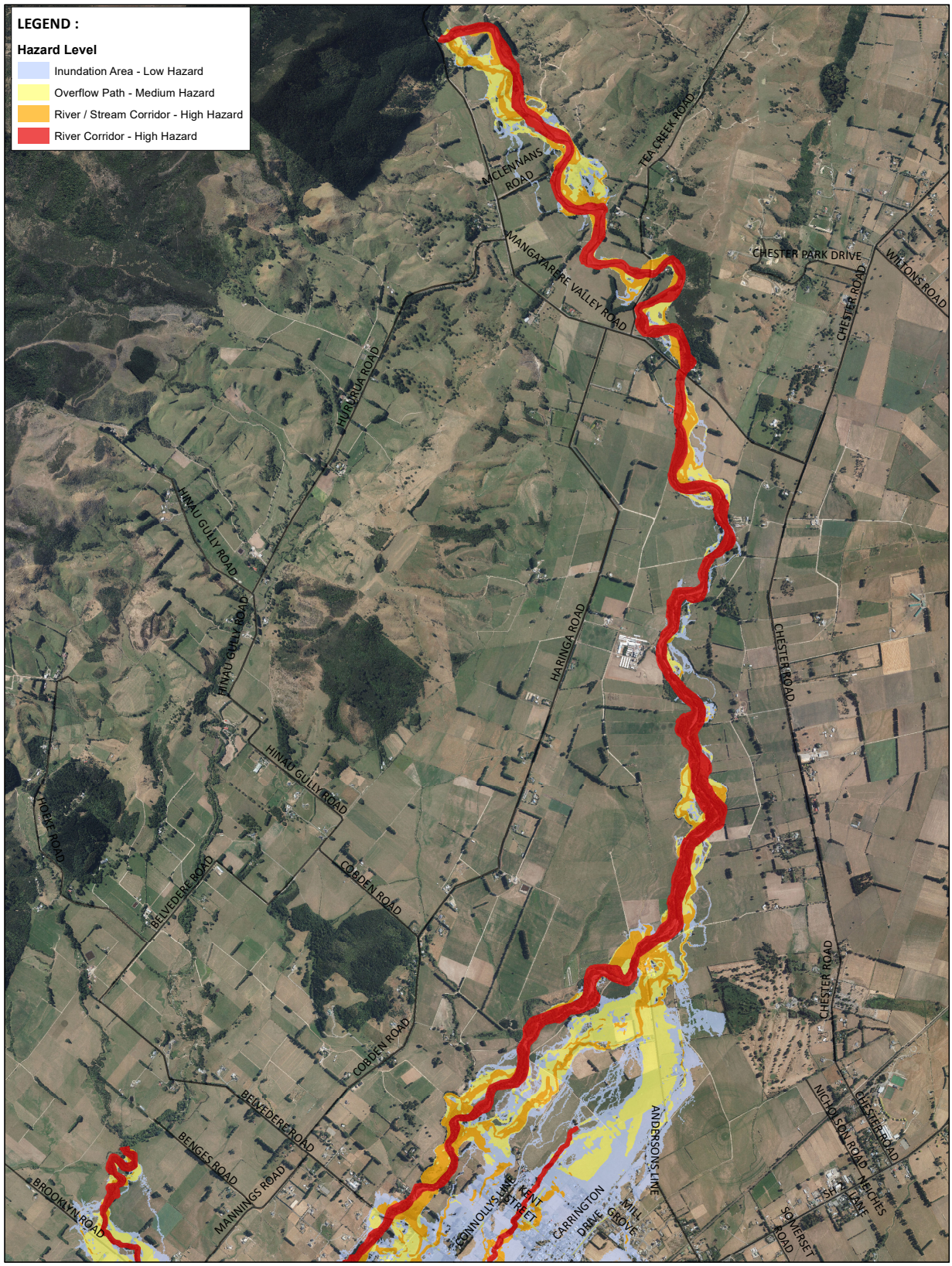
Model Information:
Coordinate System: New Zealand Transverse Mercator
Vertical Datum: Wairarapa Local Datum
Model Completed: August 2022

LANDRIVERSEA CONSULTING
Greater Wellington Te Pane Matua Taiao

AUTHOR
Matthew Gardner

ATTACHMENT 6 - Flood hazard map for the Mangatārere Stream

Attachment 6 to Report 25.235



MANGATĀRERE STREAM HAZARD MAP
Combined Sensitivity Runs 1% AEP Flow, Future Climate (RCP6)
Map (1 of 2)

