Governors Bay
Wastewater Treatment Plant
Annual Monitoring Report
July 2018 – June 2019

Prepared by: Citycare Water
Kris Kaser

On behalf of

Christchurch City Council, City Water & Waste Unit

28 Aug 2019

Resource Consent Number:	CRC101760
File Number:	CO6C/03694
Client Name:	Christchurch City Council
To:	Discharge Contaminants Into Water
Consent Location:	Governors Bay Wastewater Treatment Plant, GOVERNORS BAY
Status:	Active

07/08/2012 Consent Commenced
07/08/2017 Lapse Date
03/09/2012 Given Effect to Date
31/12/2018 Expiry Date

Subject to the Following Conditions:

1	The discharge shall be only treated sewage from the Governors Bay Wastewater Treatment Plant, located at Lot 1 DP 55349, Jetty Road, Governors Bay. The Governors Bay Wastewater Treatment Plant shall only service municipal waste from the settlement of Governors Bay.
	Compliance
2	a. Treated sewage effluent shall only be discharged to Lyttelton Harbour/Whakaraupo via an existing ocean outfall located at or about map reference NZMS 260 M36:838-315. b. The discharge at this location shall cease on 31 December 2018.
	Compliance
3	The volume of effluent discharged shall not exceed 600 cubic metres per day at a maximum rate of 21 litres per second.
	Non-compliance; The Daily volumes were compliant however the instantaneous flow rate limit was exceeded 7 times – It should be noted that the flow meter is on the incoming flows to the Treatment plant and these will be "buffered" – highest flowrate was 22.5l/s (13Dec18)
4	The consent holder shall measure inflows from the Governors Bay Wastewater Treatment Plant, on a continuous basis, to a degree of accuracy of plus or minus ten percent, and shall maintain a record of total daily inflows. This record shall be made available to the Canterbury Regional Council on request.
	Compliance
5	The median concentration of the five-day biological oxygen demand in the effluent discharged shall not exceed 30 grams per cubic metre from the date of commencement of this consent.
	Compliance
6	The median concentration of the suspended solids in the effluent discharged shall not exceed 30 grams per cubic metre from the date of commencement of this consent.
	Compliance: – refer attachment 2.1
7	a. The median concentration of faecal coliforms shall not exceed 700 colony forming units (CFU) per 100 millilitres of effluent. b. The median concentration of enterococci shall not exceed 1,750 MPN per 100 millilitres of effluent.
	Compliance
8	For the purposes of determining whether the consent holder is complying with Conditions (5), (6) and (7): a. The effluent shall be sampled at any point after treatment and prior to discharge, and analysed for the concentration of the five-day biological oxygen demand, suspended solids, faecal coliforms and enterococci. b. The effluent shall be sampled at the following frequency: i. at least monthly samples shall be taken from 1 March to 30 November; and ii. at least weekly samples, on separate days selected at random, shall be taken during December, January and February. c. For the purposes of Conditions (5), (6) and (7), whenever a new sample result is available for each determinand, it shall be grouped with the previous four results obtained under Conditions (8)(a) and (b) or Condition (9), and the median result recorded. d. The time of day samples are taken shall be recorded.
	Compliance
9	If any sample measured has a faecal coliform count greater than 700 faecal coliforms per 100 millilitres of effluent or an enterococci count of more than 1,750 MPN per 100 millilitres of effluent, the consent holder shall take a further sample of treated effluent within two days of obtaining that result and shall test for faecal coliform and enterococci

