

BEFORE THE WAIPĀ DISTRICT COUNCIL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of Proposed Plan Change 20 – Airport Northern
Precinct Extension to the Operative Waipā
District Plan

STATEMENT OF EVIDENCE OF SCOTT DEAN KING

3 WATERS INFRASTRUCTURE

28 FEBRUARY 2023

Counsel acting:
JR Welsh
ChanceryGreen
223 Ponsonby Road
Ponsonby, Auckland 1011



INTRODUCTION

Qualifications and experience

1. My name is Scott Dean King.
2. I am the Regional Engineering Manager at Harrison Grierson, based in Hamilton. I hold the qualifications of BEng (Civil), MSc, CMEngNZ, CPEng. I am a Chartered Professional Civil Engineer with over twenty-five years' experience, eighteen years of which are based in the Waikato Region managing projects and undertaking civil infrastructure design for works associated with a variety of land development sites and roading projects]. Examples of my design input on recent projects include the Amberfield subdivision (just north of the subject site) in the new Peacockes growth cell area of Hamilton, Precinct B of the Rangitahi subdivision in Raglan, and extensive design input into the recent Rototuna Village growth cell area in the north-east of Hamilton.
3. I am familiar with the application site and the surrounding locality. I have read the relevant parts of: the application; submissions; further submissions and the Section 42A Report.

Involvement in Proposed Plan Change 20

4. I have been engaged by Titanium Park Limited ("TPL") and Rukuhia Properties Limited ("RPL") to prepare evidence for Proposed Plan Change 20 ("PC20"). I was involved in the preparation of the 3 Waters Infrastructure Assessment Report associated with TPL/RPL's request.¹
5. I have visited the Site and the locality on a number of occasions since 2021, most recently in mid to late 2022.

Code of Conduct

6. I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note (2023) and I agree to comply with it. In that regard, I confirm that this evidence is written within my expertise, except where I state that I am relying on the evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

¹ Additional report authors Mr Mark Walmsley (CPEng, MIPENZ, BEng) and Mr Matthew Farrell (MEngNZ, BEng).

SCOPE OF EVIDENCE

7. In my evidence, I:
 - (a) provide an executive summary of my key conclusions;
 - (b) summarise the relevant aspects of PC20 with respect to 3 Waters Infrastructure;
 - (c) set out an assessment of PC20 with respect to anticipated 3 Waters Infrastructure effects;
 - (d) address relevant submissions; and
 - (e) Respond to the s42A Report.

EXECUTIVE SUMMARY

8. The 3 Waters Infrastructure Assessment Report for the Northern Precinct has demonstrated that there are adequate and appropriate options to service the Northern Precinct from a 3 waters infrastructure perspective. The assessment concluded that:
 - (a) Stormwater will be managed with a combination of road soakage swales and on-lot soakage for smaller storm events. Larger storm events up to the 100-year storm will be attenuated within communal detention areas (including sections located within the multi-use bat corridor), with controlled discharge points to the Nukuhau Stream network to the west, and the existing drain along Raynes Road to the east (prior to eventual discharge into the Waikato River).
 - (b) Potable water supply and firefighting will be provided from the Pukerimu Water Supply scheme. A water supply ring main will be provided around the Airport Business Zone, connecting all Precincts together, with onsite reservoirs and booster pumps provided in the Northern Precinct if and where required.
 - (c) Wastewater will be serviced via a low-pressure wastewater system discharging to a central collection manhole and pump station, connected via pumped rising mains to the planned Metro wastewater scheme that is intended to cater for the long-term wastewater servicing of the area.
 - (d) In advance of the availability of the Metro wastewater scheme, untreated wastewater would be pumped from the central collection chamber and trucked to the Cambridge Wastewater Treatment Plant (as already occurs in the adjacent Southern and Central Precincts).

- (e) In the situation of extended delay (or abandonment) of the provision of the Metro wastewater scheme, the alternative long-term solution for wastewater would be to provide the wastewater collection chambers with on-site package treatment plants discharging to on-site land disposal beds.
9. In summary, the assessment has determined that suitable measures exist to service the Northern Precinct from a 3 waters perspective.

CONTEXT AND BACKGROUND

Site Description

10. The area to which PC20 applies covers approximately 130 ha of land in the southern outskirts of Hamilton and west of Cambridge in the Waipa District. It is bordered by State Highway 3 and Raynes Road and the Hamilton Airport. It includes 7 lots, all of which are used for residential, farming or research/development purposes.
11. Approximately 41ha of the plan change site is already zoned 'Airport Business', with the remainder being zoned 'Rural'. Much of the site currently zoned 'Rural' is identified as 'Possible Future Growth Area' in the Waipa District Plan, with the balance identified as 'Future Extension Direction'.²
12. The Site extends out from the western edge of the Airport runway strips and down from these elevated points, out to Ohaupo, Narrows and Raynes Road.

OVERVIEW OF THE PLAN CHANGE

13. The PC20 request seeks to extend the Hamilton 'Airport Business Zone' to include the balance of the subject site. Subject to the extension of the zone, the proposal seeks to develop the site in accordance with the structure plan (Annexure 1).
14. I have been involved in PC20 since the inception of the Masterplanning process, providing an overview of the 3 waters servicing options available, and refining options down so as to establish and identify the suitable options are available to service the site from a three waters perspective.

² Appendix S1 to the Waipa District Plan.