N

Greater Wellington
Te Pane Matua Taiao

0 255 510 1,020 Metres

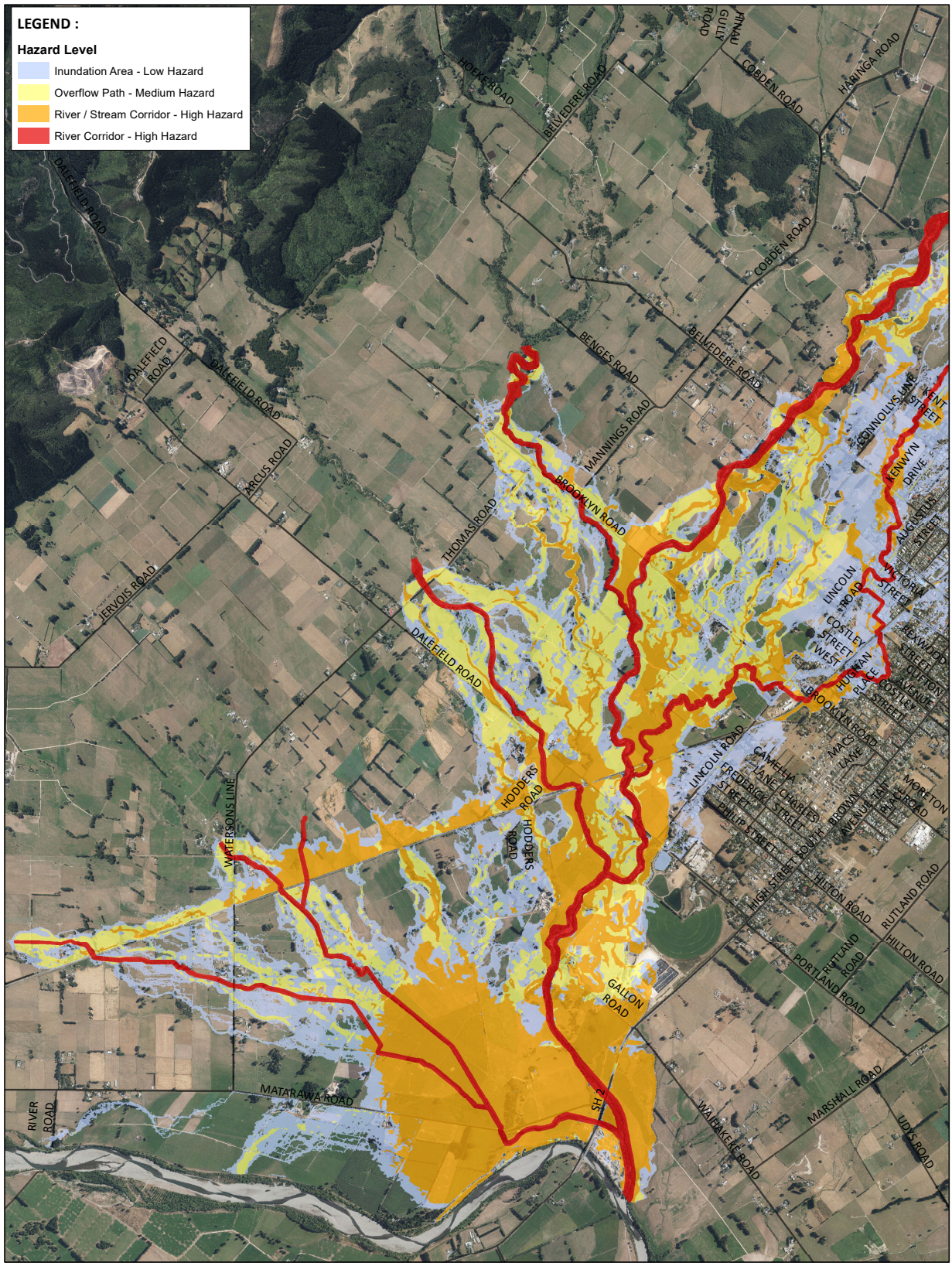
A3 Scale: 1:25,000

DISCLAIMER:
The flood hazard information shown on this plan is based on the best available data at the time of preparation. Specific interpretation of flood risk in any areas shown to be affected by flooding should be obtained by written request from the Greater Wellington Regional Council. The GWRC and other agencies involved in the preparation of this plan assume no responsibility for any interpretation or action taken by any agency or individual in relation to information provided on the plan.

