PC17 HAUTAPU INDUSTRIAL
Threewaters Evidence

6th February 2023

Prepared for:
Waipā District Council

Prepared by: Britta Jensen - Te Miro Water Consultants Limited

Revision	Description	Author	Date
A	Draft	BJ	6th Feb 2023
B	Final	BJ	9th Feb 2023

Acronyms / Abbreviations

ARI	Annual Return Interval
Council	Wāipa District Council
CC	Climate Change
District Plan	Waipā District Plan
FW2	Future Water Classification
ha	hectare
HG	Harrison Grierson Consultants Ltd
PC17	Proposed Plan Change 17 Hautapu Industrial Zones
TMW	Te Miro Water Consultants

1. **QUALIFICATIONS AND EXPERIENCE** My full name is Britta Jensen. I am the Managing Director and Principal Engineer at Te Miro Water Consultants (**TMW**). I have been employed at TMW since 2019, prior to this I was a senior engineer and team leader at both Beca and WSP as well as various consultancies in Australia. I am a member of Water New Zealand and a Member of Engineering NZ.

1.2. I have a Bachelor's degree from the University of Adelaide (Civil and Environmental Engineering (Honours) and Arts) and a Master's in Business Administration.

1.3. I have over 16 years of experience in the fields of water, wastewater and stormwater management. My experience in relation to PC17 involves:

1.3.1. Technical peer review of the "CAMBRIDGE C8/C9 MASTER PLAN -STORMWATER" (HG, 2020) on behalf of Council.

1.3.2. Review of the C8/C9 Groundwater Mounding Assessment (Beca, 2020).

1.3.3. Technical peer review documentation for the purposes of Waikato Regional Council Technical Approval for Stormwater (refer to "C8 C9 SW Management Technical Review" (TMW, 2020) of behalf of Council.

1.3.4. Undertaking hydraulic modelling and a feasibility assessment for the relocation of Basin 4 to the northern side of Hautapu Road. Refer to C8- C9 Stormwater Options and Update Summary (TMW, 2021).

1.3.5. Ongoing involvement with Council's stormwater, water and wastewater management through secondment, including managing the Three Waters Master Plan (Beca 2019) and Three Waters Modelling (WSP, 2019).

2. PURPOSE OF EVIDENCE

2.1. The purpose of my evidence is to summarise my technical review and assessment of various technical submissions undertaken for Council in support of the existing Master Plan and PC17. My evidence provides recommendations in relation to wastewater, water and stormwater (Three waters) management associated with PC17.

2.2. The technical reports that I have relied on and referred to in my evidence are provided in **Appendix A** of my Statement of Evidence.

3. SUMMARY OF EVIDENCE

3.1. PC17 is described in the Public Notice issued by Council as involving the Hautapu Industrial Area and seeks to reflect infrastructure changes that have happened since the Hautapu Structure Plan was last updated[1], to bring forward industrial land availability, and to re-zone an area of rural land north of Hautapu Road.

3.2. Key aspects of PC17 are described in the Public Notice as follows:

3.2.1. ***Changes to the Hautapu Structure Plan*** *- Council had developed a master plan for infrastructure upgrades in and around Growth Cell C8 in the Hautapu Structure Plan area, which supersedes the Structure Plan in the Waipā District Plan. Proposed PC17 will amend the Structure Plan to align with the masterplan.*

3.2.2. ***"Live zoning" the Industrial Zone in Growth Cell C9*** *- The second part of the plan change relates to the Growth Cell C9, shown as "deferred industrial" in the District Plan and planned for development to occur after 2035. The deferred industrial zoning on C9 is no longer fit for purpose as it does not reflect the current land use or the demand for industrial land. Proposed PC 17 proposes to lift the deferred industrial zoning on C9 which will make the industrial zoning "live".*

3.2.3. ***Rezone an area from Rural to Industrial*** *- An area to the north of Hautapu Road is currently zoned Rural. Part of this zoning no longer reflects the land use, and the Waikato Future Proof Growth Strategy 2022 has identified this area as suitable for "short term" development (industrial). Draft PC 17 proposes to rezone an area of approximately 20ha north of Hautapu Rd from Rural to Industrial which will incorporate a new stormwater pond and Pump Station Area*

3.2.4. Consequential changes as necessary to implement the plan change.

3.3. Overall, the purpose of PC17 is described in the S32 Report as "*to rationalise and activate industrial zoning in the Hautapu area, through updating the structure plan to include the new master plan and making improvements to the provisions in Part B – Definitions, Section 7 – Industrial Zone, Appendix S1 Future Growth Cells and Appendix S5 Hautapu Industrial Structure Plan, and Planning Maps in order that they are more effective and efficient*."

