

**Before the Hearings Panel
At Kapiti Coast District Council**

**Statement of evidence of potable water supply on behalf of Kāpiti Coast
District Council (Water Network Planning)**

Date: 12/08/2026

INTRODUCTION:

- 1 My full name is Kate Waterland. I am employed as a Water Network Planner at Stantec.
- 2 I have prepared this statement of evidence on behalf of the Kāpiti Coast District Council (**Council**) in respect of technical related matters arising from the Proposed Private Plan Change 5 (PPC5) to the Kāpiti Coast District Plan (District Plan).
- 3 Specifically, this statement of evidence relates to the following matters:
 - a) Water supply servicing feasibility, including whether potable water supply to the site is feasible in principle, whether the proposed development can be serviced using the existing water network, planned upgrades and standard design solutions, and whether any known water network capacity or performance constraints may affect development timing, staging or yield.
- 4 I am authorised to provide this evidence on behalf of the Council.

QUALIFICATIONS AND EXPERIENCE

- 5 I hold the qualifications of BSc Environmental Science, PgCert Environmental Management.
- 6 I have worked for Stantec for 4 years as a Water Network Planner.

Code of conduct

- 7 I have read the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note 2023¹. I have complied with the Code of Conduct in preparing my evidence and will continue to comply with it while giving oral evidence before the Environment Court. My qualifications as an expert are set out above. Except where I state I rely on the evidence of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from my expressed opinions.

SUMMARY

- 8 My name is Kate Waterland.
- 9 I have been asked by the Council to provide evidence in relation to Infrastructure Servicing – Water and Wastewater, Water Supply in relation to PPC5.
- 10 My statement of evidence addresses servicing feasibility, network capacity and performance, overall opinion of the potable water supply.

INVOLVEMENT WITH THE PRIVATE PLAN CHANGE 5

- 11 I have been involved in the PPC5 since 18th June 2026. Although I was not involved in earlier review stages of the plan change request, I have familiarised myself with the relevant material including the Engineering Infrastructure Report prepared by Cuttris dated 3 April 2025 and submitted with the plan change request.

¹ <https://environmentcourt.govt.nz/assets/Practice-Note-2023-.pdf>

SCOPE OF EVIDENCE

- 12 My statement of evidence addresses water supply matters, specifically:
- servicing feasibility, including whether potable water supply to the site is feasible in principle,
 - whether the proposed development can be serviced using the existing water network,
 - planned Council upgrades and standard design solutions, and
 - whether any known water network capacity or performance constraints may affect development timing, staging or yield.
- 13 Mr Ramesh Pillai, Manager Water and Wastewater Services for the Council, has provided a separate Statement of Evidence which provides more detail about the Council's planned water main upgrades in the Waikanae area.

EVALUATION

- 14 The KCDC water network supply model and master plan (ZMP) was recently updated in 2024. To inform my evidence, the model was further updated to include known recent growth in the network, including development that is currently under construction or consent stages. Appendix 1 of this evidence includes the technical water supply assessment report for the site and sets out the findings of the model update. The updated model and ZMP indicate further growth in this area is likely to have adverse effects on the water supply network until the future upgrades proposed in the ZMP are in place.
- 15 The potable water assessment for 110 Te Moana Road was undertaken using Council's WS Pro model for the Waikanae network. The internal reticulation for any future development on the plan change site was not

assessed. This should be appropriately assessed through detailed modelling during the subdivision or detailed design stage.

- 16 I have reviewed the applicant's infrastructure assessment and do not agree with its conclusion that the development will not cause adverse effects on the water supply network. As documented in this statement of evidence, the existing Waikanae network is already constrained and modelling indicates there is no remaining capacity for growth without mitigations or upgrades. While the assessment is correct in saying that the local network immediately adjacent to the development is sufficiently sized to support the development, it takes no account of the upstream or downstream network loads which is where we see the largest constraints. This statement of evidence therefore provides further assessment of the capacity of the existing Waikanae network, including recent and committed growth in the area and the future upgrades identified in the 2024 ZMP.
- 17 While the additional demand associated with the proposed development is only approximately 0.7l/s, it is proposed to connect to the already constrained 200mm AC main on Te Moana Road. This main currently supplies Waikanae Beach from the Kakariki Reservoir and has high modelled head loss under peak summer day conditions.
- 18 The proposed development needs to be considered in the wider context of committed greenfield growth in this area. The model results indicate that, once demand from recent growth and developments already in construction phase is included, there is no remaining capacity in the existing network to accommodate further growth without the planned upgrades. As those developments are understood to be progressing, I consider it appropriate to assess the existing network on the basis that this additional demand is committed.
- 19 On that basis, this assessment indicates that there is no remaining capacity in the existing network to accommodate future development on the PPC5 site in addition to the other committed greenfield growth in

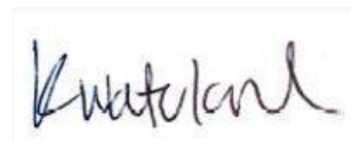
this area unless the planned upgrade identified in the 2024 ZMP are in place or sufficient capacity is otherwise demonstrated at the time of subdivision or development. This does not necessarily preclude rezoning at this stage but it does indicate that future subdivision and development will need to demonstrate adequate water supply capacity, or completion of the necessary upgrades, prior to development occurring.

- 20 The 2024 ZMP identifies future upgrades that are expected to increase network capacity; however, without these upgrades, the existing network does not have sufficient capacity to support further growth in this area.

CONCLUSION

- 21 In conclusion, there is evidence to suggest that there is no additional capacity in the existing network to support further development. The area can be rezoned now, however, any subdivision or development on the site should not occur until the necessary upgrades or mitigations are in place.

Date: 12/08/2026

A handwritten signature in dark ink, appearing to read "K. K. K. K. K.", is written on a light blue background.



**110 TE MOANA ROAD WATER SUPPLY
ASSESSMENT**

12 August 2026

Kapiti Coast District Council (KCDC)

Prepared by:
Kate Waterland

Project Number:
310104845

110 Te Moana Road Water Supply Assessment

Revision	Description	Author	Date	Quality Check	Date	Independent Review	Date
0	Draft	K Waterland	12/08/2026	B Davies	12/08/2026	A Ramola	12/08/2026

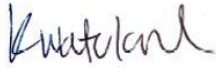


110 Te Moana Road Water Supply Assessment

The conclusions in the Report titled 110 TE MOANA ROAD WATER SUPPLY ASSESSMENT are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Kapiti Coast District Council (KCDC) (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by: 

Signature

Kate Waterland

Printed Name

Reviewed by: 

Signature

Abhi Ramola

Printed Name

Approved by: 

Signature

David Reynolds

Printed Name



Table of Contents

1	INTRODUCTION.....	1
1.1	Background	1
1.2	Model Setup	1
2	STUDY AREA.....	2
2.1	Waikanae Water Network.....	2
2.2	110 Te Moana Rd Development	3
2.3	110 Te Moana Rd Demand	4
2.3.1	Peak Summer Day	4
2.3.2	Peak Instantaneous Flow	5
3	PERFORMANCE CRITERIA	6
4	FINDINGS – CURRENT PEAK DAY SCENARIO (2023).....	7
4.1	Results	8
4.2	Current Peak Day Summary	10
5	FINDINGS – FUTURE PEAK DAY SCENARIO (2053).....	12
5.1	Growth	12
5.2	Future network performance	12
6	STORAGE REQUIREMENTS.....	15
7	CONCLUSIONS.....	16

