

## TE KOWHAI SUMMARY REPORT



Consent Name	Te Kowhai Wastewater Treatment Plant
Consent No.	139284
Year	1 July 2023 – 30 June 2024
Date	July 2024

## TE KOWAHI WASTEWATER TREATMENT SYSTEM

### ANNUAL REPORT 2023 - 2024

RC 139284

The Waikato District Council (WDC) holds the above resource consent associated with the treated domestic wastewater into the ground in association with municipal treatment facilities. Waikato District Council in conjunction with Watercare Services Limited operates the facility under the resource consents issued by Waikato Regional Council. The treatment system has been receiving waste from the community since November 2008. This consent was granted in 2018 and expires on 31 October 2033.

The conditions issued by Waikato Regional Council include the following:

139284      To Discharge to land from the Te Kowhai WWTP

*Appendix 1 – Data Summary*

*Appendix 2 – Fortnightly Results Summary*

*Appendix 3 – Complaint Summary*

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### OPERATIONAL COMMENTS

*Staff Maintenance Visits:* An operations staff member visits the site at least once a week.

### FUTURE WORKS

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EVENT SUMMARY		JULY 2023 – JUNE 2024
2023 – 2024	All non-compliances notified to WRC	

COMPLAINTS SUMMARY		JULY 2023– JUNE 2024
2023 – 2024	None received.	

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*To determine compliance with the median concentration limits, no more than 12 samples in any 24 consecutive fortnightly samples shall exceed the specified limit.*

*To determine compliance with the 90th percentile limits, no more than two sample in any twenty consecutive samples events shall exceed the specified limit.*

Compliance with the discharge quality conditions are summarized in the above table within the Compliance column. The measurement stated in the Compliance column cell indicates the number of test results exceeding the median or 90<sup>th</sup> percentile limit. The shading in the Compliance column cells indicates the state of compliance for each parameter; if the cell is shaded **green** the parameter is compliant, if the cell is shaded **red** the parameter is non-compliant.

Data Summary		Jun-2024		RC139284 - Te Kowhai							
<b>Inflow Summary Reporting</b>		m <sup>3</sup>									
Average Daily Inflow		267									
Max Daily Inflow		655									
Average Monthly Total		8,135									
Max Monthly Total		13,814									
Annual Inflow Total		97,616									
PWWF/ADWF Ratio		2.5									
<b>Outflow Summary Reporting</b>		Daily Limit - 30 m3									
Average Daily Flow		16									
Max Daily Flow		33									
90th Percentile Daily Flow		31									
Average Monthly Total		473									
Max Monthly Total		809									
Annual Outflow Total		5,676									
<b>Discharge Monthly Tests</b>				Consent Limits		Trigger Limit		Measured		Compliance	
Parameters	Unit	Median	90 <sup>th</sup> ile	Median	90 <sup>th</sup> ile	Median	90 <sup>th</sup> ile	Median	90 <sup>th</sup> ile		
CBOD5	g/m <sup>3</sup>	10.0	20.0			12.4	28.6	6 / 12	3 / 12	X	
Ammonical Nitrogen	g/m <sup>3</sup>	15.0	25.0			22.6	46.1	7 / 12	6 / 12		
Nitrate	g/m <sup>3</sup>	60.0	70.0			30.2	45.5	0 / 12	0 / 12	Compliant	
Total Suspended Solids	g/m <sup>3</sup>	10.0	20.0			13.2	25.1	9 / 12	4 / 12	X	
E.Coli	CFU/100ml	8,000.0	50,000.0			2,500.0	76,000.0	8 / 26	5 / 26		

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JULY 2023 – JUNE 2024

A summary of results are included in the spreadsheet above and a summary of compliance matters are included in the cover letter.

