Helensville Wastewater Treatment Plant
Annual Report

Final - September 2025

Watercare

QUALITY INFORMATION

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REVISION HISTORY

Rev	Revision Date	Name	Position	Signature
1	22/09/2025	Michiel Jonker	Environmental Care Manager	
2	30/09/2025	Gabriel Freitas De Almeida	Operations Controller	
3	30/09/2025	Jon Piggot	Head of Wastewater	

APPROVED

Date	Name	Position	Signature
22/09/2025	Michiel Jonker	Environmental Care Manager	

CONSENT CHANGE AND MONITORING HISTORY

Change type	Description	Effective date	Reference / condition	Reporting / monitoring implications
Discharge consent	Wastewater discharge permit with planned upgrades in two stages Discharge of contaminants into air	May 2012, expires July 2027	22225 and 37541 (DIS60265455)	Flow meters maintained. Record of daily rainfall levels maintained Measure effluent quality Environmental monitoring of discharge point and surrounding area Annual reports and 3 yearly REMP to be submitted
WWTP upgrade	Earthworks to install MABR	May 2022	BUN60401300	Inspect sediment & erosion controls regularly
Management Plan	Air Quality Management Plan	July 2023, expires July 2027	37541	Created to meet conditions of consent 37541
Management Plan	Operations Management Plan	July 2023, expires July 2027	22225 and 37541 (DIS60265455)	Created to meet conditions of consent 22225 and 37541
Receiving Environment Monitoring	Report summarise 3-yearly environmental sampling.	September 2024	22225 and 37541 (DIS60265455)	Next report due in 2026

EXECUTIVE SUMMARY

This annual report for Helensville Wastewater Treatment plant (WWTP) outlines the plant's operational performance, incidents and compliance with consent conditions for the 2024-2025 reporting period. The report fulfils the requirements under consents 22225 and 37541, which oversee the discharge of wastewater and air emissions.

Key findings include:

WWTP overview: The WWTP is located adjacent to the Kaipara Coast Highway and discharges treated effluent into the Kaipara Estuary. No major upgrades were undertaken during the reporting period, and no incidents or complaints were recorded.

Effluent volume compliance: Throughout the 2024–25 reporting period, the WWTP remained fully compliant with all discharge volume consent conditions. The maximum daily discharge did not exceed the 5,500 m^3/day limit, and the rolling 12-month average remained below the 1,500 m^3/day threshold.

Effluent quality standards: Effluent quality consistently met all consented limits for 5-day carbonaceous biochemical oxygen demand ($cBOD_5$), total suspended solids (TSS), *Eschirichia coli* (E.coli), and ammoniacal nitrogen. The ultrafiltration unit demonstrated high removal efficiencies, with over 90% reduction in all key parameters. The plant maintained a Category 1 compliance rating for all relevant conditions.

Effluent quality trends: Seasonal analysis of effluent quality showed stable performance across most parameters. Autumn exhibited the greatest variability in microbial indicators, while summer and spring showed the lowest concentrations of enterococci and E. coli.

Influent quality trends: Influent ammonia concentrations displayed strong seasonal variation, peaking in summer and spring. In contrast, total phosphorus levels remained relatively stable year-round. Despite these fluctuations, the WWTP maintained high nutrient removal efficiency, with ammonia removal slightly higher in summer and phosphorus removal more effective in winter.

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ABBREVIATIONS

Term	Definition
BOD_5	5-day Biochemical Oxygen Demand
CFU	Colony Forming Unit
$cBOD_5$	Carbonaceous 5-day Biochemical Oxygen Demand
DO	Dissolved Oxygen
DRP	Dissolved Reactive Phosphorus
E. coli	Escherichia coli
g/m^3	Grams per cubic metre
gN/m^3	Grams of nitrogen per cubic metre
gP/m^3	Grams of phosphorus per cubic metre
IANZ	International Accreditation New Zealand
MABR	Membrane Aerated Biofilm Reactor
mg/L	Milligrams per litre
MPN	Most Probable Number
NH_4-N	Ammoniacal Nitrogen
REMP	Receiving Environment Monitoring Programme
SVOC	Semi-Volatile Organic Compounds
TSS	Total Suspended Solids
UF	Ultrafiltration
WWTP	Wastewater Treatment Plant

1 INTRODUCTION

1.1 Report purpose and outline

This report aims to fulfil the annual reporting requirements of condition 34 in consents 22225 and 37541 (DIS60265455). This report covers resource consent compliance for the Helensville Wastewater Treatment Plant (WWTP) from 1 July 2024 to 30 June 2025.

The report includes:

- A description of the WWTP
- Summary of key system maintenance
- Plant performance including:
    - Trends in discharge quality standards
    - Effectiveness of ultrafiltration unit and removal of nutrients
    - Trends on flow volumes
    - Changes in influent load.
- Summary of compliance

2 WASTEWATER TREATMENT PLANT

2.1 Current operation

The WWTP is located adjacent to the Kaipara Coast Highway. The general location of the WWTP in relation to the Kaipara River is shown in Figure 2-1. The WWTP consists of a:

- Screen
- Biofilter
- Oxidation pond system
- Membrane aerated biofilm reactor
- Membrane ultrafiltration unit
- Tidal discharge point.

Treated effluent from the tidal discharge pond goes to the Kaipara Estuary on outgoing tides. The discharge point is approximately 5 km upstream of the river mouth to the Kaipara Harbour.

Figure 2-1 Aerial image of the Helensville WWTP (highlighted red) with location of discharge point (red diamond)

2.2 Maintenance and upgrades

No major maintenance or upgrades were conducted at the WWTP during the reporting period. However, the Membrane Aerated Biofilm Reactor (MABR) membranes will be changed during the next reporting period, and will not affect compliance in any way. There are no additional works planned to follow the recent completed upgrades.

2.3 Incidents

There were no incidents or complaints recorded at the WWTP during the reporting period.

2.4 Trade waste connections

There are three dischargers holding active Trade Waste Agreements that feed into the WWTP:

- Watercare Services Limited Helensville Water Treatment Plant
- Helensville Dental Centre Limited
- Living Goodness Limited

3 COMPLIANCE

3.1 Introduction

Watercare assess compliance with consent using the same compliance rating system utilised by the Auckland Council (Table 3-1).

Table 3-1 Compliance assessment criteria

Rating	Detail
Category 1	Watercare has complied with the consent condition. Where a consent condition refers to a provision in a Management Plan, then the plan has been referred to in assessing consent compliance.
Category 2	Watercare has not complied with the consent condition. Watercare has assessed the non-compliance as technical or having no more than minor adverse effect.
Category 3	Watercare has not complied with the consent condition. Watercare has assessed the non-compliance having the potential to result in more than minor adverse effects on the environment. Alternatively, since the last audit, there is evidence of repeat Category 2 non-compliance.
Category 4	Watercare has not complied with the consent condition. Watercare has assessed the non-compliance as having the potential to cause significant adverse effects on the environment. Alternatively, since the last audit, there is evidence of repeat Category 3 non-compliance.

3.2 Method statement

Monitoring and analysis for this report were undertaken in accordance with the requirements of the consents, the approved Operations Management Plan, and the Air Quality Management Plan. Effluent discharge volumes were recorded continuously using calibrated flow meters installed at the WWTP. Flow data were stored in Watercare's PI historian and retrieved using tag IDs specific to inflow and discharge points (see Appendix E for data sources and ID references). Daily rainfall records were obtained from a nearby Auckland Council rain gauge, to support assessment of correlations between rainfall and effluent volumes.

Effluent quality monitoring was carried out through routine grab sampling at the tidal discharge pond outlet (see Figure 2-1). Sampling and analyses were performed by Watercare's Laboratory and the parameters specified under Condition 16 of the wastewater discharge consent:

Frequency	Parameter
Twice weekly	Dissolved oxygen
Fortnightly	BOD5, TSS, enterococci, E.coli, Ammoniacal-N
Monthly	Nitrate-N, Nitrite-N, TP, DRP, Chloride
Twice a year	Adenoviruses, enteroviruses
Annually	Trace metals, SVOC trace profile, acid herbicides

Seasonal and annual statistical analyses were applied to assess compliance against the median and 92nd percentile limits set in the consent. Where relevant, rolling 12-month averages were calculated directly from PI-tagged flow and load data. Quality assurance included cross-checking dataset completeness against lab submission sheets and PI tag data logs (see Appendix A for effluent volume

data, Appendix B for effluent quality data, and Appendix E for the register of data sources and PI tags).

Odour management was assessed through regular site inspections and complaint monitoring. Records of odour inspections are included in Appendix C. Compliance commentary against each condition of the consent is provided in Appendix D.

3.3 Plant performance

Data from the 2024-2025 reporting period is analysed to measure the performance of the WWTP. In addition, as per condition 34 of the consent, analysis of past data is analysed to determine trends and patterns over time. However, as the plant went through a major update towards the end of the 2022-2023 reporting period, we have only provided comparisons over the past three reporting periods.

By analysing and comparing the past three years of influent and effluent data, potential annual and seasonal trends can be identified that may inform environmental performance. However, the small sample size may not capture natural variability and long-term patters. As such, the statistical tests in this report are used to suggest possible patterns and trends, rather than provide conclusive evidence.

3.3.1 Effluent volumes

The daily discharge effluent volumes and total daily rainfall for the 2024-2025 reporting period are presented in Figure 3-1. The maximum daily flow limit of 5,500 m^3/day was never breached, and the discharge peaks generally corresponded with heavy or prolonged rainfall. Additionally, the rolling annual average remained compliant as the 1,500 m^3/day flow limit was also not exceeded (Figure 3-2). As such, all discharge volume conditions were compliant for this reporting period.

