

Seaview Wastewater Treatment Plant 2024-2025

Assessment of Effects of wet weather overflow discharges to Waiwhetu Stream



Revision Schedule

| Revision | Description | Author | Date | Quality Check | Date | Independent Review | Date |
|----------|---|--------|----------|---------------|----------|--------------------|----------|
| 1 | Draft for Internal Review | RR | 29/07/25 | DC | 29/07/25 | DC | 29/07/25 |
| 2 | Draft for Client Review | RR | 30/07/25 | | | DC | 30/07/25 |
| 3 | Updated per client comments and additional data | RR | 31/07/25 | | | | |

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Appendix A Waiwhetu Stream water quality results



1 Introduction and Scope

Hutt City Council (HCC) holds consent WGN120142 [33406] to temporarily discharge treated wastewater from the Seaview Wastewater Treatment Plant (SWWTP) to the Waiwhetu Stream. The consent allows for the discharge of treated wastewater into the Waiwhetu Stream during and/or immediately following heavy rain events when flows exceed the capacity of the Main Outfall Pipeline (MOP), and the storm tank system is fully utilised.

The purpose of this report is to provide an assessment of monitoring results for the year from 1 July 2024 to 30 June 2025, as required by Condition 25 of WGN120142 [33406] as part of the annual report. The report shall include;

“A critical evaluation by an appropriately experienced scientist of the previous year’s monitoring results, in particular the environmental effects of each overflow event. This evaluation shall utilise the treated wastewater quality and stream water quality and flow monitoring data for each discharge event comparing the data against environmental guidelines.”

This report addresses the requirements of Condition 25 of WGN120142 [33406], and will be submitted as part of the wider annual report

2 Environmental Monitoring Requirements

2.1 Wet Weather Discharges to Waiwhetu Stream

Monitoring conditions of consent WGN120142 [33406] which are relevant to this report include the following:

- Condition 9 requires the consent holder to monitor the flow rate, duration and volume of all wastewater overflows discharged from the treatment plant to Waiwhetu Stream
- Condition 10 requires the consent holder to install and operate a flow sensor in Waiwhetu Stream close to the discharge point
- Condition 11 requires the consent holder to take a grab sample of treated wastewater as it leaves the treatment plant on each day that the discharge occurs for more than one hour
- Condition 12 requires the consent holder to take grab samples of Waiwhetu Stream water on each day a discharge occurs and one day after the discharge has ceased. The sampling locations are on the true left bank of the Waiwhetu Stream (locations A, B, and C) and are specified below in Table 2-1 and shown in Figure 2-1



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- Condition 14 specifies the wastewater and receiving water quality test parameters¹ to include;
 - o Faecal coliforms
 - o Carbonaceous biochemical oxygen demand (cBOD₅)
 - o Escherichia coli (*E.coli*)
 - o Enterococci
 - o Dissolved Reactive Phosphorus (DRP)
 - o Ammoniacal-N (NH₄-N)
 - o Nitrate-N (NO₃-N)
 - o Nitrite-N (NO₂-N)
 - o For stream samples: in situ measurements of water temperature, pH, salinity and dissolved oxygen (DO)

- Condition 15(b) of the consent requires the consent holder to take photographs of the point of discharge and immediate receiving waters around the point of discharge to show the presence of any effects listed in Condition 15 (a) of the Consent and any obvious biological growths or die-offs.

2.2 Sampling Locations

Sampling locations g are outlined in Table 2-1 and Figure 2-1

Table 2-1 Waiwhetu Stream monitoring locations for consent WGN120142 [33406]

| Location | NZTM | |
|---|---------|----------|
| On the true left bank of the Waiwhetu Stream at: | Easting | Northing |
| A: Immediately upstream of the Port Road Bridge | 1759345 | 5433136 |
| B: Adjacent to the Waiwhetu Pa site (and Urapa) | 1759539 | 5433352 |
| C: Immediately downstream of the Bell Road Bridge | 1760431 | 5433523 |

¹ Water quality results for Dissolved Zinc, Copper (mg/L) and turbidity (NTU) are only required for consent 33408, however are provided, and allow for additional effects analysis of the discharge(s)



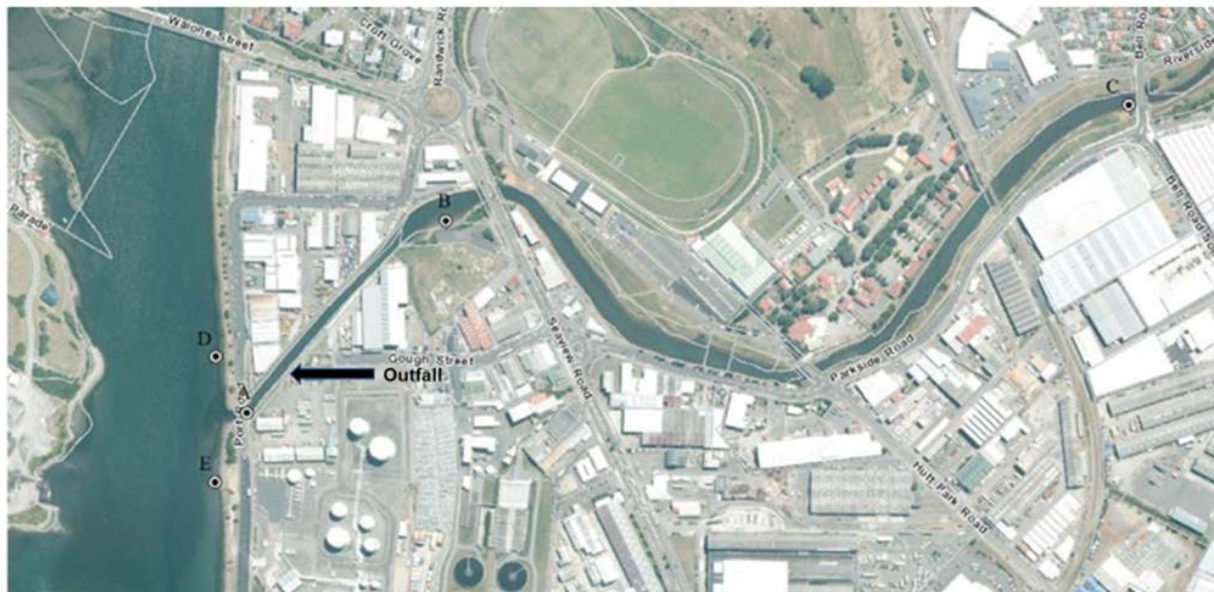


Figure 2-1 Waiwhetu Stream monitoring locations within Waiwhetu Stream and Te Awa Kairangi (Hutt River). Note sites D & E are related to consent [33408]

2.3 Water Quality Guidelines

The guideline values used in this report are, in most instances, the Australian and New Zealand Water Quality Guidelines 2018 (ANZG (2018)) default guidelines (DGV) for warm wet low elevation aquatic ecosystems², and the NPS-FM (2020) for ammonia, nitrate toxicity and E.coli, as listed in Table 2-2. These guideline values are not legal standards and breaches do not necessarily mean an adverse effect would arise. Rather they can be considered “nominal thresholds” indicating that there is a “potential risk” at a site, enabling management interventions to protect aquatic ecosystems and prevent or minimise adverse environmental effects. Where there are two percentiles for the DGV, the lower (more conservative) percentile is used as the guideline to inform the assessment in later sections of this report. Note that several guideline values, particularly from the NPS-FM relate specifically to annual median or 95th percentile results are not typically applied to results from singular events, however the guidelines can provide useful context of the associated risk relating to these results.

² The Waiwhetu Stream is classified as a warm wet-low elevation aquatic ecosystem (REC, NIWA 2010)



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Table 2-2 Relevant water quality guideline values

| Parameter | Guideline value | Reference |
|--------------------------------------|---|---|
| pH | 20 th percentile ≥ 7.26 | ANZG (2018) ³ |
| | 80 th percentile ≤ 7.7 | |
| Water temperature (°C) | 95 th percentile ≤ 18 | Davies-Colley, R., P. Franklin, B. Wilcock, S. Clearwater, and C. Hickey. (2013) ⁴ |
| Dissolved oxygen (mg/L) | ≥ 4 ⁵ | NPS-FM 1-day minimum |
| cBOD ₅ (mg/L) | ≤ 2 | MfE & MoH (1994) |
| Nitrate-nitrogen (mg/L) | 95 th percentile < 3.5 | NPS-FM annual bottom line - toxicity |
| | ≤ 2.4 | NPS-FM annual median bottom line - toxicity |
| Ammoniacal nitrogen (mg/L) | 95 th percentile ≤ 0.4 ⁶ | NPS-FM annual bottom line - toxicity |
| | ≤ 0.24 ⁷ | NPS-FM annual median bottom line - toxicity |
| Dissolved reactive phosphorus (mg/L) | 80 th percentile ≤ 0.014 | ANZG (2018) for (filterable reactive phosphorus ⁸) |
| <i>E.coli.</i> (cfu/100 mL) | 95 th percentile ≤ 540 | NPS-FM annual 95 th percentile bottom line |
| Enterococci (cfu/100mL) | 95 th percentile ≤ 500 | PNRP Primary contact recreation (coastal waters) |
| Dissolved copper (mg/L) | < 0.0014 | ANZG (2018) (95% species protection level) |
| Dissolved zinc (mg/L) | < 0.008 | ANZG (2018) (95% species protection level) |

³ Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia. Available at www.waterquality.gov.au/anz-guidelines.

⁴ National Objectives Framework - Temperature, Dissolved Oxygen & pH.

⁵ Lowest daily minimum during the summer period (1 November to 30 April)

⁶ Based on pH8 and a 20 °C temperature

⁷ Based on pH 8.0 and a 20 °C temperature

⁸ The DGV for filterable reactive phosphorus was used in the absence of a DGV for dissolved reactive phosphorus



3 Results

3.1 Wet weather overflow frequency, volumes and duration

During the 12 months from 1 July 2024 to 30 June 2025, a total of 22 discharge events occurred, of which 18 were wet weather discharges (Table 3-1). One discharge occurred co-currently with a power brownout (26th August), which resulted in higher than normal discharges to Waiwhetu Stream, due to impacts on the effluent pumps. And one discharge occurred co-currently with an instrument failure (16th September), resulting in intermittent overflow of fully treated effluent to the stream.

On average, discharges occurred at a rate of 399 L/s, with an average discharge volume of 43315 m³. Total discharge volume to Waiwhetu Stream associated with wet weather discharges during the reporting period was 779,671 m³. Average discharge duration was 35 hours and 43 minutes, with a total duration of 607 hours and 25 minutes for the reporting period.

The largest discharge event by volume occurred from the 26th of August to the 1st of September 2024, with a total discharge of 184,360m³ to Waiwhetu Stream. This discharge stopped on the 29th of August, however resumed within 24 hours and as such is considered one discharge event. This was a wet weather event however the total discharge volume was increased due to the power brownout.



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Table 3-1 Wet weather overflows from the Seaview WWTP (1 July 2024 - 30 June 2025)

| Date | Start date & time | Finish date and time | Duration | Discharge total volume (m ³) | Mean discharge flow (L/s) | Max discharge flow (L/s) | Stream average flow (m ³ /s) | Stream peak flow (m ³ /s) | Consented |
|------------|-------------------|----------------------|-----------|--|---------------------------|--------------------------|---|--------------------------------------|-----------------|
| 2/07/2024 | 1/07/2024 17:22 | 1/07/2024 23:58 | 06hr 36m | 12355 | 544 | 1247 | 1.6 | 9.9 | Yes |
| 30/07/2024 | 30/07/2024 13:00 | 2/08/2024 21:00 | 80hr 00m | 53602 | 186 | 1062 | 1.9 | 8.7 | Yes |
| 26/08/2024 | 26/08/2024 04:30 | 1/09/2024 22:30 | 162hr 00m | 184360 | 316 | 1617 | 2.8 | 20.2 | Yes |
| 3/09/2024 | 3/09/2024 11:55 | 4/09/2024 23:00 | 35hr 05m | 48517 | 383 | 1452 | 2.8 | 9.2 | Yes |
| 16/09/2024 | 16/09/2024 13:10 | 18/09/2024 14:20 | 49hr 10m | 71538 | 404 | 1442 | 3.0 | 10.0 | Yes |
| 14/10/2024 | 14/10/2024 06:35 | 14/10/2024 17:07 | 10hr 32m | 16609 | 438 | 1252 | 2.1 | 6.0 | Yes |
| 15/11/2024 | 15/11/2024 06:00 | 15/11/2024 14:49 | 08hr 49m | 19914 | 627 | 1474 | Flow data not available | Flow data not available | Yes |
| 16/12/2024 | 16/12/2024 21:35 | 16/12/2024 22:26 | 00hr 51m | 304 | 99 | 281 | 6.8 | 9.0 | Yes |
| 4/04/2025 | 4/04/2025 11:28 | 4/04/2025 11:41 | 00hr 13m | 201 | 258 | 443 | Flow data not available | Flow data not available | Yes |
| 21/04/2025 | 21/04/2025 04:54 | 21/04/2025 07:42 | 02hr 48m | 4625 | 459 | 1358 | 6.5 | 8.0 | Yes |
| 30/04/2025 | 30/04/2025 18:44 | 3/05/2025 04:36 | 57hr 52m | 157249 | 755 | 1656 | 6.3 | 18.0 | Yes |
| 9/05/2025 | 9/05/2025 07:40 | 10/05/2025 04:40 | 21hr 00m | 20366 | 269 | 1317 | 1.5 | 9.0 | No ⁹ |
| 18/05/2025 | 18/05/2025 11:00 | 20/05/2025 23:42 | 60hr 42m | 80192 | 367 | 1587 | 2.8 | 15.0 | Yes |
| 29/05/2025 | 29/05/2025 17:09 | 29/05/2025 23:42 | 06hr 33m | 5455 | 231 | 1302 | 2.6 | 9.0 | Yes |
| 4/06/2025 | 4/06/2025 15:54 | 5/06/2025 19:21 | 27hr 27m | 42078 | 426 | 1383 | 3.0 | 10.0 | Yes |
| 6/06/2025 | 6/06/2025 20:32 | 7/06/2025 21:49 | 25hr 17m | 12821 | 141 | 1309 | 2.0 | 8.0 | Yes |
| 11/06/2025 | 11/06/2025 16:30 | 13/06/2025 21:00 | 52hr 30m | 42830 | 1440 | 2560 | 2.0 | 11.0 | Yes |
| 27/06/2025 | 1/07/2024 17:22 | 1/07/2024 23:58 | 26hr 25m | 6655 | 70 | 1260 | N/A | N/A | Yes |
| Average | | | 35hr 43m | 43315 | 399 | 1333 | 3.2 | 10.7 | - |
| Total | | | 607hr 25m | 779671 | - | - | - | - | - |

⁹ The discharge on 9/10 May was unconsented as the pressure in the outfall pipe fell close to zero as the effluent pumps experienced a fault in the early hours of the 10th of May for about 90 minutes. It was wet weather discharge, however the drop in pressure was caused by a fault with the control systems to do with the effluent pumps.



3.2 Stream flow monitoring

Overflow events, as shown in Figure 3-1, largely correspond to high flow events within the Waiwhetu Stream at the GW White Lines East monitoring station. The flow monitoring station is located approximately 3km upstream of the Seaview WWTP wet weather outfall.

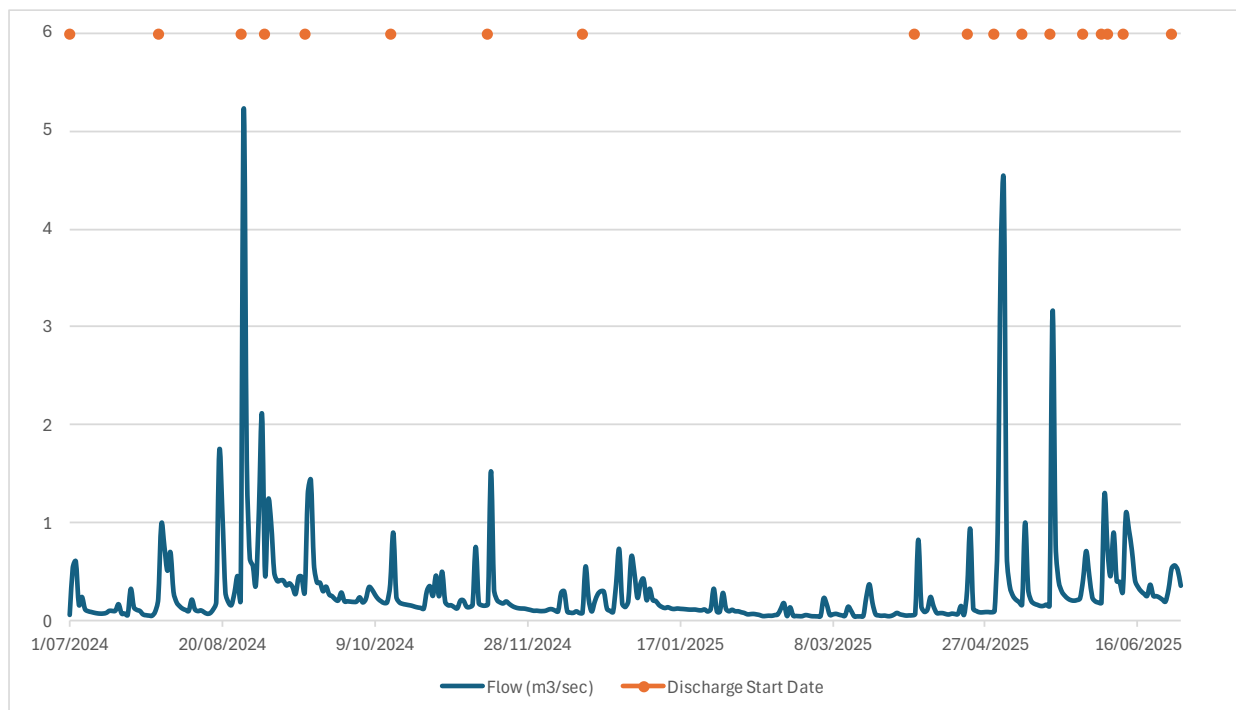


Figure 3-1 Daily mean flow m^3/s in Waiwhetu Stream at White Lines East during the year from 1 July 2024 to 30 June 2025

HCC operates a flow monitoring station within the lower Waiwhetu Stream, near the outfall and within the tidal reach. Stream flows at this site are heavily influenced by tidal conditions and can at times be influenced by high flows within Te Awa Kairangi / Hutt River.