STORMWATER SERVICING

Existing Infrastructure

15. The Northern Precinct site area can be described currently as rural/agricultural in nature. The Titanium Park Limited (“TPL”) block to the east of Middle Road is gently sloping, generally from east to west, with two isolated central hills that stand about 10m higher than the surrounding land.
16. The TPL block is serviced by a network of artificial farm drains, the majority of which flow north-west, through neighbouring farmland, to a gully system that forms the upper reaches of the Nukuhau Stream. The Nukuhau Stream eventually discharges into the Waikato River to the north. A portion of TPL land in the north-eastern corner of the site is serviced by a farm drain that flows east to the road drain along Raynes Road.
17. The Rukuhia Properties Ltd (“RPL”) block, to the west of middle road, is also serviced by artificial farm drains. These are located in the north-eastern portion of the block and also drain flows through neighbouring farmland, to the upper reaches of the Nukuhau Stream.
18. An outline plan indicating existing drains on site is provided below:

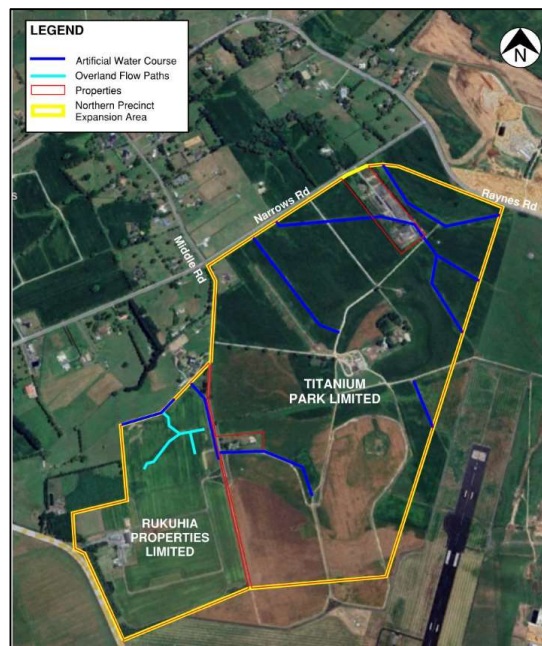


Figure 1 – Outline Plan

19. A review of flood hazard risks indicates there is no risk of flooding to the PC20 area from the Waikato River (refer to the below extract from the Waikato Regional Council Hazards Portal).



Figure 2 - Waikato Regional Council Hazards Portal Extract

Stormwater Management Assessment

20. The design standards for stormwater management on development sites are set out in the Waikato Local Authority Shared Services document titled 'Regional Infrastructure Technical Specification' ("RITS").
21. The RITS requires that post-development stormwater flows are managed within the development to ensure that there is no peak flow increase downstream of the development.
22. In addition, stormwater runoff from any development will need to be treated to acceptable standards before discharge from the site.
23. Preliminary geotechnical reports³ indicate that soakage to ground is feasible across the Northern Precinct site. Following an assessment of options, the recommended approach for the Northern Precinct stormwater system is to maximise soakage to ground at source where possible.

³ CMW Preliminary Geotechnical Investigations, TPL Site (2021) and RPL Site (2022).

24. Flows that exceed the soakage capacity will need to be detained on site to match (or lower) pre-development peak flows, thus avoiding any impact to the drains and streams outside the development area.
25. Detention is to be provided via a series of communal detention basins. The basins will store stormwater runoff from extreme rain events and release flows to the existing drains around the boundary of the site via small diameter pipe outlets. The detention basin volumes and discharge pipe sizes will be sized so as to detain 100-year stormwater runoff volumes, such that flows from the developed site are no greater than the existing peak runoff flows.
26. The development site is relatively flat, and as such any stormwater conveyance system provided on-site would ideally consist of shallow surface grassed swale drains. Swales would provide the functions of water quality treatment, soakage to ground, and also conveyance of flows to the detention basins.
27. In accordance with the New Zealand Building Code, future lot owners will need to manage the post-development flows for up to, and including, 10-year storm events within each lot.
28. With soakage to ground feasible across the site, on-lot stormwater management would most commonly be achieved via soakage systems on lots (with the addition of pre-treatment via a proprietary treatment device prior to soakage, depending on the nature of the activities on the lot).
29. Indicatively, a modular below ground soakage crate system would have an approximate footprint of 5% of lot area, and a rock filled trench would require about 10% of the lot area. These devices can be incorporated under accesses and parking areas if there are space constraints on lots.
30. For larger storm events the on-lot soakage trenches would fill and overflow onto the adjacent road corridor and be conveyed along the road corridor to the detention basins.
31. The treatment and management of runoff from the road corridors would incorporate similar soakage devices along the length of the roads. Soakage trenches would be provided in the berms on either side of the road, and would be located beneath grassed swale drains. Stormwater runoff from the road would initially flow along the grass swales as pre-treatment and then drain into grated catchpits connected to the road soakage systems.

An example of such an existing road drainage system on the Central Precinct is provided in Figure 3 below:



Figure 3 – Road Drainage System

32. The soakage systems would be designed to soak away all road runoff generated for up to, and including, 10-year storm events. Indicatively this would require 2m wide soakage trenches on either side of the road, as allowed for in the road corridor widths selected. Stormwater runoff from events in excess of the soakage capacity would flow overland in the swales, along the road corridor, where they would be conveyed to a series of communal detention basins.
33. The detention basins would be located with controlled outlets into the existing discharge points around the boundary of the site, and would be sized so as to detain 100-year stormwater runoff volumes, such that flows from the site were no greater than the existing peak runoff flows.
34. The roads and lot layout influence the location and shape of these basins, however the discharge location is fixed by the existing stormwater outlets and drains outside the development. Earthworking of the development site can also be undertaken to direct flow paths to the required outlet locations.
35. Indicative sizing of the detention basins has been undertaken using the Rational Method of stormwater runoff calculation, using climate change adjusted rainfall estimates, as required by the RITS design standard.
36. Basin sizes have been estimated using the conservative design assumption that all site stormwater runoff from the worst case 100-year storm (excluding the 10-year storm

runoff volume that is initially soaked to ground) is stored on site prior to release to the adjacent drains systems.