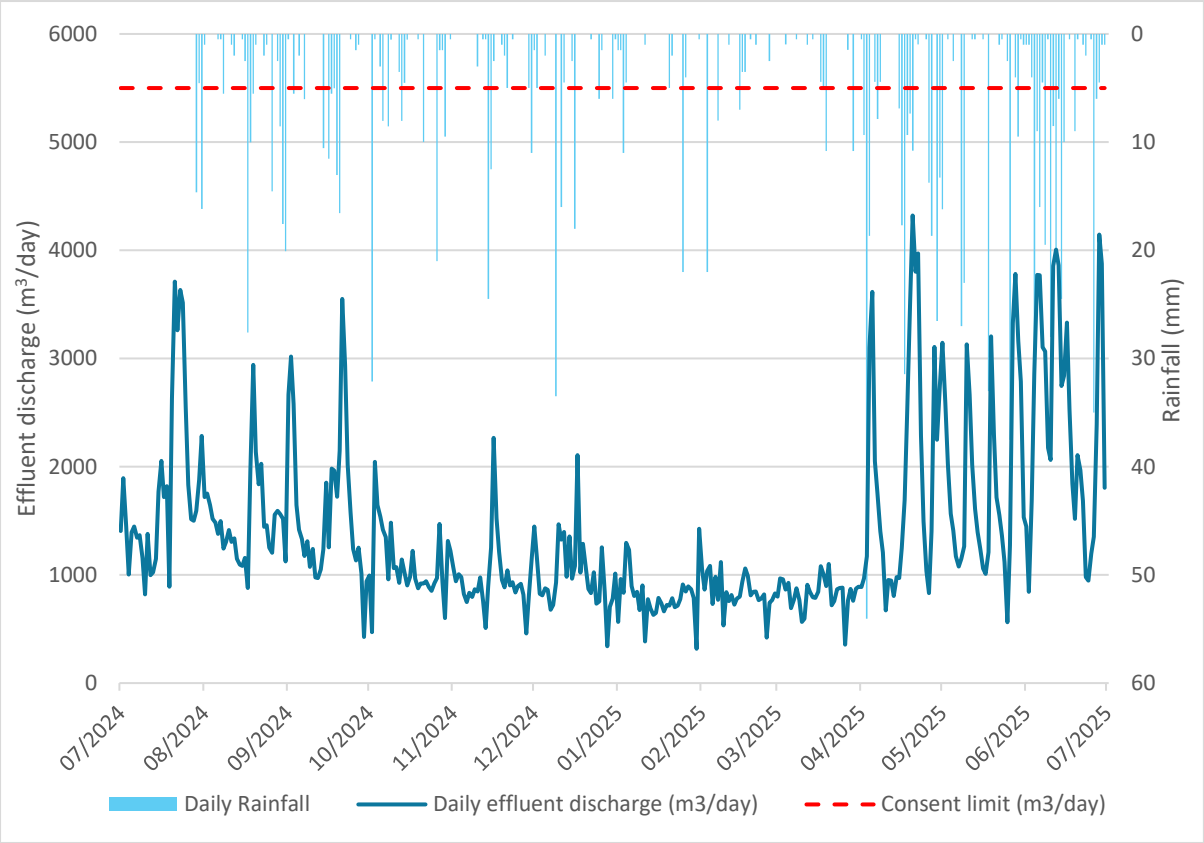

Figure 3-1 Helensville WWTP daily treated effluent discharge volumes and total daily rainfall for the 2024-2025 reporting period.

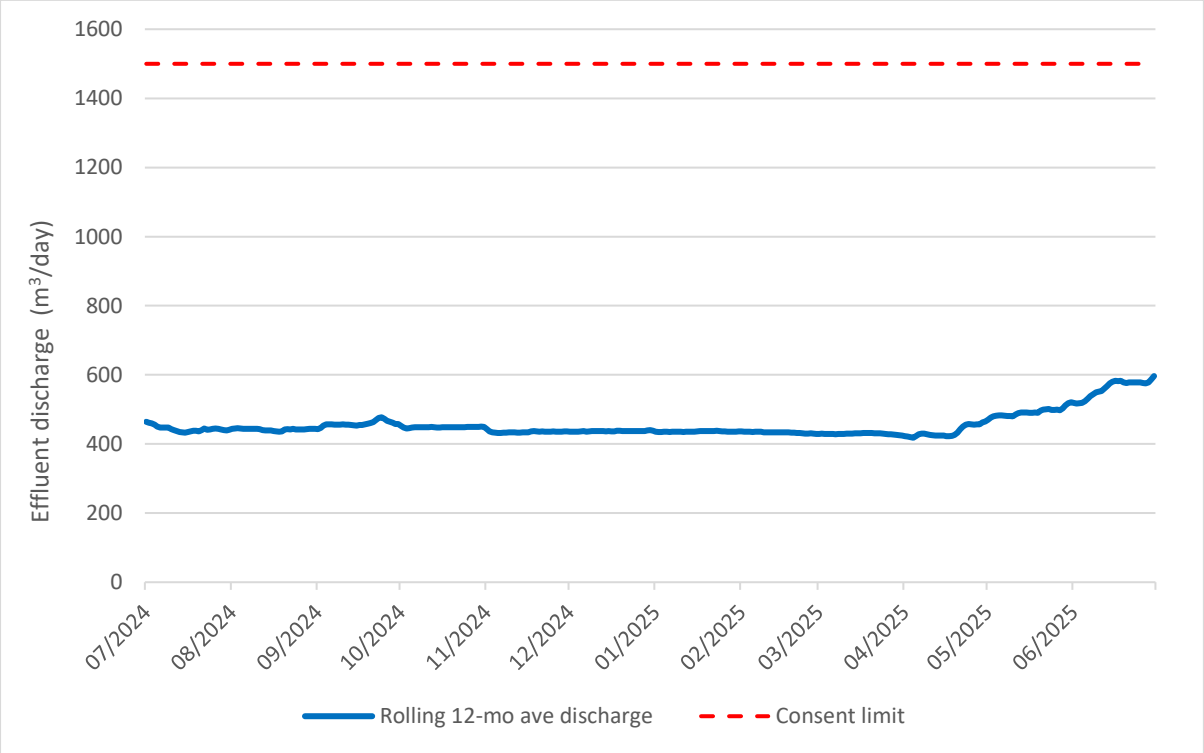

Figure 3-2 Helensville WWTP 12 month rolling average effluent discharge volumes for the 2024-25 reporting period

3.3.2 Trends in effluent flow

The Pearson Correlation test suggests there is a statistically significant positive correlation between effluent flow and rainfall ($p<0.05$) over the past three reporting periods. This correlation is weak, however (0.135), suggesting that inflow and infiltration only has a limited influence on effluent flow, most likely only during certain environmental conditions.

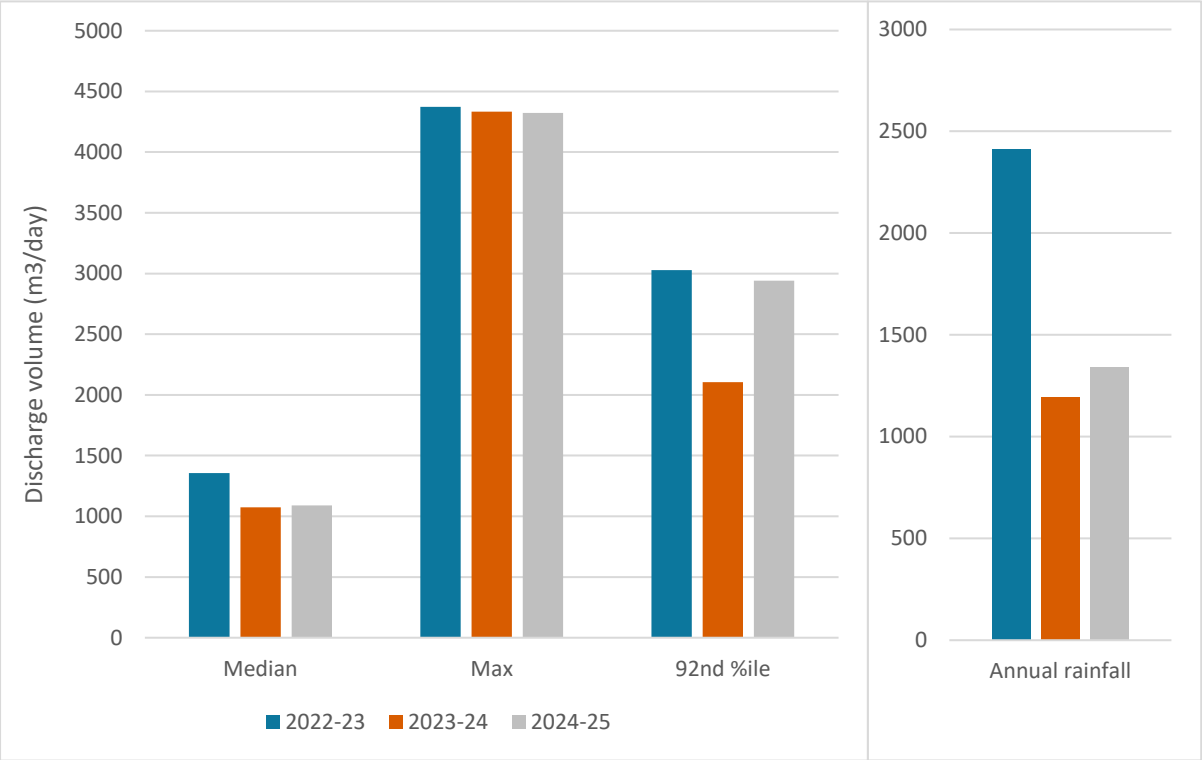

Figure 3-3 Daily flow rate patters for current and previous reporting periods since 2020 and total annual rainfall for the three reporting periods

Seasonal variability in effluent volume is presented in Figure 3-4 with patterns generally following seasonal rainfall. Winter has the largest and most variable effluent discharge volumes along with the highest total monthly rainfall. In spring, effluent volumes and variability drop, with more consistent and lower rainfall. Summer has the lowest discharge volumes despite the higher rainfall in January and February (data likely skewed here due to the extreme weather events in January and February 2023), and in Autumn, both volumes and variability begin to increase again, in line with higher variability in monthly rainfall. Again, this suggests there is some correlation between inflow and infiltration and flow volumes, particularly following periods of increasing rain.