	concentrations.
	Compliance
10	a. If the median concentration of faecal coliforms or enterococci, as calculated in accordance with Condition 8(c), exceeds 700 faecal coliforms per 100 millilitres or 1,750 enterococci per 100 millilitres of effluent, the consent holder shall within five working days of the exceedence, write to the Canterbury Regional Council prepare a report outlining the measures the consent holder proposes to undertake to address the concentration exceedences, and the timeframe within which this will occur. b. The consent holder shall display the report required by condition 10(a) to the Canterbury Regional Council and display the report required by condition 10(a) on the consent holder's website. This report shall be uploaded within five working days of the exceedance occurring. c. The Consent Holder shall notify the Canterbury Regional Council and the parties set out in condition 21(b) within five working days of the exceedance described in condition 10(a).
	Compliance
11	Prior to discharge, the effluent shall be sampled and analysed not less than once per month for the following: a. Dissolved reactive phosphorus (grams per cubic metre); b. Ammoniacal nitrogen (grams per cubic metre); c. Total oxidized nitrogen (grams per cubic metre); and d. Total nitrogen (grams per cubic metre).
	Compliance
12	Prior to discharge, the effluent shall be sampled at least annually during January and analysed for the following: a. Arsenic (milligrams per cubic metre); b. Cadmium (milligrams per cubic metre); c. Chromium (milligrams per cubic metre); d. Copper (milligrams per cubic metre); e. Lead (milligrams per cubic metre); f. Nickel (milligrams per cubic metre); and g. Zinc (milligrams per cubic metre)
	Compliance
13	The sampling and analysis required by condition 15 shall continue for a further 12 months from the date of cessation of discharge.
	CCC to follow up
14	a. The water of the receiving environment shall be sampled in January, February, March, May, June, September, November and December, at each of the following locations: i. 50 metres due north of the outfall; ii. 50 metres sue south of the outfall; iii. 50 metres due east of the outfall; iv. 50 metres due west of the outfall; and v. Surface water quality monitoring site SQ35187 (which is located at or about NZMS 260: M36:8636-3190, east of Quail Island/Otamahua). b. Each sample shall be analysed for the concentration of faecal coliforms, enterococci, total suspended solids, ammoniacal nitrogen, total oxidized nitrogen, total nitrogen, chlorophyll-a and dissolved reactive phosphorus. c. The time the samples are taken shall be recorded. d. Samples shall be taken at approximately 0.5 metres below the surface of the water. e. Samples shall not be taken on consecutive days. f. Samples shall be taken within one hour of low water.
	Compliance
15	a. The water of the receiving environment shall be sampled from the shore, once per month at Rapaki at or about NZMS 260:M36:845-332. b. Each sample shall be analysed for the concentration of faecal coliforms and shall also be analyses to determine the source(s) of the faecal contamination, whare faecal coliform, levels exceed 260 faecal coliforms/100mL. c. The time the sample is taken shall be recorded. d. Each sample shall be taken at approximately 0.5 metres below the surface of the water. e. Each sample shall not be taken on consecutive days. f. Each sample shall be taken between three to five hours after the time of high tide.
	Compliance
16	If any of the samples collected from around the mixing zone in accordance with Condition (14) contain concentrations of total nitrogen greater than 1.0mgN/l or ammoniacal nitrogen greater than 0.91 mgN/l, the consent holder shall undertake an investigation of the operation of the Wastewater Treatment Plant and shall re-sample the discharge for ammoniacal nitrogen, total oxidized nitrogen, total nitrogen and dissolved reactive phosphorus, within 48 hours of receiving the results of the initial survey. The consent holder shall report the findings of the investigation to Canterbury Regional Council and the parties set out in condition 21(b) within one week of receipt of the results of the re-sample.

