Milldale Fast-Track

29/07/2025 – Auckland Council Response

Annexure 3:

Watercare

Technical Specialist Memo - Water Supply and Wastewater

To:	Dylan Pope – Lead Planner & Carly Hinde - PPL
From:	Anna Jenning- Manager Major Developments -Watercare Services Limited.
Date:	29/07/2025

1.0 APPLICATION DESCRIPTION

Application and property details

Fast-Track project name:	Milldale
Fast-Track application number:	BUN60446761 & FTAA-2503-1038
Site address:	Wainui Road, Milldale, Upper Orewa

2.0 Executive Summary / Principal Issues

Watercare Services Limited (**Watercare**) welcomes the opportunity to provide comments on wastewater and water servicing for the Milldale Stages 4C and 10–13 development under the Fast-track Approvals Act 2024. Watercare's comments includes a review of the proposed temporary wastewater treatment plant (**WWTP**) as well as the permanent wastewater and water servicing strategy for the broader development area.

The temporary WWTP is proposed to address interim capacity constraints at the Army Bay Wastewater Treatment Plant. As stated in the application documents, the system will use modular membrane bioreactor and reverse osmosis (**RO**) technology, with treated effluent discharged to land and reject waste stream returned to the Watercare network. The WWTP will be privately operated, with Watercare oversight, and decommissioned by Fulton Hogan Land Development Ltd (**FHLDL / Applicant**) once permanent service becomes available.

There is currently no existing water supply infrastructure for the site. Once constructed, the recently consented Milldale Stage 8 will provide a public water supply to the Lysnar road site frontage to provide water supply connections. Construction of stage 8 of Milldale is currently in the engineering plan approval phase and will be completed prior to the treatment plant construction.

In parallel, permanent wastewater servicing infrastructure will be delivered through gravity connections to Watercare's existing Milldale infrastructure. The development lies within the Waterloo Wastewater catchment and will connect to the Milldale Tunnel and Orewa West Pump Station via staged infrastructure. Water supply will be extended from the existing Milldale reticulation network and supported by a new booster pump station.

Watercare supports the proposal in principle, however, we are unable to confirm support for the acceptance of RO waste stream into the wastewater network until further information is provided and further discussions are held. As outlined in our letter to Grant Fahey, dated 10 July, 2025 any in-principle agreement to the discharge of the RO waste stream applies only in certain limited scenarios and is subject to strict conditions. This will be on the condition that the waste stream is of such a quality that it is not detrimental to the operation, integrity or compliance of the Watercare network or the Army Bay WWTP. As noted, this aspect requires further discussion and agreement. Support is also subject to confirmation of flow volumes, discharge rates, quality parameters, and the formalisation of operational responsibilities through a binding agreement. Since the issuance of the letter that letter to Grant Fahey we have been exploring the practicalities of accepting the RO waste stream into our wastewater network and have identified a number of concerns. As we understand, the use of RO for wastewater in New Zealand is relatively untested. The current testing undertaken at Army Bay WWTP does not cover the specific contaminants expected in the RO waste stream. If a decision is made to accept the RO waste stream, we would expect that, as part of any future commercial agreement, the cost of additional targeted testing would be borne by the Applicant. Furthermore, we remain uncertain whether the Applicant will be able to meet the requirements set out in our letter and this technical memo—specifically, that the discharge is not detrimental to the operation, integrity or compliance of the Watercare network or the Army Bay WWTP.

The proposal assumes emergency storage is not required, as untreated flows would bypass the private WWTP and remain in the Watercare transmission line in the event of plant failure. Watercare does not support this approach, as it effectively shifts operational risk to the public network. The absence of onsite storage or containment increases the likelihood of unplanned discharges impacting network performance. Watercare recommends that the Applicant reconsider the inclusion of buffer storage and develop a contingency plan that ensures operational failures can be managed without relying on Watercare's infrastructure. If the Applicant is unwilling to incorporate these measures, then they should be the subject of conditions imposed by the Panel.

3.0 Documents Reviewed

The following documents were reviewed as part of this assessment:

1. Volume-4-WWTP-AEE-Final.pdf 28/03/2025
2. -Appendix 4A- Infrastructure Report Milldale Temporary Wastewater Treatment Plant, 28/03/2025 FINAL
3. Appendix-4K-Wastewater-Treatment-Plant-Design-Report.pdf, 20th of February 2025
4. Volume 6: Milldale Stages 10 – 13, 4C and WWTP Proposed Conditions of Consent Milldale, Wainui

Any amendment to the Application will require further review from Watercare.

4.0 Specialist Assessment

This is to be read in conjunction with Watercare's letter dated 10 July 2025 which remains relevant.

