R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Otago Regional Council	**Lab No:**	4066000 SPv1
Contact:	Otago Regional Council - Compliance C/- Otago Regional Council Private Bag 1954 Dunedin 9054	**Date Received:**	30-Dec-2025
		Date Reported:	07-Jan-2026
		Quote No:	[redacted]
		Order No:	
		Client Reference:	
		Add. Client Ref:	[redacted]
		Submitted By:	

Sample Type: Aqueous

Sample Name:		GT 780 ORC - U/S WWTP + SH1 Bridges 29-Dec-2025 10:00 am	GT 779 ORC - Final Discharge Post UV 29-Dec-2025 10:30 am	GT 781 ORC - Shotover WWTP Discharge To Shotover River 29-Dec-2025 11:20 am	GT 782 ORC - Approx 200m D/S Of Discharge To Shotover River 29-Dec-2025 11:10 am	GT 840 ORC - U/S Of Kawarau River 29-Dec-2025 10:40 am
Lab Number:		4066000.1	4066000.2	4066000.3	4066000.4	4066000.5
pH	pH Units	8.0	7.3	7.3	7.8	7.7
Total Suspended Solids	g/m³	270	6	5	108	< 3
Total Nitrogen	g/m³	< 6	< 6	< 6	< 6	< 6
Total Ammoniacal-N	g/m³	< 0.010	0.095	0.092	0.010	0.025
Nitrite-N	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nitrate-N	g/m³	< 0.10	3.4	3.3	0.33	< 0.10
Nitrate-N + Nitrite-N	g/m³	< 0.10	3.5	3.3	0.33	< 0.10
Total Kjeldahl Nitrogen (TKN)	g/m³	< 5	< 5	< 5	< 5	< 5
Total Phosphorus	g/m³	< 0.10	2.0	1.70	0.16	< 0.10
Total Biochemical Oxygen Demand ($TBOD_5$)	g O_2/m³	< 2	< 2	< 2	< 2	< 2
Escherichia coli	cfu / 100mL	< 100 #1	< 100 #1	240	20 #1	10 #1

Sample Name:		GT 785 ORC - D/S Of Kawarau River 29-Dec-2025 11:50 am
Lab Number:		4066000.6
pH	pH Units	7.8
Total Suspended Solids	g/m³	145
Total Nitrogen	g/m³	< 6
Total Ammoniacal-N	g/m³	< 0.010
Nitrite-N	g/m³	< 0.10
Nitrate-N	g/m³	< 0.10
Nitrate-N + Nitrite-N	g/m³	< 0.10
Total Kjeldahl Nitrogen (TKN)	g/m³	< 5
Total Phosphorus	g/m³	< 0.10
Total Biochemical Oxygen Demand ($TBOD_5$)	g O_2/m³	< 2
Escherichia coli	cfu / 100mL	< 10 #1

Analyst's Comments

The customer has indicated that the sampling time was recorded as NZ Standard Time (NZST). The sampling time has been reported as supplied in NZST. It should be noted any other times reported by Hill Laboratories will have been corrected for New Zealand Daylight Saving Time (NZDT), where applicable.

The sample temperature on arrival (taken from a randomly selected sample from within the batch) was 4.1 °C.

It was noted that security tape was applied to the bin and/or samples and this was intact on receipt at the laboratory. The seal numbers are as follows: 0385996 & 0385997

#1 Statistically estimated count based on the theoretical countable range for the stated method.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Filtration, Unpreserved	Sample filtration through 0.45 µm membrane filter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch.	-	1-6
pH	pH meter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 4500-H^+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1-6
Total Suspended Solids	Filtration using Whatman 934 AH, Advantec GC-50 or equivalent filters (nominal pore size 1.2 - 1.5 µm), gravimetric determination. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2540 D (modified) : Online Edition.	3 g/m^3	1-6
Total Nitrogen	Calculation: TKN + Nitrate-N + Nitrite-N. Please note: The Default Detection Limit of 0.05 g/m^3 is only attainable when the TKN has been determined using a trace method utilising duplicate analyses. In cases where the Detection Limit for TKN is 0.10 g/m^3, the Default Detection Limit for Total Nitrogen will be 0.11 g/m^3. In-house calculation.	0.05 g/m^3	1-6
Total Ammoniacal-N	Filtered Sample from Christchurch. Phenol/hypochlorite colourimetry. Flow injection analyser. (NH_4-N = NH_4^+-N + NH_3-N). APHA 4500-NH_3 H (modified) : Online Edition.	0.010 g/m^3	1-6
Nitrite-N	Filtered sample from Christchurch. Automated Azo dye colorimetry, Flow injection analyser, screen level. APHA 4500-NO_3^- I (modified) : Online Edition.	0.10 g/m^3	1-6
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - Nitrite-N. In-House.	0.0010 g/m^3	1-6
Nitrate-N + Nitrite-N	Filtered sample from Christchurch. Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser, screen level. APHA 4500-NO_3^- I (modified) : Online Edition.	0.10 g/m^3	1-6
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, automated phenol/hypochlorite colorimetry. APHA 4500-N_{org} D (modified): Online Edition.	5 g/m^3	1-6
Total Phosphorus	Total phosphorus digestion, automated ascorbic acid colorimetry, screen level. Flow Injection Analyser. APHA 4500-P H (modified) : Online Edition.	0.10 g/m^3	1-6
Total Biochemical Oxygen Demand ($TBOD_5$)	Incubation 5 days, DO meter, no nitrification inhibitor added, seeded. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 5210 B (modified) : Online Edition.	2 g O_2/m^3	1-6
Escherichia coli	Membrane filtration, count on CCA agar, incubated at 44.5°C for 21-24 hours. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 9222 I (modified) : Online Edition.	1 cfu / 100mL	1-6

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 30-Dec-2025 and 07-Jan-2026. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.