	Compliance
17	The monitoring required under Condition (14) shall be undertaken on the same day as the monitoring required under Condition (8). In the event that the monitoring required under Conditions (14) and (8) cannot be undertaken on the same days, the reason shall be recorded and submitted to the Canterbury Regional Council and the parties set out in condition 21(b) with the results required to be submitted in accordance with Condition (19).
	Compliance
18	The laboratory carrying out the analyses for the purposes of Conditions (5), (6), (7), (9), (11), (12), (14) and (15) of this consent shall be accredited for the analyses to ISO Guide 25, either by International Accreditation New Zealand (IANZ), or by an organisation with a mutual agreement with IANZ.
	Compliance
19	The consent holder shall submit to the Canterbury Regional Council and the parties set out in condition 21(b): a. The results of any monitoring required each month under the conditions of this consent, by the 10th working day of the following month. b. The results of any sampling undertaken under Condition (9) that have a faecal coliform count greater that 700 faecal coliforms per 100 millilitres of effluent, or an enterococci count greater than 1,750 enterococci MPN per 100 millilitres of effluent, within three working days of receipt of any results. c. The interpretation of the sampling undertaken under condition (1) against the recreational Shellfish Gathering Guideline in the Microbiological Water quality Guidelines for Marine and Freshwater Recreation Areas (ministry for the Environment, 2003) shall be published monthly on the consent holder's website.
	Compliance
20	The consent holder shall submit to the Canterbury Regional Council and parties set out in condition 21(b) within three months of the commencement of this consent, a Management Plan. This shall include: a. An Operation and Maintenance Manual, which contains the key operation and maintenance tasks of the operator, normal operations, emergency operations and safety precautions. The emergency operations and safety precautions shall set out: i. The contingency measures to be taken at the pumping stations in the Governors Bay Wastewater Treatment Plant catchment and at the Treatment Plant in order to avoid the release of effluent to the environment during periods of any mechanical or electrical failure or power cut; and ii. The measures to be taken at the pumping stations in the Governors Bay catchment and at the Treatment Plant in the event of an emergency discharge or overflow. b. The Management Practices to ensure compliance with conditions of the resource consent. c. The Maintenance Contractor's monitoring programme and reporting provisions, including a specific requirement that monitoring is undertaken in accordance with Conditions (8), (9), (10), (11), (12), (13), (14), (15) and (16) of this consent.
	Compliance; Updated Management Plan submitted on 28 June 2018
21	a. The consent holder shall submit a report to the Canterbury Regional Council, attention: RMA Compliance and Enforcement Manager, by 31 August of each year summarising the monitoring data collected and providing an interpretation of the results of monitoring. This report shall include an interpretation of the sampling undertaken under condition (15) against the Recreational Shellfish Gathering Guideline in the Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Areas (Ministry for the Environment, 2003). b. The consent holder shall supply a copy of the report referred to in condition 21(a) to all of the following organizations/groups/people: a. Governors Bay Community Association; b. Cass Bay Residents Association; c. Church Bay Neighborhood Association d. Governors Bay Community Association Incorporated; e. Lyttleton Harbour/Whakaraupo Issues Group; f. Paula Smith C/o 1 Purau Avenue, RD 2, Governors Bay; g. Te Hapu o Ngati Wheke (Rapaki) Runanga; h. Te Runanga o Koukourarata; i. Te Runanga o Ngati Tahu. a. The consent holder shall display all effluent and receiving environment monitoring data collected on the consent holder's website. This data shall be updated on a monthly basis.
	Compliance via this report; CCC to distribute
22	a. The consent holder shall prepare an implementation plan within 60 working days of the commencement of this resource consent. b. The implementation plan must describe the steps to be undertaken to ensure that by 31 December 2018 sewage is no longer discharged from Governors Bay outfall into Lyttelton Harbour/Whakaraupo, including: a. No later than 30 June 2015 all preliminary design details have been completed; b. No later than 30 September 2015, all necessary resource consents have been applied for; c. No later than 31 March 2017 detailed design work completed; d. No later than 31 July 2017 the contract to construct the works is let; e. No later than 31 December 2018 all works have been commissioned. a. The consent holder shall provide an annual report to the Canterbury Regional Council in July of each year, outlining progress on the Implementation Plan for the removal of the sewage discharge from Lyttelton Harbour/Whakaraupo. A copy of this annual report will also be forwarded to all organizations/groups represented on the Lyttleton Harbour/Whakaraupo Wastewater Working Party and also all parties listed in

	condition 21(b). b. The consent holder shall hold a public meeting once a year to discuss the monitoring data collected in the previous year and also to provide an update on progress relating to the cessation of the discharge at map reference NZMS 260 M36:838-815 on 31 December 2018, and the removal of the sewage discharge from Lyttleton Harbour/Whakaraupo. c. The consent holder shall continue to sample the receiving environment as specified in condition (15) for the 12 months following the cessation of the discharge at map reference NZMS 260 M36:838-815.
	CCC to follow up
23	The Canterbury Regional Council may, once per year, on any of the last five working days of June or November each year, serve notice of its intention to review the conditions of this consent for the purposes of: a. Dealing with any adverse effects which may arise from the exercise of this consent and which it is appropriate to deal with later; or b. Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or c. Complying with the requirements of a relevant rule in an operative regional plan; or Amending the frequency of monitoring and the parameters monitored; or d. Amending the frequency of monitoring and the parameters monitored.
	ECAN to request

Treatment Plant Effluent Monitoring

Daily flows for the Governors Bay Wastewater Treatment Plant (WWTP) were under the 600 m^3/d limit. NB. Discharge into the harbour from this Plant ceased on 2 May 2019 with all flow transferred to The Lyttelton Reticulation system via new Pumping station and new under the harbour pipeline.