LIST OF TABLES

Table 5-1: Predicted dwelling growth in Waikanae	12
Table 6-1: Waikanae (Excluding Tui HL and Wilson Way) Storage Amount and Requirements	16

LIST OF FIGURES

Figure 1-1: 110 Te Moana Rd Proposed Development	1
Figure 2-1: Waikanae network schematic.....	2
Figure 2-2: Waikanae Network Schematic.....	3
Figure 2-3: Location of proposed development	4
Figure 2-4: Demand profile and peak instantaneous flow added to the model	5
Figure 4-1: Modelled location of 110 Te Moana Road.....	7
Figure 4-2: High head loss on Te Moana Road	8
Figure 4-3: Head loss (m/km) - existing network / network with known developments	9
Figure 4-4: New low-pressure issues within Waikanae Beach	9
Figure 4-5: Recommended section of upgrades to build prior to 2053 Future Scenarios	10
Figure 4-6: Option to open DMA boundary between Hemi DMA and Te Moana Road DMA.....	11
Figure 4-7: Potential upgrade on Te Moana Road / Park Avenue.....	11
Figure 5-1: Proposed network upgrades as per the 2024 Zone Management Plan	13
Figure 5-2: Pressure (m) - Future peak day with proposed development	14
Figure 5-3: Head loss (m/km) future peak day scenario with proposed development	15
Figure 6-1: Waikanae Water Supply Area storage requirements	16



1 Introduction

1.1 Background

Kapiti Coast District Council (KCDC) has engaged Stantec to assess the water supply available to the proposed development at 110 Te Moana Road, Waikanae Beach to inform evidence for Proposed Plan Change 5. The location of the development is shown in Figure 1-1 below.

This document describes the water supply requirements at the development site.



Figure 1-1: 110 Te Moana Rd Proposed Development

1.2 Model Setup

For our own reference, the study model used for this work is **MPL07 C09 – 110 Te Moana Rd**.

The model is an all-mains model in WS Pro and was rebuilt and calibrated by Stantec in 2024. Growth scenarios have been incorporated in the master model based on KCDC growth estimates in the 2024 Zone Management Plan (ZMP). Elevations were taken from the LINZ 2024 1m DEM LiDAR, which uses the NZVD2016 vertical datum.

2 Study Area

2.1 Waikanae Water Network

Waikanae is supplied by the Waikanae Water Treatment Plant (WTP) via the Kakariki Reservoir, with a top water level of 100.3m. It should be noted that the Paraparaumu / Raumati network is also supplied by the Waikanae WTP, however, it is hydraulically separated from the Waikanae network.

From the reservoir, water gravitates to Main Road (old SH1) through the 375mm steel and 350mm AC mains on Elizabeth St, before flowing north to Waikanae town centre through 100mm and 150mm AC mains, and west to Waikanae Beach through 4km of 200mm AC main in Te Moana Road.

Figure 2-1 shows the key network assets and Figure 2-2 shows the network schematic. This development will be located in the Te Moana Road District Metered Area (DMA).



Figure 2-1: Waikanae network schematic

110 Te Moana Road Water Supply Assessment Study Area

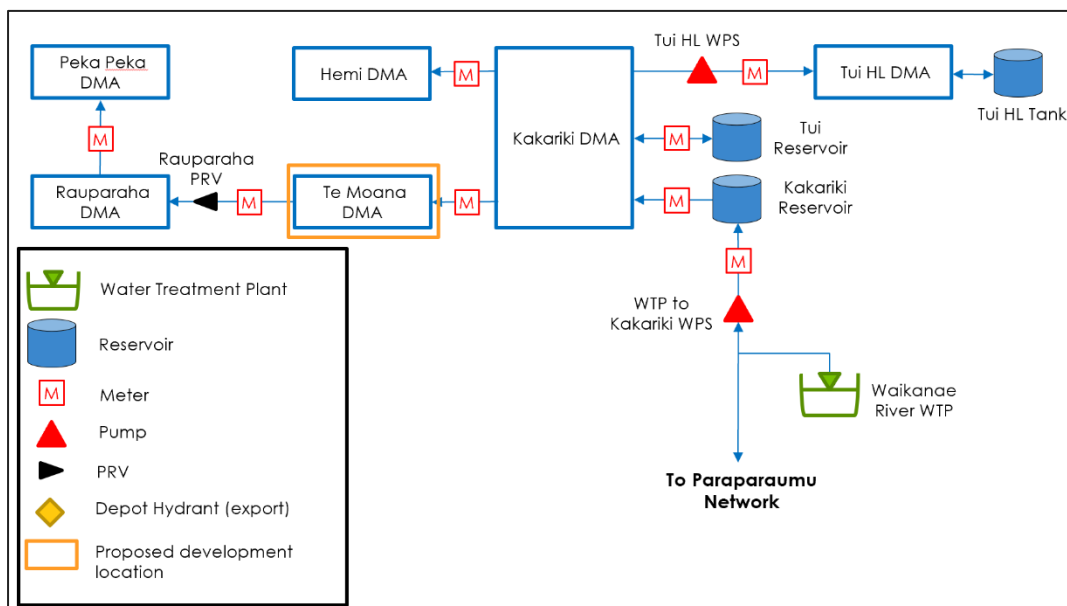


Figure 2-2: Waikanae Network Schematic

2.2 110 Te Moana Rd Development

For the purposes of this study, the 110 Te Moana Road development was added to the model as a single customer point representing 50 properties as provided by KCDC. This approach represents the total demand from the subdivision at this modelled connection point to the existing public network. The subdivision's internal pipe network has not been assessed as part of this study.

The approximate location of the development can be seen in Figure 2-3.