37. A maximum storage depth of 1m has been adopted, to account for the depths of the surrounding drains system.
38. The Figure 4 identifies indicative locations and conservative footprints of the detention basins (in green and yellow), which have been located to match the key existing stormwater outlets and drains outside the development. Shallow detention basins may also be incorporated into the bat corridor.

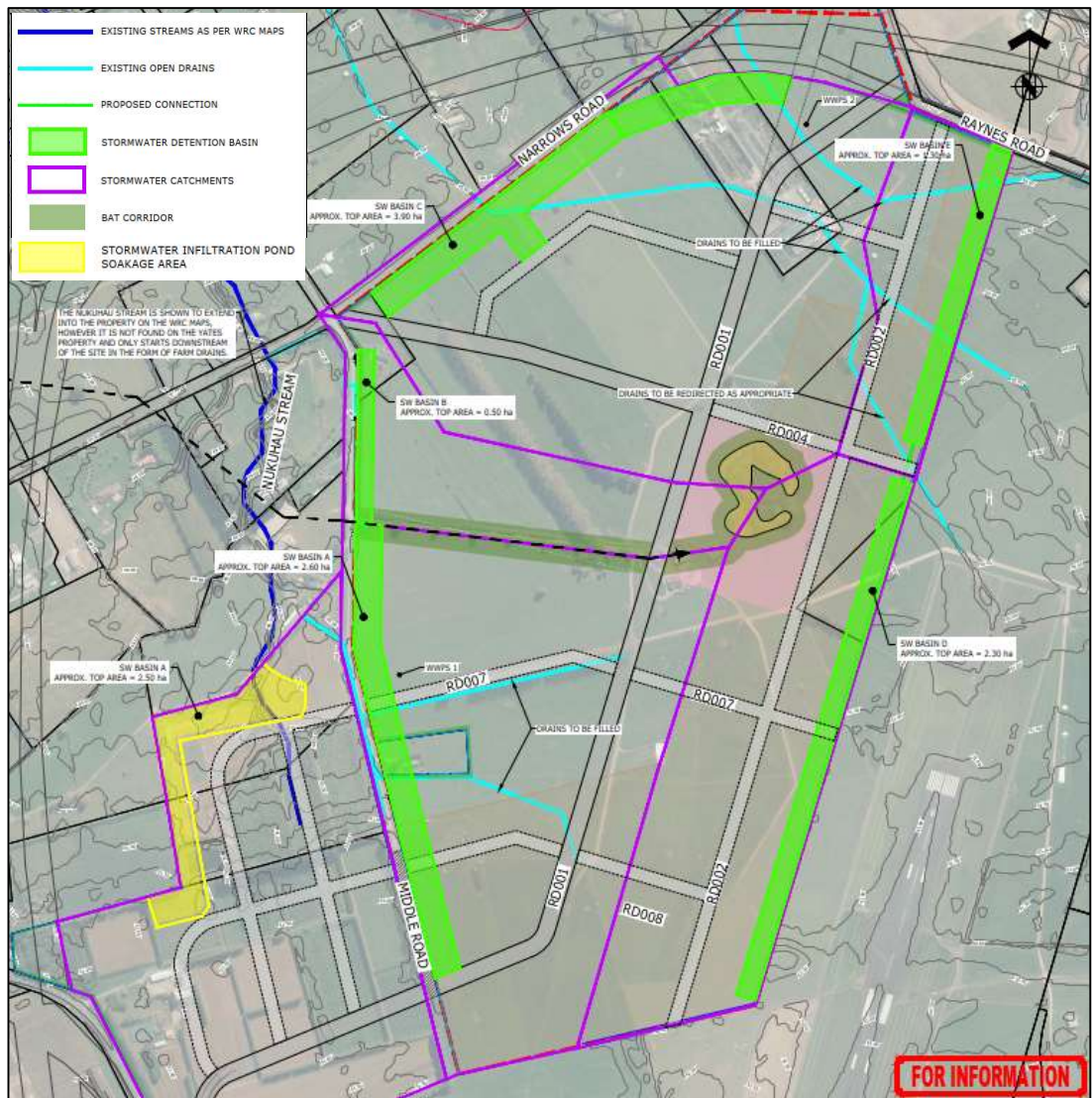


Figure 4 – Indicative Locations of Detention Basins

39. The design will be refined with modelling at detailed design stage, which might lead to changes in the final basin sizes and configurations, but the assessment to date has determined that suitable measures exist to appropriately service the Northern Precinct from a stormwater perspective, via a combination of soakage to ground and detention basins.