Peak instantaneous flowrates exceeded 21l/s on 7 occasions with the largest being 22.6 l/s (13Dec18) – it should be noted that the flow meter is on the incoming flow and the buffering/dampening effect of the plant treatment tanks would bring the discharge flows to within the consented allowable 21 l/s.

The plant operated with full compliance for effluent water quality relating to BOD_5, faecal coliforms (FC), Enterococci (ENT), and TSS limits (30 mg/l). Maximum medians for organic loading parameters were 4.7 mg/L for BOD_5 compared to 30-mg/L limits and 25 mg/l for TSS. Results for human health-related parameters with maximum medians of 250 CFU/100 mL (700 CFU/100ml consent) for FC and 160 MPN/100 mL (1,750 MPN/100 mL consented) for ENT.

Receiving Environment Monitoring

The receiving environment was monitored around the outfall and at one control site (Rapaki) (Attachment 2.1). Human health related parameters of FC averaging 2.67 cfu/100 @ 50m due west (maximum shingle sample was 7cfu/100 @ 7sept18 – 50m east & west, NB Quail island control on same day was 8cfu/100) and ENT of 10 cfu/100ml. Trigger levels of 1 mg/L for TN was exceeded once on 7 sept 18 with a reading of 1.4mg/l (50m due South) – next highest readings were 0.42mg/l). NH3 limit of 0.91 mg/L was not exceeded at any of the sites with maximum value of 0.023 mg/L NH3 at 50 m due West of the outfall (07 Feb19). Monitoring results did not appear to be significantly different between the outfall sites and the control site.

The receiving environment was also sampled at Rapaki for comparison to the Recreational Shellfish Gathering Guidelines (Attachment 2.2). Accordingly, the median during the monitoring period was 1 CFU/100 mL which is less than the recommended maximum of 14 CFU/100 mL. The highest readings for FC cfu/100ml were 8 cfu/100ml (6Mar19) & 7 cfu/100ml (9Jan19).

Table 1. Summary of Exceedances and Non-Compliances from July 2018 - June 2019.