User Name: HeatherSG
Plotted 4:12:06 pm, 19/05/2025
SOURCE OF FLOOD LEVELS :
Database Connections\gwraster_nztm (Raster).sde\gwraster_nztm.SDEADMIN.FLOODPROT_MANGATARERE_1AEPCC_DEPTH_2018

Regional Orthophotography : 2017 GWRC

Attachment 6 to Report 25.235



MANGATĀRERE STREAM HAZARD MAP
Combined Sensitivity Runs 1% AEP Flow, Future Climate (RCP6)
Map (2 of 2)

N

Greater Wellington
Te Pane Matua Taiao

0 255 510 1,020 Metres

A3 Scale: 1:25,000

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User Name: HeatherSG
Plotted 4:08:39 pm, 19/05/2025
SOURCE OF FLOOD LEVELS :
Database Connections\gwraster_nztm (Raster).sde\gwraster_nztm.SDEADMIN.FLOODPROT_MANGATARERE_1AEPCC_DEPTH_2018

Regional Orthophotography : 2017 GWRC

Wairarapa Committee
3 June 2025
Report 23.234

For Information

WAIRARAPA FLOOD RISK MANAGEMENT UPDATE

Te take mō te pūrongo
Purpose

1. To update the Wairarapa Committee (the Committee) on:
    a. Funding received from the Department of Prime Minister and Cabinet's Cyclone Recovery Unit
    b. The ongoing operational maintenance of the Wairarapa Rivers schemes
    c. The progress on the Flood Resilience – Tranche 1 programme (formerly known as Before the Deluge 2.0)
    d. The progress of flood risk management investigations.

Te tātaritanga
Analysis

2. This section provides an update on the Flood Protection works in the Wairarapa since the last Wairarapa Committee meeting.

Government Funding – Department of Prime Minister and Cabinet

Crack Willow Blockage Removal Project

3. As stated in the Wairarapa Flood Risk Management Update report (Report 24.361), we successfully obtained $3.5 million from the Department of Prime Minister and Cabinet (DPMC) from the Recovery and Flooding Resilience fund for the crack willow blockage removal in the eastern rivers in the Wairarapa. This decision was publicly announced on 6 October 2023. Our contribution is $250,000 worth of project management time.
4. Phase 1 of the project has been completed with a focus on the Kopuaranga and the Whareama Rivers.
5. Phase 2 of the project continues. Up until 1 May 2025 we have removed a total of 946 blockages and cleared approximately 128km of river channel. To date we have spent a total of $3,400,000.

Figure 1: Whangaehu River – Large blockage area within the upper reach (during blockage removals)

Figure 2: Whangaehu River – Large blockage area within the upper reach (post blockage removal)

6. The funding for the project ceases at the end of the financial year 2024/25. We are currently tracking to complete the project on-time, utilising all central government funding for the project.

Eastern Hills Flood Warning Network Upgrades

7. The project is still advancing to deliver the agreed outcomes by the 30 June 2025, deadline. Timelines are tight but the following initiatives are still progressing towards completion:

8. Cableway for high flow gauging to be installed across the Whareama River (Figure 3)

9. One of the two new flood forecast models for the Whareama catchment is operational, the second is in the at final calibration and review stage before being delivered.

10. Satellite redundancy has been established at the Eringa radio/telemetry repeater. Additional satellite hardware has been procured to provide a backup internet connection to the Hydrotel servers for hydrology staff in the Masterton office. Now in the test phase.

11. Smart Signage to provide real-time flood data to motorists is still progressing, hardware design is nearly finalised, and discussions are continuing with MDC to obtain the appropriate permissions.

12. The cableway installation up stream of the Whareama River at Waiteko Bridge is a significant infrastructure investment in the Eastern Hills flood warning network. Siteworks are advancing and all-weather access tracks have been established on both sides of river. Foundation design is complete and plans progressing to get them established on site. Cableway hardware is set to arrive next week, and local engineers are on standby to complete customisation work and transport to site for commissioning.