Applicant's Water and Wastewater Servicing Proposal for Stages 10–13

Temporary WWTP Overview

FHLDL has proposed a modular temporary WWTP to service up to 1,250 dwellings in Stages 4C and 10–13. The temporary WWTP is designed to operate until upgrades at Army Bay Wastewater Treatment Plant are complete.

The system includes:

- A take-off manhole that will be a pump chamber with a take-off pipe from the Watercare transmission main.
- Hybrid Membrane Aerated Bioreactor with Ultrafiltration Membranes (MABR+MBR Hybrid) and Reverse Osmosis (RO) units
- Land-based infiltration discharge for the primary polished flow to the waterloo stream
- RO waste stream (containing some residuals nutrients) to return to the Watercare network
- Neutral net flow approach by extracting and returning equal wastewater volumes
- Design offtake treatment volumes and flow rates will be agreed with Watercare as part of future EPA submissions, depending on the available remaining capacity of the Army Bay Treatment Plant.

Watercare does not typically support the proposed return of the RO waste stream to the wastewater network. This stream is typically high in salts and other concentrated contaminants, and its return could elevate pollutant loads in the receiving network and the downstream Army Bay Wastewater Treatment Plant, potentially breaching consent limits or compromising treatment efficiency.

As set out in our letter dated 10 July, any consideration of this approach would be strictly conditional upon:

- Review and acceptance of proposed flow volumes, discharge rates, and quality parameters.
- Assurance that the RO waste stream would not compromise the operation, integrity, or regulatory compliance of the Watercare network or the Army Bay WWTP; and
- Execution of a formal agreement defining all technical, operational, and commercial terms.

If the Applicant is unable to demonstrate that the RO reject stream can meet Watercare's operational, regulatory, and compliance requirements, Watercare would expect the Applicant to actively explore alternative treatment and discharge options that do not involve discharging of the RO waste stream to the Watercare network.

This expectation reflects the high level of risk and uncertainty associated with introducing a concentrated waste stream of this nature into Watercare's infrastructure. Any alternative option must be robustly assessed to ensure it meets acceptable environmental standards without compromising the integrity, operations, or compliance of Watercare's network and downstream infrastructure.

Watercare emphasises that there is no agreement in place at this stage with FHLDL, and any future support will remain subject to the satisfactory resolution of all technical, operational, and legal matters.

Wastewater Servicing Overview

The key features of the Applicant's permanent Wastewater servicing proposal are that:

- Stages 4C and Stages 10 to 13 fall within the Waterloo Wastewater catchment, discharging to the Milldale Tunnel and Orewa West Pump Station.
- Wastewater from Stages 10, 11, and 12D will connect via a gravity line through Stage 8, which is consented but not yet constructed.
- Stages 12 and 13 will connect into an existing 300mm trunk line running through Stages 5–7.
- A pipe bridge in Stage 13D is proposed to facilitate servicing of lower elevation lots, co-located with a pedestrian bridge and outside the 100-year floodplain.
- Reticulation will largely run through lot frontages, requiring easements and clear maintenance access.
- Final wastewater design (layout, sizing, long sections) will be submitted at the Engineering Approval (EA) stage and must comply with Watercare's Code of Practice.

Watercare Concern – Pedestrian Bridge 5

The proposal to strap a wastewater pipe under Bridge 5 raises concerns around asset protection, long-term maintainability, and unclear ownership responsibilities. Watercare does not intend to

assume ownership or shared responsibility for bridge structures, particularly those serving dual functions.

To mitigate this, the Applicant must:

- Confirm the pipe is structurally independent of the bridge (i.e. the pipe is not load-bearing/supporting), provide a structural assessment from a qualified engineer confirming that the bridge can safely support the additional load of the wastewater pipe, including during seismic and flood events;
- Provide clear documentation on access, ownership, and maintenance responsibilities;
- Demonstrate that the pipe can be detached/replaced independently of the bridge; and
- Explore and justify alternatives, with evidence that this is the only viable option.

Watercare considers this a critical issue that must be addressed at the Engineering Approval (**EA**) stage, once sufficient technical detail is available.

Watercare's Position for Wastewater Servicing

Watercare's support is conditional on the timely delivery of the Stage 8 connection, without which wastewater servicing to a significant portion of the development (Stages 10, 11, and 12D) would not be feasible. Additionally, this support is subject to the Applicant's ability to meet the requirements outlined above regarding the RO waste stream—specifically, that the discharge does not adversely affect the operation, integrity and compliance of the Watercare network or the Army Bay WWTP.

Water Servicing Overview

The Applicant's water servicing strategy for Milldale Stages 4C and 10–13 is outlined in the Appendix 2F Infrastructure Report and includes both short-term and long-term solutions to ensure adequate supply and future resilience. In summary:

- The Short-Term Strategy is that:

  - Water will be supplied via the Wainui Bulk Supply Point (BSP).

  - A temporary booster pump station is proposed to service elevated areas above RL 50m.