110 Te Moana Road Water Supply Assessment Study Area

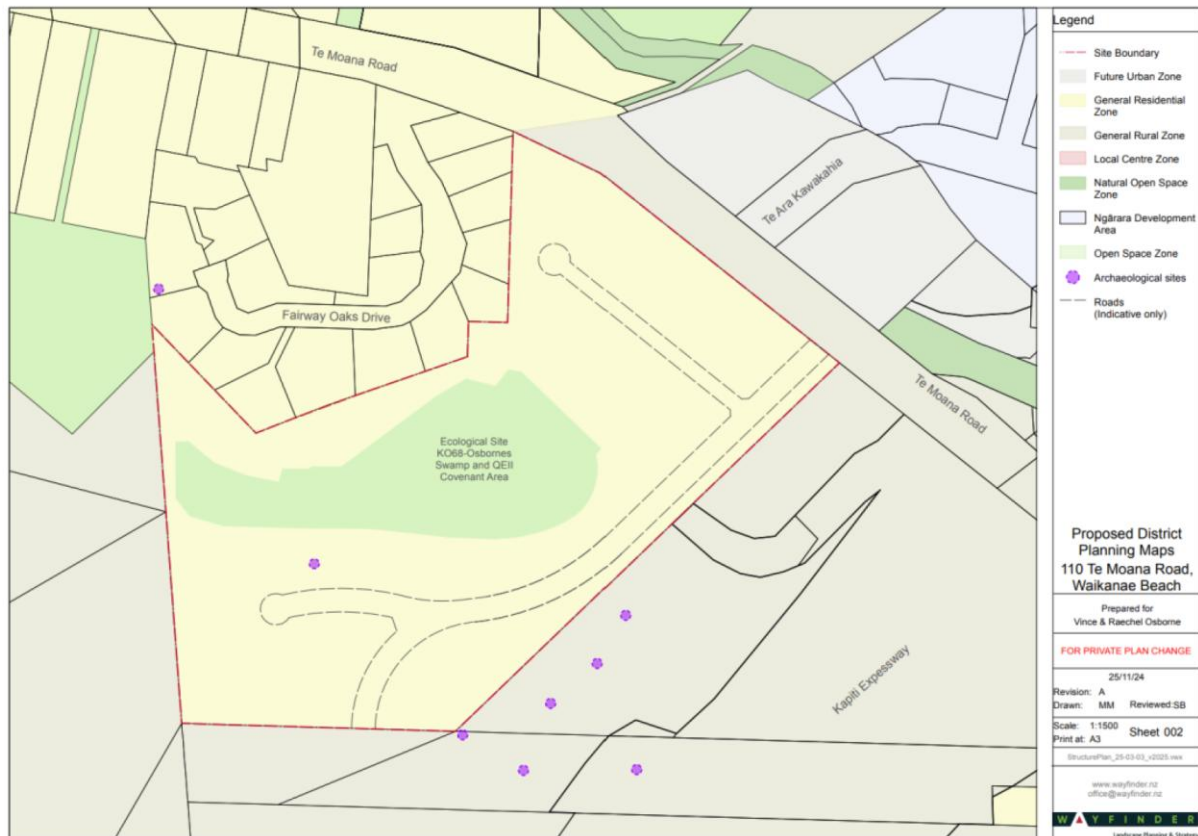


Figure 2-3: Location of proposed development

2.3 110 Te Moana Rd Demand

2.3.1 Peak summer day

Demand has been developed from NZS 4404 using the following:

- 250 l/person/day (average day demand)
- Average occupancy of 2.5 people per property
- A peak summer day demand of twice the average day demand

From this, a specific consumption of 1250 l/property/day for peak summer demand has been added to the customer point in both current and future demand models. Total demand for the development is 62,500 l/day (approximately 0.7 l/s) based on the design parameters as stated above.



2.3.2 Peak instantaneous flow

As per NZS 4404, a peaking factor of 5 is assumed for instantaneous peak demand. However, because the stated peaking factor relates to the average day demand, the instantaneous peak demand in the peak summer day scenario was given a peaking factor of 2.5.

A standard residential demand pattern was assumed for this development. Total instantaneous flow for the development is approximately 1.75 l/s (Figure 2-4).

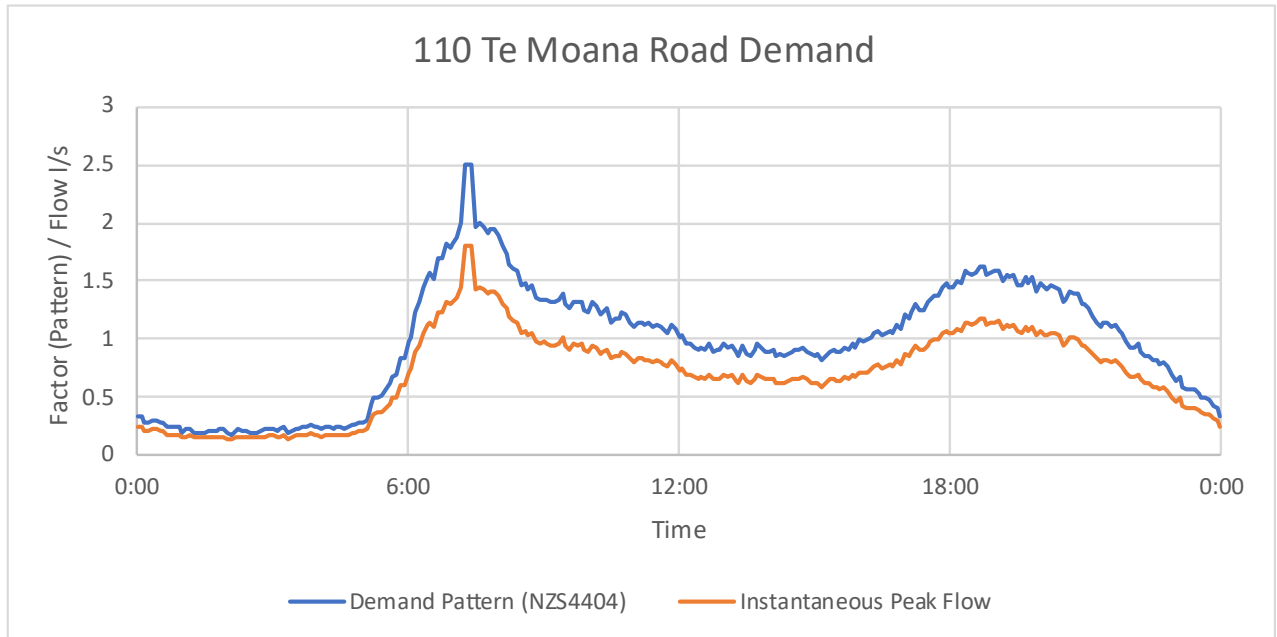


Figure 2-4: Demand profile and peak instantaneous flow added to the model

3 Performance Criteria

Pressure, fire flow, pipe head loss and resilience were reviewed in this assessment, with the criteria set out below.

- **Pressure** – A minimum pressure of 25m must be maintained under peak summer demand. In scenarios reflecting temporary pipe failures, lower pressure may be acceptable but must always remain above 0. An absolute lower limit of 10m pressure was used to allow for model uncertainties.

A maximum pressure criteria of 90m was also set for properties in the new development and for properties affected by proposed changes in existing network configuration

- **Pipe head loss** – new pipes should be designed to have less than 5m/km. Any other head losses which directly result in failure of minimum pressure requirements (25m) were also identified.
- **Resilience** – failure of a single pipe should not result in the risk of loss of supply (modelled pressure of less than 10m) to any properties.
- **Storage** – storage is considered sufficient if there is enough stored water to support both of:
 - o 24 hours of demand on a peak summer day
 - o An allowance for fire flow in line with Table 2 of the Fire Code (SNZ PAS 4509:2008). For Waikanae, FW4 fire class is assumed, requiring an allowance of 540m³ storage

With regards to resilience, it is acknowledged that the existing KCDC network fails to meet this criteria in a number of places. In some locations (e.g. Waikanae Beach and Peka Peka) large parts of the network are vulnerable to failure of a single main. This study is required to address the effects of this development on the existing network, so resilience of the proposed development has not been assessed.



4 Findings – Current Peak Day Scenario (2023)

Initial assessment was undertaken on the existing network with 2023 demand plus other key developments (Summerset and Te Ara Kawakahia), which are currently in construction stages, added to the model.

Figure 4-1 shows the modelled location of the proposed development. The main supply to the development is the 200mm AC main on Te Moana Road.