Conditions Comments	
2	<p><b>General</b></p> <p>The consent holder shall be responsible for all sub-contracted operations related to the exercise of this consent, and must ensure sub-contractors are made aware of the conditions of this consent.</p> <ul style="list-style-type: none"> <li>All contractors employed at the treatment site are inducted in both health and safety procedures and relevant conditions of this consent.</li> </ul>
4	<p>The consent holder shall not increase the number of properties served by the wastewater treatment plant without obtaining in advance the written approval of Waikato Regional Council.</p> <p>Advice note: At consent commencement, 20 dwellings were serviced by the Te Kowhai wastewater treatment plant.</p> <ul style="list-style-type: none"> <li>Fixed connection - closed supply, all new connections are automatically declined.</li> </ul>
5 - 8	<p><b>Discharge of Wastewater</b></p> <p>The maximum volume of treated wastewater discharged shall not exceed 30 cubic metres per day (24-hour period).            Non-Compliant – Maximum daily volume recorded 33m<sup>3</sup>/day.</p> <p>The discharge shall not exceed the absorptive capacity of the soils.            Compliant - None reported during the 2022-23 period.</p> <p>There shall be no ponding, pooling, or overland flow of effluent from any part of the wastewater treatment and disposal system, at any time.            Compliant - None reported during the 2022-23 period.</p> <p>The consent holder shall ensure that the treated wastewater leaving the Wastewater Treatment Plant does not exceed the following limits:</p> <p>(a) The median five-day carbonaceous biochemical oxygen demand concentration (cBOD5) shall not exceed 10 milligrams per litre and the 90th percentile shall not exceed 20 milligrams per litre;            Non-Compliant – Median measured at 12.4 mg/L            Non-Compliant – 90<sup>th</sup> Percentile measured at 28.6 mg/L</p> <p>(b) The median suspended solids (TSS) concentration shall not exceed 10 milligrams per litre and the 90th percentile shall not exceed 20 milligrams per litre;            Non-Compliant – Median measured at 13.3 mg/L            Non-Compliant – 90<sup>th</sup> Percentile measured at 25.1 mg/L</p> <p>(c) The median total ammoniacal-nitrogen (NH4-N) concentration shall not exceed 15 milligrams per litre and the 90th percentile shall not exceed 25 milligrams per litre;</p>

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Conditions Comments	
	<p>Non-Compliant – Median measured at 22.6 mg/L Non-Compliant – 90<sup>th</sup> Percentile measured at 46.1 mg/L</p> <p>(d) The median nitrate-nitrogen (NO<sub>3</sub>-N) concentration shall not exceed 60 milligrams per litre and the 90<sup>th</sup> percentile shall not exceed 70 milligrams per litre; Compliant – Median measured at 30.2 mg/L Compliant – 90<sup>th</sup> Percentile measured at 45.4 mg/L</p> <p>(e) The median Escherichia coli (E.coli) concentration shall not exceed 8,000 MPN per 100 millilitres and the 90<sup>th</sup> percentile shall not exceed 50,000 MPN per 100 millilitres. Compliant – Median measured at 2,500 MPN Non-Compliant – 90<sup>th</sup> Percentile measured at 76,000 MPN</p> <p>For the purposes of this condition, to determine compliance with the median concentration limits no more than 12 samples in any 24 consecutive fortnightly samples shall exceed the specified limit. To determine compliance with the 90<sup>th</sup> percentile limits, no more than two samples in any twenty consecutive samples events shall exceed the specified limit.</p> <ul style="list-style-type: none"> <li>• Please see the attached Appendix 2 spreadsheet data summary.</li> <li>• Fortnightly monitoring data is attached as Appendix 3.</li> <li>• Te Kowhai WWTP is Compliant with Nitrate and partial compliance with E.coli limits. Te Kowhai WWTP is non-compliant with cBOD<sub>5</sub>, TSS, and NH<sub>4</sub>-N for 2022-23 compliance period.</li> </ul>
9	<p>The treatment system shall be maintained in as watertight a condition as practicable to prevent the ingress of stormwater or groundwater into the systems.</p> <ul style="list-style-type: none"> <li>• The system is monitored and checked on regular basis. I&amp;I investigation was completed by Streamline during September 2021 and provided to WRC.</li> </ul>
10	<p>The discharges shall not result in any objectionable effects from odour beyond the property boundary.</p> <ul style="list-style-type: none"> <li>• No odour complaints received for Te Kowhai WWTP for 2022-2023 compliance period.</li> </ul>
11-13	<p>The consent holder shall monitor the flow rate of the treated wastewater leaving the Wastewater Treatment Plant and shall record the total daily (24-hour) discharge volume discharged.</p> <p>The consent holder shall take grab samples of the treated wastewater on a fortnightly basis from the discharge from the Wastewater Treatment Plant, for the purpose of determining compliance with condition 8. All grab samples shall also be analysed for Total Nitrogen (TN) concentrations for information purposes.</p> <p>All wastewater quality analyses shall be undertaken by an IANZ accredited or equivalent laboratory. All methods used shall be appropriate for the wastewater analyses undertaken.</p> <p>The consent holder shall forward the results of the monitoring undertaken via conditions 11 and 12 to the Waikato Regional Council, via electronic means, on a three-monthly basis.</p> <ul style="list-style-type: none"> <li>• Monitoring is automated through Water Outlook</li> <li>• Please refer to Appendix One for the summary of 2022-23 monitoring data</li> <li>• Monthly reports are submitted to Regional Council which includes the inflow and outflow monitoring data.</li> </ul>