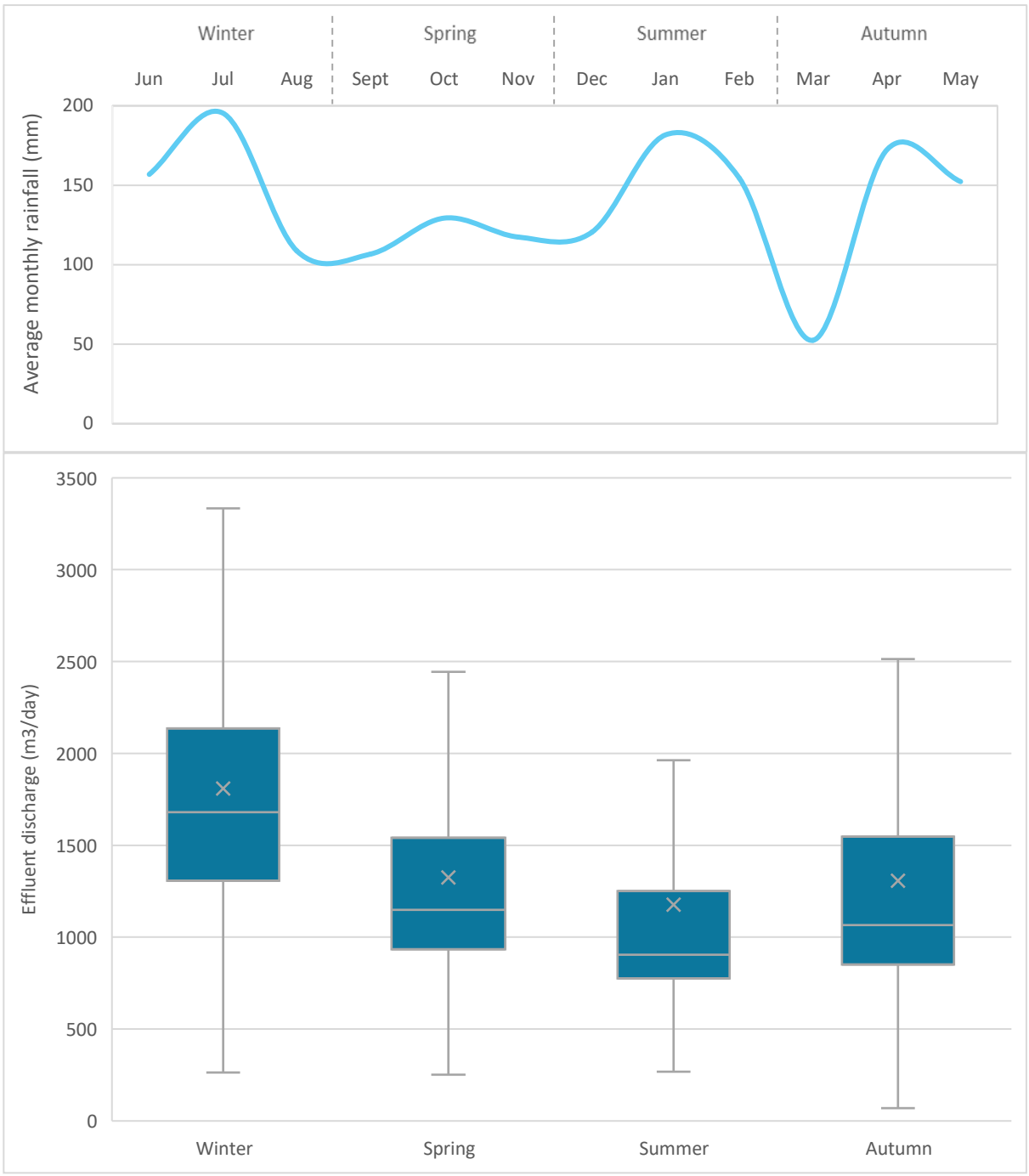

Figure 3-4 Box plots presenting seasonal variation in flow volumes from Helensville WWTP, along with rainfall (line graph above box plots) based on the average of total monthly rainfall, since July 2022.

3.4 Influent and effluent quality

In line with conditions 16 and 17 of the consent, the discharge quality has been monitored and measured against the standards stated, and found to be fully compliant, indicating the WWTP is performing well. A summary of the 12 month rolling medians and 92nd percentiles of $cBOD_5$, TSS, *E. coli* and ammoniacal nitrogen are presented in Table 3-2. All water quality monitoring results can be found in Appendix B.

Table 3-2 The minimum, maximum and standard deviation of rolling median and 92nd percentiles of monthly treated effluent parameters for the 2024-25 reporting period

	cBOD5 (g/m³)		TSS (g/ m³)		E. coli (CFU/100 ml)		Ammonia (gN/m³)	
	Median	92% ile	Median	92%ile	Median	92%ile	Median	92%ile
Limit	20	30	20	35	50	100	15	25
Minimum	1.3	2.9	0.6	3.3	1.6	1.7	0.9	6.7
Maximum	2.1	5.3	2.4	6.8	1.6	4.5	1.9	8.6
Standard Dev	0.2	0.9	0.4	1.4	0.0	1.0	0.3	0.5

The ultrafiltration (UF) unit is a type of membrane filtration system that plays a key role in removing fine particles, bacteria, viruses and suspended solids from treated wastewater. To measure the performance and effectiveness of this unit, the removal efficiencies of ammoniacal nitrogen, $cBOD_5$, suspended solids and total phosphorus have been calculated, and are presented in Table 3-3. The average removal for three of the four parameters exceeds 90%, with total phosphorus at a lower removal rate of 78.26 %, indicating good performance of the UF unit and the WWTP.

Table 3-3 Influent and effluent concentrations and removal efficiency at Helensville WWTP during the 2024-25 reporting period

Parameter	Mean influent concentration	Mean effluent concentration	Performance (% removed)
Ammonia mg N/L	21.10	1.35	93.6
Total phosphorus[1] mg/L	7.45	0.51	78.26
$cBOD_5$ mg O2/L	210.00	1.30	99.4
Total suspended solids mg/L	350.50	1.20	99.7

3.4.1 Trends in nutrient concentrations and removal efficiencies

Influent nutrient data recorded since the WWTP upgrade shows that concentration of ammonia varies greatly throughout the seasons, with highest concentrations in summer and spring, and lowest during autumn and winter. In comparison, there is little seasonal variation in total phosphorus concentration over the years (Figure 3-5).

[1] Note the consent does not include a limit for total phosphorus

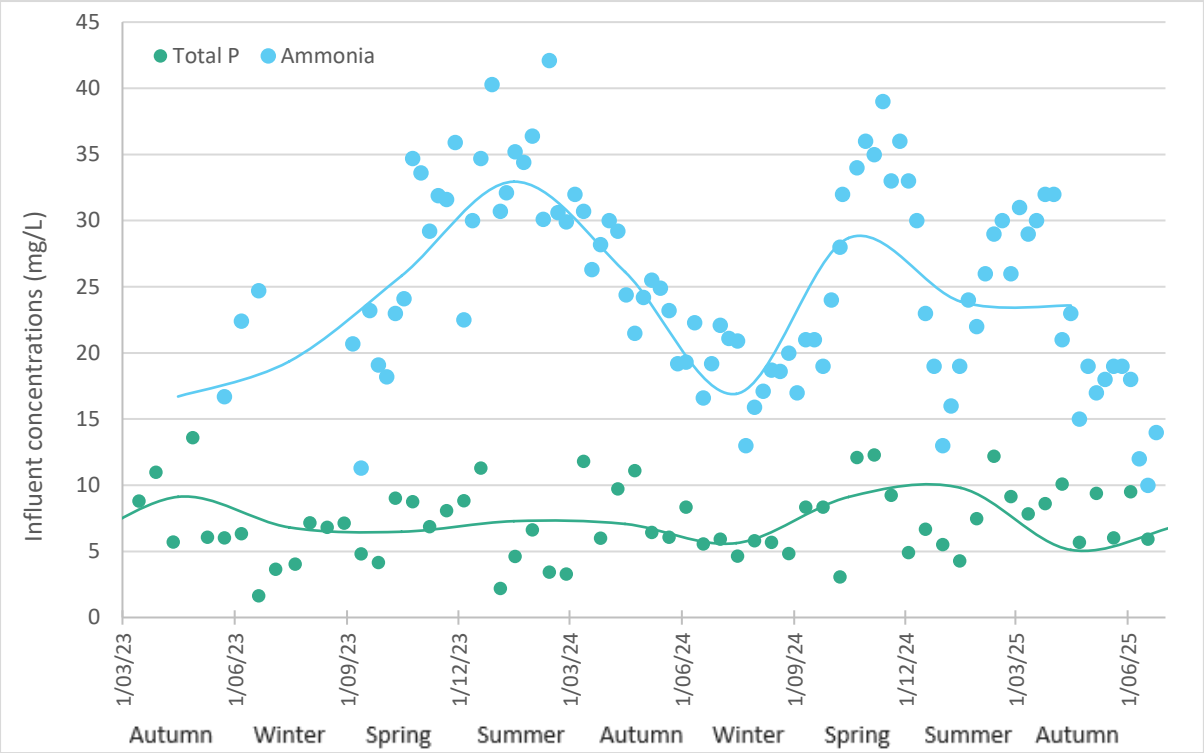

Figure 3-5 Nutrient concentrations of total phosphorus and ammoniacal nitrogen along with the seasonal averages (solid lines), for the WWTP influent.

As there are distinct differences in the influent concentration of ammonia between summer and winter, the removal of nutrient levels during these seasons has been compared as well (Figure 3-6). Although influent concentration of total phosphorous does not vary greatly seasonally, the removal efficiency does appear to be higher in winter compared to summer. Whereas removal efficiencies of ammonia are more stable and slightly greater in the summer months, when influent levels tend to be higher.