3.3 Water quality monitoring

Summary results for treated wastewater discharges and Waiwhetu Stream water quality monitoring results are presented below in Table 3-2, and Figure 3-2 to Figure 3-17



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3 Results

Table 3-2: Summary of water quality monitoring results at stream sites A, B, and C, and Discharge during wet weather discharge events. Bold, Red Values indicate an exceedance of the relevant guideline value (Table 2-2)

| Parameter | Unit | Site | N samples | Minimum | Median | Percentile (95 th unless noted otherwise) | Maximum |
|-------------------|-----------|--------------------|-----------|----------|--------------|--|--------------|
| Ammonia nitrogen | mg/l | Guideline | - | - | ≤0.24 | ≤0.4 | - |
| | | A | 77 | 0.01 | 0.06 | 3.603 | 16.9 |
| | | B | 77 | 0.01 | 0.07 | 1.795 | 16.4 |
| | | C | 76 | 0.01 | 0.06 | 2.729 | 22.5 |
| | | Effluent discharge | 77 | 0.01 | 13.7 | 23.83 | 62 |
| CBOD ₅ | mg/l | Guideline | - | ≤ 2 | ≤ 2 | ≤ 2 | ≤ 2 |
| | | A | 77 | 1 | 6 | 8 | 18 |
| | | B | 77 | 2 | 6 | 7.3 | 23 |
| | | C | 76 | 1 | 5.5 | 6 | 13 |
| | | Effluent discharge | 77 | 3 | 14 | 145.6 | 375 |
| Dissolved Copper | mg/l | Guideline | - | <0.0014 | <0.0014 | <0.0014 | <0.0014 |
| | | A | 77 | 0.001 | 0.001 | 0.003 | 0.005 |
| | | B | 77 | 0.001 | 0.001 | 0.004 | 0.006 |
| | | C | 76 | 0.001 | 0.002 | 0.006 | 0.008 |
| | | Effluent discharge | 77 | 0.001 | 0.002 | 0.004 | 0.008 |
| Enterococci | cfu/100ml | Guideline | - | - | - | ≤ 500 | - |
| | | A | 77 | 30 | 1100 | 6000 | 6000 |
| | | B | 77 | 90 | 2000 | 6000 | 6000 |
| | | C | 76 | 200 | 2400 | 6000 | 6000 |
| | | Effluent discharge | 77 | 30 | 5000 | 6000 | 6000 |
| <i>E.coli</i> | cfu/100ml | Guideline | - | - | - | ≤ 540 | - |
| | | A | 77 | 1000 | 1000 | 36300 | 40000 |
| | | B | 77 | 1000 | 2000 | 26950 | 250000 |
| | | C | 76 | 1000 | 2000 | 35100 | 250000 |
| | | Effluent discharge | 1000 | 13000 | 13000 | 400000 | 8000000 |
| Faecal coliforms | cfu/100ml | Guideline | - | - | - | - | - |
| | | A | 77 | 50 | 1400 | 6000 | 6000 |
| | | B | 77 | 180 | 2000 | 6000 | 6000 |
| | | C | 76 | 130 | 1750 | 6000 | 6000 |
| | | Effluent discharge | 77 | 70 | 6000 | 6000 | 6000 |
| Nitrate-N | mg/l | Guideline | - | - | ≤2.4 | <3.5 | - |



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| Parameter | Unit | Site | N samples | Minimum | Median | Percentile (95 th unless noted otherwise) | Maximum |
|---|---------|--------------------|-----------|--------------|--------------|---|--------------|
| | | A | 77 | 0.04 | 0.27 | 0.58 | 0.71 |
| | | B | 77 | 0.05 | 0.34 | 0.633 | 0.68 |
| | | C | 76 | 0.03 | 0.545 | 1.021 | 1.22 |
| | | Effluent discharge | 77 | 0.01 | 0.02 | 0.655 | 2.26 |
| Nitrite-N | mg/l | Guideline | - | - | - | - | - |
| | | A | 77 | 0.01 | 0.01 | 0.1 | 0.1 |
| | | B | 77 | 0.01 | 0.01 | 0.1 | 0.1 |
| | | C | 76 | 0.01 | 0.01 | 0.1 | 0.1 |
| | | Effluent discharge | 77 | 0.01 | 0.01 | 0.1 | 0.25 |
| DRP (Percentile is 80 th) | mg/l | Guideline | - | - | - | ≤0.014 | - |
| | | A | 77 | 0.002 | 0.017 | 0.037 | 7.36 |
| | | B | 77 | 0.002 | 0.022 | 0.037 | 1.350 |
| | | C | 76 | 0.002 | 0.03 | 0.04 | 11.1 |
| | | Effluent discharge | 77 | 0.002 | 0.69 | 1.14 | 12.4 |
| Salinity | PPT | Guideline | - | - | - | - | - |
| | | A | 77 | 2 | 2 | 11.25 | 21 |
| | | B | 77 | 2 | 2 | 12.95 | 19 |
| | | C | 76 | 2 | 2 | 3.7 | 14 |
| | | Effluent discharge | 77 | 2 | 2 | 2 | 13 |
| Turbidity | NTU | Guideline | - | - | - | - | - |
| | | A | 74 | 1.27 | 8.595 | 44.58 | 212 |
| | | B | 74 | 1.31 | 11.5 | 148.2 | 374 |
| | | C | 73 | 1.71 | 8.38 | 75.43 | 238 |
| | | Effluent discharge | 74 | 1.25 | 6.295 | 151.4 | 375 |
| Dissolved Zinc | mg/l | Guideline | - | <0.008 | <0.008 | <0.008 | <0.008 |
| | | A | 77 | 0.002 | 0.02 | 0.063 | 0.122 |
| | | B | 77 | 0.002 | 0.021 | 0.073 | 0.205 |
| | | C | 76 | 0.002 | 0.03 | 0.055 | 0.119 |
| | | Effluent discharge | 77 | 0.002 | 0.013 | 0.035 | 0.086 |
| Temperature | Celsius | Guideline | - | - | - | ≤18 | - |
| | | A | 44 | 8.9 | 12.355 | 17.950 | 19.2 |
| | | B | 36 | 10 | 12.8 | 18.4 | 20.4 |
| | | C | 36 | 10 | 12.95 | 17.91 | 18.2 |
| | | Effluent discharge | 36 | 12.9 | 16 | 20.31 | 20.5 |
| pH (Percentile are 20 th /80 th) | pH | Guideline | - | - | - | ≥7.26 (20 th) and ≤ 7.7 (80 th) | - |



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3 Results

| Parameter | Unit | Site | N samples | Minimum | Median | Percentile (95 th unless noted otherwise) | Maximum |
|------------------|------|--------------------|-----------|-------------|--------|--|---------|
| | | A | 42 | 6.86 | 7.21 | 7.102 / 7.432 | 8.07 |
| | | B | 36 | 6.9 | 7.12 | 7.05 / 7.23 | 7.84 |
| | | C | 36 | 6.83 | 7.025 | 6.93 / 7.11 | 7.2 |
| | | Effluent discharge | 36 | 6.78 | 7.08 | 7.04 / 7.2 | 7.48 |
| Dissolved Oxygen | mg/l | Guideline | - | ≥ 4 | - | - | - |
| | | A | 42 | 7.46 | 9.82 | 11.718 | 12.32 |
| | | B | 36 | 6.76 | 9.5 | 11.224 | 11.6 |
| | | C | 36 | 6.32 | 9.045 | 10.95 | 11.37 |
| | | Effluent discharge | 36 | 1.39 | 6.885 | 8.733 | 9.11 |

Legend

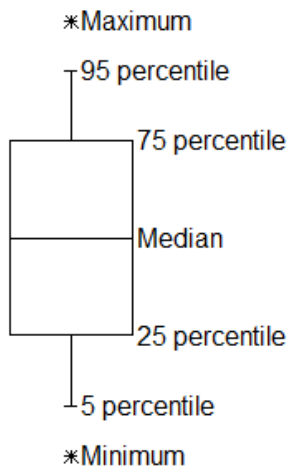


Figure 3-2 Legend for Box plots



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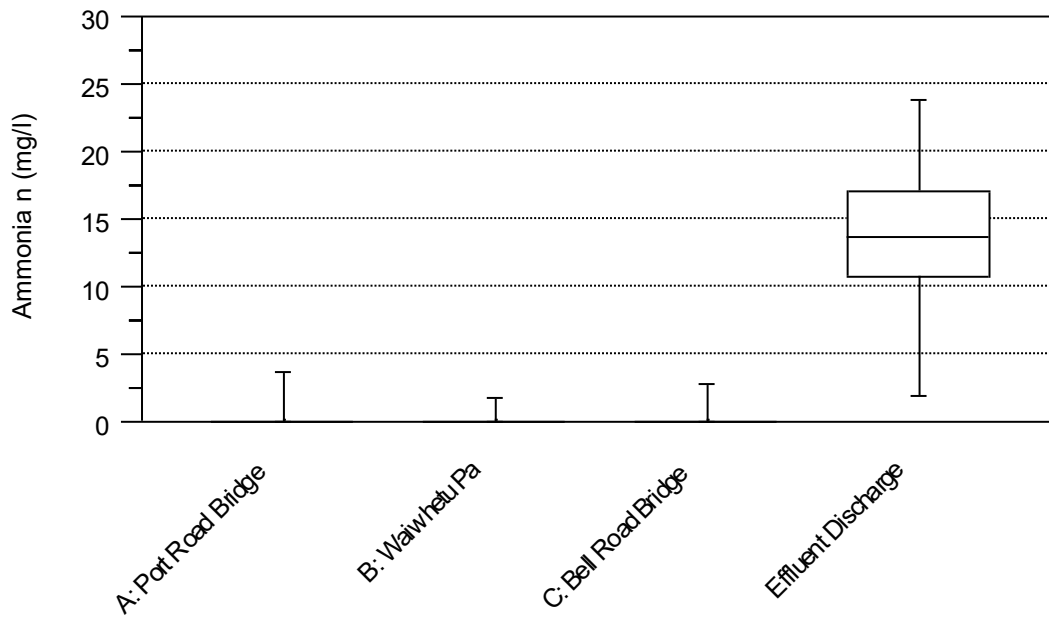


Figure 3-3 Box plot summary of Ammoniacal Nitrogen (mg/l) at Waiwhetu Stream sites and the effluent sample

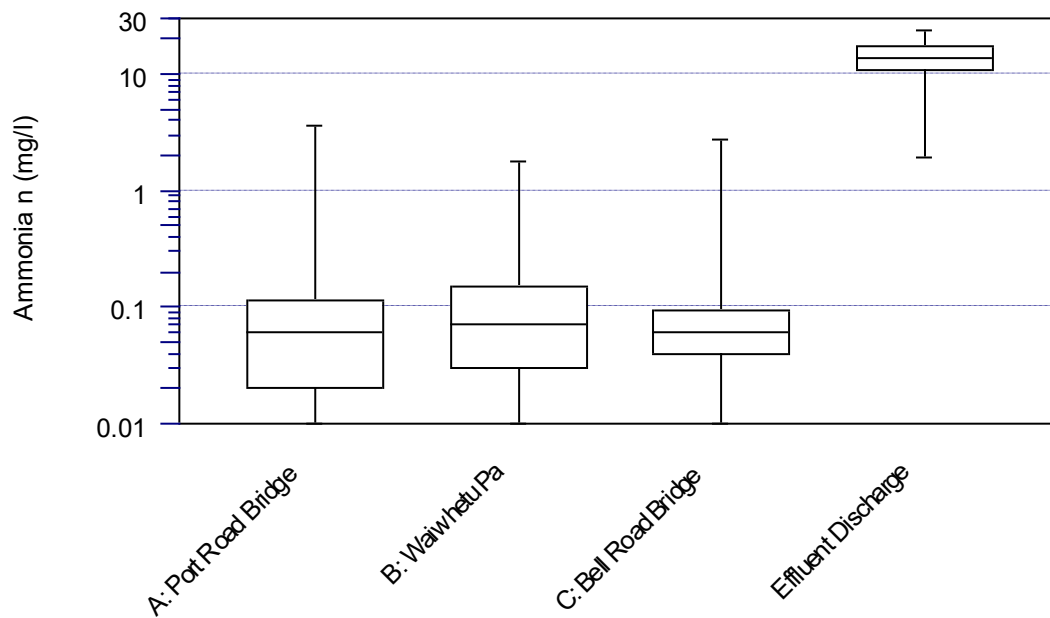


Figure 3-4 Log scale box plot summary of Ammoniacal Nitrogen (mg/l) at Waiwhetu Stream sites and the effluent sample



Seaview Wastewater Treatment Plant 2024-2025
3 Results

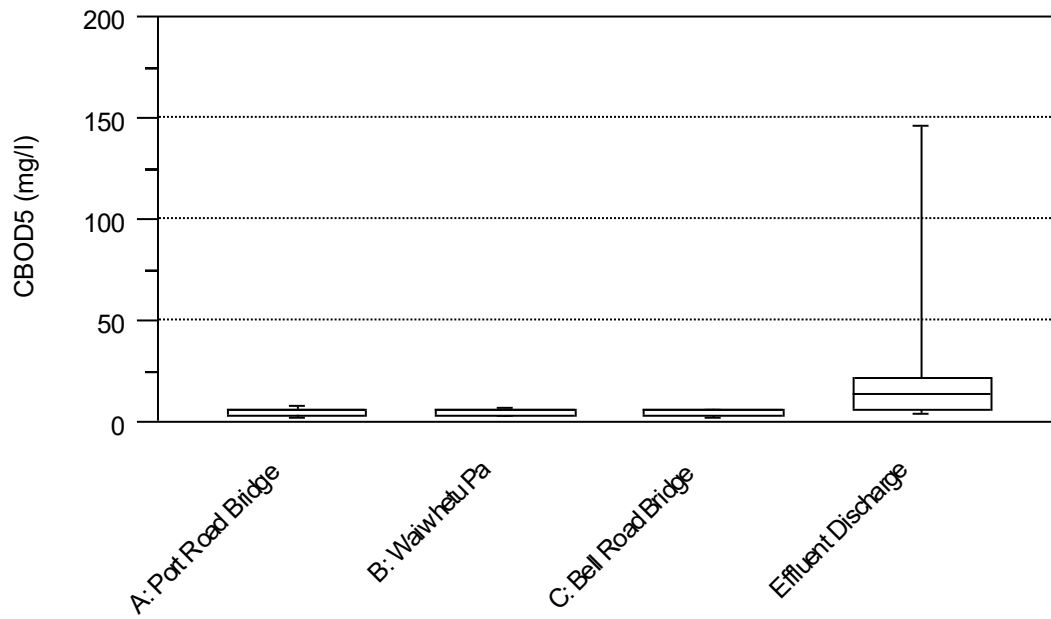


Figure 3-5 Box plot summary of CBOD₅ (mg/l) at Waiwhetu Stream sites and the effluent sample

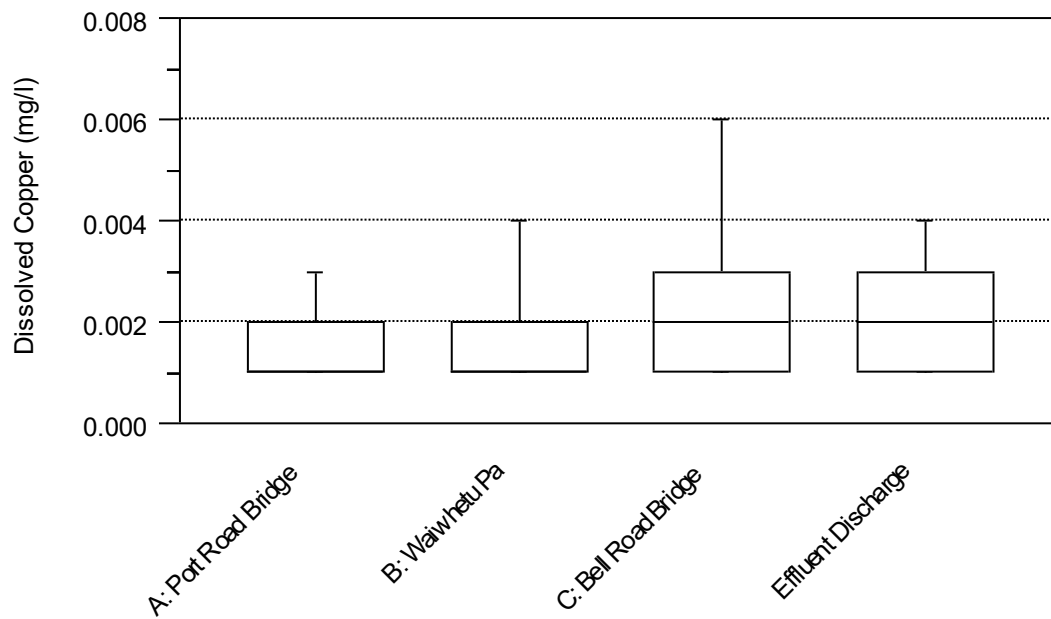


Figure 3-6 Box plot summary of dissolved copper (mg/l) at Waiwhetu Stream sites, and the effluent sample



Seaview Wastewater Treatment Plant 2024-2025

3 Results

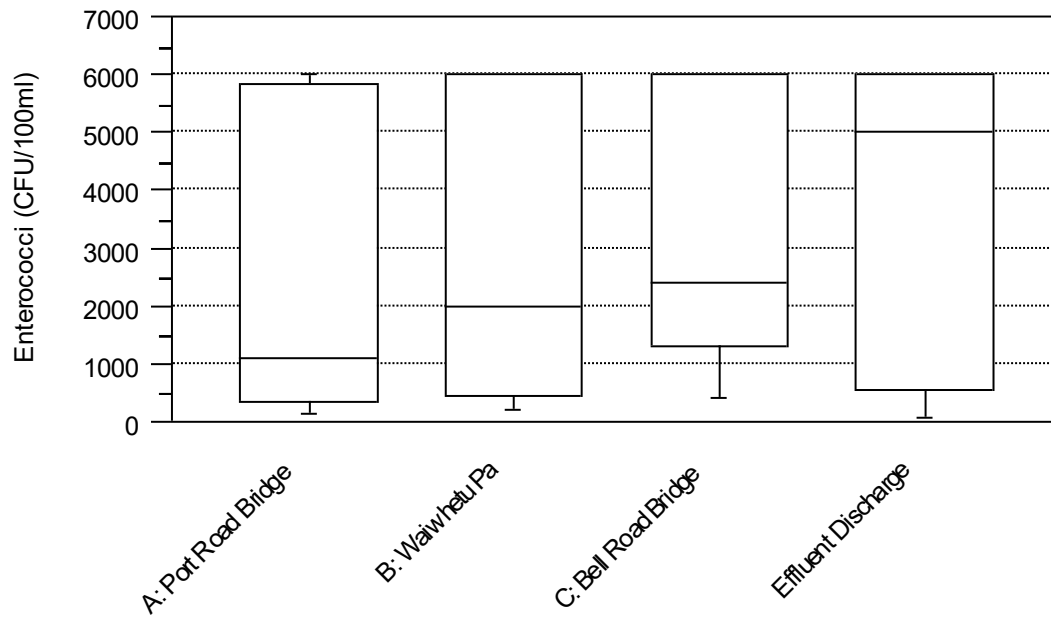


Figure 3-7 Box plot summary of enterococci at Waiwhetu Stream sites, and the effluent sample

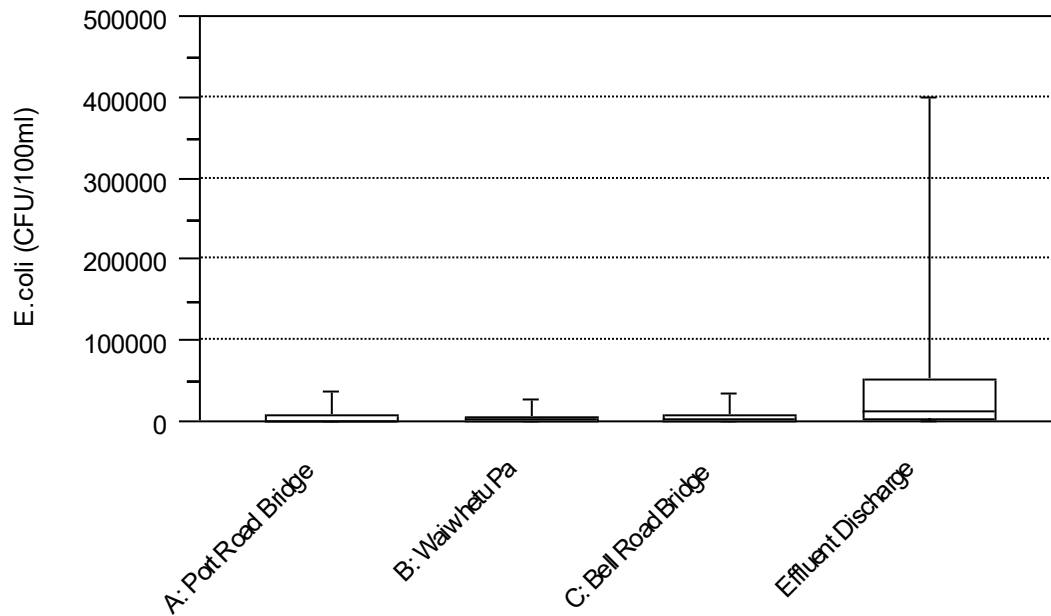


Figure 3-8 Box plot summary of E. coli (cfu/100ml) at Waiwhetu Stream sites, and the effluent sample