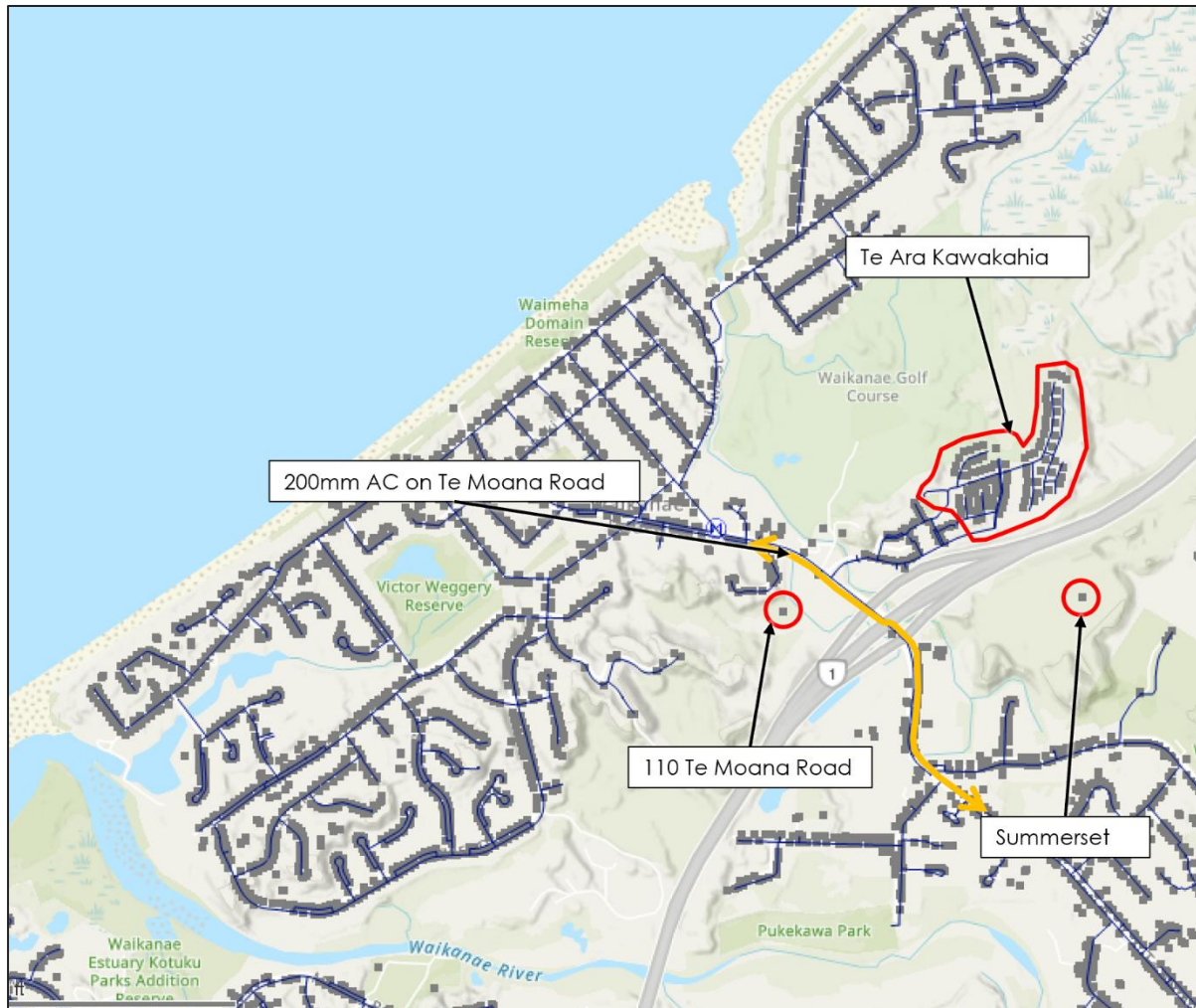


Figure 4-1: Modelled location of 110 Te Moana Road

This assessment has been undertaken under peak day conditions because it represents the critical demand condition for the network. While average day demand may provide better results and be a more accurate reflection of “normal” demand conditions within the network, a loss of water supply on a peak day is unacceptable. Therefore, while peak day conditions are not expected to occur

110 Te Moana Road Water Supply Assessment Findings – Current Peak Day Scenario (2023)

frequently, the network still needs to maintain sufficient capacity under these conditions to avoid loss of supply or the need to enforce significant water-use restrictions.

4.1 Results

Currently, there are significant head loss issues on Te Moana Road due to the 200mm AC pipe that connects the Kakariki Reservoir to the wider network being significantly undersized and causing upwards of 30m/km head loss (Figure 4-2).

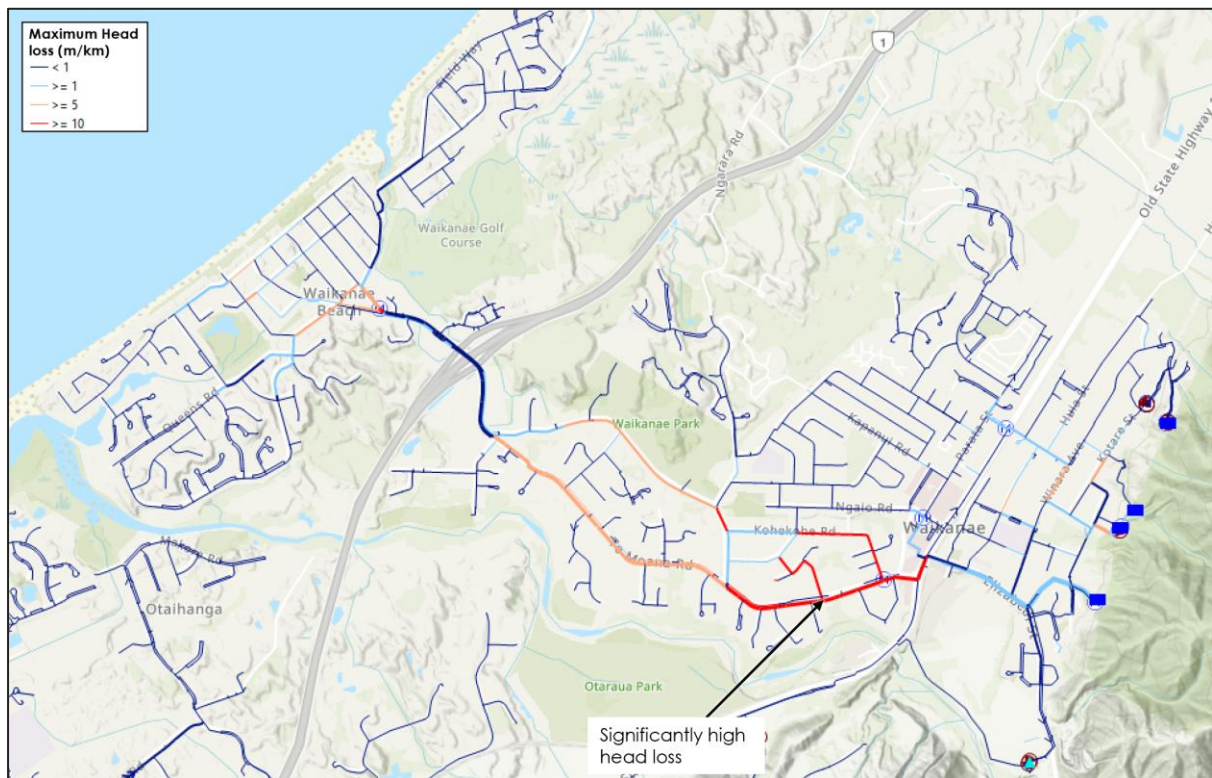


Figure 4-2: High head loss on Te Moana Road

110 Te Moana Road Water Supply Assessment Findings – Current Peak Day Scenario (2023)

When the known on-going developments (Summerset and Te Ara Kawakahia) are added to the model, plus the demand from 110 Te Moana Road, head loss through this main increases significantly (Figure 4-3).