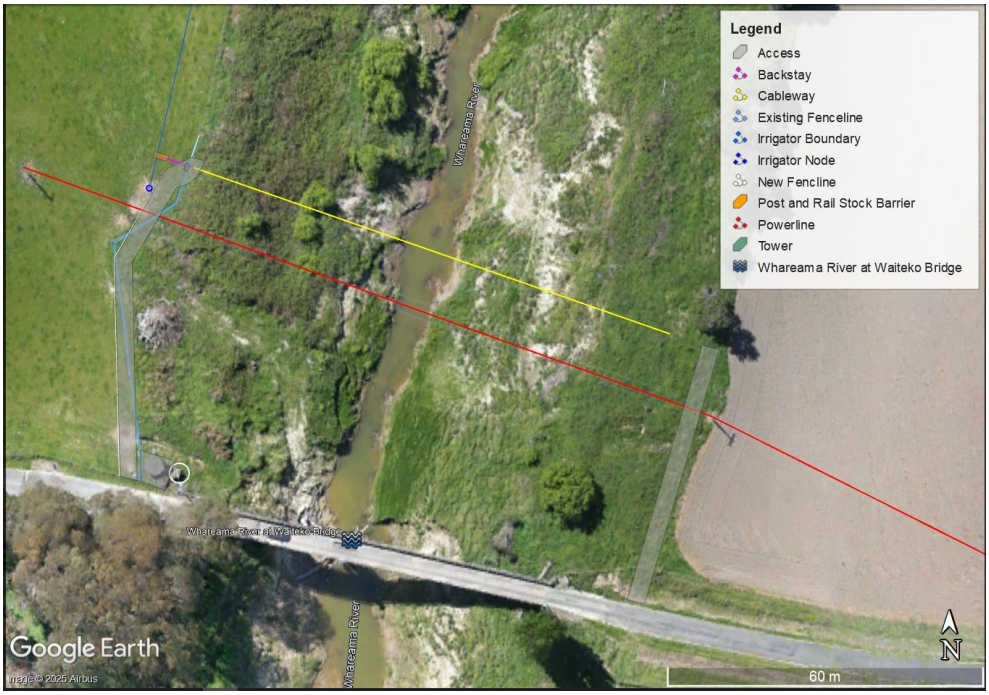


Figure 3: Site layout in advance of cableway construction

Te Kāuru Upper Ruamāhanga Floodplain Management Plan (FMP) – Operations

13. The Flood Operations team continued with crack willow cleanup (described above) on the Kopuaranga River upstream of the Mauriceville township and in the Taumata area east of Carterton.

14. The team also continue to respond to numerous illegal dumping notifications and resulting clean ups in multiple locations over the scheme. At one site alone on Ruamahanga River outside of Masterton over 100 dumped car tyres were collected for disposal. Greater Wellington Regional Council (Greater Wellington) is responding to this issue though a comms campaign, erecting signage and investigating the use of cameras to monitor specific sites as evidence for enforcement.

15. Following the jetboat fatality on the Ruamahanga River in March above Wardells Bridge when the jetboat stuck a submerged iron rail, works have been undertaken to identify and remove as many rails as possible. To date 20 iron rails have been identified and removed.

16. Greater Wellington has provided all relevant information requested by Maritime NZ to assist with their investigation into the accident.

17. With the adoption of Te Kauru FMP policy of giving the river more room to move, lateral erosion will expose historic iron rail structures that have become buried in the riverbanks. Identification and removal will become more of a priority as these old structures from the 1960's and 70's are exposed.

18. Channel blockages were removed in the Whangaehu River in the lower reach at Ruamāhanga confluence to improve river outlet flow.

19. Beach recontouring and gravel groyne work on Waingawa River was completed at Skeets Road to try and remove erosion pressures on right bank which was about to cross outer buffer design line

20. Gravel extraction operations at a range of sites in the Ruamāhanga river have been completed to assist with river alignment management.

21. Channel works in Waipoua river have been completed to remove vegetation growth, fallen trees in river channel and restacking of rock groynes

22. Beach recontouring work on the Waipoua river below Mikimiki is ongoing to try and remove erosion pressures on right bank which has crossed outer fairway design line.

23. The Upper Ruamāhanga River Management Advisory Committee (URRMAC) met on 5 May 2025 and given presentations on the use of native planting as assets, the Terms of Reference for Te Kauru River Management Groups, the 2025/26 draft Operations Work Programme and the recommended flood risk management option for Waipoua River urban reach.

Lower Wairarapa Valley Development Scheme - Operations

24. Pounui River: The Wairarapa Moana Wetlands Project – The Coordination Group agreed to some initial mitigation measures to be implemented before the wet season in order to reduce the risk of further river breaches. It also agreed to a co-

design approach for longer term sustainable management of the river. We are waiting for the group to advise us how they would like the co-design process to be progressed and managed.

25. There is erosion on the Ruamāhanga River at Wairio station, owned by Ngāti Kahungunu. Ngāti Kahungunu have agreed to co-design the erosion mitigation measures, and we are currently waiting for them to have available resource before we commence this.

26. Greater Wellington still needs to respond to the Lower Ruamāhanga Valley Floodplain Management Advisory Committee (LRVFMAC) queries around the proposed rate increases in the Long Term Plan and how these can be reduced. The LRVFMAC would like to understand the consenting process for the Lower Valley gravel extraction and expected time frame for this consent to become active. The LRVFMAC would also like to know whether the stock exclusion rules for drains can be reviewed in light the additional chemical herbicide applications now required to control weeds; and how this impacts the watercourses and Lake Wairarapa.