3.4. The relevant three waters matters pertaining to the proposal are assessed and described in the following sections.

[1] The current Hautapu Structure Plan was made operative on 14 March 2019

3.5. Proposed Zoning

3.5.1. Section 1.4 in the S32 Evaluation report discusses the proposed changes to the Cambridge/ Hautapu growth cells, which are summarised below and illustrated in Figure 1:

3.5.1.1. Bring forward growth cell C9 from "*post-2035" to "pre-2035";*

3.5.1.2. Rezone "Area 6" from Rural to Industrial; and

3.5.1.3. Addition of "Area 6" to the C9 growth cell.

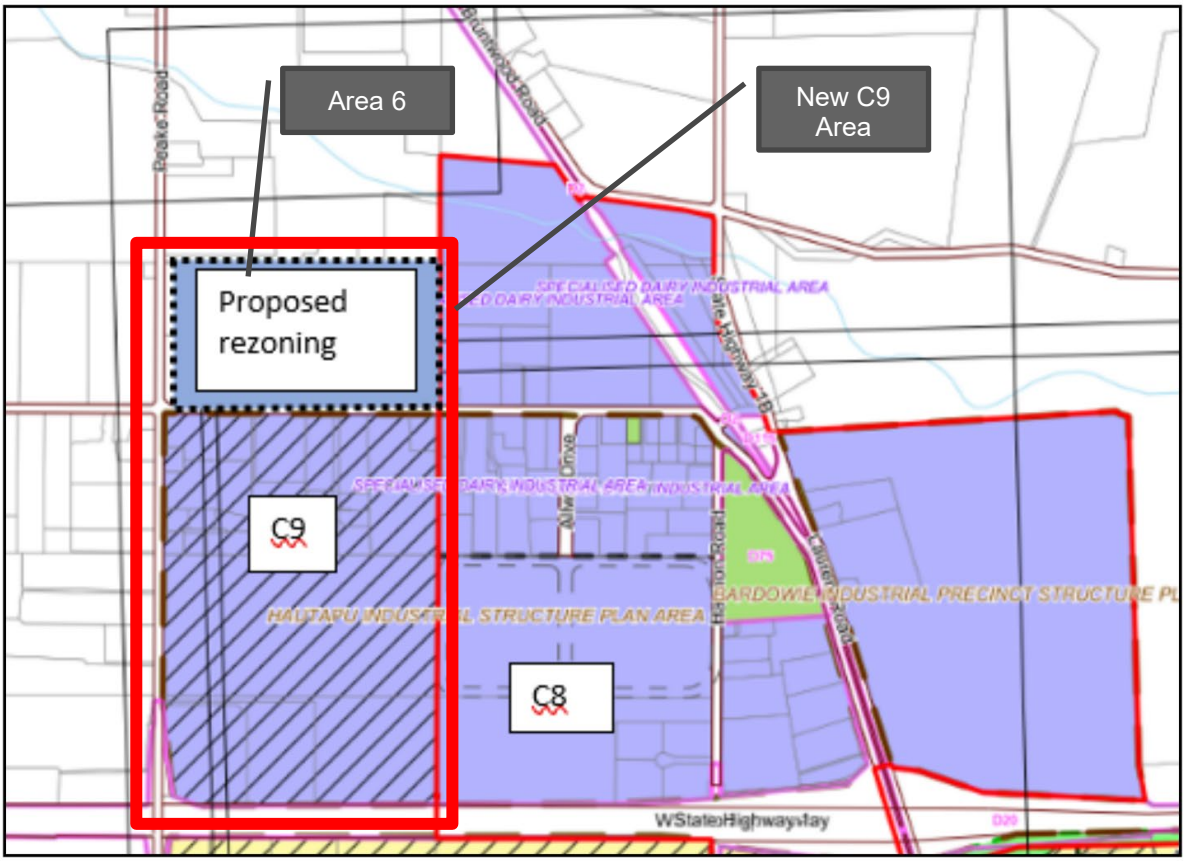

Figure 1: Reference map to show "Area 6" as Proposed rezoning (source: S32 Evaluation report)

3.6. Proposed Amendments to the Structure Plan

3.6.1. Figure 2 shows the proposed Hautapu Industrial Structure Plan as notified, with the three waters amendments. Infrastructure locations are indicative only and there is malleability built into the design to allow for alternative locations at subdivision/design stage.