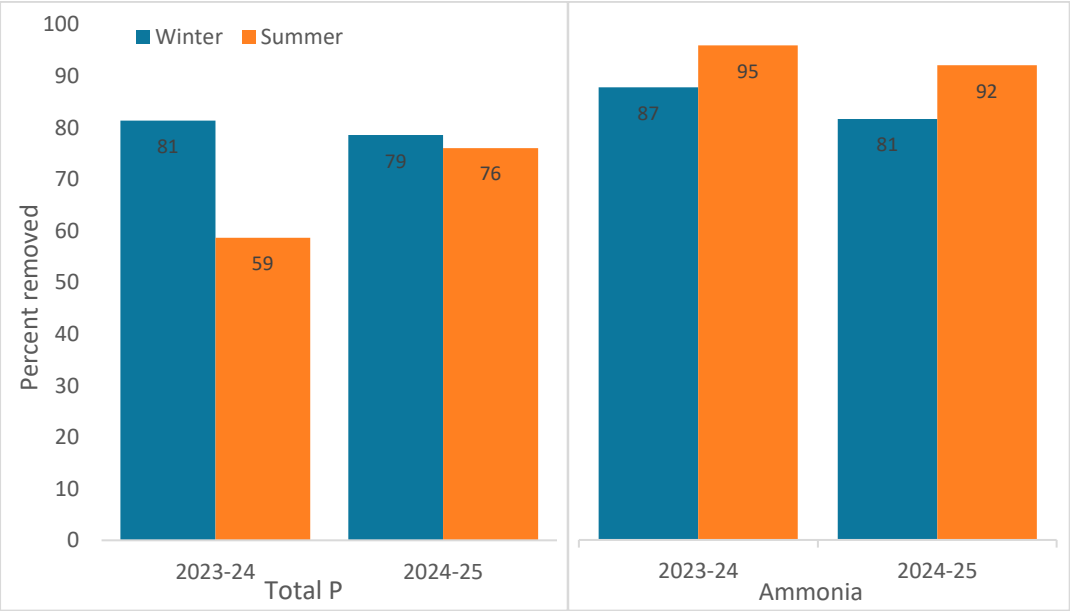

Figure 3-6 Variation in total phosphorus and ammonia removal rates between summer and winter seasons

3.4.2 Trends in effluent quality

Enterococci and *E. coli* are widely recognised as reliable indicators of faecal contamination in wastewater, making them valuable for assessing the performance of treatment processes at wastewater treatment plants. By tracking the concentrations of these microorganisms over time, it is possible to identify seasonal patterns in effluent quality. To support this analysis, monitoring data from the past three years have been visualised using box plots to highlight seasonal variation. Four outlier results were excluded from the dataset to avoid skewing the analysis and to better reflect underlying trends. The box plot indicates that Autumn exhibits the greatest variability, with a wider range and higher concentrations of both microorganisms compared to the other seasons. In contrast, Summer, Spring and Winter show more stable patterns, with concentrations generally at the lower end of the scale. This may suggest factors such as inflow volumes and catchment runoff are more prevalent in Autumn.

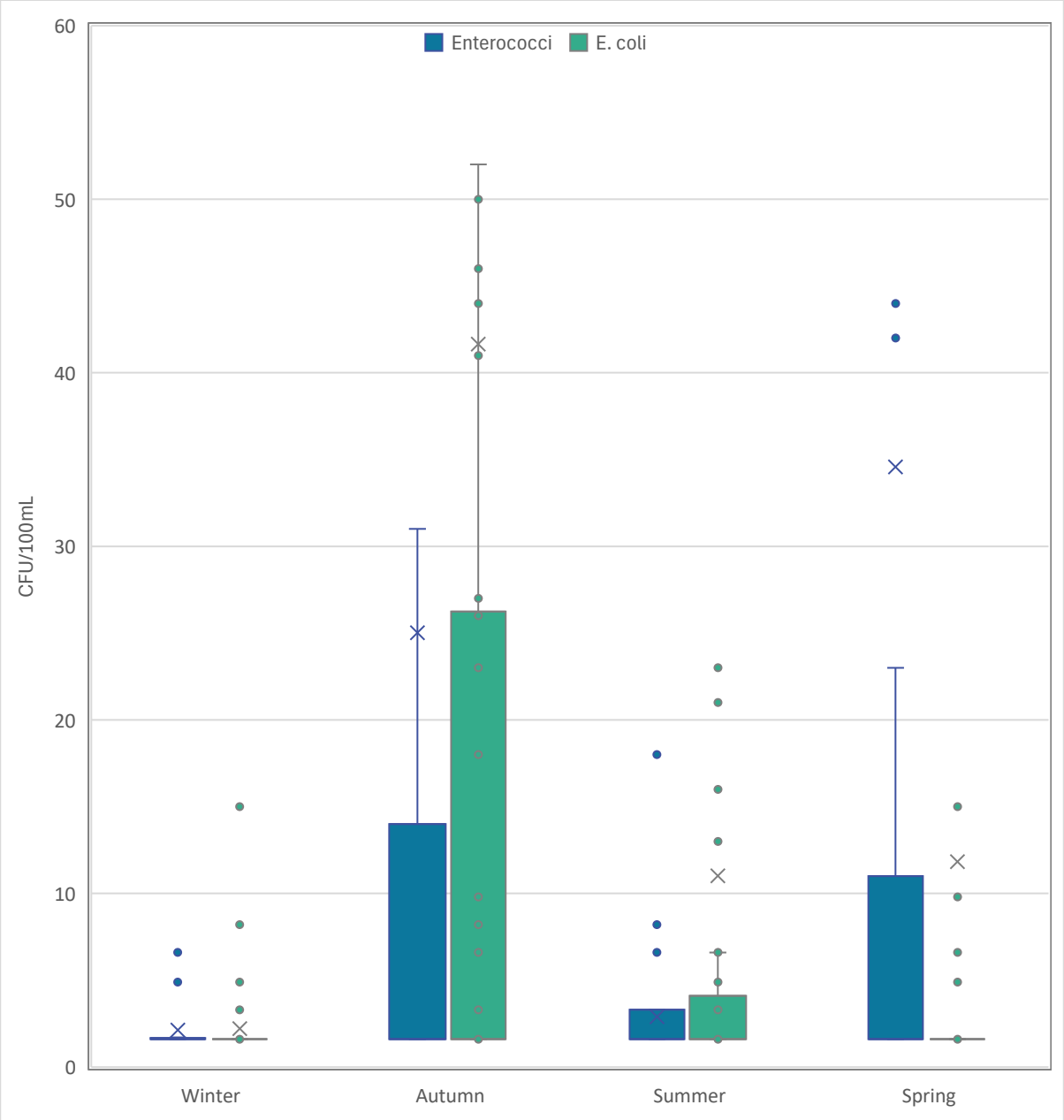

Figure 3-7 Box plot presenting seasonal variability in Enterococci and E. coli levels from weekly treated effluent samples collected over past three years, note: some outliers may not be visible

3.5 Trace metals and additional parameters

In accordance with Condition 16, a suite of trace metals (arsenic, cadmium, copper, chromium, lead, zinc, nickel and mercury), additional nutrient parameters (nitrate, nitrite, and dissolved reactive phosphorus), viral indicators (adenovirus and enterovirus), and semi-volatile organic compounds (SVOCs) are monitored at the discharge point. The consent does not impose specific compliance limits for these parameters, but it does require ongoing monitoring to track trends and ensure that any potential accumulation of contaminants is detected.

Trace metals monitoring results for 2024–2025 (Appendix B) showed very low concentrations, well below relevant guideline thresholds. Nutrient results (nitrate, nitrite, DRP) demonstrated stable effluent concentrations with no evidence of upward trends. Bi-annual viral indicator monitoring undertaken on 2 July 2024 and 7 January 2025 returned results below detection (<1 No/10L and <0.5 No/10L respectively for both adenovirus and enterovirus).

Annual SVOC monitoring in 2024–2025 (Appendix B) also reported all analytes below detection or at trace levels. Compounds such as trichlorobenzenes, dichlorobenzenes, phenoxyacetic acids, dinitrotoluenes, chlorophenyl ethers, nitrosamines, and chlorinated hydrocarbons were all reported below 0.0015 mg/L. These results indicate no measurable accumulation of organic contaminants in the treated effluent.

Overall, no accumulation of contaminants of concern is evident in the discharge, and monitoring results confirm the effectiveness of treatment processes in maintaining effluent quality.

Coast & Catchment completed receiving environment monitoring during the 2022-2023 period, with the results submitted to Auckland Council in September 2023. After review, it was confirmed that the report generally complied with conditions 19-29. The next receiving environment report is scheduled for September 2026.

3.6 Air quality and complaints

In line with condition 44 and the Air Quality Management Plan, walkover inspections have been conducted at least once a week, and no strong odours were reported during these. Additionally, the six-monthly odour reports did not record any strong odours, with only weak odours detected during cleaning of the train in September, and algae odour in the Pond 1 influent area during February's inspection. Copies of both odour reports and can be found in Appendix C.

In addition, no complaints were reported against the WWTP during the reporting period.

4 CONCLUSION

The WWTP has performed well during the 2024-2025 reporting period, remaining fully compliant with all consent conditions. A condition-by-condition assessment of compliance for the Helensville WWTP can be found in **Appendix D**, the overall compliance rating is a Category 1.

The installation of the MABR and UF units in 2023 has significantly enhanced treatment performance, particularly in nutrient and solids removal. Effluent quality remained consistently high, with all monitored parameters well below consented limits. Seasonal trends in influent and effluent quality were observed, but did not compromise compliance or environmental performance.

No incidents, odour complaints were reported, reflecting effective operational management and community engagement. The plant's Category 1 compliance rating confirms its alignment with regulatory expectations and best practice standards.

The next receiving environment monitoring report is scheduled for 2026, which will provide further insight into the long-term environmental effects of the discharge.

In summary, the Helensville continues to operate as a high-performing facility.