Seaview Wastewater Treatment Plant 2024-2025
3 Results

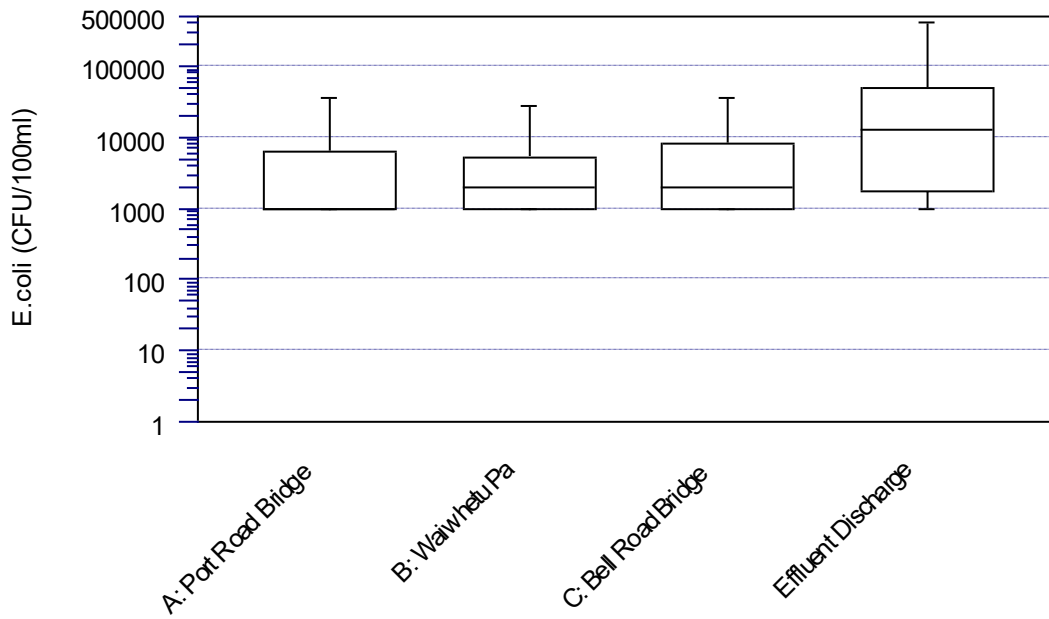


Figure 3-9 Log scale box plot summary of E.coli (cfu/100ml) at Waiwhetu Stream sites, and the effluent sample

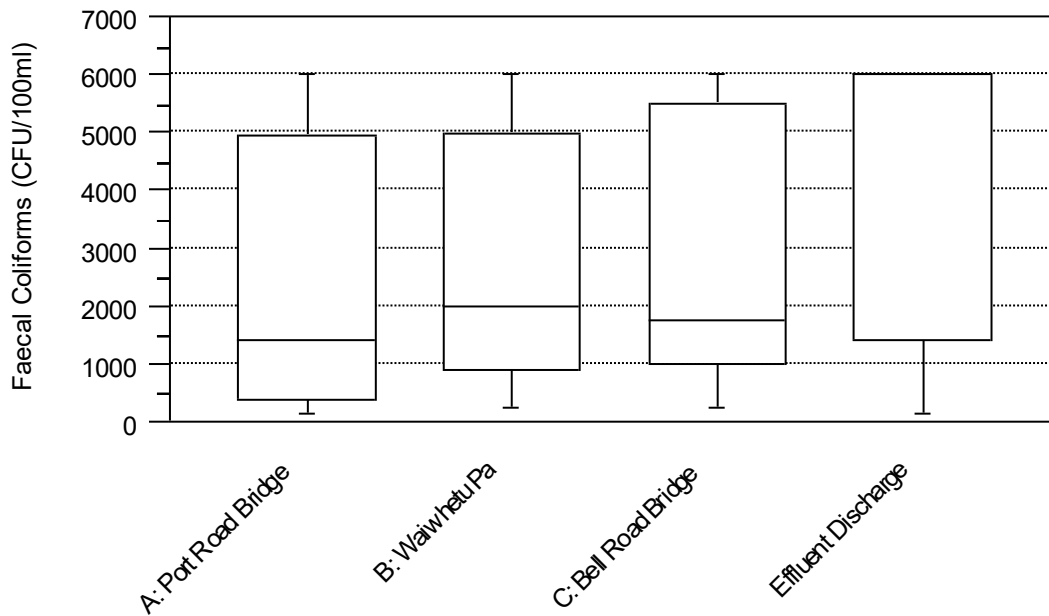


Figure 3-10 Box plot summary of faecal coliforms (cfu/100ml) at Waiwhetu Stream sites, and the effluent sample



Seaview Wastewater Treatment Plant 2024-2025
3 Results

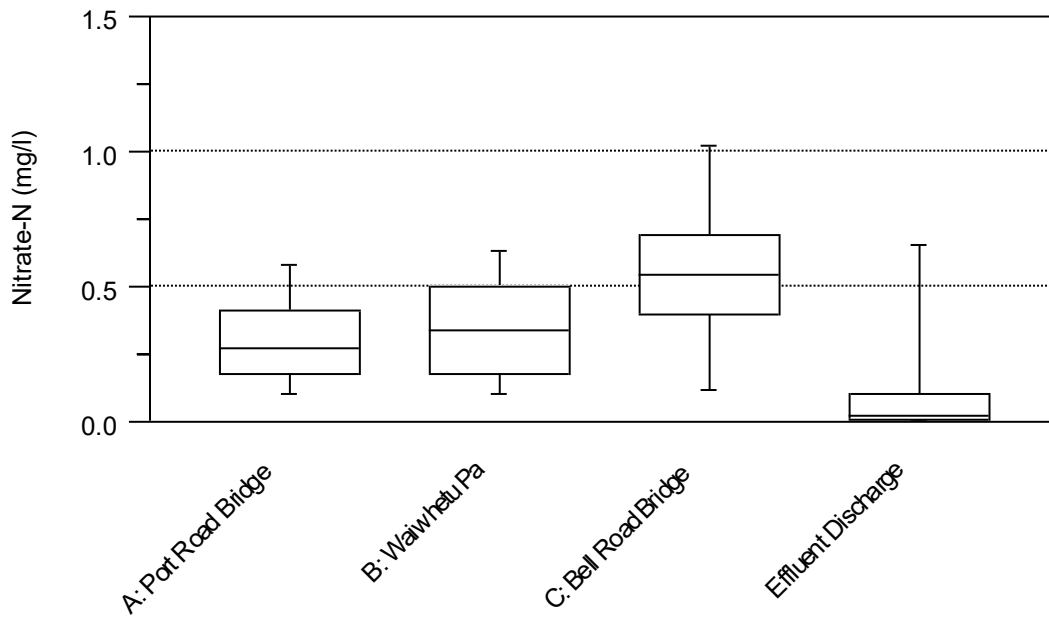


Figure 3-11 Box plot summary of nitrate-N (mg/l) at Waiwhetu Stream sites, and the effluent sample

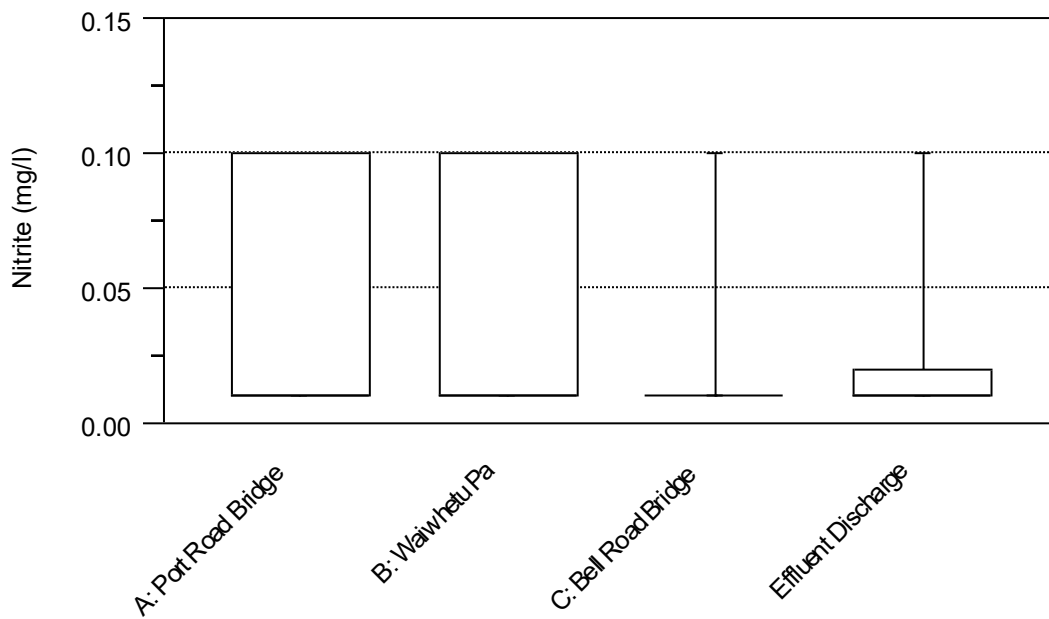


Figure 3-12 Box plot summary of nitrite-N (mg/l) at Waiwhetu Stream sites, and the effluent sample



Seaview Wastewater Treatment Plant 2024-2025
 3 Results

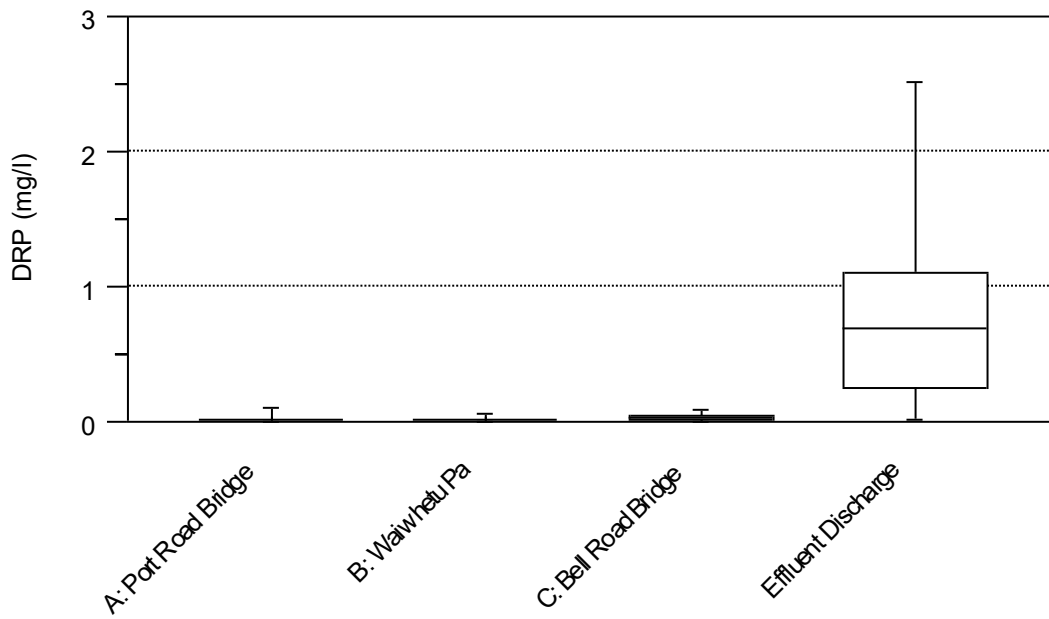


Figure 3-13 Box plot summary of DRP (mg/l) at Waiwhetu Stream sites, and the effluent sample

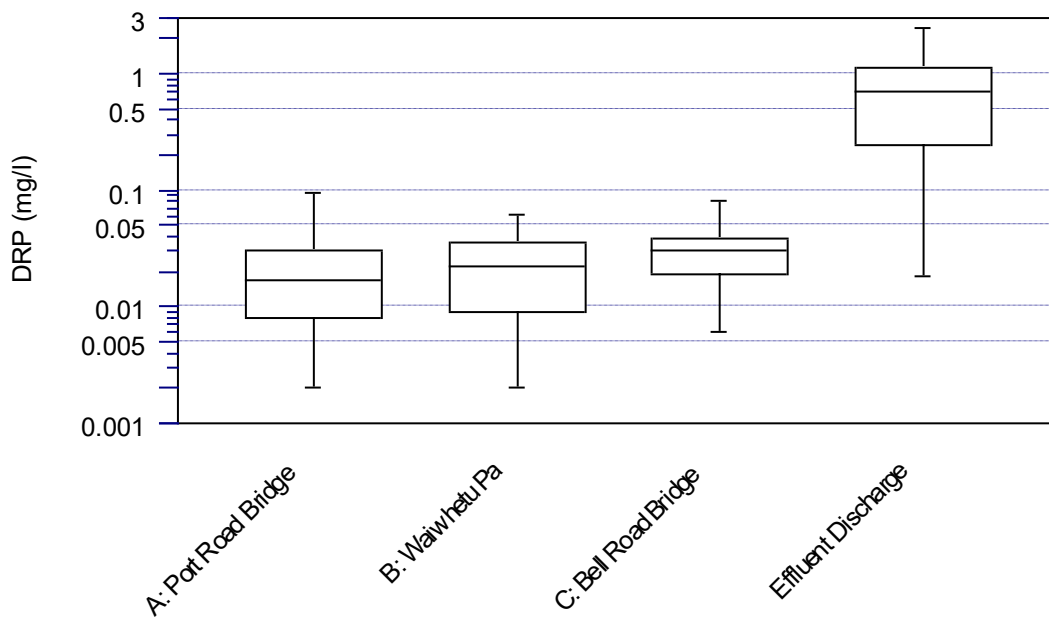


Figure 3-14 Log scale box plot summary of DRP (mg/l) at Waiwhetu Stream sites, and the effluent sample



Seaview Wastewater Treatment Plant 2024-2025
3 Results

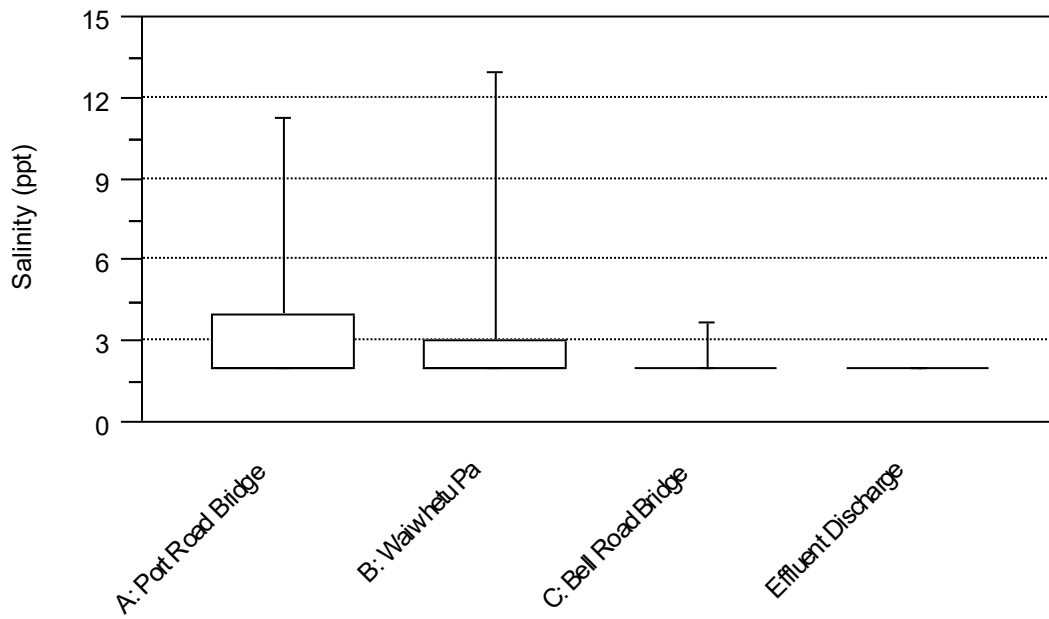


Figure 3-15 Box plot summary of salinity (ppt) at Waiwhetu Stream sites, and the effluent sample

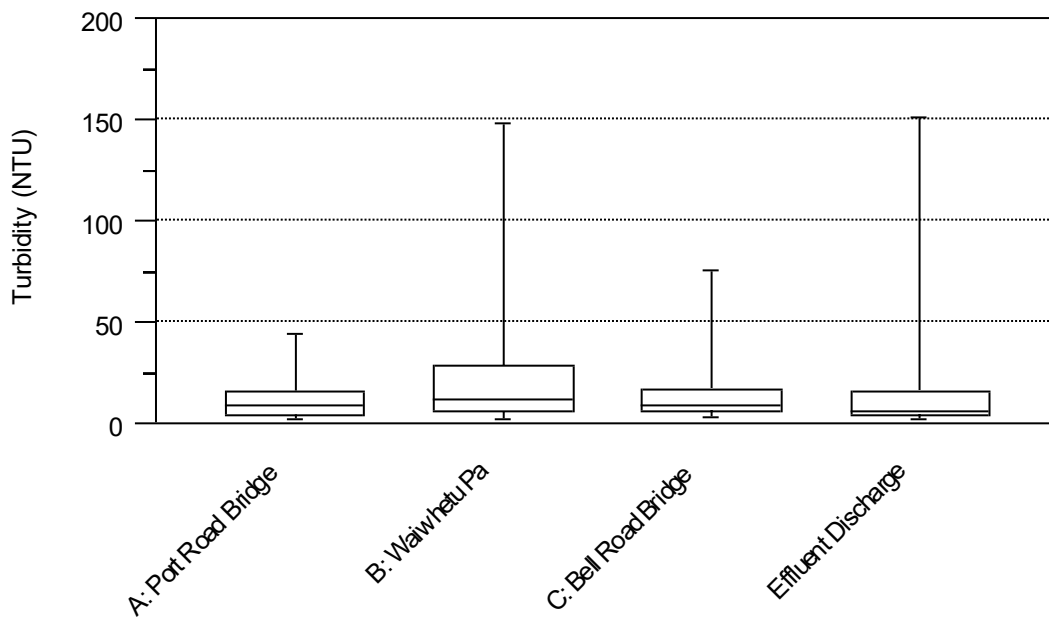


Figure 3-16 Box plot summary of turbidity (NTU) at Waiwhetu Stream sites, and the effluent sample