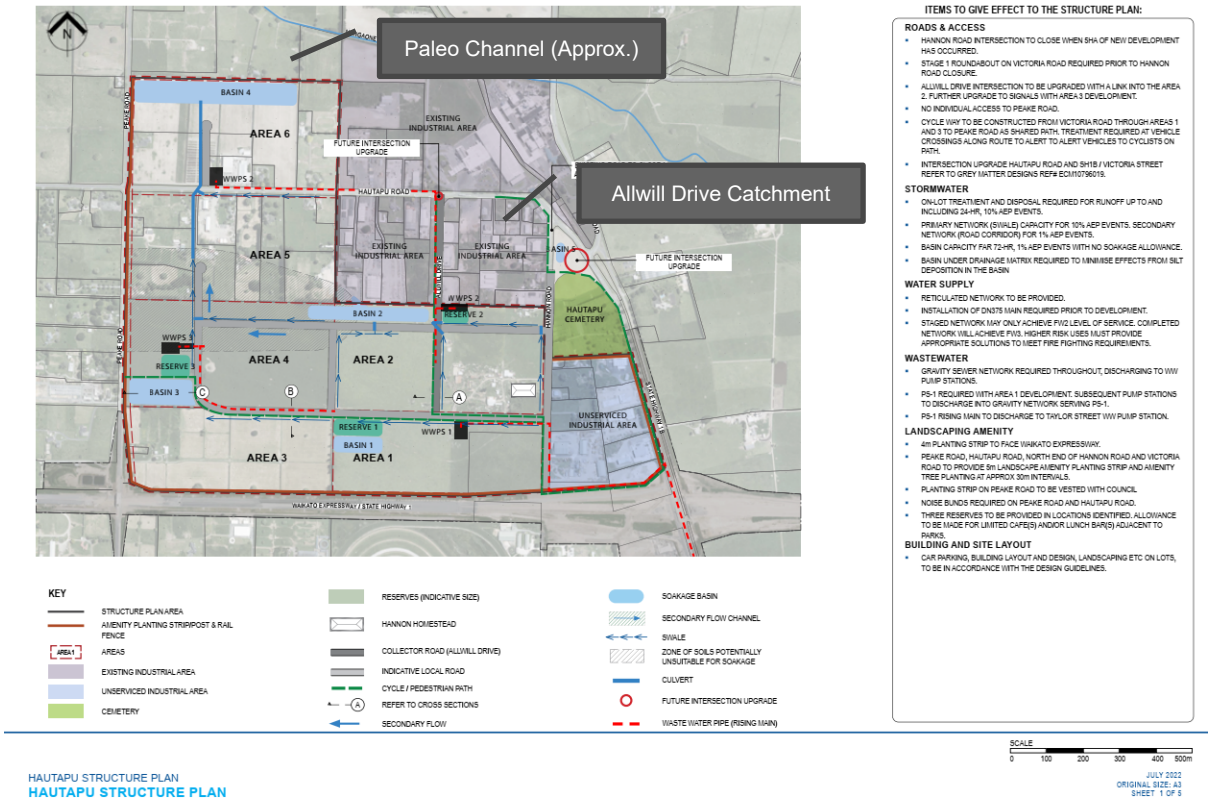

Figure 2: Proposed Hautapu Industrial Structure Plan

3.6.1. The following key changes to three waters in the Structure Plan Include:

3.6.1.1. Area 6 is included as Industrial Subdivision with 90% impervious Area.

3.6.1.2. Population equivalents (30 people/ha) increases from 413 to 812 in the wastewater catchment of Area 6. This is considered a standard dry industry assumption.

3.6.1.3. Water is applied an additional rate per area of 0.087L/s/ha based on 30 people/ha. This is also considered a standard dry industry assumption.

3.6.2.Stormwater:

3.6.2.1. The existing Master Plan for the C8/C9 area allowed for servicing of Areas 1 to 5. Hautapu Road and Area 6 were originally excluded from the Master Plan.

3.6.2.2. The proposed stormwater layout for PC17 is presented in Figure 2.

3.6.2.3. Aligning with the existing Master Plan, Areas 1, 2 and 3 will have on-lot stormwater management up to the 10-year ARI design storm (including 2.1 deg. climate change (CC)). Above the 10-year ARI (CC) event (and up to the 100-year ARI (CC) Areas 1, 2, and 3, as well as the Allwill Drive catchment and road runoff from C8 and C9, will be managed in the swale network and soakage basins 1, 2 and 3.

3.6.2.4. Through PC 17, the stormwater philosophy of Areas 4 and 5 will change to on-lot stormwater management up to the 10-year ARI design storm (CC). Above the 10-year event, road runoff from Areas 4 and 5 will be managed in a swale network and discharge under Hautapu road via a new culvert/pipe into Area 6.

3.6.2.5. Area 6 is considered rural in the Masterplan. The area has 3 existing outflow points with runoff to the north west, north east and south west from the site in the 100-year ARI (CC). Refer to Figure 4 for the location of existing outlet points to overland flowpaths.

3.6.2.6. Through PC 17, Area 6 will become an industrial subdivision that manage its own site runoff from lots and roads, as well as the culvert discharge from Area 4 and 5, and from Hautapu Road. A soakage basin (Basin 4) is proposed in Area 6 to fully contain (and soak away) all runoff up to the 10-year ARI (CC), with spill from the basin above the 10-year (CC) up to the 100-year (CC) at existing peak flow rates (refer to Figure 3) utilising existing overland paths.

3.6.2.7. The current Master Plan provides indicative sizing for Basin 4 based on 30mm/hr soakage rate. This soakage rate is considered conservative based on initial site investigations.

