BEFORE THE KAIPARA DISTRICT COUNCIL'S HEARING PANEL

IN THE MATTER OF	the Resource Management Act 1991 (**the Act**)
AND	
IN THE MATTER	An application for Private Plan Change 85 (**PC85**) - **MANGAWHAI EAST** by Foundry Group Limited (formerly Cabra Mangawhai Limited) and Pro Land Matters Company to rezone approximately 94 hectares of land at Black Swamp and Raymond Bull Roads, Mangawhai

---

STATEMENT OF EVIDENCE OF ROBERT JAMES HAMILTON WHITE ON BEHALF OF THE APPLICANTS

(Water and Wastewater Reticulation and Transmission)

18 December 2025

Jeremy Brabant

Barrister

Level 7, 50 Albert Street, Auckland Central

PO Box 1502, Shortland St, Auckland 1140

M: 021 494 506

E: jeremy@brabant.co.nz

INTRODUCTION

QUALIFICATIONS AND EXPERIENCE

1. My full name is Robert James Hamilton White.

2. I am an independent consultant at Water Acumen (Urban Acumen Limited trading as Water Acumen).

3. I have a Bachelor's degree, with Honours, in Civil Engineering from Kingston Polytechnic (now Kingston University) (1989). I am also a Chartered Engineer with the Engineering Council (UK) (1998), a Fellow of Engineering New Zealand (2021) and a Fellow of the Institution of Civil Engineers (2004).

4. I have over 35 years' experience in civil engineering. I specialise in water and wastewater, principally in identifying water and wastewater servicing strategies.

EXPERT WITNESS CODE OF CONDUCT

5. Although this is not a hearing before the Environment Court, I record that I have read and agree to and abide by the Environment Court's Code of Conduct for Expert Witnesses as specified in the Environment Court's Practice Note 2023. This evidence is within my area of expertise, except where I state that I rely upon the evidence of other expert witnesses as presented to this hearing. I have not omitted to consider any material facts known to me that might alter or detract from the opinions expressed.

PROJECT INVOLVEMENT

6. I was engaged by Cabra Mangawhai Limited (now Foundry Mangawhai Limited) in August 2023 to identify:

    a) The capacity of the existing wastewater infrastructure (from Longview Road Wastewater Pump Station (WWPS) to the Wastewater Treatment Plant (WWTP)) to service the plan change area;

    b) A water servicing strategy; and

    c) Potential pipeline and pump station upgrades to allow wastewater servicing of the ultimate development proposed.

7. I am the author of Memorandum 02, dated 1 July 2025, Black Swamp – Water and Wastewater Servicing. This formed Appendix B to the proposed Plan Change Infrastructure Report – Appendix 10: Civil Engineering Assessment of the Application for Private Plan Change – Mangawhai East.

8. I confirm that I have visited the site.

SCOPE OF EVIDENCE

9. This statement of evidence covers the provision of water, and wastewater servicing of the plan change area to the Wastewater Treatment Plant. I have not sought to repeat in full the contents of my memorandum that formed part of the plan change request. Instead, my evidence summarises that memorandum, provides updated information where appropriate and responds to matters raised by the Council in its s 42A report and submitters in their submissions on the plan change.

S42A REPORT

Water – Report Conclusion:

10. The S42a report Conclusion on water supply[1] identifies:

> *The proposed water supply servicing solutions are plausible and common throughout the District. Incorporation of Table C12 in the subdivision rules will assist in ensuring that medium density areas are able to be serviced by tanks sized to be commensurate with likely demand and roof size. A separate, private-held reticulated fire-fighting solution is proposed for the medium density and business zones and is a practical solution that avoids the need for oversized individual tanks on a site-by-site basis.*
>
> *The plan change can therefore be appropriately serviced in terms of water supply.*

[1] Section 42A Report at [129].

Wastewater – Report Conclusion:

11. The S42a report Conclusion on wastewater servicing[2] identifies:

> *The applicant's servicing reports have focussed on the immediate wastewater network in terms of both the proposed new network within the site itself and the connection between the site and the WWTP. These upgrades to the conveyancing network will be necessary, and if capacity constraints were limited to just the provision of a pump station upgrade and a new rising main then I would be confident that wastewater limitations could be resolved via a developer agreement with Council regarding funding and staging as part of a subdivision consent process.*
>
> *The key constraint however lies not with conveyancing but with treatment, and in particular with treated wastewater disposal….*

Water - Response

12. It is acknowledged that there is no reticulated water supply to properties in Mangawhai Village or Mangawhai Heads, with properties relying on rainwater collection and onsite storage for domestic use. In times of low rainfall, water is purchased from water supply companies and brought in by tanker.