Seaview Wastewater Treatment Plant 2024-2025
3 Results

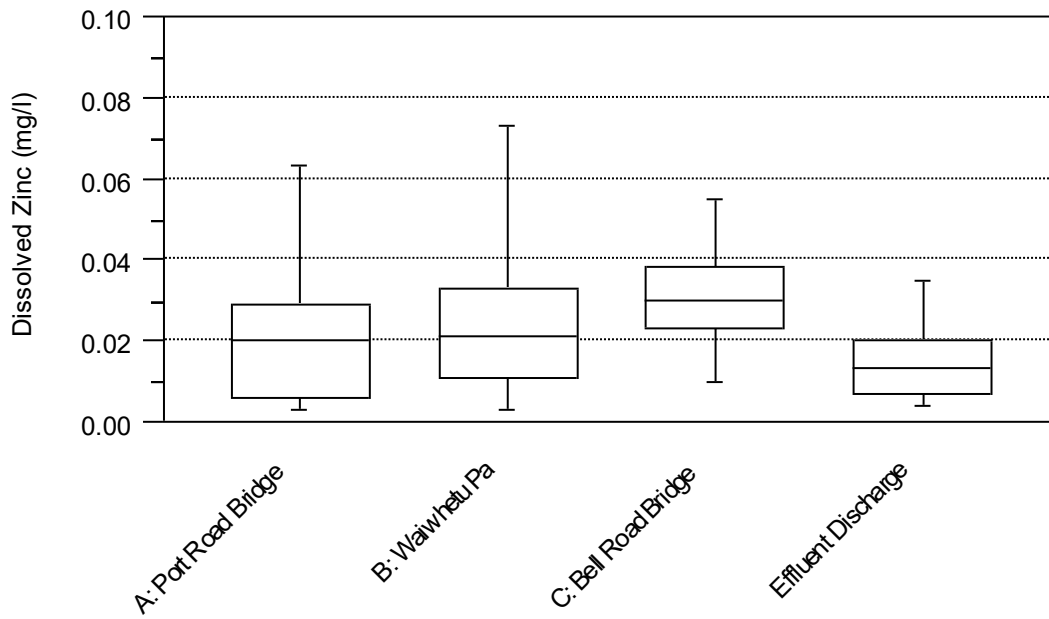


Figure 3-17 Box plot summary of zinc (mg/l) at Waiwhetu Stream sites, and the effluent sample

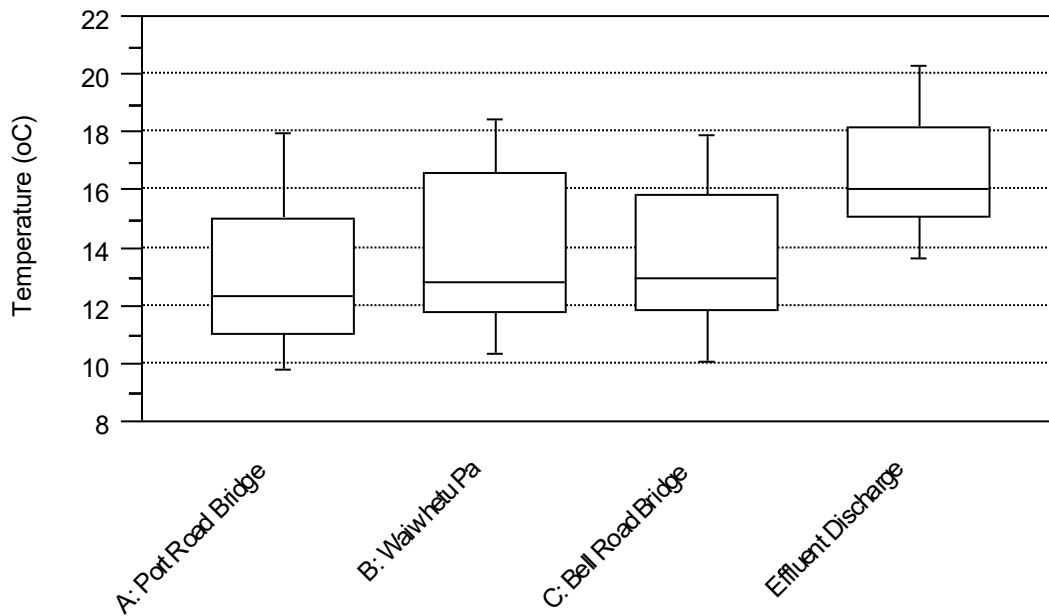


Figure 3-18 Box plot summary of temperature (Celsius) at Waiwhetu Stream sites, and the effluent sample



Seaview Wastewater Treatment Plant 2024-2025
3 Results

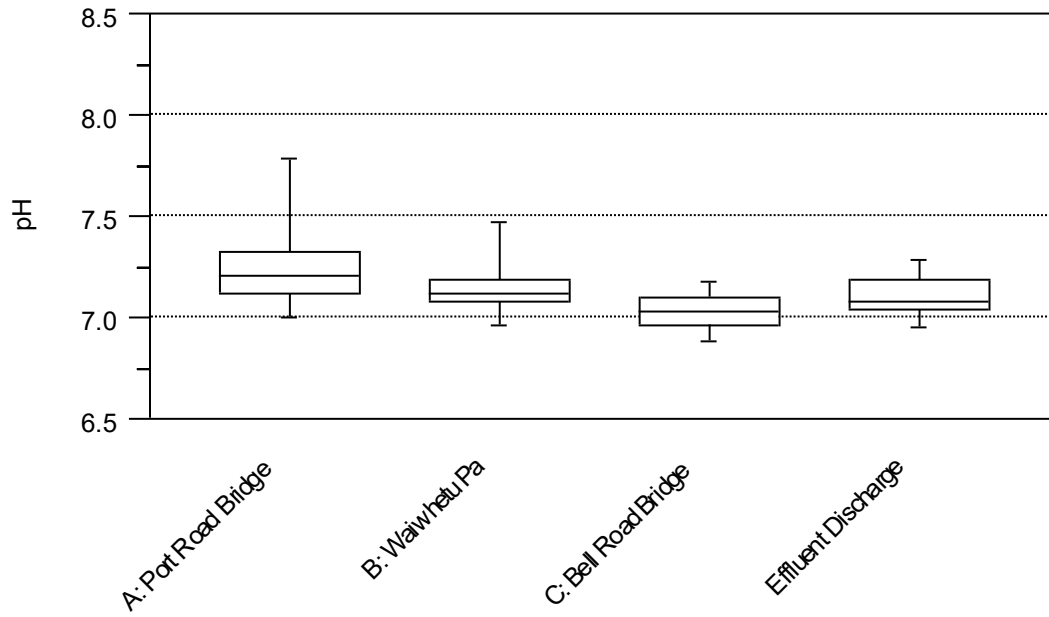


Figure 3-19 Box plot summary of pH at Waiwhetu Stream sites, and the effluent sample



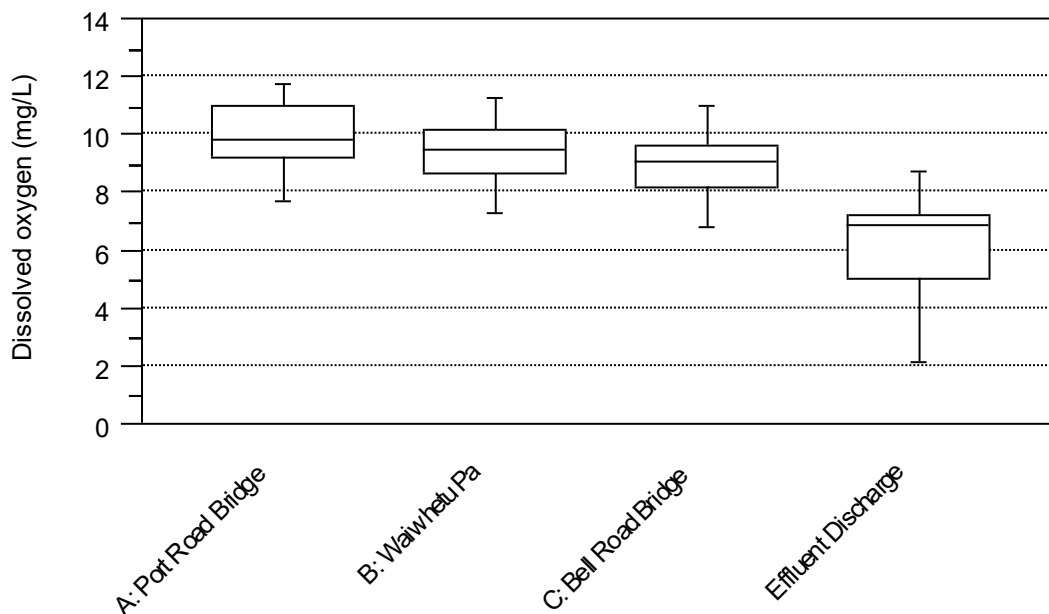


Figure 3-20 Box plot summary of Dissolved oxygen (mg/l) at Waiwhetu Stream sites, and the effluent sample

3.3.1 Salinity and tidal influence

Salinity indicates the presence of seawater flowing upstream on the incoming tide. While results indicate that tidal influence during the discharges is typically limited¹⁰, all three sites are tidally influenced to some extent. The tidal influence complicates the interpretation of monitoring results as it indicates that the water quality results from all three monitoring sites can be impacted by the discharge plume.

It is preferable that, where possible, the sampling is undertaken during low, or the outgoing tide to reduce the tidal influence on results, and to comply with condition 12 of the consent: “where practicable, the sampling should be undertaken at least three hours after any ebb tide starts”.

The method detection limit applied for salinity (2 ppt) does not allow for an assessment of minor saline influences, or intrusions, as freshwater is typically 0.5 ppt or lower. All minimum and median results fall below the detection threshold.

¹⁰ At the time of sampling



3.3.2 Faecal contamination

Elevated results were observed in all stream samples¹¹, suggesting an upstream source of faecal contamination, although the increased salinity occasionally observed some of the time at the upstream stream site (C), suggests that some of the increases in faecal contamination may be explained by the effluent plume moving upstream with the tidal movement.

Review of median and 95th percentile results for the current and prior two reporting years indicates that median effluent faecal contamination has consistently increased year to year, but that median faecal contamination within the stream sites is inconsistent and has fluctuated somewhat.

Inappropriate detection limits were still apparent within the 2024-2025 reporting period of the faecal contaminant parameters;

- 94 of 307 enterococci samples were at the upper detection limit of >6000
- 140 of 307 *E.coli* samples fell at or below the lower detection limit of 1000. Only one sample exceeded the upper detection limit, with a value of 8000000.
- 96 of 307 faecal coliform samples were at or above the upper detection limit of 6000

The use of low¹² upper detection limits prevent the ability to assess the true level of faecal contamination, similarly, the use of a high lower detection limit for *E.coli* limits the ability to assess the relative impact of the wastewater discharge, in comparison to existing faecal contamination within the stream.

Due to the use of inappropriate detection limits (enterococci and faecal coliforms) the 95th percentile values for these parameters are likely to underestimate the true level of faecal contamination

3.3.3 CBOD₅

Median CBOD₅ within the effluent has increased year-on-year, for at least the prior 3 years, though 95th percentile results do not show a clear trend. The lower detection limit for this parameter has varied somewhat throughout the year, including <1, <2, <3, and <6. Given that the guideline value for this parameter is <2, it is not possible to assess if stream sites are typically exceeding the guideline value, nor the extent of such exceedances.

95th percentile results suggest that CBOD₅ is typically highest at site A, followed by site B. The results suggest that the dilution experienced at site A is typically sufficient to offset the high CBOD₅ levels within the effluent.

¹¹ Noting that *E.coli* results may appear elevated due to the high lower detection limit

¹² In the context of a wastewater discharge



3.3.4 Nutrients

Nutrient parameters (ammonia nitrogen, nitrate-N, nitrite-N and dissolved reactive phosphorus (DRP)) are discussed in this section.

The concentrations of ammonia-N and DRP were significantly higher in the treated wastewater discharge than in the Waiwhetu Stream receiving water and undoubtedly increased stream concentrations during each discharge event. By contrast the concentrations of nitrate-N, and nitrite-N were low in the discharge and had no discernible effect on stream concentrations.

The net result is that both dissolved inorganic nitrogen (the sum of ammonia, nitrate and nitrite) and DRP were elevated well above levels that could cause nuisance algae growth, however the risk of excessive algae growth occurring was much reduced because of the intermittent character of the discharges and the high stream flows in the receiving waters at the time of discharge.

3.3.5 Ammonia and nitrate toxicity

Ammonia-N concentrations were considerably in excess of the NPS-FM annual bottom line for toxicity for the duration of each discharge at all three stream sites and given the high frequency of discharge events during the monitoring year the risk of reduced survival or mortality, especially for sensitive species, is relatively high. Background water quality from site C, upstream of the discharge site suggests that the stream quality typically exceeds the bottom line by almost 7x, however this decreases to 4.4x at site B, which is influenced by the effluent plume on occasion, and 9x downstream of the discharge, which itself is 59x higher than the bottom-line value.

Nitrate-N concentrations were, by contrast, relatively low and are unlikely to have had any toxic effect.

Nutrient enrichment effects from the sum of ammonia, nitrate, and nitrite, are possible, but given the intermittent occurrence of wet weather discharges, and high stream flows at the time of discharge, the risk of nuisance algae growth is low.

The 80th percentile results for DRP are above the ANZG (2018) default guideline value (DGV), with effluent recording an 80th percentile 81x higher than the DGV. Stream values were between 2.6 and 2.8x higher than the DGV. DRP concentrations within stream samples declined in a downstream direction. The high levels of DRP within the discharge aren't within the stream samples due to a high background level of DRP, and the increased dilution present at site A, resulting from tidal influence and inflows from Te Awa Kairangi

3.3.6 Metals

Both dissolved copper and zinc median and 95th percentile values were above the guideline value (excluding median copper at A and B), with comparable or lower values present within the effluent



discharge. The higher instream values are likely to arise from other sources, such as stormwater runoff, rather than the effluent.

Results for both copper and zinc suggest that the highest load of the metals within Waiwhetū stream comes from other sources (likely stormwater) rather than the effluent, which typically contains low concentrations.

3.3.7 Turbidity

Turbidity within the effluent discharge is at times elevated in comparison to the stream samples (higher 95th percentile), however median, 25th and 75th percentile results are comparable to the stream sites.

3.3.8 In-situ sampling

Temperature does not show any clear impact from the effluent, although it may contribute to the downstream site (A) maintaining a similar 95th percentile to the upstream sites, while having a lower median and 25th/75th percentile results. Regardless, all stream sites are below the guideline value.

Neither dissolved oxygen or pH indicate an impact from the wastewater. DO is low within the effluent, however, increases in a downstream direction within the stream. pH within the effluent is comparable to instream samples.

3.4 Waiwhetu Stream visual observation

Visual observations of Waiwhetu Stream at the point of discharge and immediate receiving waters was completed on each day that a discharge occurred, and one day after each discharge ceased. It is noted that visual assessments may not have been practical in some instances due to the timing of the discharge, or due to adverse weather conditions.

Images of the visual observations are presented in the quarterly compliance reports for the Seaview Wastewater Treatment Plant, as prepared by Veolia.

4 Assessment of Effects

Discharge consent WGN120142[33406] authorises the temporary discharge of secondary treated and UV disinfected wastewater to Waiwhetu Stream when flows exceed the capacity of the main outfall pipeline. However operational issues at the Seaview WWTP in recent years has resulted in a poorer quality treated wastewater as detailed in a separate report¹³

Poorer wastewater quality, and a high frequency of discharge events within the reporting period likely increased the risk for contact recreation within the Hutt Estuary, and surrounding waters (noting that contact recreation is less likely to occur during wet weather events, and that signage warning of the risks for recreation users are in place during discharge events). The discharges likely had a negative impact on the aquatic ecology of the downstream environment, and surrounding waters, primarily due to

¹³ Stantec (2025) Seaview WWTP non-complaint wastewater discharges 2024-2025.



the high ammonia nitrogen concentrations. The highest risks, both for contact recreation and aquatic ecology are largely temporary in nature, although cumulative impacts on aquatic ecology through repeat exposure may occur, particularly in relation to ammonia toxicity.

5 Conclusion and Recommendations

5.1 Conclusion

The results presented within this report indicate that wet weather overflow events from the Seaview WWTP were a relatively common occurrence during the monitoring period. It is noted that the higher proportion of wet weather discharges to the Waiwhetū Stream in recent years is due to the reduced capacity of the main outfall pipeline to Pencarrow.

Wet Weather overflow events typically coincided with higher flows in the Waiwhetu Stream. Higher stream flows reduce the upstream movement of the incoming tide, increase the streams capacity to dilute wastewater, and reduce the background water quality, which in combination greatly reduce the potential impact on the water quality of Waiwhetu Stream and downstream aquatic environment.

Overall, the wet weather effluent discharges to the Waiwhetu Stream may likely increased the risk for contact recreation within the Hutt Estuary and surrounding waters and may have had some impact on aquatic ecology. The impacts, or increased risk thereof are temporary in nature, and unlikely to have long term impacts.