3.6.2.8. Further site investigations within Area 6 are required to confirm design soakage rates for Basin 4. There is also the option for on lot soakage (ie. from individual roof and driveway areas) to optimise the Basin 4 size further once subdivision/detailed design progresses and there is more certainty around the subdivision layout configuration.

3.6.2.9. Soakage will result in a low mounding risk due to depth of groundwater (see Figure 5) as outlined in the geotechnical mounding assessment (WGA, Mounding Assessment, Kama Trust, 17 June 2022)

3.6.2.10. The stormwater report submitted by Nicklin CE (98-108 Hautapu Road and 326-342 Peake Road Stormwater Management Plan (TMW, 2022)) demonstrates that the stormwater can be disposed up to the 10-year ARI (CC) on site and managed safely via spill points to adjacent property (existing overland flow paths) and Peake Road at no more than existing peak flow rates for up to 100 year ARI (CC) design events. The proposed basin will accommodate site runoff (Area 6) and from Areas 4, 5 and Hautapu Road. The stormwater report (reviewed by Council) shows less than minor effects in line with WRC requirements.

3.6.2.11. As Cyclone Gabrielle is a recent occurrence, we find prudent to comment on this incident in relation to recommendations made in the engineering reports. Currently the occurrence of this recent event does not change our recommendations or opinions. The stormwater design for the masterplan and also PC17 is currently undertaken to manage and mitigate a 100 year ARI rainfall event and also includes assumptions for increases in rainfall due to climate change. Generally this is in line with the level of acceptable risk across New Zealand and also globally.

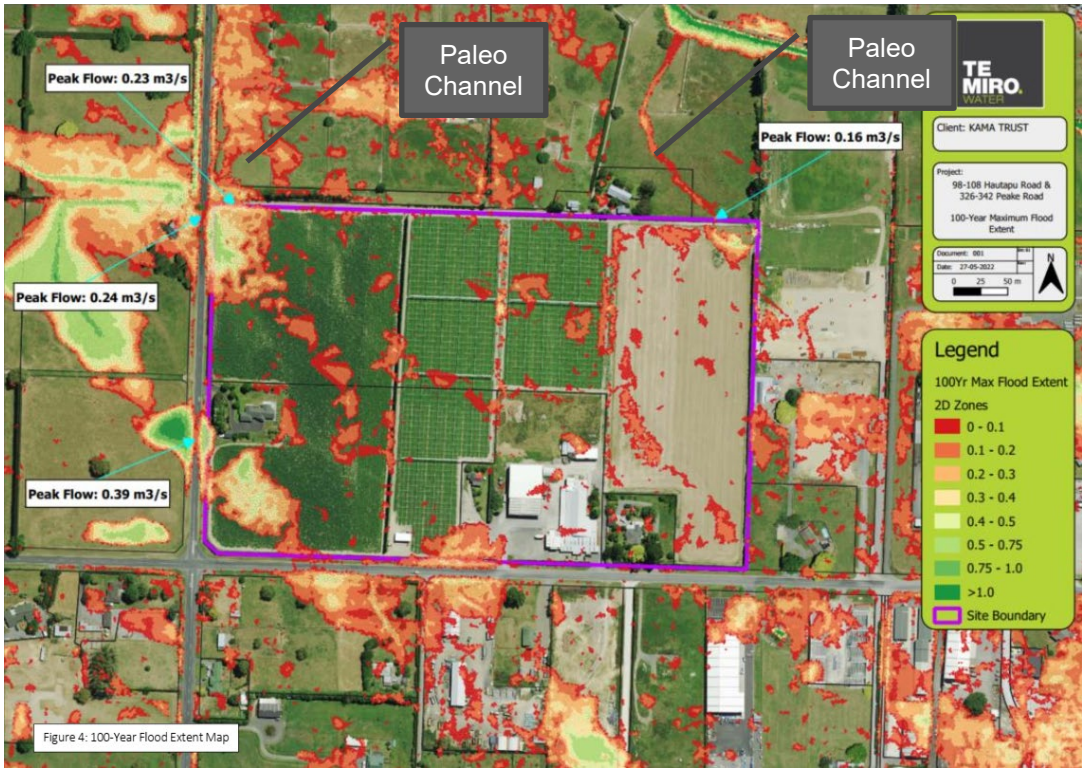

Figure 4: 100-Year Flood Extent Map

Figure 3. 100-year ARI (CC) existing discharge outlets at 3 corners of Area 6.