Appendix A. Effluent Volume Data

Date	Daily effluent discharge (m^3/day)
1/07/24	1404.92
2/07/24	1894.12
3/07/24	1451.38
4/07/24	1002.27
5/07/24	1392.87
6/07/24	1445.79
7/07/24	1344.08
8/07/24	1367.11
9/07/24	1157.29
10/07/24	818.91
11/07/24	1377.93
12/07/24	998.03
13/07/24	1022.87
14/07/24	1148.22
15/07/24	1769.38
16/07/24	2054.08
17/07/24	1719.21
18/07/24	1818.60
19/07/24	891.79
20/07/24	2628.87
21/07/24	3709.96
22/07/24	3261.52
23/07/24	3635.03
24/07/24	3515.40
25/07/24	2550.09
26/07/24	1832.89
27/07/24	1515.92
28/07/24	1501.10
29/07/24	1590.70
30/07/24	1877.97
31/07/24	2283.13
1/08/24	1720.32

Date	Daily effluent discharge (m^3/day)
2/08/24	1750.67
3/08/24	1645.02
4/08/24	1518.37
5/08/24	1483.67
6/08/24	1380.12
7/08/24	1498.72
8/08/24	1244.29
9/08/24	1306.59
10/08/24	1414.39
11/08/24	1304.38
12/08/24	1338.82
13/08/24	1148.03
14/08/24	1094.60
15/08/24	1083.61
16/08/24	1158.17
17/08/24	878.31
18/08/24	1963.80
19/08/24	2941.83
20/08/24	2136.63
21/08/24	1837.08
22/08/24	2026.29
23/08/24	1445.63
24/08/24	1458.87
25/08/24	1251.56
26/08/24	1204.11
27/08/24	1557.07
28/08/24	1593.17
29/08/24	1561.55
30/08/24	1517.73
31/08/24	1123.43
1/09/24	2666.82
2/09/24	3019.11

Date	Daily effluent discharge (m^3/day)
3/09/24	2581.61
4/09/24	1646.69
5/09/24	1417.93
6/09/24	1332.35
7/09/24	1175.92
8/09/24	1311.15
9/09/24	1073.44
10/09/24	1238.76
11/09/24	978.07
12/09/24	971.10
13/09/24	1051.54
14/09/24	1236.78
15/09/24	1853.33
16/09/24	1254.46
17/09/24	1981.46
18/09/24	1964.02
19/09/24	1721.56
20/09/24	2147.73
21/09/24	3551.17
22/09/24	2934.28
23/09/24	2018.08
24/09/24	1577.89
25/09/24	1241.45
26/09/24	1132.66
27/09/24	1251.69
28/09/24	1013.39
29/09/24	427.54
30/09/24	941.17
1/10/24	994.06
2/10/24	469.27
3/10/24	2044.71
4/10/24	1644.66

Date	Daily effluent discharge (m^3/day)
5/10/24	1539.46
6/10/24	1418.92
7/10/24	1351.02
8/10/24	958.21
9/10/24	1481.35
10/10/24	1061.31
11/10/24	1072.80
12/10/24	927.03
13/10/24	1141.01
14/10/24	1014.82
15/10/24	901.76
16/10/24	983.44
17/10/24	1223.55
18/10/24	964.10
19/10/24	875.94
20/10/24	921.62
21/10/24	919.10
22/10/24	941.46
23/10/24	884.40
24/10/24	851.67
25/10/24	923.17
26/10/24	972.09
27/10/24	1471.01
28/10/24	939.20
29/10/24	600.44
30/10/24	1313.02
31/10/24	1223.06
1/11/24	1067.13
2/11/24	941.07
3/11/24	1005.79
4/11/24	980.76
5/11/24	824.12

Date	Daily effluent discharge (m^3/day)
6/11/24	747.52
7/11/24	834.22
8/11/24	794.92
9/11/24	866.51
10/11/24	845.46
11/11/24	976.26
12/11/24	757.09
13/11/24	509.23
14/11/24	897.96
15/11/24	1252.76
16/11/24	2265.71
17/11/24	1524.51
18/11/24	1214.30
19/11/24	953.77
20/11/24	885.08
21/11/24	1041.68
22/11/24	903.94
23/11/24	931.62
24/11/24	838.08
25/11/24	895.97
26/11/24	917.18
27/11/24	816.94
28/11/24	459.03
29/11/24	803.67
30/11/24	1153.75
1/12/24	1446.18
2/12/24	1163.50
3/12/24	825.67
4/12/24	809.77
5/12/24	877.26
6/12/24	860.30
7/12/24	677.81

Date	Daily effluent discharge (m^3/day)
8/12/24	721.52
9/12/24	927.98
10/12/24	1467.23
11/12/24	1326.18
12/12/24	1397.36
13/12/24	982.94
14/12/24	1354.30
15/12/24	963.91
16/12/24	1081.99
17/12/24	2106.88
18/12/24	1020.73
19/12/24	1286.51
20/12/24	1088.96
21/12/24	870.37
22/12/24	832.89
23/12/24	1024.79
24/12/24	734.32
25/12/24	754.49
26/12/24	1255.38
27/12/24	843.31
28/12/24	339.54
29/12/24	704.64
30/12/24	781.91
31/12/24	1012.89
1/01/25	565.29
2/01/25	961.72
3/01/25	836.10
4/01/25	1294.99
5/01/25	1230.62
6/01/25	897.14
7/01/25	804.73
8/01/25	843.95

Date	Daily effluent discharge (m^3/day)	Date	Daily effluent discharge (m^3/day)	Date	Daily effluent discharge (m^3/day)
9/01/25	673.50	10/02/25	841.81	14/03/25	793.02
10/01/25	902.02	11/02/25	757.08	15/03/25	786.56
11/01/25	385.75	12/02/25	813.98	16/03/25	842.17
12/01/25	776.45	13/02/25	726.04	17/03/25	1081.30
13/01/25	688.25	14/02/25	782.24	18/03/25	1001.82
14/01/25	630.25	15/02/25	799.45	19/03/25	896.40
15/01/25	648.48	16/02/25	936.82	20/03/25	1101.14
16/01/25	786.40	17/02/25	1060.18	21/03/25	718.30
17/01/25	737.61	18/02/25	990.18	22/03/25	756.90
18/01/25	662.93	19/02/25	809.94	23/03/25	866.51
19/01/25	722.51	20/02/25	845.01	24/03/25	880.20
20/01/25	716.87	21/02/25	845.49	25/03/25	882.87
21/01/25	785.09	22/02/25	765.86	26/03/25	355.50
22/01/25	702.74	23/02/25	780.51	27/03/25	764.18
23/01/25	714.95	24/02/25	819.72	28/03/25	870.51
24/01/25	776.78	25/02/25	421.29	29/03/25	760.99
25/01/25	910.57	26/02/25	744.04	30/03/25	874.29
26/01/25	845.48	27/02/25	767.80	31/03/25	890.39
27/01/25	892.79	28/02/25	828.25	1/04/25	888.53
28/01/25	867.75	1/03/25	800.54	2/04/25	966.94
29/01/25	787.92	2/03/25	967.27	3/04/25	1170.75
30/01/25	317.07	3/03/25	957.92	4/04/25	3101.40
31/01/25	1427.37	4/03/25	863.83	5/04/25	3616.46
1/02/25	1057.00	5/03/25	927.71	6/04/25	2051.08
2/02/25	864.21	6/03/25	691.92	7/04/25	1755.16
3/02/25	1034.55	7/03/25	770.15	8/04/25	1403.49
4/02/25	1082.09	8/03/25	876.95	9/04/25	1208.00
5/02/25	731.16	9/03/25	769.08	10/04/25	672.90
6/02/25	982.12	10/03/25	565.09	11/04/25	954.08
7/02/25	769.79	11/03/25	596.34	12/04/25	946.49
8/02/25	1118.75	12/03/25	907.29	13/04/25	804.28
9/02/25	532.46	13/03/25	843.02	14/04/25	980.62

Date	Daily effluent discharge (m^3/day)
15/04/25	970.42
16/04/25	1250.03
17/04/25	1693.16
18/04/25	2513.20
19/04/25	3509.39
20/04/25	4321.92
21/04/25	3801.15
22/04/25	3970.63
23/04/25	2286.65
24/04/25	1494.18
25/04/25	1036.90
26/04/25	831.96
27/04/25	1403.57
28/04/25	3108.39
29/04/25	2247.86
30/04/25	2748.87
1/05/25	3146.93
2/05/25	2595.86
3/05/25	2026.15
4/05/25	1564.21
5/05/25	1409.81
6/05/25	1170.93
7/05/25	1078.70
8/05/25	1148.23
9/05/25	1263.34
10/05/25	3131.60
11/05/25	2665.27
12/05/25	2018.91
13/05/25	1608.81
14/05/25	1393.32
15/05/25	1244.68

Date	Daily effluent discharge (m^3/day)
16/05/25	1059.58
17/05/25	1009.83
18/05/25	1209.46
19/05/25	3204.02
20/05/25	2292.96
21/05/25	1717.65
22/05/25	1551.72
23/05/25	1362.80
24/05/25	1117.48
25/05/25	561.81
26/05/25	1271.48
27/05/25	3325.13
28/05/25	3782.95
29/05/25	3160.23
30/05/25	2786.46
31/05/25	1533.47
1/06/25	1445.98
2/06/25	843.53
3/06/25	1686.67
4/06/25	2858.35
5/06/25	3773.04
6/06/25	3770.61
7/06/25	3104.89
8/06/25	3066.36
9/06/25	2175.82
10/06/25	2063.41
11/06/25	3854.28
12/06/25	4007.25
13/06/25	3862.51
14/06/25	2744.82
15/06/25	2842.25

Date	Daily effluent discharge (m^3/day)
16/06/25	3333.41
17/06/25	2526.85
18/06/25	1842.96
19/06/25	1516.96
20/06/25	2107.51
21/06/25	1969.38
22/06/25	1685.34
23/06/25	981.13
24/06/25	947.52
25/06/25	1194.36
26/06/25	1352.32
27/06/25	2391.88
28/06/25	4145.50
29/06/25	3875.52
30/06/25	1806.66

Appendix B. Effluent Quality Data

Fortnightly and monthly discharge quality sampling conducted during the 2024-2025 reporting period