Stormwater Management Summary

40. A solution has been provided for managing stormwater within the Northern Precinct site that demonstrates that an appropriate stormwater management outcome for the Northern Precinct can be achieved.
41. Stormwater will be managed with a combination of road soakage swales and on-lot soakage systems for storm events up to and including a 10-year storm.
42. Larger storm events, up to and including the 100-year storm, can be attenuated within communal detention areas (including sections located within the multi-use bat corridors), with controlled discharge points to the Nukuhau Stream network to the west, and the existing drain along Raynes Road to the east (prior to eventual discharge into the Waikato River).
43. The solution outlined for stormwater management will see the site self-managing stormwater effects within its boundaries, mitigating any effects on the downstream receiving catchments.
44. In addition, due to the provision of pre-treatment for any stormwater runoff, combined with at-source soakage, I consider that the proposed stormwater solution for the site will provide an overall improvement with regards to the quality of stormwater discharge from site when compared to the potential stormwater runoff quality that could occur from the site in rural/pastoral use (e.g runoff that has been in contact with on-surface cattle excrement).
45. The final design solution will be refined with modelling at detailed design stage, which might lead to changes in the final basin sizes and configurations that have been indicated to date as part of the conservative assessment done to support PC20.

WATER SUPPLY SERVICING

Existing Infrastructure

46. Bulk water supply to the adjacent Airport Business zone Precincts is currently supplied under agreement to Titanium Park Limited from Waipa District Council (“WDC”).
47. WDC sources water from its Pukerimu Scheme which also supplies rural households between Te Awamutu and Cambridge, Hamilton Airport, Ohaupo and Mystery Creek and is supplied by WDC’s Parallel Road Water Treatment Plant (“WTP”).
48. The Northern Precinct area does not currently have bulk water supply services to the site.
49. The Pukerimu Scheme is a low-pressure or “trickle feed” system. As a result, the existing Airport Business zone Precincts use reservoirs and pumps to supply the reticulation in the other Precincts.
50. The Parallel Road Water Treatment Plant has recently completed upgrades, increasing the treatment and supply capacity to 12,000 m³/day. The design for the Parallel Road Water Treatment Plant also allows for a further additional 4,000 m³/day upgrade in the future.
51. The WDC water supply agreement with Titanium Park is staged, with upgrade costs linked to the demand. The total amount under the agreement is 600 m³/day. The first stage of supply is up to 200 m³/day, the second stage will supply up to 600 m³/day. The upgrade from Stage 1 to Stage 2 will involve WDC splitting its current network and upgrading the pumps on the network supplying Titanium Park.
52. In addition, discussions with WDC to date have indicated that, with further upgrades to the Parallel Road Water Treatment Plant, there is an option to increase the supply to the Airport Business zone from the Pukerimu Scheme to about 800 m³/day if needed.

Assessment of Water Supply Demand and Servicing Solutions

53. The RITS standards for industrial development suggests a ‘default’ population equivalent rate of 45 persons/ha, and a daily demand of 260 l/person/day, or 11.7 m³/ha/day.
54. However, there is allowance within the RITS to base water demand for industrial zones on expected actual flows, as these may be significantly lower than the suggested ‘default’ values listed in the RITS.

55. As part of the existing adjacent development works, water meters have been installed for all occupied properties across the various existing Airport Business zone Precincts.
56. To inform the water supply demand assessment, water usage data from these water meters has been analysed, with records available for up to June 2021, covering 31 occupied properties (accounting for a total lot area of 37.9 ha).
57. The assessment excluded the meter readings from March 2021 to June 2021 as these were significantly lower than the other months, most likely as a result of the national Covid-19 lockdown that was in place at that time.
58. Assessment of the data established that the daily usage range across the occupied sites is between 0.7 and 1.4 m³/ha/day. The average daily usage across all occupied sites was 1.0 m³/ha/day, and the 80th percentile daily usage was 1.2 m³/ha/day.
59. As can be seen from the assessment of actual usage, the usage rates of occupied sites across the development is significantly lower than would be estimated using the 'default' population equivalent and usage figures in the RITS.
60. In addition to the assessment of actual usage rates, it is also noted that industrial lots in the existing Airport Business zone Precincts have covenants restricting water usage to a maximum of 3.0 m³/ha/day. Such covenants could also to be adopted for the Northern Precinct.
61. The full Airport Business zone development area has been estimated as 248 ha. This excludes the runway and hangar areas but includes the full extent of Northern Precinct (as proposed as part of PC20).
62. Taking the maximum daily water usage value of 1.4 m³/ha/day from the water meter records and allowing for this across the full Airport Business zone development area (including the addition of the Northern Precinct) of 248 ha gives a total daily usage demand of 347 m³/day.
63. This value of 347 m³/day is well within the WDC water supply agreement with Titanium Park for the supply of up to 600 m³/day to the Airport Business zone.
64. Considering the significantly more conservative maximum daily usage value of 3.0 m³/ha/day allowed for in covenants on each lot and allowing for this to occur simultaneously across the full Airport Business zone development area (including the

addition of the Northern Precinct) of 248 ha, gives a total daily usage demand of 744 m³/day.

65. Whilst this maximum usage value of 744 m³/day exceeds the current WDC water supply agreement with Titanium Park for the supply of up to 600 m³/day to the Airport Business zone, it is noted that discussions with WDC to date have indicated that, with further upgrades to the Parallel Road Water Treatment Plant, there is an option to increase the supply to the Airport Business zone from the Pukerimu Scheme to about 800 m³/day if needed. It is also noted that every lot across the fully developed Airport Business zone using a covenanted maximum daily usage value of 3.0 m³/ha/day at the same time is considered exceedingly unlikely (especially considering the current usage rates recorded from water meter readings).
66. Considering the assessment of total likely water demand for the entire Airport Business zone (including the Northern Precinct area) is in the region of 347 m³/day (based upon current usage rates), the expansion of the zone to include the Northern Precinct can be serviced by WDC with sufficient water supply from the Pukerimu water supply scheme.
67. Connecting the Northern Precinct into the existing adjacent WDC water supply reticulation network in adjacent Precincts would be achieved by extending the existing water supply lines from adjacent Precincts into the Northern Precinct.
68. Initial stages of the Northern Precinct development would be supplied by a single line extended into the site from one adjacent existing Precinct. This could be supplied either from the east by extending the Raynes Precinct water network or from the west by extending the Western Precinct water network.
69. If required for pressure and supply purposes, then a reservoir and pump station would be included as part of works to develop the initial stages of the Northern Precinct. This will be investigated further during the detailed design process.
70. Ultimately, the fully developed Northern Precinct area would result in a water supply ring main linking all the Airport Business zone Precincts together.
71. Figure 5 depicts how this could be achieved.