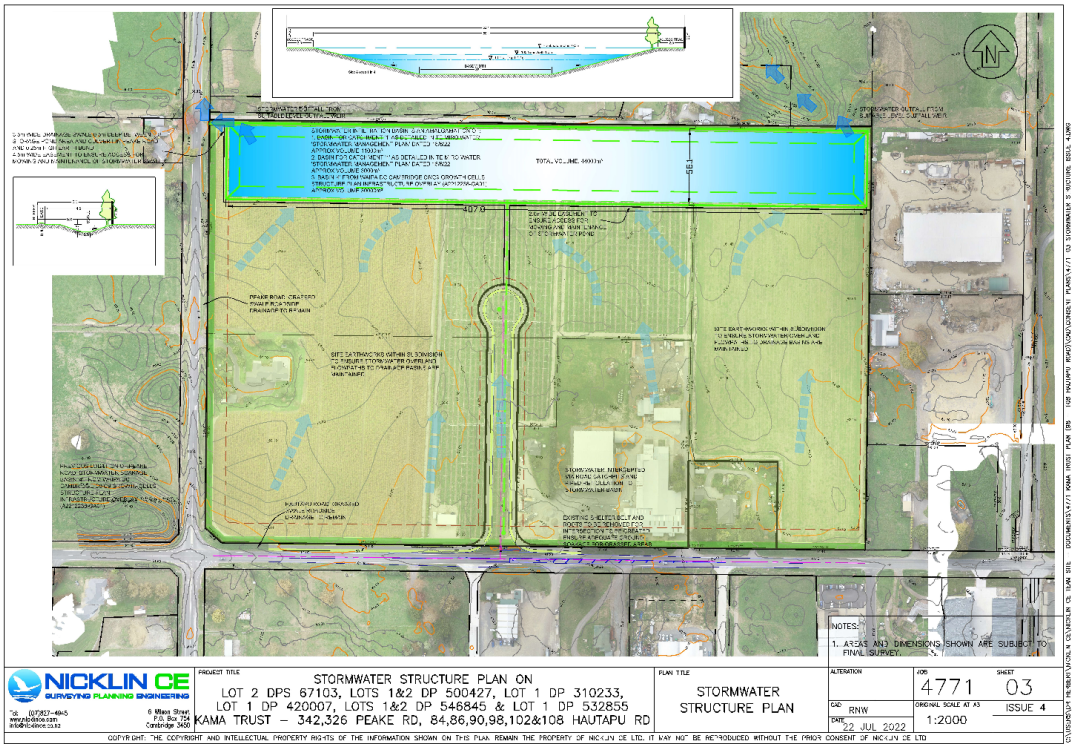

Figure 4. Location of proposed basin.

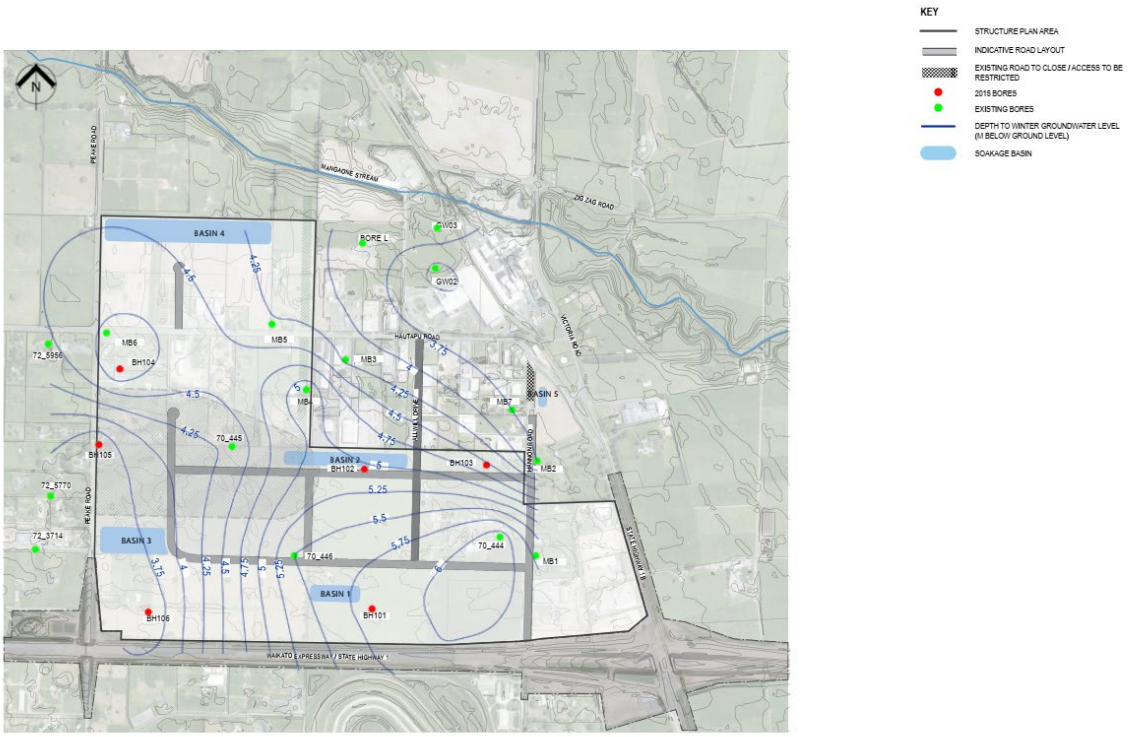

Figure 3. Depth to groundwater

3.6.3. Wastewater:

3.6.3.1. The existing Master Plan for the C8/C9 area allowed for partial servicing of Area 6 (as presented in Figure 6) through a Council managed mains system.