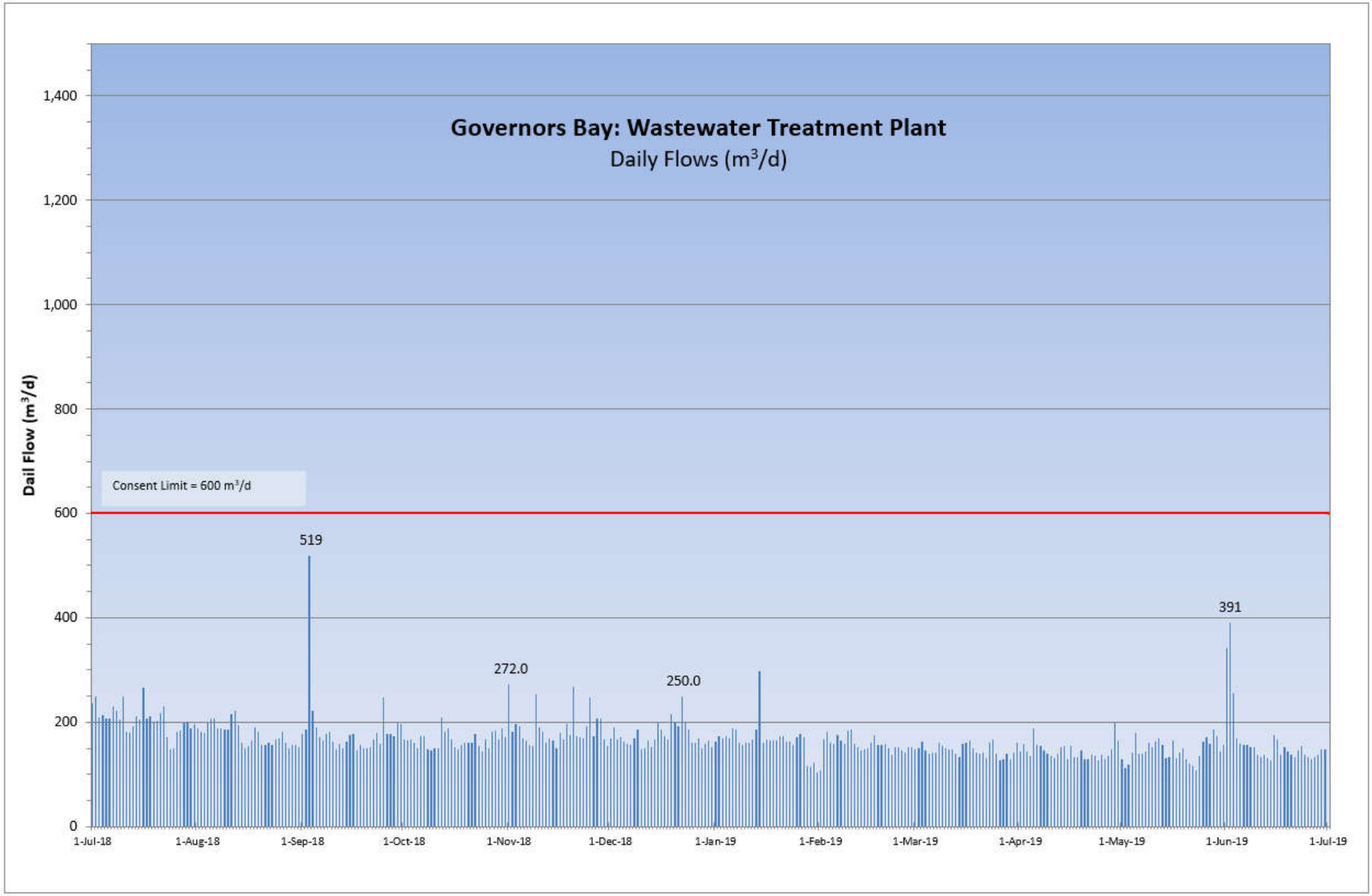
Parameter	Exceedances of Trigger Value
Flow >600 m^3/d	0
Flow >21 L/s	**7**
BOD_5 median >30 mg/L	0
TSS median >30 mg/L	0
FC >700 CFU/100 mL	0
ENT >1,750 MPN/100 mL	0
Receiving TN >1 mg/L	**1**
Receiving NH3 >0.91 mg/L	0

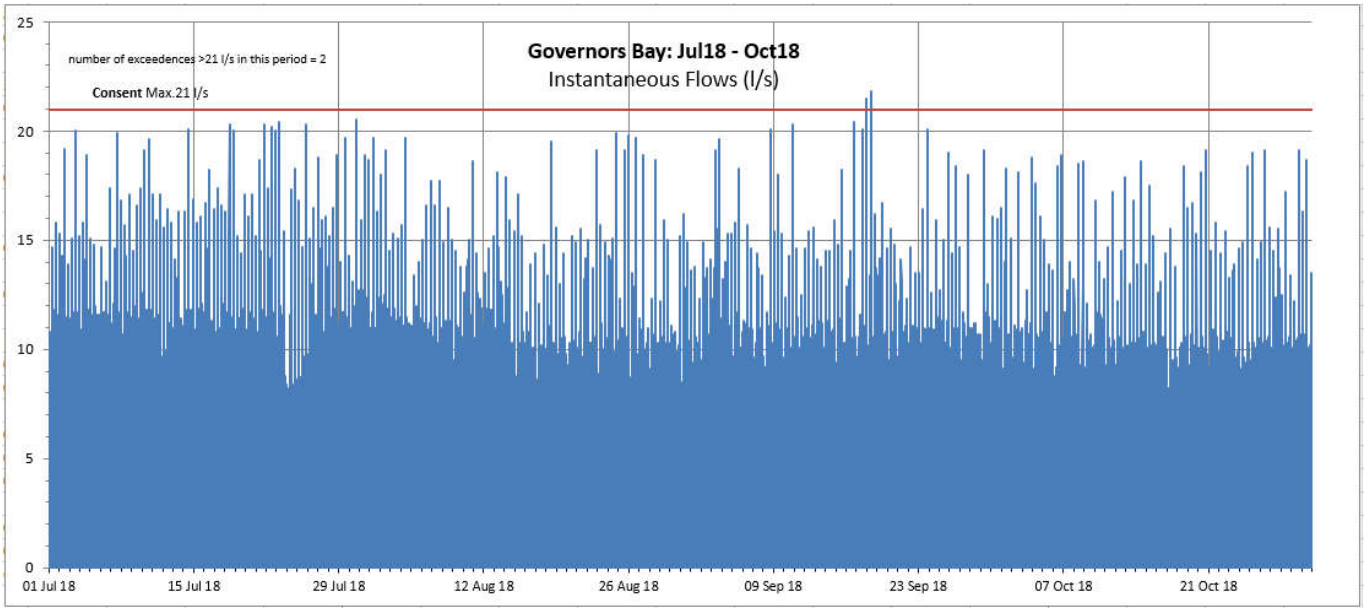
Attachment 1.1: Flows, Governors Bay, Data