Figure 5 – Water Supply Link

72. Provision of a water supply ring main linking all the Airport Business zone Precincts together will ultimately benefit the area by improving resilience for the wider area.
73. As well as providing sufficient water supply via reticulation, the existing water supply agreement with WDC also specifies a requirement to store 48 hours of average daily demand within the Airport Business zone Precincts.
74. As identified on the above Figure, there are currently two reservoirs serving this purpose, one in the Western Precinct, the other in the Raynes Precinct.
75. Using the maximum allowable (covenanted) demand of 3 m³/ha/day as a conservative average daily demand across the approximately 130 ha of the Northern Precinct would mean that the Northern Precinct would need to have an 840 m³ reservoir for potable water supply.
76. Once the Northern Precinct is fully developed and ring-mained, the required 48 hour storage volumes for the full Airport Business zone area could be held within multiple reservoirs.

77. In addition to water storage for potable purposes, additional storage will also be required for firefighting purposes.
78. To meet the requirements of the RITS, and also the NZ Fire Service Fire-Fighting Water Supply Code of Practice (SNZ PAS 4509:2008), the development will be reticulated to meet at least an FW3 level of service for firefighting.
79. A key element of an FW3 level of service is that it provides sufficient water pressure and flows to enable building owners the option of incorporating fire protection sprinkler systems in their buildings.
80. Under the FW3 class there is a need to supply a flow rate of 50 l/s through three fire hydrants for 60 minutes. This means the Northern Precinct will need to include dedicated fire water storage of 180 m³.
81. This firefighting volume can be stored within the potable water supply reservoir, and would result in a combined storage of 1,020 m³ for the Northern Precinct development.
82. Hydraulic modelling of the full water reticulation will be carried out as part of the detailed design process. This will identify the locations of reservoirs and booster pumpstations and the possibility of combined storage within the full development. I comment further on this issue when I address the Fire and Emergency NZ submission.

Water Supply Summary

83. Liaison with Waipa District Council with regard to water supply has established that the predicted water demand for the Northern Precinct can be supplied from the Pukerimu Water Supply scheme. Ultimately the Northern Precinct will be connected to the existing Waipa DC water supply network in the Western Precinct, Southern, Central and Raynes Precincts.
84. Provision of a water supply ring main linking all the Airport Business zone Precincts together will benefit the area by improving resilience for the wider area. Initial stages of the Northern Precinct development would be supplied by a single line extended into the site from one adjacent existing Precinct. If required for pressure and supply purposes (potable and firefighting), then a reservoir and pump station would be included as part of works to develop the initial stages. This will be investigated further during the detailed design process.

85. The water mains, and associated water supply infrastructure, within Northern Precinct will be sized at the time of detailed design to provide at least an FW3 Level of Service, and to meet the RITS and the NZ Fire Service Fire-Fighting Water Supply Code of Practice (SNZ PAS 4509:2008).
86. A key element of an FW3 level of service is that it provides sufficient water pressure and flows to enable building owners the option of incorporating fire protection sprinkler systems in their buildings.

WASTEWATER SERVICING

Existing Infrastructure

87. The Airport Business zone Precincts including the Northern Precinct do not have public wastewater servicing the sites. The Western Precinct, Hotel and Terminal buildings currently have on-lot wastewater treatment through septic tanks that discharge treated effluent to ground via disposal beds. The Southern, Central and Raynes Precincts have reticulated gravity systems that currently terminate at storage chambers at the end of each reticulated portion. These chambers are periodically pumped out and transported by truck to the wastewater treatment plant in Cambridge.
88. Resource Consents are already in place to connect the collection chambers for the Southern and Central Precincts to a package-type wastewater treatment plant that discharges treated effluent to ground via land disposal beds.
89. A schematic of the existing wastewater infrastructure is provided below in Figure 6.