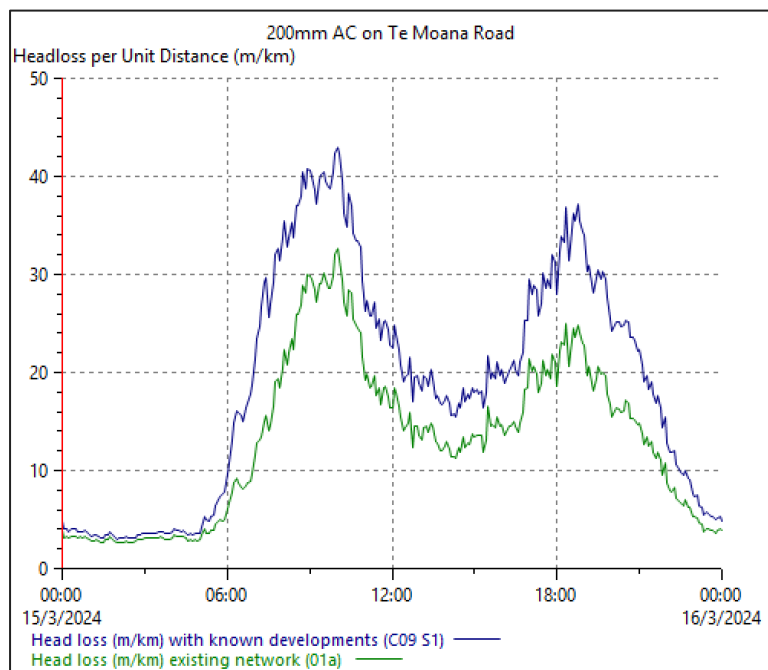


Figure 4-3: Head loss (m/km) - existing network / network with known developments

This then causes new low-pressure issues within Waikanae Beach (Figure 4-4).

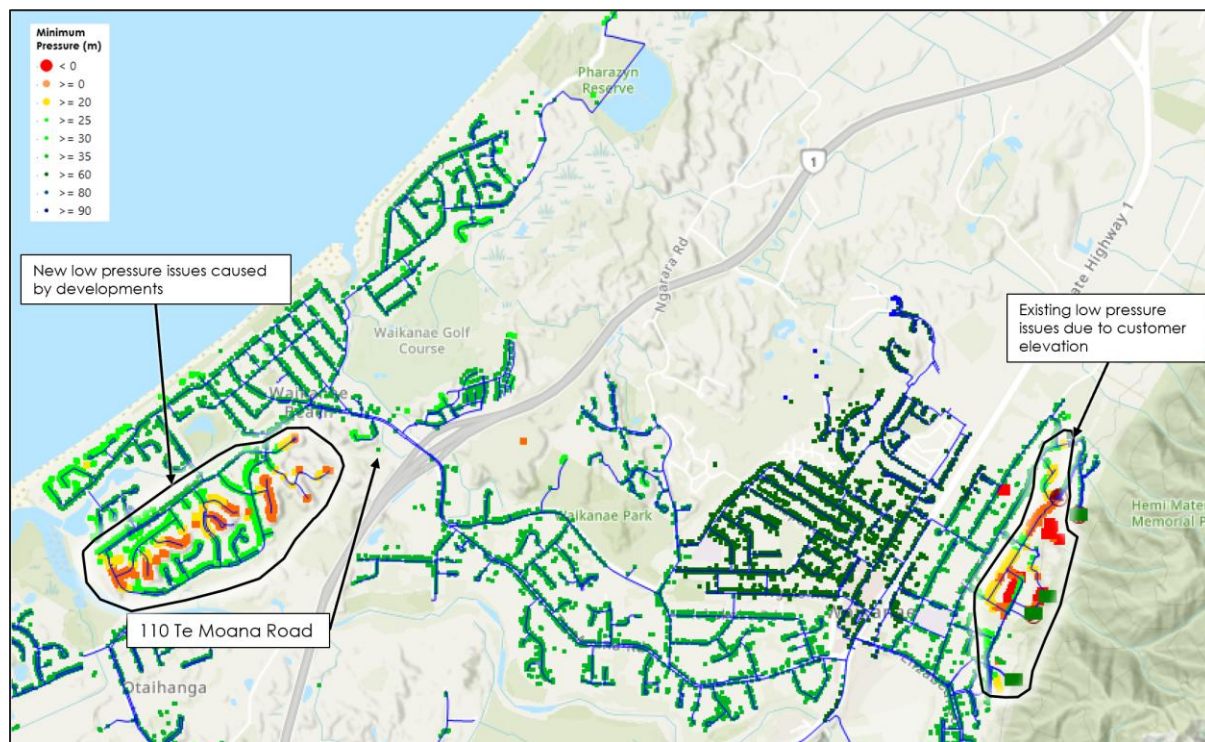


Figure 4-4: New low-pressure issues within Waikanae Beach



4.2 Current Peak Day Summary

Due to the existing high head loss on Te Moana Road and the resulting pressure constraints within Waikanae Beach, the current network does not have sufficient capacity to accommodate the proposed 110 Te Moana Road development while maintaining minimum levels of service.

Network upgrades would therefore be required to support the development under the current peak day scenario. Currently, there are proposed upgrades to resolve these issues as outlined in the 2024 Zone Management Plan; however, these are currently not in place, and we have no information about the timeline of these upgrades.

There are some options to resolve the high head loss. These include:

- Build a section of the proposed upgrades which will enable more flow to by-pass the constrained section on Te Moana Road as per Figure 4-5.
- Temporarily open the DMA boundaries between the Hemi DMA and the Te Moana Road DMA as per Figure 4-6.
- Upsize the existing 200mm AC main (approx. 1.2 KM) on Te Moana Road and a section of 150mm AC main (approx. 1.8 KM) on Park Avenue as per Figure 4-7.

The feasibility of these options needs to be discussed with KCDC before final recommendations can be made.