13. In my opinion there are feasible and appropriate options available to service the Site with water. The principal source of water for the plan change area would be via rainwater collection on a household-by-household basis. This methodology is agreed with in the s42A Report.

14. The volume of water storage required for domestic use is covered by Mr Fairgray in his evidence.

15. I note a borehole located on the site has been tested for quantity and quality with a recommended abstraction rate of 48 m^3/day and is stated to meet drinking water standard with regards to quality.

16. A second borehole is yet to be tested for quantity and quality.

---

[2] Section 42A Report at [151] – [152].

17. Three options have been identified for the provision of firefighting water:

    a) Reticulated network with fire hydrants in the commercial and higher density areas, with buried fire tanks in residential areas, supplied with water from the borehole(s).

    b) Buried tanks with 45m^3 capacity would be provided at a maximum of 180m separation throughout the development area (not serviced by a reticulated network and fire hydrants). These tanks would potentially be connected to the reticulated network, should one be adopted, to ensure tanks remain full. Buried tanks is the firefighting water approach adopted (consented and constructed) for Awatiro Drive, Kaukapakapa.

    c) On-plot firefighting water: In line with Plan Change 4, 10,000l firefighting water tanks would be provided at each property (over and above the volume stated in Table C12 for domestic supply) to store sufficient water specifically for firefighting purposes.

18. Options a) and b) above are considered to provide a higher standard of firefighting water provision than typically currently exists within Mangawhai Village / Mangawhai Heads.

19. It is noted that KDC will not accept vesting of any additional non-potable water supplies. Responsibility for the operation, maintenance, and ownership of any reticulated non-potable water systems would need to lie with a private utility or body corporate.

20. These options would be further developed, with the selected approach detailed at the resource consent stage and further to acceptance, submitted for approval at Engineering Plan Approval stage.

21. As previously highlighted, domestic demand would be met from rainwater collection. However, in addition the following options have also been considered and could be developed further at Resource Consent and Engineering Plan Approval stages:

    a) “Third pipe” for non-potable uses; or

    b) Treatment and potable use of water from the borehole(s) for the commercial area and potentially higher density development areas.

22. Should a reticulated firefighting system be constructed, a limited number of properties adjacent to the water mains could connect for non-potable use, reducing demand on the rainwater collection systems, providing resilience and/or allowing smaller on-plot rainwater storage than standard (as identified in Table C12).

23. It is noted that Ms Parlane has identified in her evidence that external use of non-potable water would be considered acceptable, whereas connection of the non-potable water for internal uses is considered to be unacceptable due to the risk of cross connection / contamination. Although use of non-potable water is not necessary, I include some comments with respect to it below as in my view it may be worth pursuing further at detailed development stage.

24. The use of non-potable water "reticulated around the building" is identified within Acceptable Solutions and Verification Methods - For New Zealand Building Code - Clause G12 Water Supplies[3].

25. Third pipe systems have been consented and adopted in other locations within New Zealand and internationally. Examples for "third pipe" systems are as follows:

    a) Stonefield Quarry, Auckland: Prior to the amalgamation of the "Super City" in 2010, the development had been consented on the basis that non-potable water would be provided via a third pipe system with water sourced from the stormwater system. This was rejected by Watercare, primarily on a cost basis, and is not currently in use.

    b) Rainwater collection for non-potable uses (i.e., Hobsonville[4] and Whenuapai). Properties in Hobsonville are plumbed with non-potable uses (such as toilets and laundry) being serviced via non-potable rainwater collection.

[3] https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g12-water-supplies/asvm/g12-water-supplies-3rd-edition-amendment-14.pdf

[4] https://hobsonvillepoint.co.nz/assets/Uploads/Sustainable-Development-Framework-version-4.0.pdf - "Dwellings are served by rain tanks sized to supply 75% of water used in household toilets, laundries and gardens".