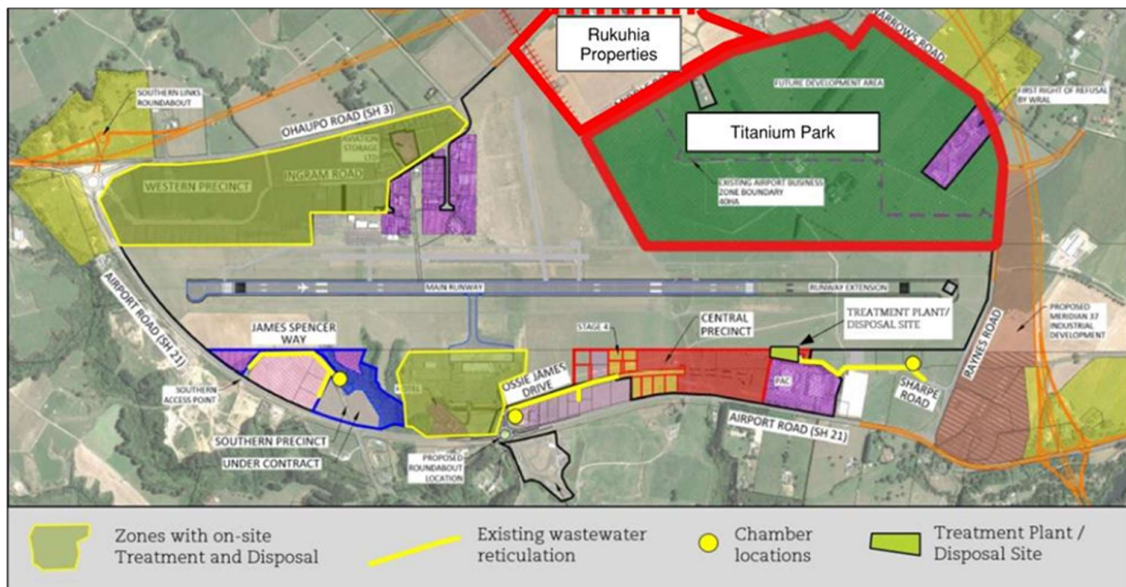


Figure 6 – Schematic of Existing Wastewater Infrastructure

90. The intention is be to connect all of the these Precincts to the future Hamilton/Waipā Metro Wastewater Treatment Plant (MWWTP) that is proposed to be constructed within the vicinity of the airport.
91. The Metro Wastewater Treatment Plant project is planned to provide a collection, treatment and disposal solution for wastewater from an area encompassing Tauwhare and Matangi townships, the Airport land, and eventually southern suburbs of Hamilton.
92. The project is currently being progressed jointly by Hamilton City Council, Waipā DC and Waikato DC, with a potential construction completion date for Stage 1 of 2026.
93. Stage 1 works of the Metro Wastewater Treatment Plant are anticipated to provide capacity to collect and treat up to 1,000 m³/day, with further Stages added as demand requires.

Assessment of Wastewater Rates and Servicing Solutions

94. In case of uncertainty around the timing of the completion of the Metro Wastewater Treatment Plant, a design solution has been determined for the Northern Precinct that is suitable to service the site in both potential short and long-term scenarios (i.e with or without the Metro Wastewater Treatment Plant being operational).

95. An assessment of servicing options determined that the optimal solution for collection and conveyance of wastewater for the Northern Precinct area would be to utilise a low-pressure piped sewer system directing flows to a single collection point.
96. This requires that each lot has a small septic tank and pump conveying effluent in a piped network at a relatively shallow depth (i.e 1.0 – 1.5m below ground), under pressure, to a single central collection chamber location.
97. Consideration was also given to utilising the conventional gravity pipe conveyance method normally adopted on development sites. However, due to the extensive size of the Northern Precinct area, combined with its relatively flat nature, the use of a conventional gravity system would require deep pipework (i.e up to 6m in depth) and multiple pump stations to direct flows to a single collection chamber.
98. As well as being an efficient method of wastewater conveyance, the solution of providing a low-pressure piped network to a single collection chamber also has the additional benefit of being adaptable over time with regards to the collection and treatment method utilised at the single collection point.
99. The preferred, and ultimate, wastewater treatment and disposal solution for the Northern Precinct is to connect the single collection chamber, via a pump station and rising main, to the proposed Metro Wastewater Treatment Plant scheme that is proposed to be built in close vicinity to the airport to cater for the longer-term wastewater servicing of the area.
100. If required in the short term, in advance of the availability of the Metro wastewater scheme, untreated wastewater can be pumped from the central collection chamber proposed for the Northern Precinct and trucked to the Cambridge Wastewater Treatment Plant. Such an arrangement is already in place and operating on the adjacent Southern and Central Precincts.
101. In the situation of significant delay (or abandonment) of the provision of the Metro wastewater scheme, the alternative long-term solution for wastewater would be to connect the single wastewater collection chamber to an on-site package treatment plant discharging to on-site land disposal beds. It is noted that Resource Consents are already in place for a similar solution for the adjacent Southern and Central Precincts.
102. Utilising the conservative assumption that wastewater generation from the Northern Precinct site will match the estimated water supply demand rates, then with reference to the water supply calculations previously noted (using the maximum recorded daily water

usage value of 1.4 m³/ha/day via meter readings) the wastewater generation from the fully developed approximately 130 ha Northern Precinct area would be in the range of 196 m³/day. In addition, utilising the same assumptions, the wastewater generation rate for the entire 248 ha Airport Business zone would be 347 m³/day.

103. Using the conservative maximum allowable covenanted water use of 3 m³/Ha/day the wastewater generation from the Northern Precinct would be 420 m³/day. In addition, utilising the same assumptions, the wastewater generation rate for the entire 248 ha Airport Business zone would be 744 m³/day. (Noting that every lot using a covenanted maximum daily usage value of 3.0 m³/ha/day at the same time is considered exceedingly unlikely).
104. All of these ranges of wastewater generation rates fall within the expected available wastewater treatment capacity for Stage 1 of the Metro wastewater scheme of 1,000 m³/day. As such, Stage 1 of the Metro wastewater scheme would have the capacity to service the Northern Precinct development (and in fact, based on current water usage rates, the whole Airport Business zone if so desired).
105. The preferred long-term solution of the provision of a central collection chamber and pump station in the Northern Precinct, connected to the Metro wastewater scheme, also provides the potential for other Precincts to be connected into the Northern Precinct pump station, and thus the Metro wastewater scheme.
106. Connecting more of the Airport Business zone into a public wastewater system in this manner would be more efficient, and provide a greater element of operational control, compared to having a number of Precincts serviced by different individual systems.