3.6.3.2. The existing Master Plan proposes emergency storage tanks and "Pump Station 4" to service "Hautapu North", which partially covers Area 6 (as presented in Figure 7) under standard dry industry assumptions (RITS). The other requirement is 9 hours of emergency storage of the Average Daily Flow (ADF).

3.6.3.3. To service Area 6 as part of PC17, it is proposed to move the location of Pump Station 4 further west so that it is centralised to the catchment.

3.6.3.4. The inclusion of Area 6 increases the serviced catchment area by approximately 13.3ha above the 13.78ha calculated in the current Masterplan. This will increase the requirements for emergency storage volume, wet well diameter and the rising main and pump specifications at Pump Station 4.

3.6.3.5. To meet the increase in wastewater management, a footprint of 348m² is required for the relocated Pump Station 4.

3.6.3.6. The recommended increased storage to 89m³, requiring a second tank of similar size to be added to the solution proposed in the current Masterplan (as per dry industry assumptions (RITS)) and to meet the new gravity reticulation ADF requirement.

3.6.3.7. To accommodate PC17 in the wider Master Plan, Council has commenced construction of Pump Station 1, which conveys all the waste from the C8/9 Growth Cells and the additional Area 6, supporting Pump Station 4.

3.6.3.8. The WSP modelling results (provided as an appendix within the Above Water report[2]) indicate that wastewater can be sized and is of sufficient area to accommodate dry industry from contributing Area 6 as well as the existing Allwill Drive Area. The reviewed assessments indicate that sufficient mitigation and management is provided to ensure less than minor effects to align with WRC requirements.

3.6.3.9. Wastewater as currently specified is feasible to service the Industrial Zones proposed in PC17. Whilst not encouraged, should wet industry be proposed, it is recommended that an infrastructure assessment would be required to support a separate resource consent application for this activity.

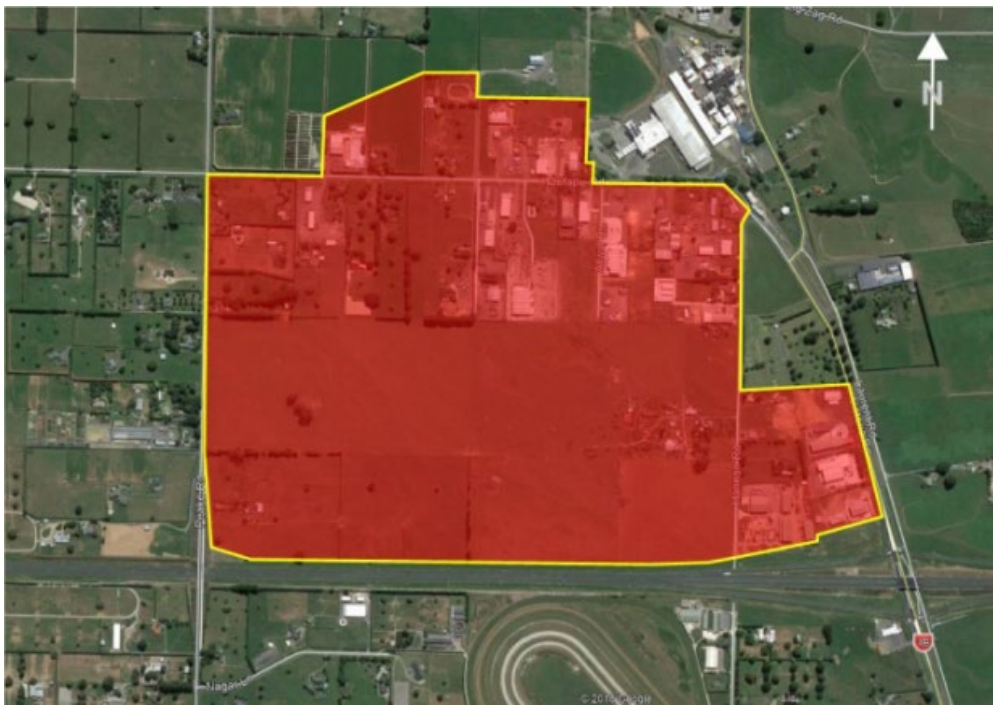

Figure 4. Master Plan Wastewater Catchment Area (Master Plan, Harrison & Grierson)Wastewater:

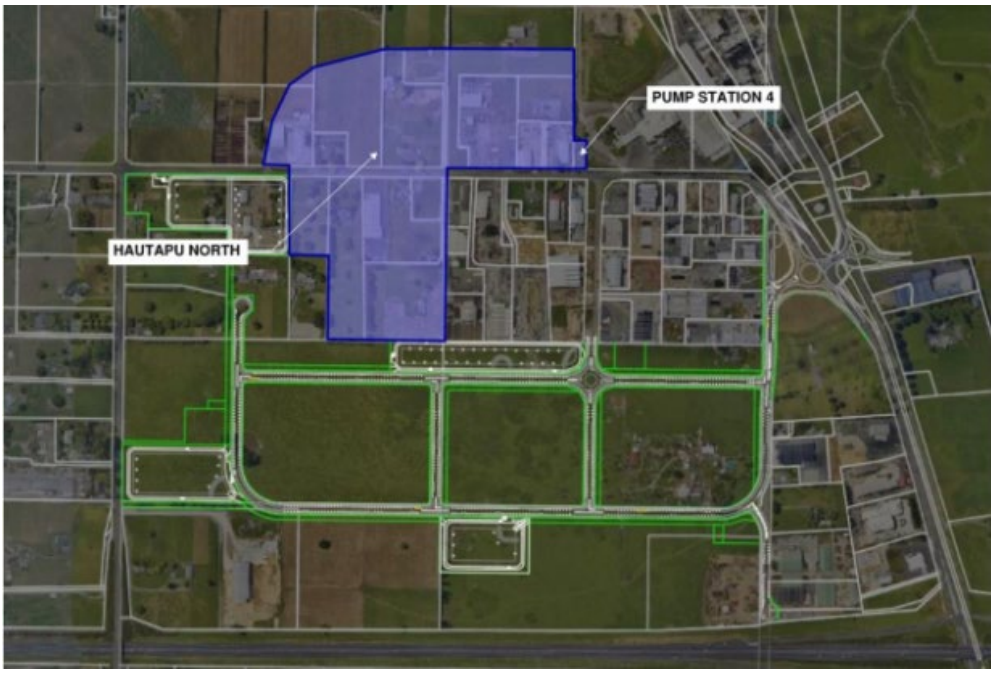

Figure 5. Pump Station 4 Catchment Area & Location (Master Plan, Harrison & Grierson)

[2] Water Supply & Wastewater Assessment *98-108 Hautapu Road & 326 - 342 Peake Road, Cambridge (Above Water Memo dated* 13th July 2022)

3.6.4.Water:

3.6.4.1. The existing Master Plan allowed for no water servicing of the Area 6, however it did allow for booster pump and pipelines to supply North Cambridge, the Hautapu network and service the C8/C9 growth cells as part of a wider upgrade plan.

3.6.4.2. Modelling of the water network undertaken for PC 17 incorporates Area 6 into the existing masterplan layout (see Figure 8). The areas are assessed as dry industry and reference the Fire Code of Practice and the Waipā Water Supply Bylaw for achieving FW2.

3.6.4.1. The results of the modelling undertaken by WSP indicate water draw is feasible to service the Industrial Zones with Area 6 included for dry industry. A water supply of FW2 (12.5 Litres/sec) can be supplied to service each respective property located within PC17 (including Hautapu 'Area 6').

3.6.4.2. To enable development in the C8 and C9 growth cells, Council has relevant approvals for funding to undertake further detailed analysis of the water network and has constructed water supply mains (200 mm pipe) already within the southwest quadrant of the C8 Growth cell in line with the Master Plan requirements.

3.6.4.3. Interim water supply can be provided using water reservoirs collecting roof water, in combination with the existing bore on-site, similar to what is on other parts of the C8/C9 growth cells. As per the Council Bylaw, Council will only supply FW2 to the boundary, and anything over and above this specification (12.5 litres/sec) will be required to source this via alternative measure such as onsite roof attenuation and or direct water take bore.

3.6.4.4. The results of the assessments indicate that water supply can be managed within the existing upgrade plan. A sufficient interim solution is provided to manage development whist supporting infrastructure is developed.

3.6.4.5. Water as currently specified is feasible to service the Industrial Zones proposed in PC17. Whilst not encouraged, should wet industry be proposed, it is recommended that an infrastructure assessment would be required to support a separate resource consent application for this activity, and would need to manage both water and wastewater demand through alternative means than Council infrastructure.