Date	Total P (g/m3)	DRP (g/m3)	Chloride (g/m3)	Nitrate-N (g/m3)	Nitrite-N (g/m3)	Ammoniacal-N (gN/m3)	cBOD5 (g/m3)	TSS (g/m3)	E. coli (CFU/100 ml)	Enterococci (CFU/100 ml)
2/07/2024	1.37	1.32	159	15	0.46	4.91	1.1	0	1.6	<1.6
9/07/2024						0.553			1.6	
16/07/2024						7.22	1.3	0	1.6	<1.6
23/07/2024						5.97			1.6	
30/07/2024						1.72	0.72	0	1.6	<1.6
6/08/2024	0.99	0.71	125	15	<0.1	1.12	0.87	3.2	1.6	
13/08/2024						0.463	1	2.4	1.6	<1.6
20/08/2024						6.48			1.6	
27/08/2024						1.8	0.74	0	1.6	<1.6
3/09/2024	1.24	1.18	134	11	0.23	6.2	4.7	0	1.6	
10/09/2024						1	2.1	3	1.6	<1.6
17/09/2024						8.1			1.6	
24/09/2024						4.4	1.1	0	1.6	<1.6
1/10/2024	2.16	1.81	161	23	0.28	1.9	1.3	1.6	1.7	
8/10/2024						4.3	1.6	0	1.6	<1.6
10/10/2024						14			1.7	
22/10/2024						5.2	2.8	3.4	1.6	<1.6
29/10/2024						4.7			1.6	

Date	Total P (g/m3)	DRP (g/m3)	Chloride (g/m3)	Nitrate-N (g/m3)	Nitrite-N (g/m3)	Ammoniacal-N (gN/m3)	cBOD5 (g/m3)	TSS (g/m3)	E. coli (CFU/100 ml)	Enterococci (CFU/100 ml)
5/11/2024	2.34	2.32	199	31	0.31	5.4	1.7	0	1.6	<1.6
12/11/2024						4			1.6	
19/11/2024						4.7	2.3	0	1.6	<1.6
26/11/2024						0.78			1.6	
3/12/2024	2.34	2.06	204	30.6	0.37	1.1	3	0	1.6	<1.6
10/12/2024						14			1.6	
17/12/2024						4.8	1.3	0	1.6	<1.6
24/12/2024						1.3			3500	
31/12/2024						0.24	2.1	2	1.6	<1.6
7/01/2025	1.08	0.83	260	15	<0.02	0.74	2.2	1.6	250	210
14/01/2025						0.16	3.2	1.6	1.6	<1.6
21/01/2025									16	
28/01/2025						0.93	3	0	1.6	<1.6
4/02/2025	1.73	1.29	331	25.1	<0.1	0.2	1.8	3.4	1.6	
11/02/2025						0.15	0.56	1.4	1.6	<1.6
18/02/2025						0.19			1.6	
25/02/2025						0.12	2	0	1.6	<1.6
4/03/2025	1.96	1.33	372	27.7	<0.02	0.16	0.5	1.8	1.6	
11/03/2025						0.26	1.3	2	1.6	1.6
18/03/2025						0.26			1.6	

Date	Total P (g/m3)	DRP (g/m3)	Chloride (g/m3)	Nitrate-N (g/m3)	Nitrite-N (g/m3)	Ammoniacal-N (gN/m3)	cBOD5 (g/m3)	TSS (g/m3)	E. coli (CFU/100 ml)	Enterococci (CFU/100 ml)
25/03/2025						0.22	1.2	1.2	1.6	<1.6
1/04/2025	2.25	1.66	416	29.7	<0.1	0.42	1.2	3.2	1.6	
8/04/2025						0.57	1.6	6.4	1.6	<1.7
15/04/2025						0.37			1.7	
22/04/2025						7.6	0.63	0	27	86
29/04/2025						4.7			1.6	
6/05/2025	1.13	0.959	211	18.9	0.11	0.61	0.87	0	1.6	<1.6
13/05/2025						1.4			1.6	
20/05/2025						5.8	1.2	0	1.6	<1.7
27/05/2025						12			1.6	
3/06/2025	0.844	0.824	178	16.2	0.48	2.5	0.75	0	1.6	<1.6
10/06/2025						1.2			1.6	
17/06/2025						1.5	1.2	1.6	1.6	1.7
24/06/2025						0.27			1.6	

Rolling median and 92nd percentile figures for $cBOD_5$, total suspended solids and ammonia for the 2024-25 reporting period

	cBOD5 (g/m³)		TSS (g/ m³)		E. coli (CFU/100 ml)		Ammonia (gN/m³)	
Date	Median (limit 20)	92% ile (limit 30)	Median (limit 20)	92%ile (limit 35)	Median (limit 50)	92%ile (limit 100)	Median (limit 15)	92%ile (limit 25)
2/07/24	2.10	5.23	2.40	6.80	1.60	4.52	1.25	8.59
9/07/24	2.10	5.26	2.40	6.80	1.60	4.52	1.02	8.49
16/07/24	2.10	5.23	2.40	6.80	1.60	4.52	1.02	8.53
23/07/24	2.00	5.26	2.30	6.80	1.60	4.52	1.02	8.53
30/07/24	1.90	5.23	2.20	6.80	1.60	4.52	1.02	7.19
6/08/24	1.90	5.23	2.40	6.80	1.60	4.52	1.01	7.19
13/08/24	1.75	5.21	2.40	6.80	1.60	4.52	0.90	7.19
20/08/24	1.60	5.23	2.40	6.69	1.60	4.52	0.90	7.19
27/08/24	1.50	5.21	2.30	6.67	1.60	3.30	0.90	7.19
3/09/24	1.50	5.21	2.20	6.67	1.60	3.30	1.01	7.19
10/09/24	1.50	5.21	2.30	6.67	1.60	3.30	0.95	7.19
17/09/24	1.40	4.88	2.20	6.69	1.60	3.30	0.95	7.19
24/09/24	1.35	4.84	2.20	6.67	1.60	3.30	1.06	7.19
1/10/24	1.30	4.84	2.20	6.67	1.60	3.30	1.06	7.19
8/10/24	1.30	4.12	1.90	5.70	1.60	3.30	1.06	7.19
10/10/24	1.30	4.12	1.90	5.70	1.60	3.30	1.12	7.96
22/10/24	1.30	4.12	2.20	5.70	1.60	3.30	1.76	8.03
29/10/24	1.30	3.41	2.20	4.53	1.60	3.30	1.76	8.03
5/11/24	1.30	3.35	1.90	4.43	1.60	2.92	1.76	7.19
12/11/24	1.30	3.41	1.60	4.53	1.60	2.92	1.76	7.19
19/11/24	1.30	3.35	1.50	4.43	1.60	2.92	1.76	7.19
26/11/24	1.30	2.93	1.60	4.53	1.60	1.70	1.42	7.19
3/12/24	1.30	3.04	1.50	4.43	1.60	1.70	1.42	7.19
10/12/24	1.30	3.04	1.40	4.53	1.60	1.70	1.76	8.03
17/12/24	1.30	3.04	1.40	4.43	1.60	1.70	1.85	8.03
24/12/24	1.30	3.04	1.40	3.78	1.60	1.70	1.85	8.03
31/12/24	1.30	3.04	1.40	3.74	1.60	1.70	1.76	8.03
7/01/25	1.30	3.04	1.40	3.74	1.60	2.92	1.76	8.03

	cBOD5 (g/m^3)		TSS (g/ m^3)		E. coli (CFU/100 ml)		Ammonia (gN/m^3)	
Date	Median (limit 20)	92% ile (limit 30)	Median (limit 20)	92%ile (limit 35)	Median (limit 50)	92%ile (limit 100)	Median (limit 15)	92%ile (limit 25)
14/01/25	1.30	3.13	1.40	3.71	1.60	2.92	1.76	8.03
21/01/25	1.35	3.14	1.40	3.74	1.60	3.30	1.80	8.10
28/01/25	1.40	3.13	1.40	3.71	1.60	3.30	1.80	8.10
4/02/25	1.50	3.07	1.40	3.47	1.60	3.30	1.80	8.10
11/02/25	1.40	3.06	1.40	3.46	1.60	3.30	1.76	8.03
11/02/25	1.40	3.06	1.40	3.46	1.60	3.30	1.76	8.03
18/02/25	1.50	3.07	1.40	3.47	1.60	3.30	1.76	8.03
25/02/25	1.60	3.06	1.40	3.46	1.60	3.30	1.76	8.03
4/03/25	1.35	3.04	1.40	3.44	1.60	3.30	1.30	7.15
4/03/25	1.35	3.04	1.40	3.44	1.60	3.30	1.30	7.15
11/03/25	1.30	3.00	1.40	3.40	1.60	1.70	1.12	6.74
18/03/25	1.30	3.00	1.40	3.40	1.60	1.70	1.12	6.74
25/03/25	1.30	3.00	1.40	3.40	1.60	1.70	1.12	6.74
1/04/25	1.30	3.00	1.40	3.26	1.60	1.70	1.12	6.74
8/04/25	1.30	3.00	1.40	3.40	1.60	1.70	1.12	6.74
15/04/25	1.30	3.00	1.40	3.40	1.60	1.70	1.12	6.74
22/04/25	1.30	3.00	1.40	3.40	1.60	1.70	1.12	7.15
29/04/25	1.30	3.00	1.40	3.40	1.60	1.70	1.12	7.15
6/05/25	1.30	3.00	1.40	3.40	1.60	1.70	1.12	7.15
13/05/25	1.30	3.00	1.40	3.40	1.60	1.70	1.30	7.15
20/05/25	1.30	3.00	1.40	3.40	1.60	1.70	1.40	7.15
27/05/25	1.30	3.00	1.30	3.40	1.60	1.70	1.40	7.54
3/06/25	1.30	3.00	1.20	3.40	1.60	1.70	1.40	7.54
10/06/25	1.30	3.00	0.60	3.27	1.60	1.70	1.40	7.54
17/06/25	1.30	3.00	1.20	3.26	1.60	1.70	1.40	7.54
24/06/25	1.30	3.00	1.20	3.26	1.60	1.70	1.35	7.51

Bi-annual viral indicator results from the 2024-25 reporting period

Date	Adenovirus (No/10L)	Enterovirus (No/10L)
2/07/2024	<1	<1
7/01/2025	<0.5	<0.5

Annual trace metal results from the 2024-25 reporting period

Trace Metal	Dissolved (mg/L)	Total (mg/L)
Arsenic	0.0038	0.0039
Cadmium	<0.00005	<0.00005
Chromium	<0.0005	0.00068
Copper	0.00057	0.00066
Lead	<0.0001	<0.0001
Mercury	<0.00005	<0.00005
Nickel	0.0011	0.0012
Zinc	0.005	0.0061