Wastewater Summary

107. Liaison with Waipa District Council has established the preferred method of wastewater servicing for Northern Precinct is to connect to the proposed Metro Wastewater Treatment Plant scheme.
108. Wastewater from the Northern Precinct can be serviced via a low-pressure wastewater system discharging to a central collection manhole and pump station, connected via pumped rising mains to the Metro wastewater scheme that is intended to cater for the long-term wastewater servicing of the area.
109. In advance of the availability of the Metro wastewater scheme, untreated wastewater can be pumped from the central collection chamber and trucked to the Cambridge

Wastewater Treatment Plant (an arrangement that is already in place and operating on the adjacent Southern and Central Precincts).

110. In the situation of significant delay (or abandonment) of the provision of the Metro wastewater scheme, the alternative long-term solution for wastewater would be to provide the wastewater collection chambers with on-site package treatment plants discharging to on-site land disposal beds. It is noted that Resource Consents are already in place for a similar solution for the adjacent Southern and Central Precincts.
111. The provision of a central pump station in the Northern Precinct, connected to the Metro wastewater scheme, also provides the potential for other Precincts to be connected into the Northern Precinct pump station, and thus the Metro wastewater scheme.
112. Connecting more of the Airport Business zone into a public wastewater system in this manner would be more efficient, and provide a greater element of operational control, compared to having a number of Precincts serviced by individual systems but ultimately that isn't a matter of concern for PC20 at this stage.

RESPONSE TO SUBMISSIONS RAISED

113. A review of submissions identified a total of six that raised matters relating to 3 Waters Infrastructure. These were submission numbers 5, 6, 12, 17, 22 and 23.

Middle / Narrows Focus Group

114. Submission number 5 by the Middle/Narrows Focus Group states that there needs to be a plan for retention of stormwater to moderate flows for the increased surface water anticipated from the development.
115. I note that the proposed stormwater management approach is to utilise soakage to ground for stormwater surface runoff where conditions permit, and also to provide for detention of stormwater on-site in suitably sized storage areas.
116. With the stormwater management plan for the site combining soakage to ground and provision of extensive stormwater detention areas across the site, the outcome will be that (as requested by the submitter) stormwater runoff from the developed site will be moderated such that it does not exceed the current 'greenfield' situation.

James and Marie Snowball

117. Submission number 6 by James and Marie Snowball expresses concern related to the development raising water tables, and states there is nothing to show where the water is to go.
118. I note that the proposed stormwater management approach is to utilise soakage to ground for stormwater runoff where conditions permit (as happens at present), and also to provide for detention of stormwater on-site in suitably sized storage areas.
119. The storage areas will control and attenuate flows from the site back to existing rates, prior to discharge to the existing watercourses that surround the site (which responds to the submitters question about where water will go).
120. The solution outlined for stormwater management will therefore see the site self-managing stormwater effects within its boundaries, mitigating any effects on the downstream receiving catchments.
121. The submission also states that there is no sewerage treatment plant supplied by the developer.
122. In response, it is noted that the intention, as set out in the Infrastructure Assessment Report, is for the Northern Precinct to be connected to, and serviced by, the proposed public Metro wastewater scheme at the earliest possible opportunity.
123. However, as the timing of the development of the Metro wastewater scheme is out of the control of the applicant (as it is being developed by the local councils) and has not been advanced to the stage that there is a requisite level of certainty, the Infrastructure Assessment Report has also demonstrated that suitable alternative wastewater servicing solutions for the Northern Precinct exist.
124. The first of these alternative servicing solutions is for untreated wastewater to be pumped from a central collection chamber on site and trucked to the Cambridge Wastewater Treatment Plant (an arrangement that is already in place and operating on the adjacent Southern and Central Precincts).
125. The second alternative servicing solution for wastewater would be to provide the wastewater collection chamber with an on-site package treatment plant discharging to on-site land disposal beds. (Resource Consents are already in place for a similar solution for the adjacent Southern and Central Precincts).

126. As such, whilst it is noted that servicing the Northern Precinct with a public wastewater solution (namely connection to the Metro wastewater scheme) is the preferred outcome, it has also been demonstrated (with specific reference to the existing scenarios in use for the adjacent Southern and Central Precincts) that until (or in the absence of) a public wastewater solution is available, then suitable alternative wastewater solutions are able to service the site.

Joan and Robin Cuff

127. Submission number 13 by Joan and Robin Cuff states that the stormwater solutions for Northern Precinct should consider the wider catchment.
128. I note that the Northern Precinct stormwater catchments are discrete catchments located at the head (or top end) of the wider catchment, and the proposed stormwater solutions (being a mixture of soakage and detention) will allow the developed site to be self-managing with regards to stormwater, with no increases in stormwater discharge rates post-development.
129. With the site being self-managing, development of the site will not impact the downstream catchment. As such, consideration of the wider catchment downstream has not been considered necessary.

Fire and Emergency NZ

130. Submission number 17 by Fire and Emergency NZ, requests that the Airport Business Zone not be extended unless it is matched with the delivery of key water strategic infrastructure.
131. I note that the provision of water supply for the Northern Precinct will include such requested key infrastructure, such as a water supply ring main, with the addition of booster pumps, water storage reservoirs, and upgrades to the Pukerimu water supply scheme (if required), so as to enable at least an FW3 level of service for firefighting for the Northern Precinct.
132. An FW3 level of service provides sufficient water pressure and flows to enable building owners to incorporate fire protection sprinkler systems in their buildings should they so desire, although such incorporation (or otherwise) of sprinklers in buildings would form part of the separate Building Consent process for each individual lot.

