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ANALYSIS REPORT

Client:	Hawkes Bay Regional Council	**Lab No:**	1791763	SPv1
Contact:	V Lyon	**Date Received:**	14-Jun-2017	
	C/- Hawkes Bay Regional Council	**Date Reported:**	28-Jun-2017	
	Private Bag 6006	**Quote No:**	78490	
	Napier 4142	**Order No:**	N49176	
		Client Reference:	Whangawehi	
		Add. Client Ref:	312-302	
		Submitted By:	V Lyon	

Sample Type: Aqueous

Sample Name:		63190 - Whangawehi Strm at Pat O'Brians-3304 13-Jun-2017 2:36 am	63191 - Mangatupae Strm at Pat O'Brians-3303 13-Jun-2017 2:30 am	63192 - Whangawehi at George Ormonds -3301 13-Jun-2017 3:30 am	69193 - Coops - Trib of Whangawhi - 3306 13-Jun-2017 12:00 pm	69194- Reserve Stream - Trib of Whangawehi - 3307 13-Jun-2017 12:15 pm
Lab Number:		1791763.1	1791763.2	1791763.3	1791763.4	1791763.5
Faecal Coliforms and E. coli profile						
Faecal Coliforms	cfu / 100mL	110 #2	80 #2	100 #2	170 #2	170 #2
Escherichia coli	cfu / 100mL	110 #2	80 #2	90 #2	160 #2	130 #2
HBRC Standard River						
Volatile Suspended Solids	g/m³	< 1.2 #1	1.1	< 1.0 #1	< 1.0 #1	0.6
Total Suspended Solids	g/m³	16.3	7.7	10.6	11.4	5.9
Total Nitrogen	g/m³	0.86	0.68	0.91	0.95	0.40
Total Ammoniacal-N	g/m³	0.013	0.007	0.016	0.011	0.022
Nitrite-N	g/m³	0.0034	0.0037	0.0042	0.0042	0.0011
Nitrate-N	g/m³	0.54	0.38	0.55	0.74	0.22
Nitrate-N + Nitrite-N	g/m³	0.55	0.38	0.56	0.75	0.22
Total Kjeldahl Nitrogen (TKN)	g/m³	0.31	0.30	0.35	0.21	0.18
Dissolved Reactive Phosphorus	g/m³	0.042	0.035	0.043	0.047	0.049
Total Phosphorus	g/m³	0.053	0.048	0.054	0.049	0.052

Sample Name:		69195 - Whangawehi US Reserve Confl - 3308 13-Jun-2017 12:30 pm	69196 - Whangawehi DS Cattleyards - 3309 13-Jun-2017 1:00 pm			
Lab Number:		1791763.6	1791763.7			
Faecal Coliforms and E. coli profile						
Faecal Coliforms	cfu / 100mL	100 #2	36	-	-	-
Escherichia coli	cfu / 100mL	100 #2	27	-	-	-
HBRC Standard River						
Volatile Suspended Solids	g/m³	< 0.5	1.8	-	-	-
Total Suspended Solids	g/m³	2.7	10.4	-	-	-
Total Nitrogen	g/m³	1.02	0.64	-	-	-
Total Ammoniacal-N	g/m³	0.011	0.010	-	-	-
Nitrite-N	g/m³	0.0026	0.0024	-	-	-
Nitrate-N	g/m³	0.72	0.189	-	-	-
Nitrate-N + Nitrite-N	g/m³	0.72	0.192	-	-	-
Total Kjeldahl Nitrogen (TKN)	g/m³	0.30	0.44	-	-	-
Dissolved Reactive Phosphorus	g/m³	0.046	0.027	-	-	-
Total Phosphorus	g/m³	0.049	0.045	-	-	-

Analyst's Comments

#1 Due to the nature of samples 1791763/1,3&4, it was not possible to filter the usual volume for the Volatile Suspended Solids Low analysis. As the volume filtered was less than usual, the detection limit achieved is greater than normal.

#2 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 clean 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.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1-7
Total Kjeldahl Digestion	Sulphuric acid digestion with copper sulphate catalyst.	-	1-7
Total Phosphorus Digestion	Acid persulphate digestion.	-	1-7
Volatile Suspended Solids	Filtration (GF/C, 1.2 µm). Ashing 550°C, 30 min. Gravimetric. APHA 2540 E 22nd ed. 2012.	0.5 g/m^3	1-7
Total Suspended Solids	Filtration of a 2L sample using Whatman 934 AH, Advantec GC-50 or equivalent filters (nominal pore size 1.2 - 1.5µm), gravimetric determination. APHA 2540 D 22nd ed. 2012.	0.5 g/m^3	1-7
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.	0.05 g/m^3	1-7
Total Ammoniacal-N Trace	Phenol/hypochlorite colorimetry. Flow injection analyser. (NH4-N = NH4+-N + NH3-N). APHA 4500-NH_3 H 22nd ed. 2012.	0.005 g/m^3	1-7
Nitrite-N Trace	Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO_3^- I 22nd ed. 2012 (modified).	0.0010 g/m^3	1-7
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - NO2N. In-House.	0.0010 g/m^3	1-7
Nitrate-N + Nitrite-N Trace	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO_3^- I 22nd ed. 2012 (modified).	0.0010 g/m^3	1-7
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, phenol/hypochlorite colorimetry. Discrete Analyser. APHA 4500-N_{org} D. (modified) 4500 NH_3 F (modified) 22nd ed. 2012.	0.10 g/m^3	1-7
Dissolved Reactive Phosphorus (trace)	Filtered sample. Molybdenum blue colorimetry. Flow injection analyser. APHA 4500-P G 22nd ed. 2012.	0.0010 g/m^3	1-7
Total Phosphorus	Total phosphorus digestion, ascorbic acid colorimetry. Discrete Analyser. APHA 4500-P B & E (modified from manual analysis) 22nd ed. 2012. Also modified to include the use of a reductant to eliminate interference from arsenic present in the sample. NWASCA, Water & soil Miscellaneous Publication No. 38, 1982.	0.004 g/m^3	1-7
HBRC Standard River		0.0010 - 0.5 g/m^3	1-7
Faecal Coliforms and E. coli profile			
Faecal Coliforms	Membrane Filtration, Count on mFC agar, Incubated at 44.5°C for 22 hours, Confirmation. Analysed at Hill Laboratories - Microbiology; 1 Clow Place, Hamilton. APHA 9222 D, 22nd ed. 2012.	1 cfu / 100mL	1-7
Escherichia coli	Membrane filtration, Count on mFC agar, Incubated at 44.5°C for 22 hours, MUG Confirmation. Analysed at Hill Laboratories - Microbiology; 1 Clow Place, Hamilton. APHA 9222 G, 22nd ed. 2012.	1 cfu / 100mL	1-7

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

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

Graham Corban MSc Tech (Hons)
Client Services Manager - Environmental