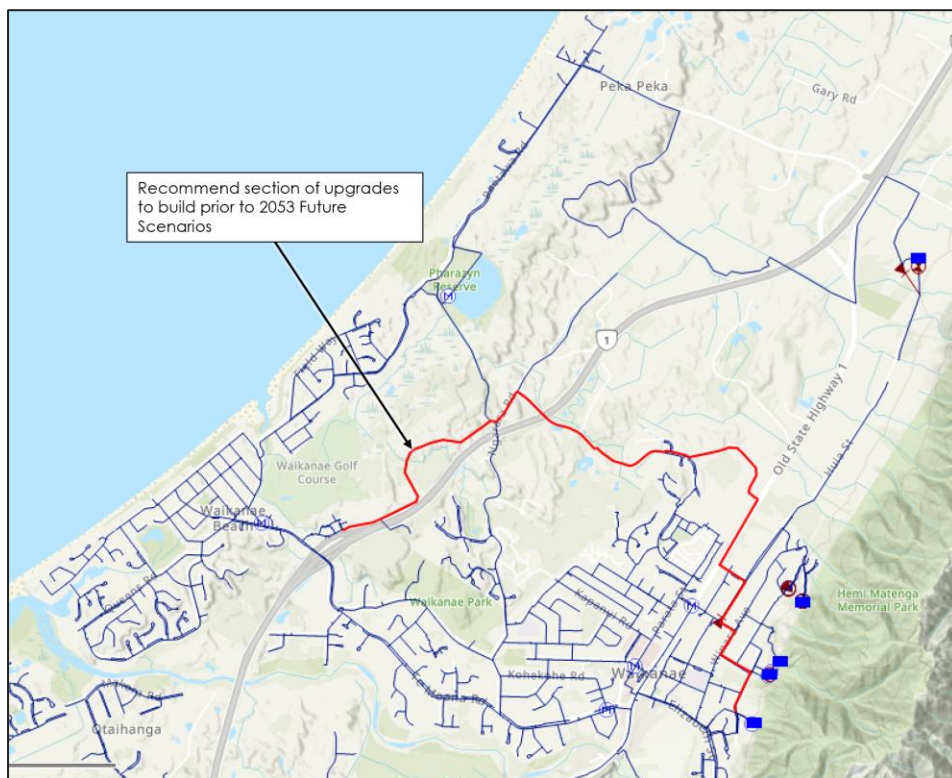


Figure 4-5: Recommended section of upgrades to build prior to 2053 Future Scenarios

110 Te Moana Road Water Supply Assessment Findings – Current Peak Day Scenario (2023)

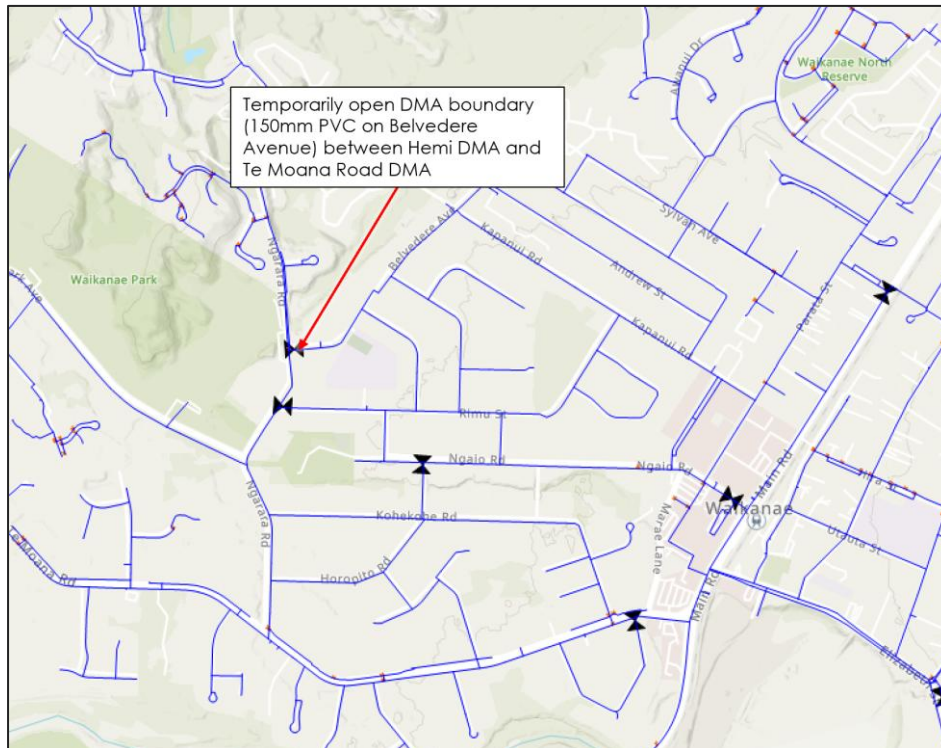


Figure 4-6: Option to open DMA boundary between Hemi DMA and Te Moana Road DMA

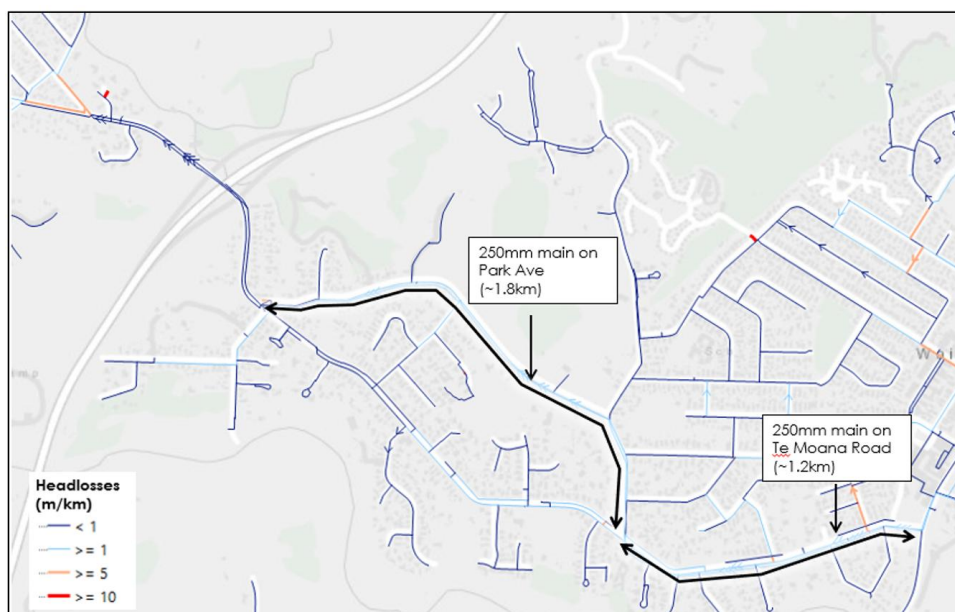


Figure 4-7: Potential upgrade on Te Moana Road / Park Avenue



5 Findings – Future Peak Day Scenario (2053)

5.1 Growth

Growth has been assigned to the future peak day (2053) scenario as per growth scenarios developed as part of the KCDC Zone Management Plan (2024). Growth for Waikanae is shown in Table 5-1.

Table 5-1: Predicted dwelling growth in Waikanae

Scenario	Dwellings	Demand
2023	7,929	6,960 m ³ /day
2053	13,013	15,801 m ³ /day
Change (2023 to 2053)	5,084 (64% inc.)	8,841 m ³ /day

An allowance was made for the proposed development at 110 Te Moana Road in the 2024 ZMP in the greenfield growth added to the ZMP future model. This development was originally included in the model with an estimated 70 properties; however, this was adjusted to 50 properties for this study, as per the figure provided by KCDC.

5.2 Future network performance

Without network upgrades, the entire Waikanae network experiences a loss of service in the future peak day scenario. Therefore, the future network performance assessment has been done using the future upgraded scenario. Network upgrades are in place as per the 2024 Zone Management Plan. The proposed network upgrades are shown in Figure 5-1.