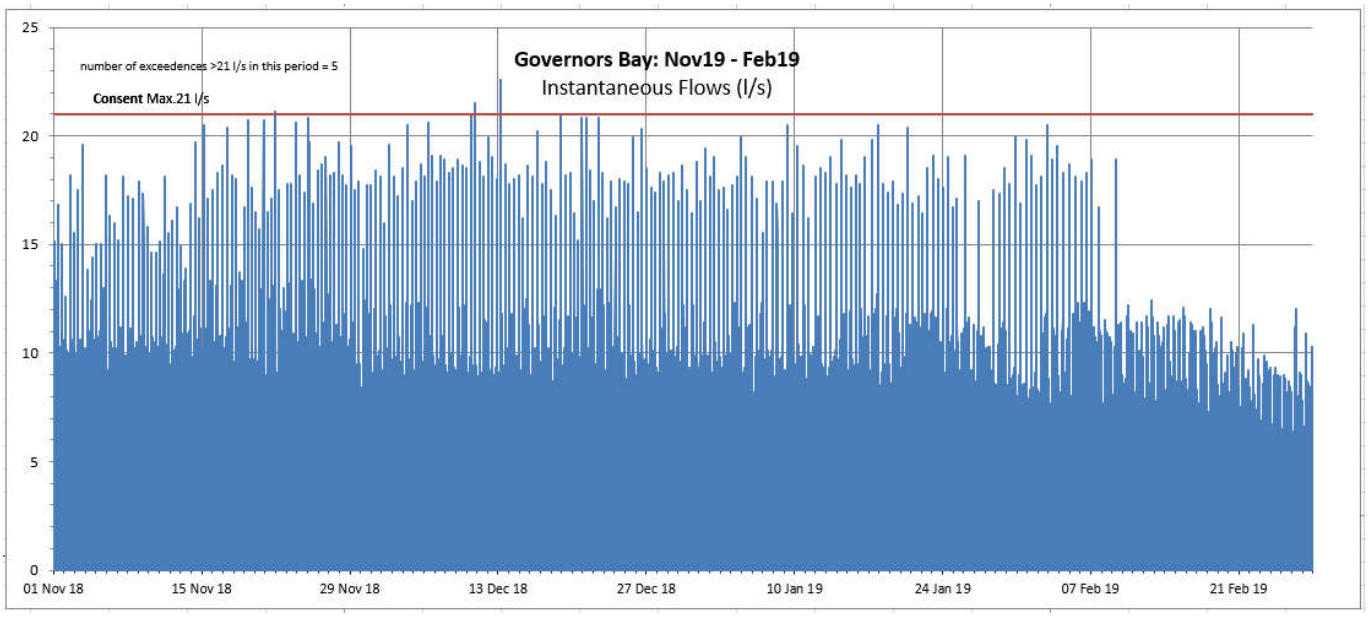
Plant :	Governors Bay Wastewater Treatment, Banks Peninsula: Daily Flows for July 2018 - June 2019						
Asset owner:	Christchurch City Council						
Date	Flow (m3/d)	Date	Flow (m3/d)	Date	Flow (m3/d)	Date	Flow (m3/d)
1-Jul-18	236	1-Oct-18	168	1-Jan-19	163	1-Apr-19	144
2-Jul-18	250	2-Oct-18	165	2-Jan-19	173	2-Apr-19	158
3-Jul-18	209	3-Oct-18	167	3-Jan-19	169	3-Apr-19	144
4-Jul-18	213	4-Oct-18	160	4-Jan-19	174	4-Apr-19	135
5-Jul-18	206	5-Oct-18	151	5-Jan-19	170	5-Apr-19	187
6-Jul-18	206	6-Oct-18	174	6-Jan-19	188	6-Apr-19	156
7-Jul-18	231	7-Oct-18	173	7-Jan-19	186	7-Apr-19	154
8-Jul-18	222	8-Oct-18	148	8-Jan-19	160	8-Apr-19	145
9-Jul-18	205	9-Oct-18	146	9-Jan-19	156	9-Apr-19	139
10-Jul-18	249	10-Oct-18	151	10-Jan-19	161	10-Apr-19	136
11-Jul-18	181	11-Oct-18	151	11-Jan-19	161	11-Apr-19	132
12-Jul-18	179	12-Oct-18	210	12-Jan-19	166	12-Apr-19	139
13-Jul-18	193	13-Oct-18	181	13-Jan-19	186	13-Apr-19	153
14-Jul-18	211	14-Oct-18	189	14-Jan-19	297	14-Apr-19	154
15-Jul-18	204	15-Oct-18	167	15-Jan-19	160	15-Apr-19	130
16-Jul-18	266	16-Oct-18	153	16-Jan-19	167	16-Apr-19	155
17-Jul-18	206	17-Oct-18	148	17-Jan-19	164	17-Apr-19	133
18-Jul-18	211	18-Oct-18	157	18-Jan-19	164	18-Apr-19	134
19-Jul-18	201	19-Oct-18	160	19-Jan-19	165	19-Apr-19	145
20-Jul-18	202	20-Oct-18	160	20-Jan-19	174	20-Apr-19	128
21-Jul-18	218	21-Oct-18	161	21-Jan-19	174	21-Apr-19	129
22-Jul-18	231	22-Oct-18	178	22-Jan-19	163	22-Apr-19	138
23-Jul-18	172	23-Oct-18	155	23-Jan-19	162	23-Apr-19	136