5.2 Recommendations

It is recommended that WWL give consideration to the following:

- Use of consistent, and appropriate detection limits (both lower and upper), particularly for faecal contaminants where upper detection limits are frequently too low.
- Implementation of a lower detection limit for CBOD₅, to allow for suitable comparison of stream results to guideline values
- Record data in an appropriate and consistent format
- Review monitoring requirements, and ensure that the consented requirements are followed



Appendix



Appendix A Waiwhetu Stream water quality results

Table 5-1 Water quality results associated with the wet weather discharges

| Date | Sampling point | Ammonia n (mg/l) | CBOD5 (mg/l) | Dissolved Copper (mg/l) | Enterococci (CFU/100ml) | E.coli (CFU/100ml) | Faecal Coliforms (CFU/100ml) | Nitrate-N (mg/l) | Nitrite (mg/l) | DRP (mg/l) | Salinity (ppt) | Turbidity (NTU) | Dissolved Zinc (mg/l) | Temperature (oC) | pH | Dissolved oxygen (mg/L) |
|------------|---------------------|------------------|--------------|-------------------------|-------------------------|--------------------|------------------------------|------------------|----------------|------------|----------------|-----------------|-----------------------|------------------|------|-------------------------|
| 2/07/2024 | A: Port Road Bridge | 0.02 | 6 | 0.0008 | 1000 | 1000 | 200 | 0.17 | 0.1 | 0.008 | 2 | 16.3 | 0.004 | 11.4 | 7.2 | 10.39 |
| 2/07/2024 | B: Waiwhetu Pa | 1.84 | 6 | 0.0015 | 6000 | 15000 | 2000 | 0.24 | 0.1 | 0.072 | 2 | 10.7 | 0.017 | | | |
| 2/07/2024 | C: Bell Road Bridge | 0.09 | 6 | 0.0041 | 6000 | 5000 | 500 | 0.47 | 0.1 | 0.032 | 2 | 21.8 | 0.052 | | | |
| 2/07/2024 | Effluent Discharge | 15.5 | 68 | 0.002 | 6000 | 50000 | 6000 | 0.01 | 0.1 | 0.748 | 2 | 47.6 | 0.012 | | | |
| 3/07/2024 | A: Port Road Bridge | 0.05 | 6 | 0.0005 | 280 | 1000 | 460 | 0.14 | 0.1 | 0.009 | 2 | 15.5 | 0.003 | 9.8 | 7.09 | 9.71 |
| 3/07/2024 | B: Waiwhetu Pa | 0.2 | 6 | 0.0032 | 5800 | 1000 | 3000 | 0.45 | 0.01 | 0.045 | 2 | 57.9 | 0.019 | | | |
| 3/07/2024 | C: Bell Road Bridge | 0.13 | 6 | 0.0032 | 6000 | 1000 | 2000 | 0.97 | 0.01 | 0.022 | 2 | 81.7 | 0.028 | | | |
| 3/07/2024 | Effluent Discharge | 14.6 | 6 | 0.0029 | 5500 | 8000 | 6000 | 0.01 | 0.03 | 0.857 | 2 | 3.13 | 0.017 | | | |
| 4/07/2024 | A: Port Road Bridge | 0.16 | 6 | 0.001 | 140 | 1000 | 90 | 0.58 | 0.01 | 0.04 | 2 | 7.8 | 0.027 | 10.4 | 7.22 | 9.17 |
| 4/07/2024 | B: Waiwhetu Pa | 0.18 | 6 | 0.0017 | 3400 | 2000 | 1700 | 0.57 | 0.01 | 0.037 | 2 | 15.1 | 0.056 | | | |
| 4/07/2024 | C: Bell Road Bridge | 0.12 | 3 | 0.0076 | 6000 | 15000 | 5500 | 0.35 | 0.02 | 0.056 | 2 | 12.2 | 0.064 | | | |
| 4/07/2024 | Effluent Discharge | 19.5 | 9 | 0.0015 | 6000 | 100000 | 6000 | 0.01 | 0.1 | 1.14 | 2 | 6.87 | 0.014 | | | |
| 30/07/2024 | A: Port Road Bridge | 0.03 | 3 | 0.0047 | 6000 | 4000 | 4000 | 0.24 | 0.01 | 0.015 | 2 | 25.2 | 0.076 | 12.4 | 7.1 | 10.18 |
| 30/07/2024 | B: Waiwhetu Pa | 0.06 | 3 | 0.0046 | 6000 | 4000 | 4800 | 0.25 | 0.01 | 0.018 | 2 | 26.6 | 0.078 | | | |
| 30/07/2024 | C: Bell Road Bridge | 0.01 | 8 | 0.0063 | 6000 | 10000 | 6000 | 0.25 | 0.01 | 0.012 | 2 | 21.7 | 0.033 | | | |
| 30/07/2024 | Effluent Discharge | 20.8 | 182 | 0.0023 | 6000 | 400000 | 6000 | 0.01 | 0.01 | 2.7 | 2 | 152 | 0.01 | | | |
| 31/07/2024 | A: Port Road Bridge | 0.08 | 3 | 0.0005 | 900 | 1000 | 1000 | 0.11 | 0.01 | 0.002 | 2 | 20.7 | 0.003 | 10.6 | 7.19 | 11.27 |
| 31/07/2024 | B: Waiwhetu Pa | 1.71 | 5 | 0.0007 | 6000 | 7000 | 6000 | 0.18 | 0.01 | 0.005 | 2 | 18.1 | 0.009 | | | |
| 31/07/2024 | C: Bell Road Bridge | 0.04 | 3 | 0.0036 | 5400 | 1000 | 2600 | 0.39 | 0.01 | 0.006 | 2 | 11.5 | 0.045 | | | |
| 31/07/2024 | Effluent Discharge | 10.6 | 73 | 0.0012 | 6000 | 150000 | 6000 | 0.01 | 0.01 | 0.157 | 2 | 84.4 | 0.004 | | | |
| 1/08/2024 | A: Port Road Bridge | 0.01 | 3 | 0.0005 | 340 | 1000 | 1000 | 0.18 | 0.01 | 0.004 | 2 | 18.9 | 0.003 | 9.8 | 7.22 | 12.32 |
| 1/08/2024 | B: Waiwhetu Pa | 0.49 | 3 | 0.0005 | 3600 | 6000 | 5500 | 0.18 | 0.01 | 0.003 | 2 | 14.6 | 0.005 | | | |
| 1/08/2024 | Effluent Discharge | 10 | 59 | 0.0015 | 300 | 32000 | 6000 | 0.01 | 0.01 | 0.051 | 2 | 25.1 | 0.007 | | | |
| 2/08/2024 | A: Port Road Bridge | 2.55 | 12 | 0.0011 | 6000 | 400000 | 6000 | 0.32 | 0.01 | 0.007 | 2 | 19.3 | 0.036 | 10.3 | | |
| 2/08/2024 | B: Waiwhetu Pa | 0.09 | 3 | 0.0018 | 3000 | 4000 | 4000 | 0.45 | 0.01 | 0.037 | 2 | 9.29 | 0.067 | | | |
| 2/08/2024 | C: Bell Road Bridge | 0.06 | 1 | 0.0012 | 800 | 8000 | 1200 | 0.24 | 0.01 | 0.012 | 2 | 1.71 | 0.038 | | | |
| 2/08/2024 | Effluent Discharge | 10.1 | 64 | 0.0009 | 6000 | 400000 | 6000 | 0.01 | 0.01 | 0.055 | 2 | 52.3 | 0.006 | | | |
| 3/08/2024 | A: Port Road Bridge | 0.02 | 1 | 0.0005 | 150 | 1000 | 140 | 0.23 | 0.01 | 0.016 | 3 | 3.99 | 0.004 | 11.6 | | |
| 3/08/2024 | B: Waiwhetu Pa | 0.03 | 2 | 0.0005 | 240 | 1000 | 390 | 0.27 | 0.01 | 0.013 | 2 | 11 | 0.005 | | | |
| 3/08/2024 | C: Bell Road Bridge | 0.07 | 1 | 0.0043 | 2100 | 1000 | 240 | 1.07 | 0.01 | 0.078 | 2 | 8.97 | 0.033 | | | |
| 3/08/2024 | Effluent Discharge | 9.58 | 16 | 0.0013 | 5500 | 52000 | 6000 | 0.02 | 0.01 | 0.211 | 2 | 4.82 | 0.009 | | | |
| 4/08/2024 | A: Port Road Bridge | 0.01 | 1 | 0.0005 | 150 | 1000 | 50 | 0.29 | 0.1 | 0.011 | 4 | 3.35 | 0.005 | | | |
| 4/08/2024 | B: Waiwhetu Pa | 0.1 | 2 | 0.0005 | 350 | 1000 | 600 | 0.64 | 0.01 | 0.021 | 2 | 14.3 | 0.03 | | | |
| 4/08/2024 | C: Bell Road Bridge | 0.08 | 1 | 0.0028 | 4400 | 1000 | 280 | 1.22 | 0.01 | 0.08 | 2 | 11.9 | 0.03 | | | |



Seaview Wastewater Treatment Plant 2024-2025
Appendix A Waiwhetu Stream water quality results

| Date | Sampling point | Ammonia n (mg/l) | CBOD5 (mg/l) | Dissolved Copper (mg/l) | Enterococci (CFU/100ml) | E.coli (CFU/100ml) | Faecal Coliforms (CFU/100ml) | Nitrate-N (mg/l) | Nitrite (mg/l) | DRP (mg/l) | Salinity (ppt) | Turbidity (NTU) | Dissolved Zinc (mg/l) | Temperature (oC) | pH | Dissolved oxygen (mg/L) |
|------------|---------------------|------------------|--------------|-------------------------|-------------------------|--------------------|------------------------------|------------------|----------------|------------|----------------|-----------------|-----------------------|------------------|----|-------------------------|
| 4/08/2024 | Effluent Discharge | 13.5 | 11 | 0.0008 | 5800 | 13000 | 6000 | 0.01 | 0.01 | 0.448 | 2 | 3.57 | 0.005 | | | |
| 5/08/2024 | A: Port Road Bridge | 16.9 | 8 | 0.0008 | 6000 | 9000 | 6000 | 0.04 | 0.01 | 0.642 | 2 | 2.8 | 0.008 | | | |
| 5/08/2024 | B: Waiwhetu Pa | 0.11 | 23 | 0.0005 | 1700 | 1000 | 6000 | 0.49 | 0.1 | 0.02 | 4 | 218 | 0.017 | | | |
| 5/08/2024 | C: Bell Road Bridge | 3.41 | 1 | 0.0005 | 430 | 1000 | 560 | 0.79 | 0.02 | 0.021 | 4 | 5.46 | 0.035 | | | |
| 5/08/2024 | Effluent Discharge | 0.12 | 6 | 0.0007 | 1600 | 1000 | 800 | 0.7 | 0.01 | 0.044 | 2 | 260 | 0.02 | | | |
| 26/08/2024 | A: Port Road Bridge | 0.04 | 6 | 0.0023 | 6000 | 15000 | 6000 | 0.53 | 0.01 | 0.014 | 2 | 212 | 0.011 | | | |
| 26/08/2024 | B: Waiwhetu Pa | 0.07 | 6 | 0.0023 | 6000 | 8000 | 6000 | 0.53 | 0.01 | 0.012 | 2 | 275 | 0.011 | | | |
| 26/08/2024 | C: Bell Road Bridge | 0.04 | 6 | 0.0025 | 6000 | 16000 | 6000 | 0.55 | 0.01 | 0.019 | 2 | 238 | 0.011 | | | |
| 26/08/2024 | Effluent Discharge | 8 | 52 | 0.0015 | 6000 | 120000 | 6000 | 0.01 | 0.01 | 0.254 | 2 | 54.4 | 0.01 | | | |
| 27/08/2024 | A: Port Road Bridge | 3.05 | 6 | 0.003 | 6000 | 37000 | 6000 | 0.29 | 0.01 | 0.012 | 2 | 16.5 | 0.023 | | | |
| 27/08/2024 | B: Waiwhetu Pa | 0.03 | 6 | 0.0032 | 6000 | 16000 | 6000 | 0.34 | 0.01 | 0.028 | 2 | 31.9 | 0.025 | | | |
| 27/08/2024 | C: Bell Road Bridge | 0.05 | 6 | 0.0044 | 6000 | 8000 | 6000 | 0.42 | 0.01 | 0.054 | 2 | 39.9 | 0.02 | | | |
| 27/08/2024 | Effluent Discharge | 7.86 | 25 | 0.0026 | 6000 | 140000 | 6000 | 0.15 | 0.01 | 0.095 | 2 | 19.1 | 0.015 | | | |
| 28/08/2024 | A: Port Road Bridge | 0.01 | 6 | 0.0007 | 30 | 1000 | 140 | 0.2 | 0.01 | 0.008 | 2 | 45.4 | 0.002 | | | |
| 28/08/2024 | B: Waiwhetu Pa | 0.31 | 6 | 0.0007 | 440 | 1000 | 1700 | 0.2 | 0.01 | 0.019 | 2 | 35.5 | 0.003 | | | |
| 28/08/2024 | C: Bell Road Bridge | 0.09 | 6 | 0.0027 | 2000 | 1000 | 1000 | 0.66 | 0.01 | 0.032 | 2 | 9.51 | 0.033 | | | |
| 28/08/2024 | Effluent Discharge | 9.47 | 13 | 0.0016 | 6000 | 150000 | 6000 | 0.04 | 0.01 | 0.276 | 2 | 4.93 | 0.011 | | | |
| 29/08/2024 | A: Port Road Bridge | 0.01 | 6 | 0.0005 | 220 | 1000 | 200 | 0.18 | 0.01 | 0.007 | 8 | 10 | 0.003 | | | |
| 29/08/2024 | B: Waiwhetu Pa | 0.06 | 6 | 0.0006 | 210 | 1000 | 800 | 0.33 | 0.01 | 0.015 | 2 | 19.7 | 0.007 | | | |
| 29/08/2024 | C: Bell Road Bridge | 0.09 | 6 | 0.0046 | 800 | 1000 | 1600 | 0.75 | 0.01 | 0.039 | 2 | 7.78 | 0.038 | | | |
| 29/08/2024 | Effluent Discharge | 11.5 | 19 | 0.0021 | 5600 | 9000 | 6000 | 0.01 | 0.01 | 1.07 | 2 | 6.78 | 0.013 | | | |
| 30/08/2024 | A: Port Road Bridge | 0.05 | 6 | 0.0005 | 150 | 1000 | 150 | 0.2 | 0.02 | 0.009 | 6 | 11.6 | 0.002 | | | |
| 30/08/2024 | B: Waiwhetu Pa | 0.1 | 6 | 0.0007 | 340 | 1000 | 1100 | 0.28 | 0.01 | 0.013 | 2 | 15.6 | 0.006 | | | |
| 30/08/2024 | C: Bell Road Bridge | 0.11 | 6 | 0.002 | 400 | 1000 | 600 | 0.78 | 0.01 | 0.038 | 2 | 6.1 | 0.026 | | | |
| 30/08/2024 | Effluent Discharge | 11.8 | 19 | 0.0017 | 5000 | 40000 | 6000 | 0.02 | 0.01 | 0.876 | 2 | 6.1 | 0.007 | | | |
| 31/08/2024 | A: Port Road Bridge | 0.05 | 6 | 0.0005 | 180 | 1000 | 180 | 0.27 | 0.01 | 0.006 | 6 | 5.79 | 0.003 | | | |
| 31/08/2024 | B: Waiwhetu Pa | 0.21 | 6 | 0.0007 | 500 | 3000 | 2600 | 0.61 | 0.01 | 0.035 | 2 | 116 | 0.007 | | | |
| 31/08/2024 | C: Bell Road Bridge | 0.1 | 6 | 0.0013 | 900 | 1000 | 520 | 0.53 | 0.01 | 0.028 | 2 | 10.7 | 0.021 | | | |
| 31/08/2024 | Effluent Discharge | 16.2 | 19 | 0.0027 | 6000 | 18000 | 6000 | 0.01 | 0.01 | 0.978 | 2 | 9.87 | 0.011 | | | |
| 1/09/2024 | A: Port Road Bridge | 2.02 | 13 | 0.0034 | 4900 | 12000 | 6000 | 0.53 | 0.01 | 0.017 | 2 | 13 | 0.019 | | | |
| 1/09/2024 | B: Waiwhetu Pa | 0.12 | 6 | 0.0035 | 3800 | 2000 | 2200 | 0.67 | 0.01 | 0.037 | 2 | 28.4 | 0.021 | | | |
| 1/09/2024 | C: Bell Road Bridge | 0.07 | 6 | 0.004 | 2400 | 1000 | 1500 | 0.72 | 0.01 | 0.029 | 2 | 27.4 | 0.022 | | | |
| 1/09/2024 | Effluent Discharge | 5.15 | 39 | 0.0028 | 6000 | 36000 | 6000 | 0.21 | 0.02 | 0.016 | 2 | 7.21 | 0.011 | | | |
| 2/09/2024 | A: Port Road Bridge | 0.1 | 3 | 0.0014 | 520 | 1000 | 1100 | 0.71 | 0.01 | 0.039 | 2 | 8.76 | 0.02 | | | |
| 2/09/2024 | B: Waiwhetu Pa | 0.15 | 6 | 0.0013 | 600 | 1000 | 2500 | 0.61 | 0.01 | 0.036 | 2 | 96.8 | 0.009 | | | |
| 2/09/2024 | C: Bell Road Bridge | 0.07 | 3 | 0.0019 | 440 | 3000 | 500 | 0.81 | 0.01 | 0.032 | 2 | 7.7 | 0.021 | | | |
| 2/09/2024 | Effluent Discharge | 10.8 | 13 | 0.0032 | 6000 | 110000 | 6000 | 0.01 | 0.01 | 0.389 | 2 | 6.35 | 0.011 | | | |
| 3/09/2024 | A: Port Road Bridge | 0.09 | 6 | 0.0013 | 4400 | 1000 | 3000 | 0.57 | 0.01 | 0.03 | 2 | | 0.035 | | | |
| 3/09/2024 | B: Waiwhetu Pa | 0.09 | 6 | 0.0011 | 6000 | 8000 | 4400 | 0.58 | 0.01 | 0.044 | 2 | | 0.018 | | | |



Seaview Wastewater Treatment Plant 2024-2025
Appendix A Waiwhetu Stream water quality results