110 Te Moana Road Water Supply Assessment **Findings – Future Peak Day Scenario (2053)**

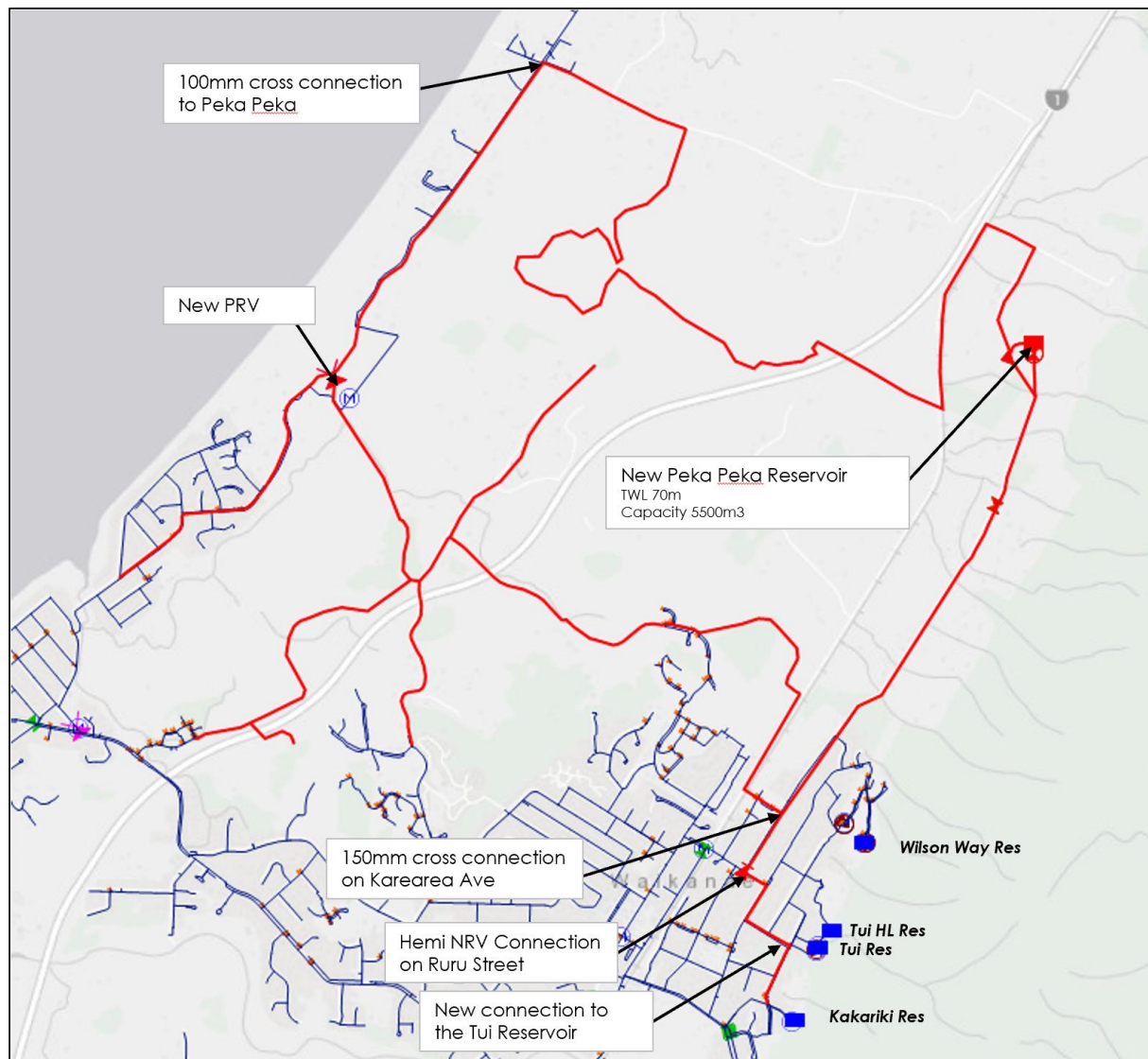


Figure 5-1: Proposed network upgrades as per the 2024 Zone Management Plan

There are no changes from the existing future peak day scenario, and pressure remains above 25m across the network (Figure 5-2)



110 Te Moana Road Water Supply Assessment Findings – Future Peak Day Scenario (2053)

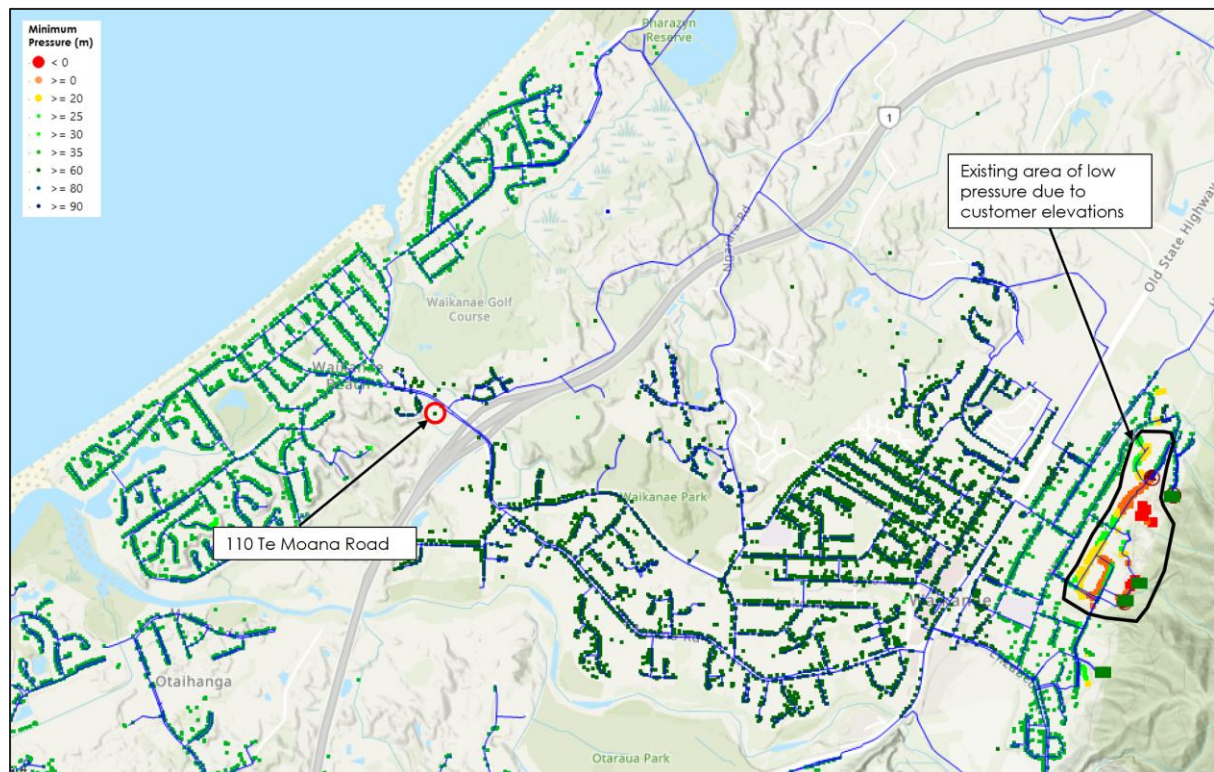


Figure 5-2: Pressure (m) - Future peak day with proposed development

While head loss is still high through the 200mm AC on Te Moana Road, the impact on network performance is mitigated by the proposed upgrades, which provide multiple alternative supply routes to the wider Waikanae network. There is no change in maximum head loss from the existing future peak day scenario (Figure 5-3)