  - The booster station will operate until the Orewa 3 BSP and Cemetery Road Reservoir are commissioned.

- The Long-Term Strategy is that:

  -The Orewa 3 BSP, supplied from Albany at 115m HGL, will provide long-term resilience and capacity.

- A new reservoir at Cemetery Road will be constructed to service high elevation zones without local pumping.

- The reservoir will supply 62% of peak day demand, with the remaining 38% from Wainui BSP.

The water reticulation network is to be designed to comply with Watercare's Code of Practice, including:

- Pressure: 25–80m

- Velocity: <2.0 m/s

- Headloss: <3–5 m/km depending on pipe size

- Fireflow: Minimum 25 l/s at 10m residual pressure

- Hydraulic modelling confirms compliance across all parameters for both short- and long-term scenarios.

Booster Pump Station is to be designed to Watercare standards and include:

- Duty/assist/standby/fire pump configuration

- Acoustic building, SCADA integration, bypass system

- Temporary installation with a ~10-year operational horizon

In terms of future-proofing, it is important that:

- The network is master-planned to accommodate future growth in Milldale North and Wainui.

- Infrastructure is staged to align with development rollout and Watercare's transmission upgrades.

Watercare's Position for Water Servicing

This site is located within live zoned area and the Applicant has prepared water servicing plans in collaboration with Watercare. Watercare acknowledges that these plans are generally aligned with Watercare's infrastructure planning objectives, subject to final confirmation that all servicing elements are designed and will be delivered in accordance with Watercare's Engineering Code of Practice.

5.0 Section 67 Information Gap

Watercare has identified the following Section 67 information gaps.

While the application documents and Appendix 4K – Wastewater Treatment Plant Design Report outlines the proposed treatment process and indicates that the RO waste stream will be reintroduced into the Watercare transmission main under a bespoke Trade Waste Agreement, it does not provide sufficient information for Watercare to assess the potential risks associated with this discharge to make an informed decision regarding acceptance of the waste stream.

Specifically, the report does not adequately address:

- The composition and variability of the RO waste stream, including concentrations of salts, nutrients, trace contaminants, and any emerging pollutants.
- The expected flow volumes of the RO waste stream and how these may interact with or impact the hydraulic performance and treatment processes within the existing Watercare network.
- The potential operational impacts on the Army Bay WWTP and the integrity of downstream infrastructure.
- The monitoring, control, and fail-safe mechanisms proposed to manage this waste stream prior to and during discharge into the Watercare network.
- The testing regime required to verify the quality of the RO waste stream, including baseline sampling, target parameters, frequency, and testing responsibilities.

Due to the above information gaps, this proposal currently presents a high level of risk to Watercare. The lack of sufficient detail creates a high degree of uncertainty around the quality and impact of the discharge, making it difficult to assess potential effects on Watercare's assets, operations, and compliance obligations.

Before Watercare can consider supporting this aspect of the proposal, further information is required, including:

- A detailed characterisation of the RO waste stream under a range of operational scenarios. This should include concentrations of key parameters such as salts, nutrients, heavy metals, organic compounds, emerging contaminants, and any other substances of concern.
- What plans are in place for the disposal of other concentrated waste streams generated by the wastewater treatment system, such as those produced during routine backwash and chemical cleaning cycles (Clean-In-Place waste stream), and centrate or filtrate produced during dewatering of waste activated sludge?
- Clear flow rate profiles, including daily averages and peak discharge volumes.
- An assessment of potential impacts on Watercare's infrastructure and regulatory compliance.

- The proposed operational and monitoring controls, including sampling protocols, alert thresholds, and reporting requirements.
- A comprehensive testing regime, including:
    - Pre-discharge baseline testing for key parameters (e.g., salinity, nutrients, heavy metals, trace organics)
    - Ongoing discharge quality monitoring at defined intervals
    - Defined roles and responsibilities for sampling, analysis, and reporting
    - Escalation procedures for exceedances or system failures
- Clear contingency measures in the event of treatment failure or non-compliant discharge.

Until this information is provided and jointly reviewed, Watercare cannot confirm its support for the proposed discharge of the RO waste stream into its network.

6.0 Recommendation

Watercare in-principle supports is subject to (but not limited to) the following:

1. Finalisation of the wastewater and water servicing design through the Engineering Approval (EA) process.
2. Water Infrastructure is staged to align with development rollout and Watercare's transmission upgrades.
3. Confirmation of critical infrastructure dependencies, including the timely delivery of the Stage 8 wastewater connection.
4. Further discussion and agreement on the proposed return of RO reject water to the Watercare network. This will be subject to a detailed assessment of flow volumes, discharge rates, quality, and potential network as well as environmental impacts, to ensure compliance with regulatory obligations. If deemed acceptable, this must be formalised through a Trade Waste Agreement. Watercare's support for this component is not confirmed at this stage.
5. Execution of a formal agreement between Watercare and FHLDL documenting the temporary WWTP arrangement — including flow volumes, discharge quality, monitoring requirements, and commercial terms.
6. Implementation of emergency storage onsite wastewater buffer storage and a contingency plan that ensures operational failures can be managed without relying on Watercare's infrastructure.