| Date | Sampling point | Ammonia n (mg/l) | CBOD5 (mg/l) | Dissolved Copper (mg/l) | Enterococci (CFU/100ml) | E.coli (CFU/100ml) | Faecal Coliforms (CFU/100ml) | Nitrate-N (mg/l) | Nitrite (mg/l) | DRP (mg/l) | Salinity (ppt) | Turbidity (NTU) | Dissolved Zinc (mg/l) | Temperature (oC) | pH | Dissolved oxygen (mg/L) |
|------------|---------------------|------------------|--------------|-------------------------|-------------------------|--------------------|------------------------------|------------------|----------------|------------|----------------|-----------------|-----------------------|------------------|------|-------------------------|
| 3/09/2024 | C: Bell Road Bridge | 0.08 | 6 | 0.0017 | 3400 | 2000 | 1400 | 0.48 | 0.01 | 0.02 | 2 | | 0.034 | | | |
| 3/09/2024 | Effluent Discharge | 13.9 | 21 | 0.0024 | 6000 | 55000 | 6000 | 0.09 | 0.01 | 1.14 | 2 | | 0.009 | | | |
| 4/09/2024 | A: Port Road Bridge | 2.19 | 6 | 0.0016 | 6000 | 18000 | 6000 | 0.28 | 0.01 | 0.098 | 2 | | 0.072 | | | |
| 4/09/2024 | B: Waiwhetu Pa | 0.07 | 6 | 0.002 | 3800 | 3000 | 2800 | 0.35 | 0.01 | 0.036 | 2 | | 0.205 | | | |
| 4/09/2024 | C: Bell Road Bridge | 0.03 | 6 | 0.0026 | 5600 | 3000 | 4000 | 0.67 | 0.01 | 0.026 | 2 | | 0.039 | | | |
| 4/09/2024 | Effluent Discharge | 9.14 | 43 | 0.0013 | 6000 | 62000 | 6000 | 0.01 | 0.01 | 0.075 | 2 | | 0.006 | | | |
| 5/09/2024 | A: Port Road Bridge | 0.08 | 6 | 0.0017 | 1000 | 1000 | 1100 | 0.63 | 0.01 | 0.03 | 2 | | 0.026 | | | |
| 5/09/2024 | B: Waiwhetu Pa | 0.11 | 6 | 0.0016 | 340 | 1000 | 1100 | 0.59 | 0.01 | 0.037 | 2 | | 0.023 | | | |
| 5/09/2024 | C: Bell Road Bridge | 0.03 | 6 | 0.0015 | 1700 | 1000 | 200 | 0.62 | 0.01 | 0.02 | 2 | | 0.024 | | | |
| 5/09/2024 | Effluent Discharge | 11.1 | 16 | 0.0015 | 6000 | 40000 | 6000 | 0.02 | 0.01 | 0.49 | 2 | | 0.005 | | | |
| 6/09/2024 | A: Port Road Bridge | 0.09 | 6 | 0.0011 | 500 | 1000 | 400 | 0.58 | 0.01 | 0.033 | 2 | 5.29 | 0.021 | | | |
| 6/09/2024 | B: Waiwhetu Pa | 0.1 | 6 | 0.0014 | 450 | 1000 | 200 | 0.58 | 0.01 | 0.033 | 2 | 6.7 | 0.024 | | | |
| 6/09/2024 | C: Bell Road Bridge | 0.07 | 6 | 0.0013 | 1200 | 1000 | 1200 | 0.67 | 0.01 | 0.021 | 2 | 3.86 | 0.022 | | | |
| 6/09/2024 | Effluent Discharge | 14.8 | 23 | 0.002 | 6000 | 120000 | 6000 | 0.02 | 0.01 | 0.659 | 2 | 8.89 | 0.006 | | | |
| 7/09/2024 | A: Port Road Bridge | 0.01 | 2 | 0.0009 | 2100 | 1000 | 600 | 0.5 | 0.01 | 0.006 | 2 | 2.73 | 0.025 | | | |
| 7/09/2024 | B: Waiwhetu Pa | 0.01 | 4 | 0.0008 | 1300 | 1000 | 440 | 0.51 | 0.01 | 0.006 | 2 | 2.39 | 0.021 | | | |
| 7/09/2024 | C: Bell Road Bridge | 0.04 | 3 | 0.0006 | 2200 | 2000 | 1800 | 0.61 | 0.01 | 0.008 | 2 | 2.32 | 0.022 | | | |
| 7/09/2024 | Effluent Discharge | 15.8 | 37 | 0.0032 | 6000 | 110000 | 6000 | 0.01 | 0.01 | 1.03 | 2 | 4.27 | 0.01 | | | |
| 15/09/2024 | A: Port Road Bridge | 3.68 | 4 | 0.0005 | 1200 | 2000 | 3500 | 0.13 | 0.01 | 0.093 | 2 | 3.42 | 0.003 | 16.1 | 7.06 | 10.27 |
| 15/09/2024 | B: Waiwhetu Pa | 0.02 | 8 | 0.0005 | 110 | 1000 | 260 | 0.18 | 0.01 | 0.002 | 2 | 3.04 | 0.004 | 14.3 | 7.02 | 11.21 |
| 15/09/2024 | C: Bell Road Bridge | 0.01 | 3 | 0.0022 | 380 | 1000 | 1300 | 0.37 | 0.01 | 0.012 | 2 | 4.9 | 0.036 | 15.1 | 6.92 | 8.83 |
| 15/09/2024 | Effluent Discharge | 15.9 | 17 | 0.0012 | 2300 | 1000 | 2300 | 0.01 | 0.01 | 0.393 | 2 | 4.53 | 0.006 | 16.5 | 7.29 | 9.11 |
| 16/09/2024 | A: Port Road Bridge | 0.09 | 6 | 0.0008 | 1100 | 1000 | 1200 | 0.26 | 0.02 | 0.016 | 5 | 2.61 | 0.01 | | | |
| 16/09/2024 | B: Waiwhetu Pa | 0.07 | 6 | 0.001 | 2800 | 3000 | 3000 | 0.43 | 0.01 | 0.021 | 3 | 11.3 | 0.029 | | | |
| 16/09/2024 | C: Bell Road Bridge | 0.05 | 3 | 0.0072 | 6000 | 16000 | 6000 | 0.25 | 0.01 | 0.028 | 2 | 8.85 | 0.037 | | | |
| 16/09/2024 | Effluent Discharge | 17.6 | 17 | 0.0014 | 6000 | 24000 | 6000 | 0.01 | 0.01 | 0.584 | 2 | 6.69 | 0.008 | | | |
| 17/09/2024 | A: Port Road Bridge | 5.07 | 8 | 0.0018 | 6000 | 10000 | 6000 | 0.26 | 0.01 | 0.016 | 2 | 16.5 | 0.03 | | | |
| 17/09/2024 | B: Waiwhetu Pa | 0.06 | 6 | 0.003 | 6000 | 10000 | 6000 | 0.45 | 0.01 | 0.026 | 2 | 26.5 | 0.059 | | | |
| 17/09/2024 | C: Bell Road Bridge | 0.04 | 6 | 0.0027 | 6000 | 5000 | 5500 | 0.52 | 0.01 | 0.019 | 2 | 18.5 | 0.038 | | | |
| 17/09/2024 | Effluent Discharge | 11.2 | 18 | 0.0014 | 6000 | 18000 | 6000 | 0.01 | 0.01 | 0.022 | 2 | 15.1 | 0.009 | | | |
| 18/09/2024 | A: Port Road Bridge | 0.75 | 6 | 0.0015 | 1800 | 1000 | 1800 | 0.58 | 0.01 | 0.048 | 2 | 14.4 | 0.027 | | | |
| 18/09/2024 | B: Waiwhetu Pa | 0.15 | 6 | 0.0011 | 1100 | 1000 | 280 | 0.55 | 0.01 | 0.038 | 2 | 156 | 0.01 | | | |
| 18/09/2024 | C: Bell Road Bridge | 0.07 | 3 | 0.0039 | 700 | 1000 | 130 | 1.03 | 0.01 | 0.082 | 2 | 4.47 | 0.031 | | | |
| 18/09/2024 | Effluent Discharge | 9.25 | 11 | 0.0016 | 3200 | 13000 | 6000 | 0.01 | 0.01 | 5.02 | 2 | 4.68 | 0.006 | | | |
| 19/09/2024 | A: Port Road Bridge | 0.07 | 3 | 0.001 | 480 | 1000 | 600 | 0.55 | 0.01 | 0.025 | 2 | 12.1 | 0.023 | | | |
| 19/09/2024 | B: Waiwhetu Pa | 0.17 | 6 | 0.0009 | 700 | 1000 | 1300 | 0.5 | 0.01 | 0.046 | 2 | 109 | 0.011 | | | |
| 19/09/2024 | C: Bell Road Bridge | 0.05 | 3 | 0.0039 | 1200 | 1000 | 210 | 0.99 | 0.01 | 0.082 | 2 | 10.1 | 0.023 | | | |
| 19/09/2024 | Effluent Discharge | 13.4 | 13 | 0.0013 | 2600 | 8000 | 4200 | 0.01 | 0.01 | 0.69 | 2 | 2.2 | 0.004 | | | |
| 20/09/2024 | A: Port Road Bridge | 0.06 | 3 | 0.001 | 250 | 1000 | 300 | 0.48 | 0.01 | 0.012 | 2 | 4.89 | 0.02 | | | |



Seaview Wastewater Treatment Plant 2024-2025
Appendix A Waiwhetu Stream water quality results

| Date | Sampling point | Ammonia n (mg/l) | CBOD5 (mg/l) | Dissolved Copper (mg/l) | Enterococci (CFU/100ml) | E.coli (CFU/100ml) | Faecal Coliforms (CFU/100ml) | Nitrate-N (mg/l) | Nitrite (mg/l) | DRP (mg/l) | Salinity (ppt) | Turbidity (NTU) | Dissolved Zinc (mg/l) | Temperature (oC) | pH | Dissolved oxygen (mg/L) |
|------------|---------------------|------------------|--------------|-------------------------|-------------------------|--------------------|------------------------------|------------------|----------------|------------|----------------|-----------------|-----------------------|------------------|------|-------------------------|
| 20/09/2024 | B: Waiwhetu Pa | 0.09 | 6 | 0.0008 | 500 | 1000 | 800 | 0.5 | 0.01 | 0.023 | 2 | 117 | 0.014 | | | |
| 20/09/2024 | C: Bell Road Bridge | 0.06 | 3 | 0.0012 | 200 | 1000 | 800 | 0.65 | 0.01 | 0.006 | 2 | 7.7 | 0.022 | | | |
| 20/09/2024 | Effluent Discharge | 17.1 | 14 | 0.0013 | 6000 | 30000 | 6000 | 0.01 | 0.01 | 1.25 | 2 | 4.19 | 0.006 | | | |
| 14/10/2024 | A: Port Road Bridge | 0.01 | 6 | 0.0007 | 6000 | 5000 | 3700 | 0.12 | 0.01 | 0.002 | 2 | 15.8 | 0.005 | 10.8 | 8.07 | 11.5 |
| 14/10/2024 | B: Waiwhetu Pa | 4.36 | 20 | 0.0017 | 6000 | 180000 | 6000 | 0.15 | 0.01 | 0.002 | 2 | 19.5 | 0.022 | 12.5 | 7.84 | 6.76 |
| 14/10/2024 | C: Bell Road Bridge | 0.06 | 3 | 0.0037 | 5000 | 9000 | 3000 | 0.1 | 0.01 | 0.055 | 2 | 8.38 | 0.041 | 11.8 | 6.98 | 11.37 |
| 14/10/2024 | Effluent Discharge | 12.3 | 60 | 0.0014 | 6000 | 90000 | 6000 | 0.01 | 0.01 | 0.002 | 2 | 77.2 | 0.003 | 14.9 | 7.04 | 1.91 |
| 15/10/2024 | A: Port Road Bridge | 0.01 | 6 | 0.0005 | 300 | 1000 | 320 | 0.14 | 0.01 | 0.002 | 2 | 8.39 | 0.003 | 12 | 7.71 | 11.48 |
| 15/10/2024 | B: Waiwhetu Pa | 0.01 | 6 | 0.0006 | 420 | 1000 | 310 | 0.11 | 0.01 | 0.002 | 2 | 8.78 | 0.005 | 12.8 | 7.09 | 10.82 |
| 15/10/2024 | C: Bell Road Bridge | 0.06 | 6 | 0.0018 | 400 | 1000 | 1500 | 0.62 | 0.01 | 0.034 | 2 | 11.5 | 0.026 | 13.8 | 6.98 | 10.23 |
| 15/10/2024 | Effluent Discharge | 12.7 | 19 | 0.0009 | 6000 | 19000 | 6000 | 0.03 | 0.01 | 0.254 | 2 | 16.7 | 0.004 | 16 | 7.03 | 6.07 |
| 16/10/2024 | A: Port Road Bridge | 0.01 | 6 | 0.0005 | 140 | 1000 | 160 | 0.15 | 0.01 | 0.002 | 2 | 1.94 | 0.004 | 11.6 | 7.1 | 11.51 |
| 16/10/2024 | B: Waiwhetu Pa | 0.1 | 6 | 0.001 | 400 | 1000 | 1200 | 0.41 | 0.01 | 0.02 | 2 | 4.66 | 0.019 | 13.3 | 7.15 | 7.87 |
| 16/10/2024 | C: Bell Road Bridge | 0.01 | 6 | 0.0022 | 1400 | 1000 | 220 | 0.72 | 0.01 | 0.042 | 2 | 131 | 0.013 | 14 | 7.02 | 8.66 |
| 16/10/2024 | Effluent Discharge | 16.5 | 21 | 0.0011 | 6000 | 34000 | 6000 | 0.01 | 0.01 | 0.809 | 2 | 10.6 | 0.005 | 16 | 7.18 | 5.7 |
| 15/11/2024 | A: Port Road Bridge | 3.46 | 18 | 0.0024 | 6000 | 17000 | 6000 | 0.28 | 0.01 | 0.258 | 2 | 13.1 | 0.014 | 17.7 | 7.09 | 8.12 |
| 15/11/2024 | B: Waiwhetu Pa | 0.02 | 6 | 0.0034 | 6000 | 19000 | 6000 | 0.3 | 0.01 | 0.048 | 2 | 12.6 | 0.034 | 18.2 | 7.11 | 8.75 |
| 15/11/2024 | C: Bell Road Bridge | 0.01 | 6 | 0.005 | 6000 | 10000 | 6000 | 0.4 | 0.01 | 0.037 | 2 | 14.6 | 0.037 | 17.5 | 6.98 | 9.16 |
| 15/11/2024 | Effluent Discharge | 11.6 | 42 | 0.0014 | 6000 | 50000 | 6000 | 0.04 | 0.01 | 0.672 | 2 | 24.1 | 0.006 | 18.1 | 7.07 | 1.39 |
| 16/11/2024 | A: Port Road Bridge | 0.04 | 6 | 0.003 | 3700 | 3000 | 3800 | 0.33 | 0.01 | 0.013 | 2 | 15.8 | 0.027 | 14.3 | 7.29 | 9.61 |
| 16/11/2024 | B: Waiwhetu Pa | 0.06 | 6 | 0.0035 | 4800 | 4000 | 4000 | 0.35 | 0.02 | 0.026 | 2 | 374 | 0.018 | 14.9 | 6.95 | 7.91 |
| 16/11/2024 | C: Bell Road Bridge | 0.06 | 6 | 0.004 | 3500 | 1000 | 2600 | 0.42 | 0.01 | 0.039 | 2 | 139 | 0.023 | 14.9 | 7.18 | 9.11 |
| 16/11/2024 | Effluent Discharge | 11.8 | 19 | 0.0024 | 4400 | 3000 | 3900 | 0.01 | 0.01 | 1.08 | 2 | 9.19 | 0.007 | 17.3 | 6.94 | 5.37 |
| 17/11/2024 | A: Port Road Bridge | 0.01 | 1 | 0.0012 | 400 | 1000 | 1400 | 0.35 | 0.1 | 0.017 | 2 | 3.15 | 0.02 | 14.3 | 7.3 | 9.7 |
| 17/11/2024 | B: Waiwhetu Pa | 0.03 | 3 | 0.0012 | 300 | 1000 | 1000 | 0.1 | 0.01 | 0.003 | 3 | 32.3 | 0.014 | 16.4 | 7.12 | 8.01 |
| 17/11/2024 | C: Bell Road Bridge | 0.03 | 3 | 0.0025 | 600 | 1000 | 1700 | 0.37 | 0.01 | 0.008 | 2 | 33 | 0.023 | 15.9 | 6.93 | 9.1 |
| 17/11/2024 | Effluent Discharge | 16.1 | 27 | 0.0031 | 6000 | 14000 | 6000 | 0.01 | 0.01 | 0.994 | 2 | 15.3 | 0.007 | 17.2 | 6.78 | 6.2 |
| 17/12/2024 | A: Port Road Bridge | 0.06 | 6 | 0.0005 | 6000 | 19000 | 6000 | 0.29 | 0.01 | 0.029 | 2 | 15.5 | 0.008 | 15.7 | 7.18 | 7.46 |
| 17/12/2024 | B: Waiwhetu Pa | 0.06 | 6 | 0.0005 | 6000 | 17000 | 6000 | 0.37 | 0.01 | 0.024 | 2 | 21.9 | 0.005 | 15.9 | 7.12 | 7.75 |
| 17/12/2024 | C: Bell Road Bridge | 1.14 | 6 | 0.0005 | 6000 | 26000 | 6000 | 0.42 | 0.01 | 0.031 | 2 | 16.5 | 0.002 | 16.2 | 7.04 | 7.12 |
| 17/12/2024 | Effluent Discharge | 14 | 21 | 0.0005 | 6000 | 14000 | 6000 | 0.08 | 0.01 | 0.535 | 2 | 15.1 | 0.002 | 19.4 | 7.08 | 6.95 |
| 18/12/2024 | A: Port Road Bridge | 0.11 | 3 | 0.0007 | 4800 | 4000 | 3200 | 0.24 | 0.03 | 0.032 | 4 | 4.36 | 0.019 | 17.3 | 7.72 | 8.31 |
| 18/12/2024 | B: Waiwhetu Pa | 0.11 | 6 | 0.0007 | 4400 | 1000 | 3600 | 0.21 | 0.01 | 0.028 | 4 | 11.3 | 0.014 | 18.3 | 7.09 | 9.09 |
| 18/12/2024 | C: Bell Road Bridge | 0.1 | 3 | 0.0011 | 1400 | 2000 | 2300 | 0.41 | 0.01 | 0.04 | 2 | 6.2 | 0.019 | 17.6 | 6.89 | 6.78 |
| 18/12/2024 | Effluent Discharge | 19.2 | 16 | 0.0008 | 6000 | 150000 | 6000 | 0.01 | 0.01 | 0.581 | 2 | 6.81 | 0.004 | 20.1 | 7.12 | 6.52 |
| 19/12/2024 | A: Port Road Bridge | 0.03 | 6 | 0.0011 | 6000 | 6000 | 6000 | 0.18 | 0.01 | 0.025 | 4 | 4.03 | 0.041 | 16.5 | 7.88 | 9.07 |
| 19/12/2024 | B: Waiwhetu Pa | 0.02 | 6 | 0.0012 | 4000 | 3000 | 4800 | 0.17 | 0.01 | 0.012 | 5 | 3.76 | 0.044 | 17 | 7.17 | 8.65 |
| 19/12/2024 | C: Bell Road Bridge | 22.5 | 13 | 0.0018 | 6000 | 180000 | 6000 | 0.03 | 0.01 | 0.571 | 2 | 8.58 | 0.009 | 15.8 | 7.12 | 8.95 |
| 19/12/2024 | Effluent Discharge | 0.06 | 6 | 0.0034 | 6000 | 2000 | 4400 | 0.34 | 0.01 | 0.014 | 3 | 27.5 | 0.035 | 18.9 | 7.02 | 7.16 |



Seaview Wastewater Treatment Plant 2024-2025
Appendix A Waiwhetu Stream water quality results