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	<ul style="list-style-type: none"> <li>Fortnightly data is available for the 2022-23 compliance period (see Appendix 3).</li> <li>The consent monitoring samples are collected and analysed by Watercare Lab (IANZ accredited)</li> </ul>
14	<p>The consent holder shall notify the Waikato Regional Council within 24 hours (where practicable) of the consent holder becoming aware of the limits specified in Conditions 5 and 8 of this resource consent being exceeded, or any accidental discharge, plant breakdown or other circumstance which is likely to result in the limits of this consent being exceeded. The consent holder shall, within 10 working days of the incident occurring, provide a written report to the Waikato Regional Council, identifying the breach, possible causes and any remedial actions and steps to ensure future compliance.</p> <ul style="list-style-type: none"> <li>All major incidents are notified to WRC as required.</li> <li>WSL-WRC liaison meetings as necessary and monthly updates to address any non-compliances.</li> </ul>
15	<p>The consent holder shall provide to the Waikato Regional Council a written report (the Annual Report) by 30 September each year. The Annual Report shall include as a minimum:</p> <p>(a) A summary of the monitoring results required by the conditions of these resource consents for year ending 30 June; (b) A critical assessment of the monitoring data collected and comment on any emerging trends; (c) Commentary on compliance with the conditions of this resource consent; (d) Any reasons for non-compliance or difficulties in achieving compliance with the conditions of this resource consent and a description and a summary of the effectiveness of any remedial works undertaken; and (e) Any other issue considered relevant by the consent holder</p> <ul style="list-style-type: none"> <li>This report is submitted per the consent requirement.</li> </ul>
16	<p>The consent holder shall be responsible for the structural integrity and maintenance of the banks adjacent to the discharge areas and for any erosion control works that become necessary to preserve the integrity and stability of the stream banks and/or to control erosion that occurs as a result of the exercise of this resource consent.</p> <ul style="list-style-type: none"> <li>Structural integrity of the banks adjacent to the discharge area are maintained.</li> </ul>
17	<p>The consent holder shall maintain a record of all maintenance undertaken on the wastewater treatment and disposal system. These records shall be available to the Waikato Regional Council at all reasonable times.</p> <ul style="list-style-type: none"> <li>Condition assessment completed.</li> <li>Asset database completed.</li> <li>Maintenance plans being developed.</li> </ul>
18	<p>The septic tanks shall be de-sludged as necessary, or when required in writing by the Waikato Regional Council.</p> <ul style="list-style-type: none"> <li>Septic tanks are de-sludge as required.</li> </ul>
19	<p>The consent holder shall prepare an Operations and Management Plan (OMP). The objective of the OMP is to provide a framework for the operation and management of the wastewater treatment plant to ensure compliance with the conditions of consent. This OMP shall be lodged with Waikato Regional Council within six months of commencement of this consent and shall be reviewed and</p>

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	<p>updated every three years and as required as a result of any changes to the wastewater treatment plant operation or management.</p> <p>As a minimum the Operations and Management Plan shall include: (a) A description of the Te Kowhai Wastewater Treatment Plant; (b) A description and schedule of the routine inspection, monitoring and maintenance procedures to be undertaken; (c) A description of the sampling location and methodology for sampling the treated wastewater discharge; (d) Details of contingency plans and procedures to address power or equipment failure at the Wastewater Treatment Plant; (e) Procedures for recording routine maintenance and all major repairs that are undertaken; and (f) Details of the chain of command, responsibility and notification protocols.</p> <ul style="list-style-type: none"> <li>An Operations &amp; Management Plan is retained for this site. The Te Kowhai Operations &amp; Management Plan was subjected to an initial review by the Watercare team and is attached as Appendix 4 of the 2021-2022 Annual Report.</li> </ul>
20-21	<p><b>Complaints register</b></p> <p>The consent holder shall maintain a Complaints Register for any complaints made about the Wastewater Treatment Plant received by the consent holder. The Register shall record:</p> <p>(a) The date, time and duration of the alleged event/incident that has resulted in the complaint; (b) The location of the complainant when the complaint was detected by the complainant; (c) The possible cause of the complaint including any relevant event/incident and its duration; (d) In relation to odour, the weather conditions and wind direction at the site when the odour was detected by the complainant; (e) Any remedial action undertaken by the consent holder in response to the complaint.</p> <p>The Complaints Register shall be made available to the Waikato Regional Council at all reasonable times. Complaints which may indicate non-compliance with the conditions of this permit shall be forwarded to the Waikato Regional Council within five working days of the complaint being received</p> <ul style="list-style-type: none"> <li>Councils CRM database records all complaints from the public. No complaints were received for the Te Kowhai WWTP. Appendix 4 is attached as evidence of a complaints register.</li> </ul>
24	<p><b>Riparian Planting-Stage I</b></p> <p>The riparian planting required in accordance with condition 23 shall be:</p> <p>1. Undertaken within three years of the commencement of this consent; 2. Of a width no less than 10 metres; 3. At a density of no less than 2,500 stems per hectare; 4. A minimum of 80% of native plant species appropriate to the characteristics of the site and catchment (e.g. climate, size of stream, flood risk, erosion, local native flora, potential, and slope); 5. Maintained by the consent holder (including replacement of losses and control of pest species) accordingly during the term of the consent.</p> <ul style="list-style-type: none"> <li>Riparian planting in association with Waikato RiverCare has been completed. See Appendix 1 of the 2022-2023 Annual Report.</li> </ul>
25	<p>Within 12 months of the commencement of this consent, the consent holder shall provide to the Waikato Regional Council a Riparian Planting and Management Plan. The objective of the Riparian Planting Management Plan is to provide a framework that outlines how conditions 23 and 24 shall be achieved. The plan shall be reviewed and updated every five years and as required as a result of any changes to the wastewater treatment plant operation or management.</p>