27. Planning for an upcoming LRVFMAC meeting has started and an agenda and meeting date will be set shortly.

28. The annual inspection of assets in the Lower Wairarapa Valley Development Scheme (LWVDS) has been completed.

29. Dry gravel extraction is ongoing on some of the high beaches across the Lower Valley. The amount of gravel being deposited in some rivers is greater than that allowed to be extracted under consents, therefore rivers are aggrading in their lower reaches. This may have an impact on the level of service offered by the Flood Protection defences.

30. Vegetation control, stopbank mulching and pest weed herbicide spraying are being undertaken across the LWVDS.

31. The 2024-25 LWVDS Quarter 2 and 3 summary reports are available on request.

32. Advice is being given to Whāngaimoana Beach residents regarding flooding issues from the adjacent watercourse. They are not part of the LWVDS but Greater Wellington are working with their representative to try and develop some feasible options. This situation is complicated by the presence of wetlands, limiting the work that can be undertake in the stream, and is likely to take longer to resolve that originally thought.

Drainage Scheme – Operations

33. The pump refurbishment works at Te Hopai have bene completed, with both pumps now operational.

34. Herbicide spraying has commenced within the drainage systems managed by Greater Wellington.

35. Both flap gates at Ōnoke pump have now been replaced. The puddle flange for pump 1 is also severely corroded and requires replacement, which is being planned for next dry season.

Flood Resilience Tranche 1

36. Central government has allocated $1.2 billion for the Regional Infrastructure Fund (RIF), administered by Kānoa, to invest in regional infrastructure, boost productivity, and improve resilience. Included in this is $200m for flood infrastructure, based on a 60:40 Crown: Council funding split.

37. Greater Wellington has 16 out of the 42 nationally approved projects, which include different types of flood protection and management infrastructure such as stopbanks, riparian planting, groynes and culverts. Table **1** provides a summary of progress on these projects to date. With one exception, these sites are all in the Wairarapa.

Table 1 – Summary of progress on the Tranche 1 projects

Site 1 - River Rd - Stage 2 - **Wairarapa**	Site completed.
Site 2 - River Rd - Stage 3 - **Wairarapa**	Site completed.
Site 3 - Waipoua SH2 Left Bank - **Wairarapa**	Site completed.
Site 4 - Waipoua Industrial Site - Akura Road - W**airarapa**	Site completed.
Site 5 - Fullers Bend - **Wairarapa**	656 tonnes of Grade B rock and 4,236 tonnes of special Grade B rock has been delivered. Early works have been completed.
Site 6 - Awaroa Sill - **Wairarapa**	Enabling works have been completed.
Site 7 - Masterton Raw Water Supply - **Wairarapa**	312 tonnes of Grade B rock and 734 tonnes of special Grade B rock has been delivered to date. Early works have been completed.
Site 8 - Hood Aerodrome - **Wairarapa**	1610 tonnes of Grade B rock has been delivered.
Site 9 - Otaki Cliffs - Otaki	4,806 tonnes of special Grade B rock has been delivered to date.
Site 10 - Tawaha Sill - **Wairarapa**	Enabling works have commenced onsite.
Site 11 - Pukio East Stopbank - **Wairarapa**	Site completed.
Site 12 - Flood Gates - Fish Passage- **Wairarapa**	103 tonnes of ridge rocks have been delivered to date.

Site 13 - South Masterton Stopbank - **Wairarapa**	Enabling works have commenced onsite and investigations are ongoing.
Site 14 - Homebush Wastewater Treatment Plant Resilience works - **Wairarapa**	Enabling works have been completed.
Site 15 - Upper Ruamāhanga Buffer Establishment - **Wairarapa**	Plants growing in nursery – engagement with landowners has progressed.
Site 16 - Whakawhiriwhiri stream - **Wairarapa**	Enabling works have been completed.

38. The completion of five Wairarapa flood protection projects has been marked by a visit of the Regional Development Minister, Shane Jones, to a Greater Wellington project site near Greytown – Site 5: Fullers Bend within the Waiōhine River. “I announced the first tranche of projects about this time last year. We wanted projects that would be ready to start as soon as they got the green light – what we have here is delivery on our promises,” Mr Jones said.

Figure 3: Minister and councillors - From left, South Wairarapa councillor Aaron Woodcock, Greater Wellington chair Daran Ponter, Regional Development Minister Shane Jones, Greater Wellington deputy chair Adrienne Staples, South Wairarapa mayor Martin Connelly (Location – Site 5: Fullers Bend (Waiōhine River)

39. Stakeholder engagement is on track or completed for all project sites. Iwi engagement is on-going for all sites along with co-design on native planting at applicable sites.

Lower Wairarapa Valley Development Scheme and Barrage Gates – Investigations

40. Greater Wellington's resource consents to undertake river management activities in the LWVDS and to operate the Barrage Gates expire on 30 September 2027. These resource consents are critical for Greater Wellington's Flood Operations activities in the Lower Valley to manage flood risks.