Outside Tap - Whenuapai

26. Recycled water – Altogether Group, Australia[5]. ''*Altogether's recycled water communities are saving up to 70% of their drinking water*". It is noted that Altogether are recycling treated effluent 'Recycled water has been through several wastewater treatment steps. Altogether state: "*We treat recycled water to meet the Australian Guidelines for Water Recycling 2006, making sure it's safe to use by monitoring and testing regularly."*

27. Returning to the availability of bore water, it has also been identified that the borehole water could be treated to provide a potable supply to a limited number of commercial / high density housing properties, negating the need for, or augmenting, rainwater collection for those properties. The tested borehole has been identified as meeting drinking water standards.

28. A private water treatment plant could be constructed to service a discrete area within the plan change area, supplied by water from the onsite borehole(s).

29. Based on the single borehole that has been tested to-date, the identified 48m^3/day could potentially service a population of 225, based on the Kaipara District Council

[5] https://www.altogethergroup.com.au/about/water-solutions/recycled-water/

Wastewater Standards of 210 Litre per person per day, or approximately 60 dwellings based on 4 people per dwelling.

30. It is proposed that this option be developed and detailed at Resource Consent and Engineering Plan Approval stages, further to testing the additional borehole(s).

31. I note the Karaka North Village development in Auckland is supplied by a private water treatment plant fed by local boreholes, providing a potential legal / financial model to follow.

Wastewater – off site upgrades - Response

32. As identified by Mr Cantrell and in the S42A report, upgrades of the pump stations and rising main between the site and the WWTP are required.

33. Whilst identified in Mr Cantrell's Evidence in Chief, the S42A report does not identify that the upgrade of the wastewater system from Longview Street Wastewater Pump Station (PS-VA) to the Wastewater Treatment Plant is required to service existing planned growth (excluding PC85 – Mangawhai East). These upgrades are therefore not precipitated by PC85.

34. A report by prepared by WSP[6] identifies proposed new infrastructure, including replacement of existing rising mains with new rising mains between Longview Street Wastewater Pump Station (PS-VA) and the Wastewater Treatment Plant, and upgrade of the two existing wastewater pump stations, to service plan enabled growth.

35. The report identifies the replacement of the following section of pipe, with only one section not requiring replacement.

[6] WSP report Mangawhai Wastewater Modelling Model Build, Calibration and System Performance Report 18 March 2022.

Code	Asset	Existing	Proposed Upgrades
MP-5	Pump Station PS-VA	35 L/s @50m pump head	60 L/s @36-44m pump head
Mp-5	Pipe #1 990m long	150 uPVC	Replace with 200 ID
	Pipe #2 365m long	200 uPVC	Utilise existing pipe
MP-2	Pump Station PS-VD Mangawhai Central		55 L/s @11-18m pump head
MP 6-1	Pipe #3 1,100m long	250 uPVC	Replace with 300 ID
MP6-3	Pump Station PS-OF	100 L/s @17m pump head	170 L/s @12m pump head
MP6-3	Pipe #4 440m long	250 uPVC	Replace with DN400 PE

36. The option to duplicate, rather than replace existing rising mains, provides sufficient pipe capacity to convey the additional flows to the Wastewater Treatment Plant.

37. To service the ultimate flows from the Plan Change area, the remaining existing 365m pipe would also need to be duplicated.

Code	Asset	WSP Proposal	Revised Proposal
MP-5	Pump Station PS-VA	60 L/s @36 - 44m pump head*	110 L/s @47 - 51m pump head
Mp-5	Pipe #1 990m long	Replace with 200 ID	Duplicate with 200 ID
	Pipe #2 365m long	**Utilise existing 200 uPVC pipe**	**Duplicate with 200 ID**
MP-2	Pump Station PS-VD	55 L/s @12 – 13m pump head*	55 L/s @11-18m pump head*
MP 6-1	Pipe #3 1,100m long	Replace with 300 ID	Duplicate with 300 ID
MP6-3	Pump Station PS-OF	170 L/s @12m pump head*	220 L/s @14m pump head*
MP6-3	Pipe #4 440m long	Replace with DN 400 PE	Duplicate with DN 400 PE

38. If the existing system was upgraded with additional rising mains in conjunction with existing pipework (rather than replacing the existing pipes), these smaller pipes would only be marginally cheaper than the proposed larger pipes.

39. Additionally, larger diameter rising mains are more efficient than smaller diameter rising mains as friction losses are smaller in larger pipes than smaller pipes at the same velocity.