| Date | Sampling point | Ammonia n (mg/l) | CBOD5 (mg/l) | Dissolved Copper (mg/l) | Enterococci (CFU/100ml) | E.coli (CFU/100ml) | Faecal Coliforms (CFU/100ml) | Nitrate-N (mg/l) | Nitrite (mg/l) | DRP (mg/l) | Salinity (ppt) | Turbidity (NTU) | Dissolved Zinc (mg/l) | Temperature (oC) | pH | Dissolved oxygen (mg/L) |
|------------|---------------------|------------------|--------------|-------------------------|-------------------------|--------------------|------------------------------|------------------|----------------|------------|----------------|-----------------|-----------------------|------------------|------|-------------------------|
| 27/12/2024 | A: Port Road Bridge | 0.04 | 6 | 0.0029 | 6000 | 12000 | 6000 | 0.12 | 0.01 | 0.031 | 2 | 13.9 | 0.036 | 16.4 | 7.53 | 8.36 |
| 27/12/2024 | B: Waiwhetu Pa | 0.05 | 6 | 0.0028 | 6000 | 22000 | 6000 | 0.17 | 0.01 | 0.028 | 2 | 16 | 0.032 | 16.5 | 7.11 | 8.51 |
| 27/12/2024 | C: Bell Road Bridge | 0.03 | 6 | 0.0043 | 6000 | 16000 | 6000 | 0.27 | 0.01 | 0.039 | 2 | 20.3 | 0.036 | 15.7 | 6.93 | 8.72 |
| 27/12/2024 | Effluent Discharge | 18.3 | 7 | 0.0014 | 200 | 1000 | 700 | 0.08 | 0.01 | 1.1 | 2 | 4.85 | 0.012 | 18.2 | 7.08 | 7.04 |
| 28/12/2024 | A: Port Road Bridge | 0.08 | 6 | 0.0029 | 3400 | 1000 | 2200 | 0.3 | 0.1 | 0.061 | 2 | 11.9 | 0.03 | 17.1 | 7.18 | 7.8 |
| 28/12/2024 | B: Waiwhetu Pa | 0.01 | 6 | 0.003 | 2200 | 2000 | 2400 | 0.4 | 0.01 | 0.025 | 2 | 18.2 | 0.029 | 18.4 | 7.13 | 7.73 |
| 28/12/2024 | C: Bell Road Bridge | 0.02 | 6 | 0.0021 | 2200 | 2000 | 1800 | 0.53 | 0.01 | 0.06 | 2 | 10.6 | 0.026 | 16.7 | 6.98 | 6.94 |
| 28/12/2024 | Effluent Discharge | 25.3 | 6 | 0.0021 | 30 | 1000 | 70 | 0.05 | 0.01 | 1.41 | 2 | 2.11 | 0.017 | 19 | 7.21 | 7.09 |
| 29/12/2024 | A: Port Road Bridge | 0.04 | 6 | 0.001 | 360 | 1000 | 1100 | 0.25 | 0.04 | 0.058 | 4 | 2.78 | 0.024 | 19.2 | 7.12 | 7.48 |
| 29/12/2024 | B: Waiwhetu Pa | 0.03 | 6 | 0.0007 | 420 | 1000 | 1000 | 0.3 | 0.03 | 0.063 | 4 | 4.73 | 0.026 | 20.4 | 7.09 | 7.05 |
| 29/12/2024 | C: Bell Road Bridge | 0.04 | 6 | 0.0016 | 1300 | 1000 | 900 | 0.4 | 0.01 | 0.066 | 2 | 1.77 | 0.026 | 18.2 | 6.88 | 6.32 |
| 29/12/2024 | Effluent Discharge | 28.5 | 6 | 0.0043 | 130 | 1000 | 220 | 0.06 | 0.01 | 1.68 | 2 | 3.18 | 0.02 | 19.7 | 7.04 | 6.95 |
| 4/04/2025 | A: Port Road Bridge | 0.04 | 6 | 0.0021 | 6000 | 14000 | 6000 | 0.21 | 0.01 | 0.012 | 6 | 6.43 | 0.068 | 18.3 | 7.05 | 8.52 |
| 4/04/2025 | B: Waiwhetu Pa | 0.03 | 6 | 0.0023 | 6000 | 12000 | 6000 | 0.1 | 0.01 | 0.008 | 4 | 7.76 | 0.076 | 18.4 | 6.99 | 8.64 |
| 4/04/2025 | C: Bell Road Bridge | 0.02 | 6 | 0.003 | 6000 | 16000 | 6000 | 0.23 | 0.01 | 0.015 | 2 | 7.73 | 0.022 | 18 | 6.88 | 8.2 |
| 4/04/2025 | Effluent Discharge | 25.5 | 221 | 0.001 | 6000 | 800000 | 6000 | 0.1 | 0.07 | 5.59 | 2 | 274 | 0.013 | 20.5 | 7.04 | 2.73 |
| 5/04/2025 | A: Port Road Bridge | 0.1 | 6 | 0.0006 | 1100 | 5000 | 3400 | 0.19 | 0.01 | 0.002 | 7 | 3.92 | 0.003 | 17.8 | 7.15 | 9.73 |
| 5/04/2025 | B: Waiwhetu Pa | 0.04 | 6 | 0.0007 | 1100 | 1000 | 1400 | 0.18 | 0.01 | 0.002 | 5 | 4.18 | 0.006 | 17.2 | 6.9 | 8.91 |
| 5/04/2025 | C: Bell Road Bridge | 0.05 | 6 | 0.0026 | 6000 | 16000 | 6000 | 0.26 | 0.01 | 0.018 | 2 | 7.46 | 0.027 | 17.7 | 7.08 | 7.16 |
| 5/04/2025 | Effluent Discharge | 11.9 | 6 | 0.001 | 2300 | 3000 | 2600 | 0.04 | 0.02 | 0.977 | 2 | 6.17 | 0.013 | 20.4 | 7 | 7.01 |
| 6/04/2025 | A: Port Road Bridge | 0.21 | 3 | 0.0006 | 480 | 1000 | 480 | 0.1 | 0.1 | 0.002 | 14 | 1.27 | 0.003 | 17.4 | 7.19 | 9.82 |
| 6/04/2025 | B: Waiwhetu Pa | 0.22 | 3 | 0.0006 | 400 | 1000 | 400 | 0.1 | 0.1 | 0.002 | 15 | 1.31 | 0.002 | 17.1 | 7.1 | 9.74 |
| 6/04/2025 | C: Bell Road Bridge | 0.24 | 3 | 0.0006 | 1400 | 1000 | 2000 | 0.1 | 0.1 | 0.002 | 14 | 1.87 | 0.009 | 17.4 | 7 | 8.18 |
| 6/04/2025 | Effluent Discharge | 17.9 | 6 | 0.001 | 560 | 1000 | 600 | 0.1 | 0.13 | 0.885 | 2 | 2.55 | 0.008 | 19.8 | 7.1 | 7.01 |
| 21/04/2025 | A: Port Road Bridge | 0.06 | 6 | 0.0028 | 6000 | 17000 | 6000 | 0.18 | 0.1 | 0.011 | 2 | 9.93 | 0.02 | | | |
| 21/04/2025 | B: Waiwhetu Pa | 0.01 | 6 | 0.0026 | 6000 | 14000 | 6000 | 0.2 | 0.1 | 0.002 | 2 | 11.7 | 0.018 | | | |
| 21/04/2025 | C: Bell Road Bridge | 0.06 | 6 | 0.0042 | 6000 | 12000 | 6000 | 0.37 | 0.1 | 0.002 | 2 | 16.1 | 0.025 | | | |
| 21/04/2025 | Effluent Discharge | 10.6 | 8 | 0.0021 | 430 | 2000 | 2800 | 0.17 | 0.1 | 0.015 | 2 | 7.65 | 0.026 | | | |
| 22/04/2025 | A: Port Road Bridge | 0.01 | 6 | 0.0007 | 480 | 1000 | 700 | 0.1 | 0.1 | 0.002 | 3 | 2.38 | 0.004 | | | |
| 22/04/2025 | B: Waiwhetu Pa | 0.02 | 6 | 0.0006 | 560 | 1000 | 1000 | 0.1 | 0.1 | 0.002 | 3 | 2.18 | 0.002 | | | |
| 22/04/2025 | C: Bell Road Bridge | 0.1 | 6 | 0.0025 | 6000 | 4000 | 6000 | 0.51 | 0.1 | 0.024 | 3 | 9.63 | 0.026 | | | |
| 22/04/2025 | Effluent Discharge | 17 | 8 | 0.0022 | 130 | 1000 | 160 | 0.1 | 0.1 | 0.745 | 2 | 4.02 | 0.017 | | | |
| 23/04/2025 | A: Port Road Bridge | 0.34 | 6 | 0.0005 | 240 | 1000 | 400 | 0.1 | 0.1 | 0.003 | 21 | 12.9 | 0.003 | | | |
| 23/04/2025 | B: Waiwhetu Pa | 0.36 | 6 | 0.0006 | 480 | 1000 | 1000 | 0.13 | 0.1 | 0.006 | 19 | 6.45 | 0.007 | | | |
| 23/04/2025 | C: Bell Road Bridge | 0.32 | 6 | 0.0012 | 1900 | 2000 | 2200 | 0.32 | 0.1 | 0.028 | 9 | 4.45 | 0.028 | | | |
| 23/04/2025 | Effluent Discharge | 20.9 | 8 | 0.0023 | 90 | 1000 | 150 | 0.14 | 0.1 | 1.37 | 2 | 5.89 | 0.018 | | | |
| 1/05/2025 | A: Port Road Bridge | 0.03 | 6 | 0.0025 | 6000 | 35000 | 6000 | 0.57 | 0.1 | 0.003 | 2 | 41.3 | 0.122 | 12.8 | 7.63 | 10.17 |
| 1/05/2025 | B: Waiwhetu Pa | 0.01 | 6 | 0.0029 | 6000 | 25000 | 6000 | 0.37 | 0.1 | 0.004 | 2 | 40.2 | 0.107 | 16.7 | 7.12 | 10.21 |
| 1/05/2025 | C: Bell Road Bridge | 0.01 | 6 | 0.0032 | 6000 | 39000 | 6000 | 0.4 | 0.01 | 0.002 | 2 | 23.3 | 0.119 | 13.4 | 6.99 | 10.12 |



Seaview Wastewater Treatment Plant 2024-2025
Appendix A Waiwhetu Stream water quality results

| Date | Sampling point | Ammonia n (mg/l) | CBOD5 (mg/l) | Dissolved Copper (mg/l) | Enterococci (CFU/100ml) | E.coli (CFU/100ml) | Faecal Coliforms (CFU/100ml) | Nitrate-N (mg/l) | Nitrite (mg/l) | DRP (mg/l) | Salinity (ppt) | Turbidity (NTU) | Dissolved Zinc (mg/l) | Temperature (oC) | pH | Dissolved oxygen (mg/L) |
|------------|---------------------|------------------|--------------|-------------------------|-------------------------|--------------------|------------------------------|------------------|----------------|------------|----------------|-----------------|-----------------------|------------------|------|-------------------------|
| 1/05/2025 | Effluent Discharge | 7.97 | 78 | 0.0012 | 6000 | 30000 | 6000 | 0.74 | 0.1 | 0.332 | 2 | 73.3 | 0.086 | 12.9 | 7.04 | 2.96 |
| 2/05/2025 | A: Port Road Bridge | 0.07 | 6 | 0.0019 | 6000 | 18000 | 6000 | 0.71 | 0.1 | 0.022 | 2 | 39.9 | 0.039 | 11.8 | 7.2 | 10.42 |
| 2/05/2025 | B: Waiwhetu Pa | 0.05 | 6 | 0.0019 | 6000 | 22000 | 6000 | 0.66 | 0.01 | 0.018 | 2 | 32.3 | 0.038 | 11.8 | 7.08 | 10.7 |
| 2/05/2025 | C: Bell Road Bridge | 0.04 | 6 | 0.0027 | 6000 | 12000 | 6000 | 0.72 | 0.01 | 0.013 | 2 | 24 | 0.052 | 11.9 | 7.04 | 10.6 |
| 2/05/2025 | Effluent Discharge | 5.72 | 41 | 0.0026 | 6000 | 40000 | 6000 | 2.26 | 0.1 | 0.318 | 2 | 42.2 | 0.055 | 15.2 | 7.12 | 6.82 |
| 3/05/2025 | A: Port Road Bridge | 1.74 | 6 | 0.0006 | 3400 | 14000 | 4500 | 0.53 | 0.03 | 0.057 | 2 | 5.37 | 0.024 | 13.4 | 7.32 | 10.15 |
| 3/05/2025 | B: Waiwhetu Pa | 0.1 | 6 | 0.0005 | 1100 | 1000 | 1900 | 0.41 | 0.01 | 0.018 | 2 | 5.53 | 0.02 | 13 | 7.19 | 10.09 |
| 3/05/2025 | C: Bell Road Bridge | 0.09 | 6 | 0.0016 | 1000 | 1000 | 1000 | 1.03 | 0.01 | 0.014 | 2 | 7.55 | 0.048 | 13.1 | 7 | 9.78 |
| 3/05/2025 | Effluent Discharge | 9.15 | 19 | 0.0028 | 6000 | 68000 | 6000 | 1.04 | 0.25 | 0.211 | 2 | 7.62 | 0.045 | 16.7 | 7.06 | 3.79 |
| 4/05/2025 | A: Port Road Bridge | 0.05 | 6 | 0.0007 | 260 | 1000 | 360 | 0.2 | 0.1 | 0.002 | 2 | 2.21 | 0.006 | | | |
| 4/05/2025 | B: Waiwhetu Pa | 0.05 | 6 | 0.0006 | 290 | 1000 | 700 | 0.2 | 0.1 | 0.002 | 2 | 3.48 | 0.016 | | | |
| 4/05/2025 | C: Bell Road Bridge | 0.13 | 3 | 0.0016 | 1500 | 4000 | 1300 | 0.56 | 0.1 | 0.019 | 3 | 4.73 | 0.03 | | | |
| 4/05/2025 | Effluent Discharge | 13.7 | 12 | 0.0045 | 6000 | 27000 | 6000 | 0.1 | 0.1 | 0.856 | 2 | 6.4 | 0.023 | | | |
| 5/05/2025 | A: Port Road Bridge | 0.21 | 3 | 0.0009 | 160 | 1000 | 340 | 0.1 | 0.1 | 0.002 | 8 | 1.92 | 0.006 | 11.4 | 7.21 | 11.73 |
| 5/05/2025 | B: Waiwhetu Pa | 0.24 | 3 | 0.0005 | 200 | 1000 | 400 | 0.22 | 0.1 | 0.002 | 11 | 2.48 | 0.004 | 11.5 | 6.98 | 11.6 |
| 5/05/2025 | C: Bell Road Bridge | 0.23 | 3 | 0.0006 | 700 | 4000 | 1700 | 0.71 | 0.1 | 0.035 | 2 | 8.19 | 0.01 | 11.1 | 6.83 | 8.36 |
| 5/05/2025 | Effluent Discharge | 15.3 | 15 | 0.0082 | 320 | 1000 | 1800 | 0.04 | 0.01 | 1.3 | 2 | 6.97 | 0.02 | 17.1 | 7.08 | 6.6 |
| 6/05/2025 | A: Port Road Bridge | 0.24 | 3 | 0.0005 | 350 | 1000 | 240 | 0.18 | 0.1 | 0.002 | 13 | 2.04 | 0.005 | 11.7 | 7.18 | 11.4 |
| 6/05/2025 | B: Waiwhetu Pa | 0.46 | 3 | 0.0005 | 90 | 1000 | 180 | 0.18 | 0.1 | 0.002 | 14 | 1.86 | 0.003 | 11.8 | 7.05 | 11.2 |
| 6/05/2025 | C: Bell Road Bridge | 17 | 9 | 0.0063 | 440 | 4000 | 1300 | 0.1 | 0.1 | 1.57 | 2 | 5.1 | 0.018 | 11.6 | 6.91 | 8.7 |
| 6/05/2025 | Effluent Discharge | 0.23 | 3 | 0.0008 | 3100 | 2000 | 3800 | 0.57 | 0.1 | 0.041 | 13 | 2.32 | 0.021 | 17 | 7.07 | 7.08 |
| 9/05/2025 | A: Port Road Bridge | 0.05 | 6 | 0.002 | 6000 | 110000 | 6000 | 0.15 | 0.01 | 0.027 | 2 | 17.6 | 0.038 | 12.6 | 7.28 | 9.96 |
| 9/05/2025 | B: Waiwhetu Pa | 0.04 | 6 | 0.002 | 6000 | 100000 | 6000 | 0.1 | 0.01 | 0.027 | 2 | 17.8 | 0.033 | 12.8 | 7.31 | 10.12 |
| 9/05/2025 | C: Bell Road Bridge | 0.02 | 6 | 0.0029 | 6000 | 130000 | 6000 | 0.2 | 0.01 | 0.031 | 2 | 23.8 | 0.029 | 12.1 | 7.08 | 7.43 |
| 9/05/2025 | Effluent Discharge | 21.1 | 375 | 0.0031 | 6000 | 8000000 | 6000 | 0.1 | 0.01 | 2.16 | 2 | 375 | 0.012 | 15.6 | 7.11 | 3.31 |
| 10/05/2025 | A: Port Road Bridge | 0.12 | 3 | 0.0034 | 4600 | 2000 | 4600 | 0.5 | 0.1 | 0.046 | 2 | 8.43 | 0.043 | | | |
| 10/05/2025 | B: Waiwhetu Pa | 0.17 | 3 | 0.0026 | 2000 | 3000 | 3100 | 0.5 | 0.1 | 0.045 | 2 | 10.3 | 0.042 | | | |
| 10/05/2025 | C: Bell Road Bridge | 0.09 | 5 | 0.002 | 2500 | 1000 | 1500 | 0.58 | 0.1 | 0.032 | 2 | 5.27 | 0.036 | | | |
| 10/05/2025 | Effluent Discharge | 11.3 | 8 | 0.0035 | 520 | 1000 | 2100 | 0.1 | 0.1 | 0.471 | 2 | 4.19 | 0.024 | | | |
| 11/05/2025 | A: Port Road Bridge | 0.01 | 6 | 0.0013 | 600 | 1000 | 2600 | 0.42 | 0.1 | 0.031 | 4 | 2.79 | 0.029 | | | |
| 11/05/2025 | B: Waiwhetu Pa | 16.4 | 6 | 0.0056 | 490 | 1000 | 1100 | 0.05 | 0.01 | 1.35 | 4 | 4.38 | 0.013 | | | |
| 11/05/2025 | C: Bell Road Bridge | 0.01 | 6 | 0.0011 | 2500 | 1000 | 1100 | 0.59 | 0.01 | 0.033 | 2 | 3.59 | 0.027 | | | |
| 11/05/2025 | Effluent Discharge | 0.01 | 14 | 0.001 | 4200 | 6000 | 6000 | 0.38 | 0.1 | 0.051 | 2 | 6.24 | 0.027 | | | |
| 12/05/2025 | A: Port Road Bridge | 0.05 | 6 | 0.0009 | 340 | 1000 | 480 | 0.36 | 0.1 | 0.05 | 5 | 4.13 | 0.022 | | | |
| 12/05/2025 | B: Waiwhetu Pa | 0.09 | 6 | 0.0007 | 420 | 1000 | 800 | 0.38 | 0.1 | 0.045 | 4 | 21.5 | 0.026 | | | |
| 12/05/2025 | C: Bell Road Bridge | 0.02 | 6 | 0.0011 | 2100 | 1000 | 320 | 0.56 | 0.1 | 0.037 | 2 | 23.5 | 0.025 | | | |
| 12/05/2025 | Effluent Discharge | 20 | 16 | 0.005 | 2200 | 5000 | 4800 | 0.05 | 0.01 | 1.81 | 2 | 10.1 | 0.012 | | | |
| 18/05/2025 | A: Port Road Bridge | 0.01 | 3 | 0.003 | 6000 | 200000 | 6000 | 0.21 | 0.01 | 0.047 | 2 | 57 | 0.036 | | | |
| 18/05/2025 | B: Waiwhetu Pa | 0.06 | 4 | 0.0026 | 6000 | 250000 | 6000 | 0.17 | 0.01 | 0.031 | 2 | 41.6 | 0.029 | | | |