41. In preparation for preparing new consent applications, and as required by the existing resource consents, Greater Wellington has launched an investigation programme to support the application and provide a basis for the review of the LWVDS.

42. The investigation programme includes four workstreams that cover reviewing the level of flood protection, reviewing the current operation and maintenance regime, understanding and monitoring the level of effect on the surrounding environment, and providing options and recommendations to improve environmental and cultural outcomes.

43. A consenting strategy is currently being prepared for the reconsenting process. This will map out the milestones and decisions that need to be made between now and lodgement of the new consent applications, due in March 2027.

Waipoua Flood Risk Management – Options Analysis

44. Greater Wellington has been working with a project team comprising of Masterton District Council officers, community members and mana whenua to develop options to reduce the flood risk to the Masterton urban area in a 1% AEP event.

45. A separate report Waipoua River Urban Reach Flood Risk Management Options (Report - 25.236) is being presented to the Wairarapa Committee at this meeting that outlines the proposed preferred option.

Nature-based Solutions Feasibility Study – Waipoua Flood Risk

46. In parallel to the urban flood risk management project, a feasibility study to assess and quantify the benefits of a suite of nature-based solutions for managing flood risk in the Waipoua River is being undertaken.

47. This work is focused on the upper catchment (above the urban reach) and includes investigation of natural river patterns, effects on groundwater recharge and low flows, and indigenous vegetation within the catchment.

48. A workshop was held with mana whenua and wider community members on 20 May 2025 to discuss and seek inputs on the wider benefits of nature-based solutions.

49. The nature-based solutions will be assessed to quantify any reduction in flooding, as well as wider benefits. This work is due for completion at the end of July 2025 and will be presented to the Wairarapa Committee in September 2025.

50. This work will be complementary to the urban flood risk management project.

Featherston Flood Hazard Modelling

51. From 20 March to 6 April 2025, Greater Wellington engaged with the Featherston community about flood hazard modelling they have been doing for Donalds' and Abbott's Creek.

52. This stage of engagement involved sharing a simulated historical event (2 December 2018) with the community and asking whether the model reflects their memory of flooding during this event. This step determined that the model used to create the hazard maps for the catchment is calibrated correctly.

53. The engagement included: two stalls at the Featherston Markets on consecutive Saturdays, up to date information on the Greater Wellington website, a "Have Your Say" form to submit comments and photos of flooding during the 2018 event, social media posts, flyers and posters to promote drop-in sessions to discuss the flood hazard modelling project.

54. Over the two market stalls, Greater Wellington officers spoke to over 50 people. During these conversations, several areas to look at in the model were identified. These issues have since been addressed.

55. Three emails were received with further feedback from community members.

56. The flood hazard model has now been peer reviewed and [at the time of writing] flood hazard maps are being prepared to be provided to the Wairarapa Combined District Plan committee as outlined in Greater Wellington's submission on the proposed District Plan.

57. The next stage of engagement (Stage 4) is being planned for June/July 2025. This will involve Greater Wellington sharing the flood hazard maps with the community. These maps will show the extent and depth of flooding in a 1% annual exceedance probability event both with and without the predicted impacts of climate change.

Waipoua River and Mangatārere Stream Flood Hazard Modelling

58. A separate report Waipoua River and Mangatārere Stream Flood Hazard Maps (Report - 25.23) is being presented to the Wairarapa Committee at this meeting that presented file flood hazard maps for these watercourses.

Flood Incident Management Training and Exercising

59. The Flood Incident Management team has completed training for this calendar year and is now preparing for the annual flood incident exercise in September 2025. We have also responded to a series of severe weather incidents including the issuing of the first Red weather warning for the Region.

60. As part of the flood warning and response improvements programme we are mapping smaller floods for all Greater Wellington managed watercourses across the region, working to embed our new flood forecast models and investigating how 'extreme' floods will impact the river systems. We are working with the Local Controllers and Emergency Management staff in each Council to build awareness of flood hazard and the processes and systems which Greater Wellington use to respond.

Ngā hua ahumoni
Financial implications

Crack Willow Removal, Early Flood Warning Systems upgrade

61. Some of these projects are being funded with budgets being brought forward in the Long-Term Plan (LTP). Others are direct government funding with project management time as Greater Wellington's contribution (detailed below).