7. Implementation of appropriate monitoring measures to ensure compliance with the agreed flow volumes, discharge rates, and discharge quality standards.
8. Decommissioning of the temporary WWTP within 12 months of the Army Bay WWTP upgrades becoming operational.
9. Ongoing provision of information to Watercare regarding construction staging, commissioning timelines, and any operational changes that may affect the Watercare network.
10. Continued engagement with Watercare throughout planning, construction, and operation.

7.0 Proposed Conditions

At this stage, Watercare is unable to recommend or draft appropriate conditions relating to the proposal due to the significant information gaps outlined in Section 5.0 of this memo.

In particular, the absence of sufficient detail regarding the composition, flow characteristics, operational risks, and potential network and environmental impacts of the RO waste stream prevents Watercare from determining whether the discharge is acceptable or can be appropriately managed through conditions.

Once adequate technical information is provided and jointly reviewed, Watercare may be in a position to advise on a suitable condition framework. Until then, no reliance should be placed on the ability to discharge the RO waste stream to Watercare's network.

Appendix

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10 July 2025

Grant Fahey
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New Zealand

Kia ora Grant,

Construction of Temporary Wastewater treatment plant in Upper Orewa to serve the Milldale development

1. Fulton Hogan Land Development Ltd (**FHLDL**) is undertaking a major development known as Milldale. The development is at the northern edge of Auckland consisting of approximately 4500 new homes with a mix of densities from standalone through to terraced and apartment buildings. It includes a new school, a retirement village, a town centre with a supermarket and medical centre as well as a range of recreational spaces. The development is approximately 50% complete with around 2000 lots remaining to be developed.

2. FHLD has submitted Fast Track application for Milldale Stages 4C and 10-13 (**Fast-Track Application**).

3. FHLD is seeking consent to construct and operate a temporary wastewater treatment plant (**WWTP**) to service the development proposed under the Fast Track Application. This is intended as an interim solution until the upgrades to the Army Bay Treatment Plant are completed and sufficient network capacity is available to support the Milldale development.

4. On 17 December 2024, Watercare Services Limited (**Watercare**) sent a letter to FHLDL setting out the basis upon which Watercare would support the establishment of the temporary WWTP by FHLDL.

5. As part of the proposed temporary WWTP, a reverse osmosis (**RO**) unit is expected to be installed to improve the quality of treated water meet the regulatory requirements of discharge to the receiving environment. This RO unit is in addition to the MBR plant.

6. FHLDL has advised Watercare that the RO process separates a portion of the flow, concentrating residual contaminants in a brine waste stream, while the remaining flow meets the required high quality discharge standards. Watercare understands that FHLDL proposes to discharge the RO waste stream into the Watercare wastewater network while simultaneously extracting an equivalent volume of additional wastewater from the network for treatment within the proposed temporary WWTP in certain limited situations.

7. FHLDL has advised Watercare that this approach would result in no net change to the total flow into the Watercare wastewater network. Furthermore, the RO waste stream will be of higher quality than the existing flows within the network at the point of discharge.

8. The purpose of this letter is to clarify that Watercare agrees in principle to:

    a. the discharge of the RO waste stream from the temporary WWTP to the Watercare wastewater network in certain limited scenarios; and

    b. the extraction of an equivalent volume of wastewater from the same transmission main (in addition to the wastewater that is extracted from the network for treatment for the proposed upstream development the WWTP will service) for treatment at the WWTP resulting in a neutral net flow impact.

9. Watercare's agreement in principle as set out above is subject to and conditional on:

    a. the parties reviewing and Watercare agreeing to flow volumes, rates and quality of the waste stream discharge; and

    b. the waste stream from the RO unit being of a quality that is not detrimental to the operation, integrity or compliance of the Watercare network or the Army Bay WWTP.

10. Watercare wishes to take this opportunity to clarify that a formal agreement will be required to capture the overall arrangement — including all matters outlined in Watercare's letter dated 17 December 2024, as well as the additional elements set out in this letter. This agreement will define the technical, operational, and commercial responsibilities of each party, and will be subject to further review and approval by Watercare.

11. Please note that this letter is not legally binding and Watercare's agreement in principle remains subject to formal documentation and approvals. Any support indicated is conditional on the resolution (to Watercare's satisfaction at its sole discretion) of all outstanding matters, including (but not limited to) technical feasibility, network impact assessments, and final legal review.

Yours faithfully,

Anna Jennings

Manager Major Developments

Watercare Services Limited