Seaview Wastewater Treatment Plant 2024-2025
Appendix A Waiwhetu Stream water quality results

| Date | Sampling point | Ammonia n (mg/l) | CBOD5 (mg/l) | Dissolved Copper (mg/l) | Enterococci (CFU/100ml) | E.coli (CFU/100ml) | Faecal Coliforms (CFU/100ml) | Nitrate-N (mg/l) | Nitrite (mg/l) | DRP (mg/l) | Salinity (ppt) | Turbidity (NTU) | Dissolved Zinc (mg/l) | Temperature (oC) | pH | Dissolved oxygen (mg/L) |
|------------|---------------------|------------------|--------------|-------------------------|-------------------------|--------------------|------------------------------|------------------|----------------|------------|----------------|-----------------|-----------------------|------------------|------|-------------------------|
| 18/05/2025 | C: Bell Road Bridge | 0.01 | 3 | 0.0038 | 6000 | 250000 | 6000 | 0.16 | 0.01 | 0.04 | 2 | 35.7 | 0.038 | | | |
| 18/05/2025 | Effluent Discharge | 16.9 | 189 | 0.0018 | 6000 | 6000000 | 6000 | 0.02 | 0.01 | 1.03 | 2 | 149 | 0.018 | | | |
| 19/05/2025 | A: Port Road Bridge | 0.05 | 3 | 0.0011 | 2000 | 29000 | 2700 | 0.41 | 0.01 | 0.02 | 2 | 34.3 | 0.022 | | | |
| 19/05/2025 | B: Waiwhetu Pa | 0.05 | 3 | 0.001 | 3000 | 28000 | 6000 | 0.42 | 0.01 | 0.02 | 2 | 35.3 | 0.021 | | | |
| 19/05/2025 | C: Bell Road Bridge | 0.06 | 3 | 0.003 | 2000 | 17000 | 1500 | 1 | 0.01 | 0.046 | 2 | 6.6 | 0.056 | | | |
| 19/05/2025 | Effluent Discharge | 10.5 | 6 | 0.0021 | 2000 | 14000 | 1400 | 0.4 | 0.14 | 0.133 | 2 | 3.33 | 0.034 | | | |
| 20/05/2025 | A: Port Road Bridge | 0.03 | 3 | 0.0005 | 1700 | 1000 | 2000 | 0.32 | 0.1 | 0.025 | 2 | 12.1 | 0.027 | | | |
| 20/05/2025 | B: Waiwhetu Pa | 0.05 | 3 | 0.0005 | 2300 | 3000 | 2400 | 0.34 | 0.1 | 0.03 | 2 | 10.4 | 0.029 | | | |
| 20/05/2025 | C: Bell Road Bridge | 0.05 | 3 | 0.0005 | 2400 | 4000 | 2300 | 0.56 | 0.01 | 0.034 | 2 | 8.01 | 0.037 | | | |
| 20/05/2025 | Effluent Discharge | 11.3 | 4 | 0.0005 | 1700 | 4000 | 4800 | 0.01 | 0.01 | 0.448 | 2 | 2.65 | 0.024 | | | |
| 21/05/2025 | A: Port Road Bridge | 0.02 | 3 | 0.001 | 400 | 3000 | 500 | 0.35 | 0.1 | 0.013 | 3 | 6.86 | 0.028 | | | |
| 21/05/2025 | B: Waiwhetu Pa | 0.03 | 3 | 0.0008 | 200 | 2000 | 1100 | 0.27 | 0.1 | 0.01 | 3 | 7.29 | 0.029 | | | |
| 21/05/2025 | C: Bell Road Bridge | 0.07 | 3 | 0.0007 | 1300 | 23000 | 3000 | 0.55 | 0.01 | 0.027 | 2 | 7.09 | 0.043 | | | |
| 21/05/2025 | Effluent Discharge | 16 | 5 | 0.0019 | 500 | 6000 | 900 | 0.01 | 0.01 | 1.11 | 2 | 3.47 | 0.025 | | | |
| 22/05/2025 | A: Port Road Bridge | 0.01 | 3 | 0.0005 | 220 | 1000 | 180 | 0.24 | 0.01 | 0.014 | 5 | 3.81 | 0.022 | | | |
| 22/05/2025 | B: Waiwhetu Pa | 0.03 | 3 | 0.0005 | 110 | 1000 | 200 | 0.24 | 0.01 | 0.019 | 7 | 3.37 | 0.028 | | | |
| 22/05/2025 | C: Bell Road Bridge | 0.08 | 3 | 0.0006 | 400 | 2000 | 1400 | 0.3 | 0.1 | 0.042 | 3 | 6.46 | 0.038 | | | |
| 22/05/2025 | Effluent Discharge | 18 | 5 | 0.0024 | 900 | 1000 | 1500 | 0.01 | 0.01 | 1.61 | 2 | 3.42 | 0.028 | | | |
| 30/05/2025 | A: Port Road Bridge | 0.11 | 6 | 0.0005 | 2200 | 1000 | 6000 | 0.39 | 0.01 | 0.043 | 6 | 7.59 | 0.038 | | | |
| 30/05/2025 | B: Waiwhetu Pa | 0.1 | 6 | 0.0005 | 6000 | 4000 | 6000 | 0.36 | 0.01 | 0.044 | 6 | 10.8 | 0.037 | | | |
| 30/05/2025 | C: Bell Road Bridge | 0.08 | 6 | 0.0005 | 3600 | 1000 | 6000 | 0.68 | 0.01 | 0.036 | 3 | 5.85 | 0.038 | | | |
| 30/05/2025 | Effluent Discharge | 14.3 | 6 | 0.0005 | 2100 | 3000 | 6000 | 0.04 | 0.01 | 1.23 | 2 | 1.77 | 0.012 | | | |
| 31/05/2025 | A: Port Road Bridge | 0.07 | 3 | 0.0006 | 370 | 1000 | 200 | 0.18 | 0.01 | 0.007 | 15 | 3 | 0.025 | | | |
| 31/05/2025 | B: Waiwhetu Pa | 0.01 | 3 | 0.0008 | 520 | 1000 | 500 | 0.17 | 0.01 | 0.008 | 14 | 6.16 | 0.021 | | | |
| 31/05/2025 | C: Bell Road Bridge | 0.01 | 3 | 0.0008 | 450 | 1000 | 1100 | 0.43 | 0.01 | 0.009 | 6 | 5.25 | 0.036 | | | |
| 31/05/2025 | Effluent Discharge | 19.2 | 7 | 0.002 | 3600 | 6000 | 3000 | 0.1 | 0.01 | 0.776 | 2 | 4.47 | 0.019 | | | |
| 1/06/2025 | A: Port Road Bridge | | | | | | | | | | | | | 12.9 | 7.51 | 9.82 |
| 1/06/2025 | B: Waiwhetu Pa | | | | | | | | | | | | | 12.4 | 7.4 | 9.77 |
| 1/06/2025 | C: Bell Road Bridge | | | | | | | | | | | | | 12.5 | 7.11 | 8.06 |
| 1/06/2025 | Effluent Discharge | | | | | | | | | | | | | 16.5 | 7.19 | 7.41 |
| 5/06/2025 | A: Port Road Bridge | 3.07 | 3 | 0.0007 | 1400 | 1000 | 800 | 0.11 | 0.01 | 0.038 | 2 | 52.1 | 0.011 | 13.9 | 7.32 | 10.35 |
| 5/06/2025 | B: Waiwhetu Pa | 0.79 | 10 | 0.0008 | 2000 | 2000 | 900 | 0.15 | 0.01 | 0.01 | 2 | 44.4 | 0.01 | 13.4 | 7.5 | 10.4 |
| 5/06/2025 | C: Bell Road Bridge | 0.04 | 3 | 0.0033 | 3900 | 1000 | 2500 | 0.45 | 0.01 | 0.021 | 2 | 11.1 | 0.061 | 14.8 | 7.18 | 8.99 |
| 5/06/2025 | Effluent Discharge | 11.6 | 6 | 0.0016 | 1200 | 1000 | 900 | 0.01 | 0.01 | 0.13 | 2 | 3.6 | 0.028 | 16 | 7.16 | 4.25 |
| 6/06/2025 | A: Port Road Bridge | 0.01 | 3 | 0.0005 | 220 | 1000 | 160 | 0.19 | 0.1 | 0.01 | 5 | 7.82 | 0.007 | 11.3 | 7.44 | 11.31 |
| 6/06/2025 | B: Waiwhetu Pa | 0.01 | 3 | 0.0007 | 250 | 1000 | 220 | 0.18 | 0.1 | 0.008 | 5 | 8.52 | 0.011 | 11.2 | 7.33 | 11.23 |
| 6/06/2025 | C: Bell Road Bridge | 0.07 | 3 | 0.0018 | 1600 | 4000 | 800 | 0.74 | 0.01 | 0.036 | 2 | 5.83 | 0.035 | 12.5 | 7.11 | 8.41 |
| 6/06/2025 | Effluent Discharge | 15 | 6 | 0.0017 | 380 | 1000 | 280 | 0.1 | 0.1 | 1.8 | 2 | 1.84 | 0.027 | 16 | 7.2 | 7.03 |
| 7/06/2025 | A: Port Road Bridge | 0.06 | 6 | 0.0005 | 1300 | 1000 | 1600 | 0.22 | 0.1 | 0.017 | 3 | 34.9 | 0.006 | 9.8 | 7.31 | 11.71 |



Seaview Wastewater Treatment Plant 2024-2025
Appendix A Waiwhetu Stream water quality results

| Date | Sampling point | Ammonia n (mg/l) | CBOD5 (mg/l) | Dissolved Copper (mg/l) | Enterococci (CFU/100ml) | E.coli (CFU/100ml) | Faecal Coliforms (CFU/100ml) | Nitrate-N (mg/l) | Nitrite (mg/l) | DRP (mg/l) | Salinity (ppt) | Turbidity (NTU) | Dissolved Zinc (mg/l) | Temperature (oC) | pH | Dissolved oxygen (mg/L) |
|------------|---------------------|------------------|--------------|-------------------------|-------------------------|--------------------|------------------------------|------------------|----------------|------------|----------------|-----------------|-----------------------|------------------|------|-------------------------|
| 7/06/2025 | B: Waiwhetu Pa | 1.35 | 3 | 0.0016 | 5200 | 1000 | 3300 | 0.27 | 0.1 | 0.058 | 2 | 25.7 | 0.037 | 10.3 | 7.3 | 11.2 |
| 7/06/2025 | C: Bell Road Bridge | 0.08 | 3 | 0.003 | 4600 | 3000 | 5800 | 0.48 | 0.1 | 0.03 | 2 | 20.8 | 0.048 | 10 | 7.11 | 11.1 |
| 7/06/2025 | Effluent Discharge | 10.7 | 8 | 0.0013 | 320 | 2000 | 1100 | 0.1 | 0.1 | 0.148 | 2 | 6.04 | 0.02 | 13.8 | 7.06 | 5.91 |
| 8/06/2025 | A: Port Road Bridge | 11.3 | 3 | 0.0005 | 300 | 1000 | 260 | 0.2 | 0.1 | 7.36 | 8 | 9.76 | 0.008 | 9.9 | 7.45 | 10.96 |
| 8/06/2025 | B: Waiwhetu Pa | 11.9 | 3 | 0.0005 | 500 | 2000 | 1200 | 0.53 | 0.1 | 1.11 | 2 | 7.27 | 0.047 | 10.5 | 7.41 | 9.37 |
| 8/06/2025 | C: Bell Road Bridge | 21 | 3 | 0.0005 | 1800 | 1000 | 600 | 0.7 | 0.01 | 11.1 | 2 | 7.11 | 0.038 | 10.1 | 7.02 | 9.51 |
| 8/06/2025 | Effluent Discharge | 62 | 4 | 0.0005 | 40 | 1000 | 130 | 0.02 | 0.01 | 12.4 | 2 | 2.52 | 0.017 | 14.1 | 7.05 | 7.89 |
| 9/06/2025 | A: Port Road Bridge | 0.01 | 3 | 0.0005 | 500 | 1000 | 900 | 0.3 | 0.1 | 0.023 | 2 | 8.77 | 0.022 | 8.9 | 7.4 | 11.11 |
| 9/06/2025 | B: Waiwhetu Pa | 0.01 | 3 | 0.0012 | 4000 | 2000 | 1700 | 0.5 | 0.1 | 0.043 | 2 | 5.06 | 0.066 | 10.4 | 7.14 | 9.42 |
| 9/06/2025 | C: Bell Road Bridge | 0.01 | 3 | 0.0022 | 6000 | 3000 | 2400 | 0.55 | 0.01 | 0.032 | 2 | 3.84 | 0.052 | 11.1 | 7.08 | 9.65 |
| 9/06/2025 | Effluent Discharge | 18.2 | 3 | 0.0014 | 40 | 1000 | 140 | 0.02 | 0.01 | 1.57 | 2 | 1.96 | 0.016 | 14.9 | 7.16 | 7.4 |
| 12/06/2025 | A: Port Road Bridge | 1.22 | 6 | 0.0024 | 5800 | 4000 | 4400 | 0.44 | 0.01 | 0.031 | 2 | 12.8 | 0.043 | 12.9 | 6.97 | 9.3 |
| 12/06/2025 | B: Waiwhetu Pa | 0.05 | 6 | 0.0017 | 6000 | 5000 | 2400 | 0.48 | 0.01 | 0.015 | 2 | 11.8 | 0.029 | 12.7 | 7.05 | 9.41 |
| 12/06/2025 | C: Bell Road Bridge | 0.03 | 3 | 0.0018 | 5200 | 6000 | 2800 | 0.47 | 0.01 | 0.016 | 2 | 7.98 | 0.025 | 12.7 | 6.95 | 9.93 |
| 12/06/2025 | Effluent Discharge | 12.9 | 15 | 0.0014 | 2000 | 3000 | 2000 | 0.02 | 0.01 | 0.353 | 2 | 13.4 | 0.014 | 15.1 | 7.08 | 4.51 |
| 13/06/2025 | A: Port Road Bridge | 0.05 | 6 | 0.0038 | 6000 | 8000 | 6000 | 0.55 | 0.01 | 0.024 | 2 | 30.7 | 0.044 | 12.31 | 6.86 | 9.18 |
| 13/06/2025 | B: Waiwhetu Pa | 0.06 | 6 | 0.004 | 6000 | 7000 | 6000 | 0.51 | 0.01 | 0.024 | 2 | 36.1 | 0.049 | 12.6 | 7 | 9.85 |
| 13/06/2025 | C: Bell Road Bridge | 0.04 | 3 | 0.0032 | 4800 | 1000 | 1300 | 0.73 | 0.01 | 0.022 | 2 | 9.5 | 0.04 | 12.6 | 7.05 | 9.59 |
| 13/06/2025 | Effluent Discharge | 10.9 | 14 | 0.0026 | 1200 | 2000 | 1400 | 0.01 | 0.01 | 0.139 | 2 | 16.1 | 0.029 | 15.1 | 6.99 | 4.62 |
| 14/06/2025 | A: Port Road Bridge | 0.01 | 6 | 0.0018 | 1400 | 1000 | 3000 | 0.1 | 0.1 | 0.013 | 2 | 4.2 | 0.013 | 12.4 | 7.21 | 8.92 |
| 14/06/2025 | B: Waiwhetu Pa | 0.03 | 6 | 0.0015 | 440 | 2000 | 1600 | 0.62 | 0.1 | 0.023 | 2 | 6.37 | 0.019 | 12.8 | 7.12 | 9.12 |
| 14/06/2025 | C: Bell Road Bridge | 0.17 | 6 | 0.0017 | 1800 | 1000 | 2400 | 0.73 | 0.01 | 0.019 | 2 | 12.6 | 0.017 | 12.5 | 7.03 | 9.27 |
| 14/06/2025 | Effluent Discharge | 14.1 | 6 | 0.0016 | 130 | 2000 | 800 | 0.07 | 0.01 | 0.395 | 2 | 1.25 | 0.015 | 14.8 | 7.48 | 7.19 |
| 15/06/2025 | A: Port Road Bridge | 0.09 | 3 | 0.0014 | 400 | 1000 | 1100 | 0.44 | 0.1 | 0.027 | 2 | 6.4 | 0.013 | 10.4 | 7.11 | 9.61 |
| 15/06/2025 | B: Waiwhetu Pa | 0.1 | 3 | 0.0011 | 520 | 1000 | 370 | 0.68 | 0.1 | 0.022 | 2 | 4.43 | 0.023 | 10 | 7.09 | 9.58 |
| 15/06/2025 | C: Bell Road Bridge | 0.1 | 3 | 0.0014 | 3100 | 1000 | 1800 | 0.64 | 0.01 | 0.019 | 2 | 4.45 | 0.011 | 10 | 7.16 | 9.61 |
| 15/06/2025 | Effluent Discharge | 14.8 | 10 | 0.0026 | 40 | 1000 | 110 | 0.02 | 0.01 | 0.793 | 2 | 4.65 | 0.018 | 13.6 | 7.22 | 8.91 |
| 16/06/2025 | A: Port Road Bridge | 0.1 | 3 | 0.001 | 480 | 1000 | 700 | 0.39 | 0.1 | 0.026 | 2 | 2.84 | 0.016 | 10.4 | 7.21 | 9.89 |
| 16/06/2025 | B: Waiwhetu Pa | 0.08 | 3 | 0.0007 | 400 | 1000 | 600 | 0.42 | 0.1 | 0.022 | 2 | 3.54 | 0.034 | 10.7 | 7.17 | 10.06 |
| 16/06/2025 | C: Bell Road Bridge | 0.15 | 3 | 0.0012 | 5000 | 1000 | 700 | 0.62 | 0.01 | 0.025 | 2 | 7.96 | 0.018 | 10.7 | 7.2 | 9.51 |
| 16/06/2025 | Effluent Discharge | 19.6 | 7 | 0.0022 | 230 | 1000 | 280 | 0.03 | 0.01 | 1.01 | 2 | 1.62 | 0.014 | 15.7 | 7.28 | 7.83 |
| 28/06/2025 | A: Port Road Bridge | 0.08 | 3 | 0.0026 | 4000 | 1000 | 1900 | 0.34 | 0.01 | 0.025 | 5 | 9.16 | 0.044 | 12.4 | 7.22 | 9.73 |
| 28/06/2025 | B: Waiwhetu Pa | 0.07 | 4 | 0.0023 | 3900 | 3000 | 2900 | 0.32 | 0.01 | 0.022 | 4 | 9.61 | 0.04 | 12.8 | 7.23 | 9.68 |
| 28/06/2025 | C: Bell Road Bridge | 0.14 | 5 | 0.0036 | 2600 | 6000 | 3400 | 0.54 | 0.01 | 0.026 | 2 | 10.1 | 0.046 | 12.8 | 7.17 | 9.23 |
| 28/06/2025 | Effluent Discharge | 12.7 | 5 | 0.0024 | 390 | 1000 | 330 | 0.03 | 0.01 | 0.919 | 2 | 2.01 | 0.017 | 15 | 7.27 | 7.57 |
| 29/06/2025 | A: Port Road Bridge | 0.01 | 3 | 0.0023 | 2300 | 4000 | 3400 | 0.32 | 0.1 | 0.011 | 2 | 4.39 | 0.055 | 12.3 | 7.12 | 9.65 |
| 29/06/2025 | B: Waiwhetu Pa | 0.01 | 3 | 0.002 | 2800 | 1000 | 2400 | 0.26 | 0.1 | 0.009 | 2 | 5.39 | 0.038 | 12 | 7.19 | 10.12 |
| 29/06/2025 | C: Bell Road Bridge | 0.06 | 3 | 0.0023 | 1400 | 1000 | 600 | 0.66 | 0.01 | 0.011 | 2 | 3.7 | 0.041 | 12.3 | 7.09 | 9.28 |
| 29/06/2025 | Effluent Discharge | 14.9 | 8 | 0.0028 | 480 | 1000 | 400 | 0.1 | 0.01 | 0.646 | 2 | 2.02 | 0.017 | 14.4 | 7.25 | 8.32 |



Seaview Wastewater Treatment Plant 2024-2025
Appendix A Waiwhetu Stream water quality results

| Date | Sampling point | Ammonia n (mg/l) | CBOD5 (mg/l) | Dissolved Copper (mg/l) | Enterococci (CFU/100ml) | E.coli (CFU/100ml) | Faecal Coliforms (CFU/100ml) | Nitrate-N (mg/l) | Nitrite (mg/l) | DRP (mg/l) | Salinity (ppt) | Turbidity (NTU) | Dissolved Zinc (mg/l) | Temperature (oC) | pH | Dissolved oxygen (mg/L) |
|------------|---------------------|------------------|--------------|-------------------------|-------------------------|--------------------|------------------------------|------------------|----------------|------------|----------------|-----------------|-----------------------|------------------|------|-------------------------|
| 30/06/2025 | A: Port Road Bridge | 0.07 | 3 | 0.0009 | 600 | 1000 | 300 | 0.4 | 0.1 | 0.024 | 5 | 3.3 | 0.025 | 11.4 | 7.02 | 8.87 |
| 30/06/2025 | B: Waiwhetu Pa | 0.08 | 3 | 0.0006 | 600 | 1000 | 1300 | 0.33 | 0.1 | 0.024 | 5 | 3.46 | 0.02 | 11.3 | 7.08 | 9.22 |
| 30/06/2025 | C: Bell Road Bridge | 0.09 | 3 | 0.0011 | 1500 | 1000 | 1300 | 0.48 | 0.1 | 0.031 | 2 | 4.74 | 0.029 | 11.1 | 7.06 | 8.07 |
| 30/06/2025 | Effluent Discharge | 17.8 | 4 | 0.0026 | 1400 | 3000 | 2400 | 0.07 | 0.01 | 1.13 | 2 | 1.69 | 0.012 | 15.2 | 7.13 | 6.61 |



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