24-Jul-18	149	24-Oct-18	144	24-Jan-19	156	24-Apr-19	127
25-Jul-18	151	25-Oct-18	166	25-Jan-19	172	25-Apr-19	138
26-Jul-18	182	26-Oct-18	151	26-Jan-19	177	26-Apr-19	129
27-Jul-18	184	27-Oct-18	181	27-Jan-19	172	27-Apr-19	135
28-Jul-18	199	28-Oct-18	183	28-Jan-19	117	28-Apr-19	147
29-Jul-18	201	29-Oct-18	168	29-Jan-19	114	29-Apr-19	200
30-Jul-18	188	30-Oct-18	187	30-Jan-19	123	30-Apr-19	164
31-Jul-18	196	31-Oct-18	172	31-Jan-19	103	1-May-19	130
1-Aug-18	187	1-Nov-18	272	1-Feb-19	108	2-May-19	113
2-Aug-18	182	2-Nov-18	182	2-Feb-19	168	3-May-19	118
3-Aug-18	179	3-Nov-18	196	3-Feb-19	181	4-May-19	141
4-Aug-18	199	4-Nov-18	193	4-Feb-19	161	5-May-19	179
5-Aug-18	208	5-Nov-18	170	5-Feb-19	159	6-May-19	140
6-Aug-18	206	6-Nov-18	164	6-Feb-19	175	7-May-19	139
7-Aug-18	187	7-Nov-18	157	7-Feb-19	165	8-May-19	143
8-Aug-18	189	8-Nov-18	154	8-Feb-19	159	9-May-19	160
9-Aug-18	186	9-Nov-18	254	9-Feb-19	183	10-May-19	152
10-Aug-18	186	10-Nov-18	191	10-Feb-19	185	11-May-19	162
11-Aug-18	216	11-Nov-18	182	11-Feb-19	158	12-May-19	170
12-Aug-18	221	12-Nov-18	161	12-Feb-19	152	13-May-19	157
13-Aug-18	194	13-Nov-18	169	13-Feb-19	146	14-May-19	132
14-Aug-18	160	14-Nov-18	165	14-Feb-19	147	15-May-19	134
15-Aug-18	150	15-Nov-18	150	15-Feb-19	150	16-May-19	165
16-Aug-18	154	16-Nov-18	180	16-Feb-19	160	17-May-19	132
17-Aug-18	164	17-Nov-18	166	17-Feb-19	176	18-May-19	142
18-Aug-18	191	18-Nov-18	196	18-Feb-19	157	19-May-19	151
19-Aug-18	182	19-Nov-18	175	19-Feb-19	157	20-May-19	129