110 Te Moana Road Water Supply Assessment Storage Requirements

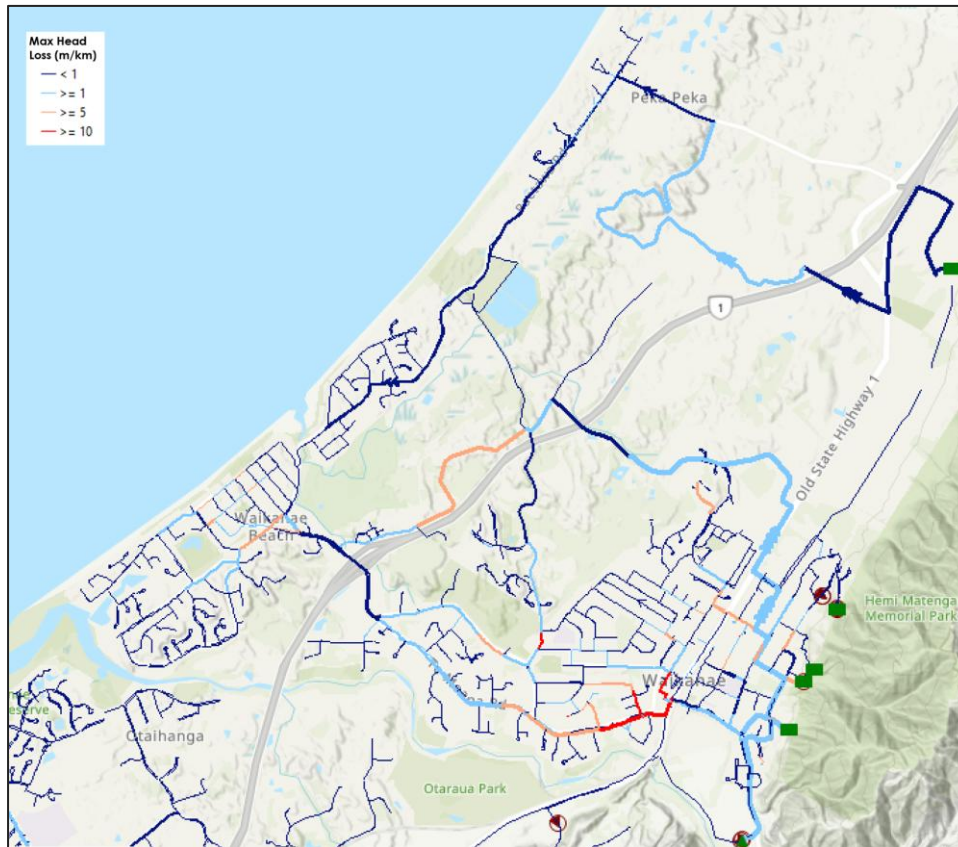


Figure 5-3: Head loss (m/km) future peak day scenario with proposed development

6 Storage Requirements

As the proposed 110 Te Moana Road development has been included in the growth calculations from the Zone Management Plan, there are no changes to the future storage requirements. Storage requirements for the current and future peak day scenarios for the Kakariki and Tui Reservoirs can be seen in Figure 6-1 and Table 6-1. The current shortfall in the Kakariki / Tui water supply area will be addressed by the proposed Peka Peka Reservoir, which provides an additional 5,500m³ of storage.

As shown in Figure 6-1 and Table 6-1, there is an estimated storage shortfall of approximately 3,157m³ by 2053. However, the proposed development does not increase this estimated shortfall, as it is already included in growth demand. As the future shortfall relates to greenfield development which may or may not occur, it was agreed with KCDC that no further storage upgrades should be proposed during the Zone Management Plan.

110 Te Moana Road Water Supply Assessment Conclusions

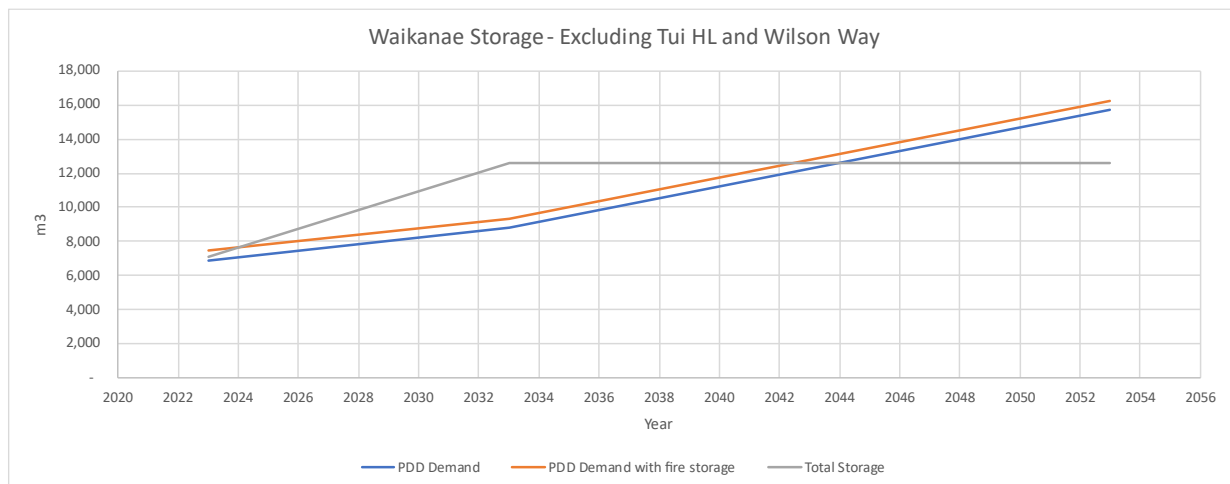


Figure 6-1: Waikanae Water Supply Area storage requirements

Table 6-1: Waikanae (Excluding Tui HL and Wilson Way) Storage Amount and Requirements

	Storage Requirement (m3) (including 540 m3 for fire)	Storage Available (m3)
2023	7,446	7,080
2033	9,309	12,580
2053	16,277	12,580

7 Conclusions

Stantec has assessed whether the Waikanae water supply network can service the proposed 50-property development at 110 Te Moana Road under current and future peak day conditions.

The current network does not have enough capacity to support this development under current peak day conditions. There are already high head losses through the 200mm AC main on Te Moana Road, which result in pressure constraints in Waikanae Beach. Adding the proposed development, along with other known ongoing developments, increases the head loss through this main and results in new low pressure areas in Waikanae Beach.

Upgrades to address the proposed capacity constraints in Te Moana Road have been proposed in the 2024 Zone Management Plan report. This work confirms that these (or other means of increasing capacity) will be required to support the additional demand from the proposed development through peak day demand even under current population.

The future assessment assumed the upgrades identified in the 2024 ZMP are in place. With these upgrades in place, pressure remains above the minimum 25m requirement across the network, and the proposed development does not change this performance. Although head loss remains high through the Te Moana Road main, the proposed upgrades provide alternative supply routes which reduce the impact on the wider network.

Overall, the proposed development cannot be supported by the current network without upgrades. However, once the relevant Zone Management Plan upgrades are in place, or an alternative mitigation option has been assessed and implemented, the development can be serviced.