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	<p>Advice Note: The consent holder does not own the land where the riparian planting is proposed. Should the consent holder not be able to reach agreement with the land owner with regards to the planting as required through condition 23, the Riparian Planting and Management Plan shall propose an equivalent length of riparian planting at another site within the Waipa River catchment.</p> <ul style="list-style-type: none"> <li>Planting Plan and Maintenance plan provided to WRC in 2021.</li> </ul>
31	<p><b>Riparian Planting- Stage 2</b></p> <p>Within 10 years of the commencement of this consent, the consent holder shall provide to the Waikato Regional Council a Riparian Planting and Management Plan for the Stage 2 Riparian Planting. The objective of the Riparian Planting Management Plan is to provide a framework that outlines how conditions 29 shall be achieved. The plan shall be reviewed and updated every five years and as required as a result of any changes to the wastewater treatment plant operation or management.</p> <ul style="list-style-type: none"> <li>Riparian Planting and Management Plan for stage 2 is due by October 2028</li> </ul>
32	<p><b>Inflow and Infiltration</b></p> <p>The consent holder shall undertake an Inflow and Infiltration (I&amp;I) investigation of the Te Kowhai wastewater network. The purpose of the investigation is to determine the condition of the wastewater network connecting the residential properties to the Te Kowhai Wastewater Treatment Plant and shall cover the following matters as a minimum:</p> <p>(a) An assessment of the general condition of the wastewater network, (b) An assessment of the extent and causes of I&amp;I into the wastewater network, (c) An assessment of the identified rates of I&amp;I when compared to other comparable networks, and (d) The identification of practicable and cost-effective interventions to reduce I&amp;I within the wastewater network.</p> <p>The I&amp;I investigation shall be submitted to the Waikato Regional Council within 12 months of the commencement of this consent. The interventions identified under (d) shall be implemented within 36 months of the commencement of consent, with evidence of implementation submitted to the Waikato Regional Council.</p> <ul style="list-style-type: none"> <li>An Inflow and Infiltration investigation was carried out at Te Kowhai by Streamline Environmental &amp; Drainage during September 2021. Some properties were found to have breached the bylaw and notices were sent out to the customers to rectify the issue. Upon re-inspection, these properties were found to not have cross connections and were compliant with the bylaw.</li> <li>Private property septic tank infiltration due to poor sealing is considered a highly probable cause.</li> </ul>
33-34	<p><b>Review</b></p> <p>In the 3 months preceding the 8th and 12th anniversaries of the date of consent commencement, the consent holder shall submit a letter to the Waikato Regional Council outlining current and projected growth in the Te Kowhai area, and the anticipated management of wastewater.</p> <p>The Waikato Regional Council may, in the six-month period following the 5th anniversary of consent commencement, serve notice on the consent holder under section 128 (1) of the Resource</p>





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Conditions Comments	
	<p>Management Act 1991, of its intention to review the conditions of this resource consent for the following purposes:</p> <p>(a) To review the effectiveness of the conditions of this resource consent in avoiding or mitigating any adverse effects from the exercise of the resource consent and if necessary to avoid, remedy or mitigate such effects by way of further or amended conditions; or (b) To review the adequacy of and the necessity for monitoring undertaken by the consent holder and specifically to review the frequency of record keeping and the method of record collection for the purposes of determining the most appropriate method and frequency; or (c) To add or amend consent conditions in light of monitoring results and/or changed environmental conditions to require the holder of this resource consent to adopt the best practicable option to remove or reduce adverse effects on the surrounding environment; or</p> <p>(d) To review the effectiveness of the conditions of consent in avoiding or mitigating any adverse cultural effects and if necessary to avoid, remedy or mitigate such effects by way of further or amended conditions.</p>