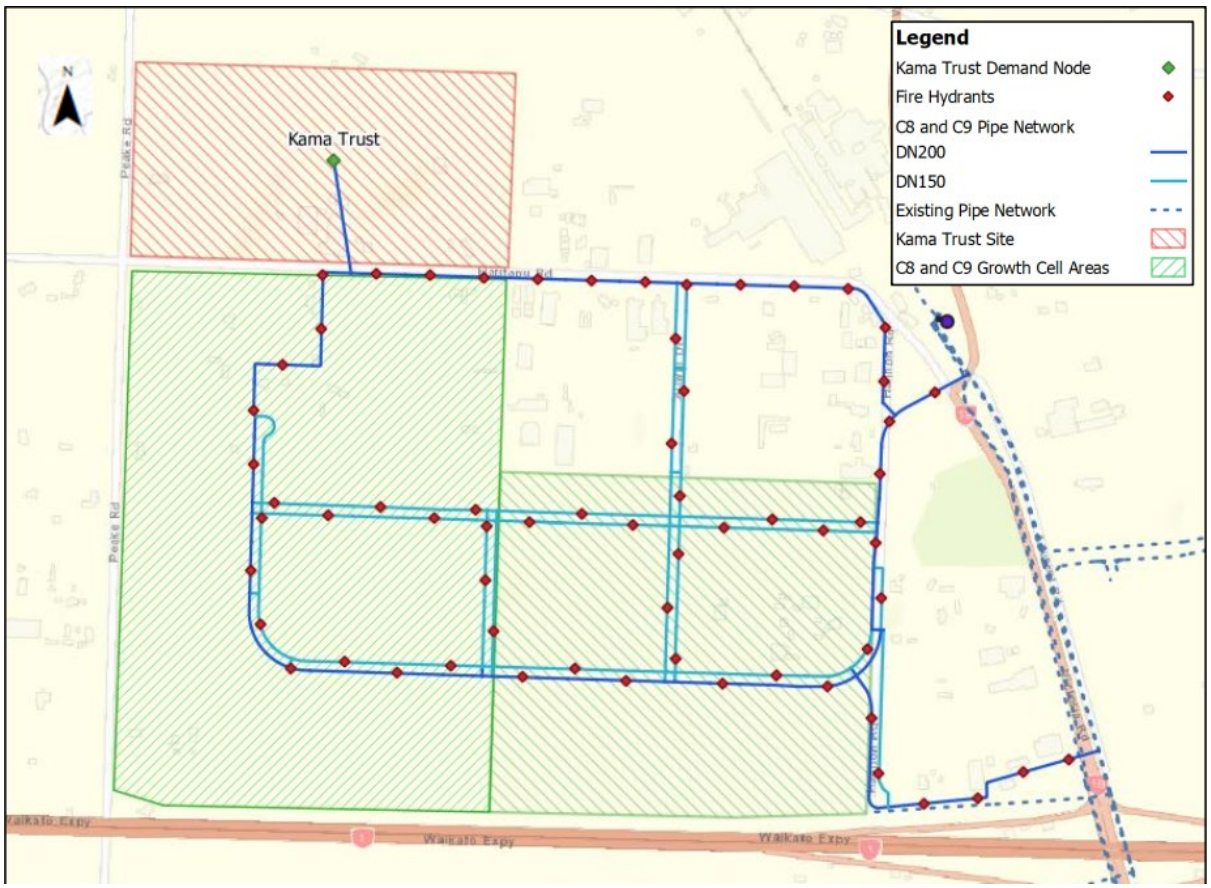

Figure 6. Inclusion of Area 6 into the existing Masterplan modelled network

4. OVERVIEW OF TECHNICAL FINDINGS

4.1. Overall, the review of the previous assessments undertaken for the Hautapu Industrial Structure Plan, including the rezoning of "Area 6", contain sufficient technical analysis to inform the scale and likely effects on the three waters associated with PC17. There is no need for additional technical assessments to support PC17 and in my opinion the requirements of associated technical guidelines have been met.

4.2. Should there be a decision that the" Hautapu Landowner Group" application is within scope of PC17, a three waters technical assessment would be required to allow me to provide and informed opinion of the scale and likely effects of including this additional area.

5. SUBMISSIONS

5.1. Submissions have been responded to and can be found in Appendix B to my Statement of Evidence. Specific reference to Submission Point 28.1 (FENZ) and 6.1/6.2 are as follows:

5.1.1. Modelling demonstrates that the proposed water network incorporated as part of PC17 can provide a minimum FW2 supply in the road corridors (as per Waipā District Council's Water Supply Bylaw 2022 and the New Zealand Fire Service Water Supplies Code of Practice). Anything over and above the FW2 requirement will need to be managed onsite (i.e. detention pond or attenuation tanks) and managed through and by individual resource consent holders.

5.1.2. The modelling demonstrates that the proposed water, wastewater and stormwater infrastructure owned and managed by Waipā District Council is suitable to manage and mitigate the effects of dry industry. Should an applicant seek to develop wet industry, this will be assessed on an individual basis and likely will require an infrastructure investigation, assessment and additional resource consent applications. It is recommended that the following definition is provided to clarify the meaning of "Dry Industry":

5.1.2.1. Means any industrial operation that does not use water for processing, manufacturing, or production purposes; and does not discharge nor generate any liquid effluent from its operation (aside from domestic wastewater).

5.1.2.2. Includes any industrial operation that uses and/or disposes of water from processing, manufacturing and production but is self-contained on site. The activity does not require the use of council water and wastewater infrastructure and is adequately able to treat primary discharge stormwater via soakage disposal on site.

5.1.3.

APPENDICES

Appendix A – Supporting Documentation

Appendix B – Submitter Responses