Annual semi-volatile organic compound results from the 2024-25 reporting period

SVOC	Result (mg/L)
1,2,4-Trichlorobenzene	<0.0005
1,2-Dichlorobenzene	<0.0005
1,3-Dichlorobenzene	<0.0005
1,4-Dichlorobenzene	<0.0005
2,4,5-Trichlorophenoxyacetic acid	<0.0001
2,4-Dichlorophenoxyacetic acid	<0.0001
2,4-Dinitrotoluene	<0.0005
2,6-Dinitrotoluene	<0.0015
2-Chloronaphthalene	<0.0002
2-Methylnaphthalene	<0.0002
4-(2,4-Dichlorophenoxy) butanoic acid	<0.0001
4-Bromophenylphenyl ether	<0.001
4-Chlorophenylphenyl ether	<0.001
Bentazone	<0.0001
Bis(2-chloroethoxy)methane	<0.0015
Bis(2-chloroethyl) ether	<0.0015
Bis(2-chloroisopropyl) ether	<0.0015
Carbazole	<0.0005
Dibenzofuran	<0.0005

SVOC	Result (mg/L)
Dicamba	<0.0001
Dichlorprop	<0.0001
Dinoseb	<0.0001
Diphenylhydrazine	<0.001
Fenoprop (Silvex)	<0.0001
Hexachlorobenzene	<0.0005
Hexachlorobutadiene	<0.0005
Hexachlorocyclopentadiene	<0.0005
Hexachloroethane	<0.0005
Isophorone	<0.0005
Lontrel	<0.0001
MCPA	<0.0001
MCPB	<0.0001
Mecoprop (MCPP)	<0.0001
Nitrobenzene	<0.001
N-Nitrosodi-n-propylamine	<0.0015
N-Nitrosodiphenylamine	<0.0005
Picloram	<0.0001
Triclopyr	<0.0001

Appendix C. Odour Reports

Bi-annual odour reports

Date: 16 September 2024 Time: 11:00 **Wind Strength:** 19Km/h **Wind Direction: N**

Person: Margot Barreri **Weather Conditions: Cloudy/Windy**

Time	Location of odour[1]	Odour source	Strength	Description	Duration	Comments
11:00	A	Primary Works (Screen) / UF area	1	Chlorine		During train cleaning
11:05	B	Pond 1 Influent area	0			No Odour Detected
11:10	C	MABR area	0			No Odour Detected
11:15	D	Pond 1 SW Corner	0			No Odour Detected
11:25	E	Ponds 1 & 2 West	0			No Odour Detected
11:30	F	Pond 2 NW	0			No Odour Detected
11:45	G	Ponds 2 & 1 East	0			No Odour Detected

Odour detected at neighbour boundary? No

See attached Map

Date: 18 February 2025 **Time: 11:00** **Wind Strength:** 20 km/h **Wind Direction: NW**

Person: Margot Barreri **Weather Conditions: Sunny**

Time	Location of odour[1]	Odour source	Strength	Description	Duration	Comments
11:00	A	Primary Works (Screen) / UF area	0			No Odour Detected
11:05	B	Pond 1 Influent area	1	Algae odour		
11:10	C	MABR area	0			No Odour Detected
11:15	D	Pond 1 SW Corner	0			No Odour Detected
11:25	E	Ponds 1 & 2 West	0			No Odour Detected
11:30	F	Pond 2 NW	0			No Odour Detected
11:45	G	Ponds 2 & 1 East	0			No Odour Detected

Odour detected at neighbour boundary? No

See attached Map


F
G
E
Helensville Wastewater
Treatment Plant
A
B
C
D

Appendix D. Compliance commentary

Condition Number	Consent Conditions Helensville WWTP Discharge to Water (22225 / DIS60265455)	Condition Rating	Comment
01	The discharges of contaminants shall be carried out in accordance with the plans and information submitted with the application, including: SEE CONSENT PDF FOR REST OF CONDITION.	1	
02	Pursuant to section 116 of the Act, these consents (or any part thereof) shall not commence until such time as all charges pursuant to section 36, owing at the time this decision is notified are paid to the Council in full.	1	
03	The servants or agents of the Council shall be permitted to have access to the relevant parts of the property at all reasonable times for the purpose of carrying out inspections, surveys, investigations, tests, measurements or take samples white adhering to the consent holder's health and safety polices.	1	
04	Consents 22225 and 37541 shall expire 15 years after the date of commencement.	1	Consent expires 2027
05.1.1	The consent holder shall ensure that the discharge volume does not exceed the following limit: Annual Average Flow (average over any consecutive 12 month period) of up to 1,500 m' /day	1	
05.1.2	The consent holder shall ensure that the discharge volume does not exceed the following limit: 5.1.2 Maximum Daily Flow of up to 5,500 m^3/day.	1	
06	The consent holder shall discharge treated wastewater flows from the Helensville WWTP into the Kaipara River as follows: SEE CONSENT PDF FOR TABLE OF REQUIREMENTS.	1	
07	The consent holder shall ensure that when there are any of the following problems within any six month period: • with the plant maintaining the BOD5 and NH3 levels in the discharge within the limits specified in condition 17; and/or • with three monthly average DO in Pond 1 less than 2mgO/l; and/or • with the six monthly average effluent BOD5 exceeding 20mgO/l ; and/or • with the six monthly average effluent ammonia exceeding> 20mgN/I. steps are taken by the consent holder within six months to improve the quality of the discharge to the satisfaction of the Manager.	1	

Condition Number	Consent Conditions Helensville WWTP Discharge to Water (22225 / DIS60265455)	Condition Rating	Comment
08	The design and installation of all new system components shall be carried out under the supervision of a chartered professional engineer or other appropriately qualified person experienced in the design and installation of wastewater treatment systems. The supervising engineer/person shall inspect all the new works (as they are completed) , and shall certify in writing to the Manager that all additional components of the wastewater treatment system have been designed, inspected and installed in accordance with standard engineering practice and with the plans provided pursuant to condition 1 and any other plans or specifications required by the conditions of consent. This certification shall be carried out within three months of the installation of the UF unit and separately within three months of the permanent installation of the five new aerators into Ponds 1 and 2.	1	The most recent as-built drawings and engineering certificates were sent to Auckland Council on 18 August 2024.
09	Within three months of the commissioning of the new UF unit, the consent holder shall submit an updated 'as-built' general plant layout plan for the upgraded treatment system to the Council with the certification required by condition 8, showing on the plan the location of all existing and new key components of the treatment system.	1	The as-built drawings for the U/F plant together with a letter from GE certifying the plant were sent to AC in March 2016
10	The consent holder shall ensure that 24 hours a day, seven days a week electronic monitoring systems are installed and maintained to operate in the event of any pump failure or any mechanical failure of the UF unit.	1	An electronic monitoring system in place

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11	The consent holder shall prepare a Management Plan for the wastewater treatment and discharge system to enable compliance with the conditions of this consent to ensure that any adverse effects on the environment are minimised. The Management Plan shall be in accordance with the conditions of this consent and shall cover the following: • Reticulated Area - detailing the current and proposed future reticulated area of the Helensville and Parakai townships; • Plant Operation - specifications of the discharge regime which must cover how the discharge from the ponds will be managed to ensure compliance with consent conditions; • Inspection and Maintenance - outlining the practices and procedures with respect to inspection and maintenance to be adopted to ensure compliance with the conditions of consent; • Effluent and Receiving Environment Monitoring and Reporting - outlining the practices and procedures to be adopted with respect to monitoring and reporting 10 demonstrate on-going compliance with the conditions of consent; and • Contingency Plans - outlining the practices and procedures to be adopted with respect to contingency and incident response planning in order to avoid non-compliance with conditions of consent. The Management Plan shall be prepared under the supervision of an engineer or other person experienced in wastewater engineering for the wastewater treatment and disposal system and shall be submitted to the Council within three months of the commencement of this consent for the Manager's review and feedback.	1	Operations Management Plan approved by Auckland Council November 2023
12	The consent holder shall comply with the requirements of the Management Plan required by condition 11 once it has been approved. All subsequent significant updates to the plan throughout the term of this consent shall be submitted to the Manager for approval.	1	Ongoing
13	The consent holder shall maintain a register of the authorised trade waste connections to the Helensville WWTP and shall provide a copy of the updated register with the annual report required by condition 34.	1	Ongoing
14	The consent holder shall ensure flow meters are maintained in place to measure the total inflow to the WWTP and the total discharge volume from the system into the Kaipara River continuously. The discharge volume meter must be maintained to ensure an accuracy of plus or minus 5 percent.	1	Discharge volume meter in place and maintained accordingly

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15	The consent holder shall collect and keep data of the daily rainfall levels in the vicinity of Helensville WWTP or at an alternative location that provides representative indications of rainfall levels at the Kaipara River at the discharge location. This data shall be made available to the Manager on request.	1	Ongoing
16	The consent holder shall collect monitoring data and samples from the outlet of the tidal storage pond and shall record and analyse the samples for the following parameters, to the required detection limits and at the specified frequency: SEE CONSENT PDF FOR TABLE OF REQUIREMENTS	1	Monitoring conducted accordingly for all parameters.
17	The consent holder shall ensure that the quality of the wastewater discharged is equal to or better than the following parameter concentrations in relation to the time periods specified: SEE CONSENT PDF FOR TABLE OF REQUIREMENTS	1	
18	The consent holder shall ensure that the samples required by condition 16 are collected and analysed in accordance with the 22nd edition of "Standard Methods for the Examination of Water and Wastewater" (Standard Methods) published by the American Public Health Association (APHA), the Water Environment Federation(WEF),and the American Water Works Association (AwwA) or any subsequent edition or equivalent as may be approved in writing by the Manager.	1	Ongoing
19	The consent holder shall maintain a visual and photographic record of both the direct discharge point into the Kaipara River and also the Kaipara River to 1,000 metres downstream of the outfall, with records being collected on an annual basis and where practical at the same frequency of the receiving environment water quality monitoring required by conditions 20 to 29 unless written approval is first obtained from the Manager to reduce the number of samplings. Records shall be taken of the intertidal areas and the river itself when discharge is taking place and the tide is below mid· tide, at the discharge location and then at 100m, 200m, 400m and 1000m below the discharge. These records shall be provided in the Annual Report required by condition 34.	1	The environment monitoring was undertaken in November 2020 and January and April 2021. Additional routine water quality monitoring was started in February 2022.