Christopher Wayne Hickey

133. Submission number 22 by Christopher Wayne Hickey states that the drinking water supply for his property at 4/74 Lowe Road is from groundwater, and raises concerns regarding the potential for groundwater and surface water contamination resulting from the development.
134. I note that stormwater runoff from the proposed roads in the development will be pre-treated via vegetated swales, prior to discharge to ground via soakage.
135. Stormwater from individual lots will also require pre-treatment on-site prior to discharge to ground via soakage, although specific details of this will be controlled as part of the separate Building Consent process for each individual lot.
136. In addition, the proposed wastewater management system for the development is a reticulated system, with a central collection point that will ultimately discharge to the proposed new Metro Wastewater Treatment Plant.
137. Should the Metro Wastewater Treatment Plant not eventuate, then the alternative wastewater solution would be provision of an on-site packaged treatment plant disposing to on-site land disposal beds.
138. In this circumstance the on-site system would be designed and operated in accordance with the standards required by Waikato Regional Council to achieve the necessary treatment standards prior to discharge, and as such would not have an adverse effect on the groundwater system quality.
139. The stormwater and wastewater collection, conveyance, treatment and disposal methods proposed for Northern Precinct are in-line with relevant stormwater and wastewater design standards and as such are considered appropriate for the site.

Hamilton City Council

140. Submission number 23 by Hamilton City Council states that the Northern Precinct must be serviced by a public wastewater solution.
141. In response, it is noted that the intention, as set out in the Infrastructure Assessment Report, is for the Northern Precinct to be connected to, and serviced by, the proposed public Metro wastewater scheme at the earliest possible opportunity.

142. However, as the timing of the development of the Metro wastewater scheme is out of the control of the applicant (as it is being developed by the local councils) and has not been advanced to the stage that there is a requisite level of certainty, the Infrastructure Assessment Report has also demonstrated that suitable alternative wastewater servicing solutions for the Northern Precinct exist.
143. The first of these alternative servicing solutions is for untreated wastewater to be pumped from a central collection chamber on site and trucked to the Cambridge Wastewater Treatment Plant (an arrangement that is already in place and operating on the adjacent Southern and Central Precincts).
144. The second alternative servicing solution for wastewater would be to provide the wastewater collection chamber with an on-site package treatment plant discharging to on-site land disposal beds. (Resource Consents are already in place for a similar solution for the adjacent Southern and Central Precincts).
145. As such, whilst it is noted that servicing the Northern Precinct with a public wastewater solution (namely connection to the Metro wastewater scheme) is the preferred outcome, it has also been demonstrated (with specific reference to the existing scenarios in use for the adjacent Southern and Central Precincts) that until (or in the absence of) a public wastewater solution is available, then suitable alternative non-public wastewater solutions are able to service the site. As such it is not considered that development of the Northern Precinct needs or should be conditioned on the availability of a public wastewater solution.

RESPONSE TO FURTHER SUBMISSIONS RAISED

146. A review of further submissions identified just one that raised matters relating to 3 Waters Infrastructure.
147. This was further submission number 5, from the New Zealand National Fieldays Society Limited. The further submission was in support of the Fire and Emergency New Zealand submission (original submission number 17) which I have already responded to under the 'Response to Submissions Raised' section.

RESPONSE TO THE SECTION 42A REPORT

148. A review of the Section 42A Report identified two items related to 3 Waters Infrastructure where the report recommended amendments to PC20.

149. The first relates to wastewater disposal and is a recommendation that additional provisions are provided to PC20 to ensure that only 'dry' industries can be established in the Northern Precinct prior to the Metro wastewater scheme being operational.
150. In my opinion, and as evident by the nature of businesses that have established in the existing precincts to date, I would consider it highly unlikely that anything other than 'dry' industry would be able to establish in the Northern Precinct prior to having the ability to connect to the Metro wastewater scheme.
151. Any future lot owner would need to obtain Building Consent to be able to establish on a lot. Building Consent is unlikely to be granted unless the applicant can demonstrate that the specific nature of the proposed activities on their site can be adequately serviced by both water supply and wastewater systems.
152. As such, with the Building Consent process likely preventing anything other than 'dry' industries being able to be established in the Northern Precinct prior to the Metro wastewater scheme being operational, I do not believe that additional provisions are required to PC20 to cover this matter.
153. This issue is covered in further detail in the evidence of Mr Grala.
154. The second item noted into the Section 42A Report relates to water supply and is a recommendation that amendments be made to the provisions such that it is clear and unambiguous that water supply for firefighting purposes within the PC20 area needs to be provided in accordance with the New Zealand Firefighting Water Supplies Code of Practice SNZ PAS 4509:2008.
155. This recommendation is acknowledged and accepted and Mr Grala has included this change in the updated set of provisions attached to his evidence.

Scott Dean King
Harrison Grierson

28 February 2023

Annexure One – Proposed Structure Plan



Legend

Road/Access Stopped	Indicative Road	Special Amenity Area	Indicative Primary Road	Southern Links - Designation Extent
Access Point/Gateway	Airport Business Zone	Stormwater Disposal	Indicative Secondary Road	Airport Business Zone - Northern Precinct Extent
Landscaping	Central Precinct	Landscape Open Space	Potential Future Connection Road	Rural Landscaping
Building Setback	Southern Precinct	Retail Area	Northern Precinct Hub	Vehicle Access Restriction
Cycleway/Walkway Connection	Stage 1 Development	Bat Habitat Area		

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