Technical Memorandum

Milldale Fast Track Application – BUN60446761

Wastewater Treatment Plant – BUN60446804
Auckland Council

TO:	Carly Hinde, Auckland Council	**REF:**	BUN60446761
FROM:	Dylan Walton, GWE Consulting Ltd	**DATE:**	21 March 2025

INTRODUCTION

This memorandum has been prepared in response to a fast track application for the Milldale development under BUN60446761. Due to limited capacity at the Army Bay wastewater treatment plant (WWTP) it will be necessary for a large volume of wastewater to be treated and discharged locally at the development site. Several documents have been supplied by the applicant explaining how this will be achieved together with an assessment of effects of the activity. This memo provides my overall view of the proposal, highlighting any concerns or comments that I have

DOCUMENTS REVIEWED

Appendix 2F – Infrastructure Report

Appendix 2K – Engineering Drawings Part 1-7

Appendix 3C – Civil Drawings

Appendix 3F - Infrastructure Design Report

Appendix 4A - Infrastructure Report (1)

Appendix 4F – Water Quality Assessment (herewith referred to as the "AEE Report")

Appendix 4J – Alternative Options Assessment

Appendix 4K – Wastewater Treatment Plant Design Report (herewith referred to as "Wastewater Design Report"

Appendix 4L – Engineering Drawings

Appendix 4P – Hazardous Substances Assessment

Volume 4 – WWTP AEE Final (1)

REASONS FOR CONSENT

Auckland Unitary Plan Operative in Part

E6 Wastewater Network Management – The proposed new wastewater treatment plant will create discharged to land and, in turn, water. This requires consent as a discretionary activity pursuant to Rule E6.4.1(A6)

NOTES ON WASTEWATER REPORTS AND ASSESSMENT OF EFFECTS

Reject Water from Reverse Osmosis (RO) Waste Stream

There is a lack of certainty about the fate of the RO waste stream, which could potentially be a very large volume of water in itself. Proposed Condition 49 has the Applicant applying for 830 m^3/d discharge to the Land Contact Infiltration Device (LCID) and on page 73 of the Wastewater Design Report the Designers estimate 30% of the wastewater fed to the RO will be rejected. This means there could potentially be 250 m^3/d to 300 m^3/d of reject water to be handled. The site plans for the WWTP don't show any storage for this, even though it is stated on page 74 of the Wastewater Design Report that it will be stored on site. At approximately 250 m^3/d generation, this would be quite a lot of storage required.

If Watercare will accept pumping of this highly treated reject stream to Army Bay WWTP, then there is no issue. However, the Wastewater Design report states that that the reject stream would reach A+ recycled water standards, but doesn't state which standard that is. Regulation around uses of recycled wastewater in New Zealand is extremely limited – Auckland Regional Public Health Service should be consulted, but where recycled wastewater use is for landscape irrigation (as stated on Page 73 of the Wastewater Design Report), Auckland Council would consider this as a discharge, requiring a discharge consent. Similarly, if a dual reticulation line were established, Council would likely require certainty on the fate of the water and probably a consent would be needed.

In short, it seems there is little (possibly no) precedent for this extent of recycled water in a residential setting in Auckland, and the regulations are silent on it. At the very least, if reuse for landscaping of at the individual properties were to take place such that the discharge was being released to land or water in some way, then a consent (or conditions additional to those proposed by the Applicant) would likely be needed.

Pathogenic impacts

Initial comments in this author's memo of December 6, 2024 were that effects on public health due to recreation in surface waters would need to be considered. Normally a Microbial Health Risk Assessment (MHRA) would be conducted, but the extremely high quality of the wastewater due to the RO means this is unnecessary.

Ammonia Effects

Table 13 on page 38 of the AEE report gives a basic mass balance of the discharge across the stream as it relates to the main contaminants. For nearly all of the parameters there will be no change to the stream concentrations. I accept this assessment. However, as low as the ammonia

is in the discharge, it will still lead to at least a ten-fold increase in the ammonia concentration in the stream under all scenarios modelled. Table 13 indicates that the ammonia concentration would still be classified as NPSFM State A, but that is for annual 95%ile values. It seems feasible that the discharge will push the stream to State B reasonably frequently. Furthermore, the discharge would push the stream ammonia concentrations to above the ANZGV 2018 value of 0.01mg/L. While overall the indications are that ammonia in the discharge will not cause serious issues, there is little discussion of what the occasional change to NPSFM State B and the exceedance of the ANZGV means in and what can be expected to be witnessed in terms of impacts on the ecology as a result.

Effects on the Estuary and Overall impact of the discharge as a percentage of the catchment

In this authors comments of December 6, 2024, it was suggested that dilution modelling on the estuary be done to assess impacts on that water body. This is arguably unnecessary given that there will be no change to the concentration of contaminants to the receiving stream, with the exception of ammonia. However, it would be beneficial to understand how the additional ammonia will affect the estuary (if at all). This could be done under the wider umbrella of an analysis of scale of the discharge in relation to other contributions in the catchment. My comments of December 6 suggested this be done, so that a sense of scale of the discharge in relation to the overall catchment could be realised eg would it be contributing 0.1%, 1%, 10% etc of contaminants to the Orewa Estuary? 0.1% may be considered a small contribution, 10% might be considered a large contribution. This is particularly important in this area given the level of development currently taking place upstream of the estuary, and that other wastewater discharges may also be taking place.

Emerging organic contaminants (EOCs), metals

The impact of EOCs and metals was not discussed. If metal impacts are low because of low solids concentration in the discharge, or if RO is effective at removing EOCs, this should be stated somewhere.

Overflow from the infiltration basin

The drawings show an overflow pipe for the infiltration basin but it isn't clear where this goes. If it goes directly to the stream, a consent condition should be included to permit this.

Discussions with Watercare

A record of discussions held with Watercare confirming that they cannot accept any wastewater from Milldale in the short to medium term should be provided.

Consent Conditions

Condition 58, UV dosage – There was no explanation in any of the reports why 16 mWs/cm^2 was suggested as the consentable dose.

Condition 59 , Wastewater Samples – The sampling frequency is reasonable. However, the consent limits given in condition 53 are 12 monthly medians and it would be good to have some visibility around performance within this time period. It is recommended a condition requiring

that Council be alerted if (for example) there are two or more consecutive samples that exceed the median values, with an explanation of what will be done to ensure the limit is met.

Infiltration bed – There should a condition requiring monitoring and maintenance of the infiltration bed, along with a record of any overflows from it.

Reject water – see earlier comments. There may need to be additional conditions if reject water from the RO is discharged or utilised anywhere on the development.

General comments

I generally accept and agree with the findings of the AEE report, with the exception of ammonia as discussed above. The wastewater will be treated to an extremely high standard, arguably the best standard for residential wastewater treatment in the country, and it is proposed only for a limited length of time. It is imminent that the wastewater will be delivered to Army Bay WWTP and it must be acknowledged that any impacts related to ammonia would be temporary. Going forward, it would be helpful to also see how the proposed discharge quality compares to the proposed limits in the document recently published by Taumata Arowai "Proposed National wastewater environmental wastewater standard". While this is still in proposal phase, it gives some direction on likely water quality standards in the future.

LIMITATIONS

General:

This report has been prepared for the sole benefit of **Auckland Council** as our Client, and their appointed representatives, according to their instructions, for the specific objectives described herein. This report is qualified in its entirety and should be considered in the light of our Terms of Engagement with the Client and the following:

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