Crack Willow Removal

Government Funding	DPMC – Cyclone Recovery Unit
Opex allocated:	$250,000 (LTP 2024-34)

Early Flood Warning Systems

Government Funding	DPMC – Cyclone Recovery Unit
Capex allocated:	$100,000 (LTP 2024-34)

Ngā Take e hāngai ana te iwi Māori
Implications for Māori

62. Greater Wellington is required to manage land and water within a range of statutory requirements, including giving effect to Te Mana o Te Wai and considering Te Tiriti o Waitangi in the development and implementation of the Council's strategies, plans, programmes and initiatives.

63. Implementation with mana whenua partners is guided by Te Whāriki – the new Māori Outcomes Framework as part of Council's Long Term Plan 2024–34.

64. The Flood Resilience programme of work provides opportunity for mana whenua to be actively involved in the design of native planting at applicable project sites. Mana whenua in collaboration with hapū are leading our design on project sites and initial conversations are starting on the 20km of native planting as part of Site 15.

Te huritao ki te huringa o te āhuarangi
Consideration of climate change

65. Each project within the catchment considers and responds to the predicted impacts of climate change when considering the appropriate response to the issue the project seeks to address.

66. This flood resilience programme aligns with the 2015 Climate Change strategy, which states 'we will help the region adapt to climate change'. The projects increase climate change adaptation and resilience to natural disasters in the region.

67. The greenhouse gas (GHG) emissions from rock supply vary depending on the quarry source of the rock and transport to the work sites. Quarry sources for projects vary. The emissions from rock supply production and transport are not presently part of the organisation's GHG inventory.

68. Targeted planting has been carried out to mitigate CO2 emissions for the Kānoa projects.

69. Greater Wellington currently assesses options to address flood risk based on the predicted impacts of climate change over the next 100 years. Unless specified differently for specific projects, these values are an increase in rainfall intensity of twenty percent, and a sea level rise of 0.8 metres.

Ngā kaiwaitohu
Signatories

Writers	Tina Love – Team Leader Infrastructure Projects Hamish Fenwick – Team Leader Flood Operations Andy Brown – Knowledge Risk Management and Resilience Lead Francie Morrow – Team Leader Knowledge – Water Resilience
Approvers	Jack Cox – Manager Infrastructure, Assets and Support Evan Harrison – Manager Knowledge Myfanwy Hill – Manager Environment Operations David Hipkins – Director Knowledge and Insights Jack Mace – Director Delivery Lian Butcher – Group Manager, Environment

He whakarāpopoto i ngā huritaonga **Summary of considerations**
Fit with Council's roles or with Committee's terms of reference The Committee is to consider areas and matters of strategic importance to the Wairarapa and recommend to Council on these matters.
Contribution to Annual Plan / Long Term Plan / Other key strategies and policies The projects contained within this report deliver on Greater Wellington's strategic priority area of te tū pakari a te rohe/regional resilience, and support delivery of Greater Wellington's strategic priority area of te oranga o te wai māori me te rerenga rauropi/freshwater quality and biodiversity. All river matters discussed here are included in the LTP.
Internal consultation Specific projects consult with groups and departments across Greater Wellington where relevant to a project.
Risks and impacts - legal / health and safety etc. The purpose of implementation floodplain management plans in implementing asset management procedures is to reduce the risk to communities and improve the region's resilience. Greater Wellington has adopted procedures and processes to minimise risks. Working with community committees enables a wider understanding of the risks before adoption of work programmes.