Condition Number	Consent Conditions Helensville WWTP Discharge to Water (22225 / DIS60265455)	Condition Rating	Comment
20	The consent holder shall establish a series of monitoring sites upstream and downstream of the Helensville WWTP discharge. Three water samples shall be collected one hour after the discharge commences, or an alternative time approved by the manager, across a transect at each of the following locations: i. A site at least 100m upstream of the discharge point; ii. A site 100m downstream of the discharge point; iii. A site 400m downstream of the discharge point; and iv. A site 1000m downstream of the discharge point.	1	Next round of RE sampling to begin over coming months.
21	The consent holder shall ensure that the monitoring required by condition 20 is conducted once prior to 15 March 2014 and once again following this date and before 1 June 2015, and subsequently on a 3 yearly basis, each covering three sampling rounds between November and March, unless written approval is first obtained from the Manager to defer the sampling and/or reduce the number of samplings. If in the opinion of the Manager, the evaluation of results of any three sampling rounds indicates that either the discharge plume has not been captured or that the variability of results does not permit a scientifically meaningful evaluation of data, two additional sampling rounds shall be carried out in April and May. Results of the first three sampling rounds shall be provided in the quarterly report submitted on 31 March required by condition 33 , so that decisions about the need for the additional two rounds of monitoring can be made.	1	The environment monitoring was undertaken in November 2020 and January and April 2021. Additional water quality monitoring was started in February 2022.
22	The consent holder shall ensure that on each monitoring occasion required by condition 21,the person(s) undertaking the sampling record the following conditions: i. The weather conditions on the day of sampling and the week prior; ii. The effluent discharge quality, the discharge volume, discharge rate and discharge timing on the day of sampling; iii. The high tide times in the Kaipara River mouth area on the day of sampling and tide characteristics (i.e. neap or spring); and iv. The time of sampling in relation to the commencement of discharge release at each sampling site, to ensure standardisation of results.	1	

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23	The consent holder shall ensure that the water samples collected in accordance with condition 20 are collected from near surface starting at the upstream station, one hour after commencement of the discharge. The timing and location of samples taken downstream shall be representative of the discharge plume as it moves down the Kaipara River.	1	
24	The water samples required by condition 20 are to be analysed in the laboratory for the following parameters: SEE CONSENT PDF FOR LIST OF REQUIREMENTS	1	
25	The consent holder shall ensure that the samples collected in accordance with condition 20 shall be collected and analysed in accordance with the 22nd edition of the "Standard Methods for the Examination of Water and Wastewater" (APHA,AWWA and WEF) or any subsequent edition or equivalent as may be approved in advance and in writing by the Manager.	1	
26	The consent holder shall carry out microbiological monitoring of shellfish at the Kaipara River mouth on the same occasions as for receiving environment water quality monitoring (condition 20) unless written approval is first obtained for the Manager to defer the sampling and/or reduce the number of samplings. Five replicate shellfish samples shall be taken on each occasion and analysed for E.coli and on the first occasion adenoviruses and, if detected, on the second.	1	
27	The consent holder shall carry out sediment and intertidal/subtidal ecological monitoring at one station upstream and two stations (400m and 1000 m) downstream of the WWTP discharge in December 2014 and in December 2018. If in the opinion of the Manager, the evaluation of results of sampling carried out in 2014 and 2018 indicates that the variability of results does not permit a scientifically meaningful evaluation of data, an additional sampling round shall be carried out in 2021.	1	Sediment and ecological monitoring were sent to Auckland Council in 2023 and will be repeated in summer 2025-2026.
28	The consent holder shall ensure that the sampling protocols, including the number of replicates taken at each site, and the methods for processing and analysis is consistent with similar protocols adopted by the Council for "State of the Environment" monitoring purposes, to ensure integration and comparability of monitoring results.	1	

Condition Number	Consent Conditions Helensville WWTP Discharge to Water (22225 / DIS60265455)	Condition Rating	Comment
29	The consent holder shall ensure that analysis of sediment samples required by condition 28 includes sediment composition, concentrations of total organic carbon, nitrogen and phosphorus, as well as total recoverable copper, lead and zinc.	1	
30	Within five years of the commencement of this consent the consent holder shall reevaluate the contribution of nutrients and microbiological contaminants from the WWTP discharge to the Kaipara River and lower part of the southern Kaipara Harbour and related effects where these can be assessed. This review shall take account of updated monitoring information on the discharge, the Receiving Environment Water Quality Monitoring (conditions 20 - 29), State of the Environment monitoring conducted by the Council in the Kaipara Harbour, as well as changing circumstances in the upstream catchment (including removal of the Kumeu-Huapai wastewater scheme or new Council requirements for catchment management). This review shall also address the need or otherwise of an updated public health risk assessment, nutrient removal by the WWTP or other relevant upgrades. The results of this review shall be submitted to the Manager by 31 March 2016.	1	Helensville WWTP Environment Review completed by AECOM New Zealand Limited in June 2017
31	If regular inspections and observations of the discharge pipe indicate deficiencies in its performance or integrity, or if environmental monitoring indicates a need to improve the dilution and dispersion of the discharge in the receiving environment, the consent holder shall explore the options for replacing the current discharge pipe, with the aim of minimising any adverse effects of the structure and the discharge on the receiving environment.	1	No such observations made
32	In the event of two consecutive results for any single parameter (of samples collected in accordance with condition 16) not complying with the parameters specified in condition 17, the consent holder shall as soon as practicable of receipt of the second result notify the Manager of the exceedance in writing, outline the mitigation measures taken, and advise any further measures proposed to ensure compliance. If so, instructed by the Manager, the consent holder shall increase the frequency of monitoring for that parameter to weekly for a specified period.	1	

Condition Number	Consent Conditions Helensville WWTP Discharge to Water (22225 / DIS60265455)	Condition Rating	Comment
33	The consent holder shall ensure that the results of the monitoring undertaken in accordance with conditions 14 to 15(discharge flows and rainfall) and condition 17(discharge quality) are reported to the Manager quarterly within 20 working days of the period ending 31 December, 31 March, 30 June and 30 September each year.	1	Quarterly reports submitted to Auckland Council
34	The consent holder shall prepare an Annual Report and provide it to the Manager by 30 September each year. The Annual Report is to cover: i. A summary of the monthly results of all of the effluent discharge samples results set out in condition 16 for the period up to 30 June each year (the first being due on the 30 June following the commencement of the consent); ii. An analysis and interpretation of all reporting data required by this consent for the past year; iii. The level of compliance with each monitoring consent condition, with recommendations and a timetable for rectifying any non-compliance: IV. General plant performance, including: a. Any trends in changes in the discharge quality standards over time: b. The performance and effectiveness of the ultrafiltration unit; c. The levels of indicator pathogenic microorganisms; d. The effectiveness of total phosphorus removal and nutrient levels through the various seasons; and e. Any trends indicated over recent years. v. Any trends and status of 1&1 effects on total flow volumes and comment on flows during any peak storm events; VI. A review of any changes in influent load to the plant and any corresponding changes in the ammoniacal nitrogen levels; vii. A Receiving Environment Report compiling the results of the environmental monitoring required by conditions 20 - 29; viii. Any key system maintenance and/or upgrade work completed within the prior year and proposed in the forthcoming year, and changes (if any) to the Management Plan required by condition 11 ; ix. A review on the performance and improvements of the WWTP achieved in the past year; x. An updated Register of any trade wastes connected to the plant, as required by condition 13; XI. Details of any complaints received in accordance with condition 53	1	Ongoing

Condition Number	Consent Conditions Helensville WWTP Discharge to Water (22225 / DIS60265455)	Condition Rating	Comment
49	The conditions of this consent may be reviewed by the Manager pursuant to section 128 of the Act, by giving notice pursuant to section 129, two years after the commencement of the consent, again five years after the commencement of consent, and every five years thereafter in order: SEE CONSENT PDF FOR LIST OF REQUIREMENTS	N/A	
50	The consent holder shall within 3 months of the commencement of this consent facilitate the establishment and maintenance of a Community Liaison Group("CLG").The consent holder shall invite representatives of the following parties to participate in the CLG: SEE CONSENT PDF FOR LIST OF REQUIREMENTS	1	CLG has been formed accordingly. Next meeting planned for Nov 2025.
51	The consent holder shall use its best endeavours to ensure that formal meetings of the CLG required by condition 50 are held at least once annually and where practicable within three months of the completion of the Annual Report. SEE CONSENT PDF FOR CONTINUED REQUIREMENTS	1	
52	The consent holder shall assist the CLG to fulfil its purpose by providing information to CLG parties the on: SEE CONSENT PDF FOR LIST OF REQUIREMENTS	1	
53	All complaints received by the consent holder about the discharges shall be logged immediately. The information shall include: SEE CONSENT PDF FOR LIST OF REQUIREMENTS	1	Log book available upon request.

Appendix E. Data Sources

Download location of environmental monitoring data used in this report.

Category	Parameter	Source platform	Tag/ID
Rainfall	Total daily rainfall volumes	MOATA	ACC - Rain -Makarau @ Folded Hills Farm ID# 645519
Discharge flow	Discharge volumes and flow rates	Pi DataLink	DTHEL_55_FIT_100_PV.F_CV
Discharge quality	Physicochemical, nutrients, bacteria indicators, viral indicators, trace metals and SVOCs	Labware/ ID	WSL_HV_STP_FINAL_EFF
Influent quality	BOD TSS Total P ammonia	Pi DataLink	DTHEL_20_1_RS_CBOD DTHEL_20_1_RS_TSS DTHEL_20_1_RS_TP DTHEL_45_6_RI_TNH3N
Air quality	Walkover odour scores	WSL shared drive	O:\Ops\Wastewater Operations\Regional Plants\Nth Region\03 Asset Ops_Nth\1-Admin_Nth\LOGSHEETS
Air quality	Odour reports	WSL shared drive	O:\Ops\Wastewater Operations\Regional Plants\Nth Region\03 Asset Ops_Nth\DTHEL\19-Environmental Management\08-Odour