40. Pump stations would need to be upgraded to meet planned growth, as detailed below:

Asset	Existing	WSP Proposal	Revised Proposal
PS-VA	35 L/s @50m pump head	60 L/s @36 - 44m pump head	110 L/s @47 - 51m pump head
PS-OF	100 L/s @17m pump head	170 L/s @12m pump head	220 L/s @14m pump head

41. Upgrading, replacement or duplication of Pump Stations is technically feasible and would be detailed as part of the Engineering Plan Approval stage.

42. Funding of the new rising mains and wastewater pump station upgrades would be funded via developer contributions and / or Infrastructure Finance Agreements with the developer.

Wastewater – Treatment and Effluent Disposal - Response

43. It is noted that the identified planned (but currently unfunded) upgrades to the wastewater treatment plant and disposal facilities equates to a capacity to service 6,500 DUE, in comparison to 7,280 DUE comprised of the currently serviced 2,900 DUE and the plan enabled development capacity of 4,880 identified by Mr Foy (excluding 500 HUE for the now operative PC84 Mangawhai Hills area which may not connect the WWTP).

44. As such, with the total plan enabled development being greater than the capacity of the wastewater treatment plant and the disposal capacity, further upgrades of the wastewater treatment plant and disposal facility would be anticipated, without consideration of PC85.

45. Mr Cantrell identifies that further WWTP upgrades and disposal options need to be identified, but that solutions are yet to be confirmed and are not currently funded.

46. In my view further expansions could service PC85.

47. I refer to Mr Fairgray's evidence for further information regarding wastewater treatment and disposal.

Wastewater – On-site - Response

48. It has been proposed that the site would be serviced by mixture of gravity and pressure sewer feeding a terminal wastewater pump station (WWPS), with gravity proposed for the area south of Black Swamp Road and pressure sewer for the flat land north of Black Swamp Road.

49. The terminal WWPS would then convey flows to the Longview WWPS and onto the Wastewater Treatment Plant.

50. The proposed on-site servicing approach is noted by Mr Cantrell within his evidence (Item 3.2).

51. Details would be further developed and approved through the Resource Consent and Engineering Plan Approval stages.

SUBMISSIONS

Water

52. *Submitter 43, Northland Regional Council*, identifies a concern that small lot sizes would not be able to fit the required water storage tanks onsite.

53. The provision of a non-potable or potable reticulated supply is proposed for higher density areas to negate, or minimise, on-plot rainwater storage for domestic and firefighting use. This would be further developed, detailed and approved at Resource Consent and Engineering Plan Approval stages.

54. *Submitter 60, Fire and Emergency New Zealand*, state that the development must provide sufficient water supply for both potable and firefighting use, and that firefighting capacity must be maintained at all times.

55. The provision of firefighting water is covered in paragraph 17 above. This would be further developed, detailed and approved at Resource Consent and Engineering Plan Approval stages.

56. *Submitters 2, 4, 12, 20, 22, 62, 63, 64, 70, 71, 75, 79, and 80* include general comments with regards to "water" within their submissions that have been covered in the above response relating to water and/or the evidence of Mr Fairgray.

Wastewater

57. *Submitters 2, 5, 9, 10, 11, 12, 20, 22, 24, 26, 35, 38, 41, 44, 46, 65, 66, 72 and 86* include general comments with regards to "wastewater" within their submissions that have been covered in the above response relating to wastewater and/or the evidence of Mr Fairgray.

CONCLUSION

Water

58. In my opinion, and as identified in Ms Parlane's EiC and the S42a report, there is an appropriate servicing strategy for both domestic and firefighting water supplies to enable development of the plan change area.

59. Options to service higher density areas have been identified via a reticulated network of non-potable water for firefighting and non-potable use, and/or a private water treatment plant, with water supply via an onsite borehole(s).

60. Details would be further developed and approved through the Resource Consent and Engineering Plan Approval stages.

Wastewater

61. In my opinion, and as identified in Mr Cantrell's EiC, there is a feasible technical solution to collect and convey wastewater from the plan change area to the wastewater treatment plant site.

62. Whilst Mr Cantrell has identified that the capacity of the treatment plant and effluent disposal facilities currently do not have capacity to accept flows from the plan change area, reserving capacity of plan enabled development, it is noted that expansion of both the wastewater treatment plant and the disposal facility would need to be further upgraded to service the total existing catchment plus plan enabled

development. These further upgrades could be sized to accommodate flows from the plan change area.

63. Details would be further developed and approved through the Resource Consent and Engineering Plan Approval stages.

ROBERT JAMES HAMILTON WHITE

18 December 2025