Wairarapa Committee
3 June 2025
Report 25.187

For Information

WHAITUA UPDATE – WAIRARAPA COAST

Te take mō te pūrongo
Purpose

1. To inform the Wairarapa Committee on the development of the Wairarapa Coast Whaitua

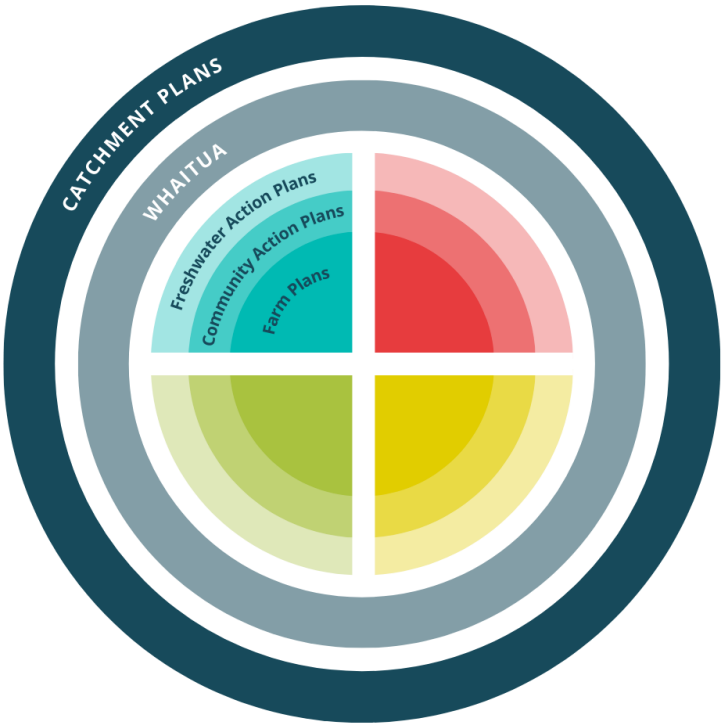
Te tāhū kōrero
Background

2. The Whaitua process was established by Greater Wellington Regional Council (Greater Wellington) and the community in order to implement national direction under the National Policy Statement for Freshwater Management 2020 (NPS-FM).
3. The process considers freshwater management in the context of a catchment, working with mana whenua and the relevant communities to establish vision, values and recommended actions to meet environmental outcomes.
4. The Coalition Government extended the deadline for meeting the NPS-FM to 31 December 2027. The Government also announced replacing the NPS-FM indicating that the replacement will take between 18 to 20 months. The extension of the deadline is helpful, however, the visibility of what will actually change, and the direction of the new NPS-FM is uncertain.

Te tātaritanga
Analysis

5. A different approach to the previous Whaitua processes is proposed. This draft approach is designed to take a whole of the catchment perspective with the intent to develop an implementation-led catchment plan that is broader in focus. It would bring together hapū and iwi values with the rural catchment community visions and outcomes to inform decisions based on sub-catchment priorities.
6. The Catchment Plan would be broader than only Freshwater outcomes and centre around a holistic plan for multiple outcomes at place.
7. This Catchment plan would encompass other related activities e.g. farm plans, freshwater action plans, community catchment action plans. Work is underway on how these examples could be woven together in an integrated plan and connected process or processes, which can then be tested against NPS-FM requirements as well as lessons from Kāpiti and other Whaitua processes.

8. This diagram below is a visual representation of the Wairarapa Coast whaitua model. The purpose is to show the connection between the different plans and the importance of scale. Each coloured segment represents a sub-catchment. At this scale it is important to connect farm plans with the Community action plan and Freshwater Action plan. The key message being that these plans should all be sub-sets of each other not separate plans.



9. Catchment Action Plans are being completed with the Catchment Groups. There are currently four action plans under development across the Wairarapa coast catchment. These cover 127,744 hectares out of 247,000 total hectares (50%).

10. These plans are iterative. These include community values, vision, objectives, and outcomes. They also have an action plan that outline key projects and actions needed to reach the outcomes detailed in the plan. These action plans can be connected across the Wairarapa Coast and use to identify gaps and opportunities for future funding and targeted effort from Greater Wellington and other partners to ensure works is carried out to be outcome focused at the most appropriate scale.

11. Partnering with mana whenua of the Wairarapa is essential to the success of developing Whaitua programmes, we recognise the need to have mana whenua involvement from the outset. We continue to strengthen our relationships with mana whenua of Wairarapa and early discussions have been had with Rangitāne to explore the design of the whaitua. It had been indicated from both iwi that hapū involvement will be a key focus of this whaitua. These conversations are in progress. Greater Wellington is also looking forward to progressing this important kaupapa with Kahungunu ki Wairarapa for rangatiratanga outcomes.

Ngā hua ahumoni
Financial implications

12. Current budgets are resourced to support the Catchment Action plans and Iwi involvement. The financial and wider resourcing implications are still to be determined once the new NPS-FM comes out.

Ngā Take e hāngai ana te iwi Māori
Implications for Māori

13. As mentioned above, the approach for the Wairarapa Coast Whaitua will be determined with mana whenua.

Ngā tūāoma e whai ake nei
Next steps

14. Engagement with the Wairarapa Coast Catchment groups will continue with the development of Catchment Action plans.

Ngā kaiwaitohu
Signatories

Writers	Tash Styles – Catchment Manager, Wairarapa Coast
Approvers	Nicola Patrick – Director, Catchment Lian Butcher – Group Manager, Environment

He whakarāpopoto i ngā huritaonga **Summary of considerations**
Fit with Council's roles or with Committee's terms of reference
The information in this report on WIP development and implementation is a matter of importance for the Wairarapa.
Contribution to Annual Plan / Long Term Plan / Other key strategies and policies
The Whaitua Programme contributes to Council's obligations to give effect to the National Policy Statement – Freshwater Management (NPS-FM) through engagement with mana whenua and the community.
Internal consultation
This report was prepared by Catchment and reviewed by Te Hunga Whiriwhiri.
Risks and impacts - legal / health and safety etc.
There are no known specific risks and impacts related to this report beyond the constrained circumstances as outlined.