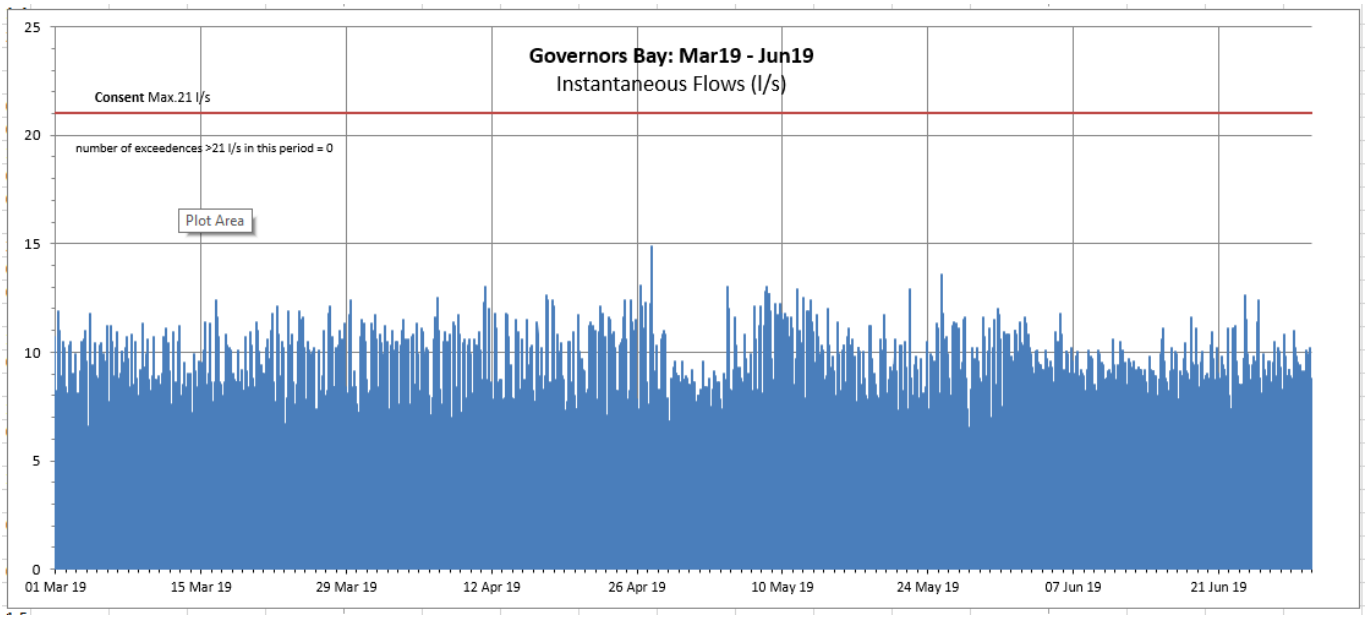
Date	Flow (m3/d)	Date	Flow (m3/d)	Date	Flow (m3/d)	Date	Flow (m3/d)
20-Aug-18	156	20-Nov-18	268	20-Feb-19	159	21-May-19	120
21-Aug-18	157	21-Nov-18	173	21-Feb-19	151	22-May-19	117
22-Aug-18	160	22-Nov-18	172	22-Feb-19	138	23-May-19	107
23-Aug-18	157	23-Nov-18	170	23-Feb-19	152	24-May-19	136
24-Aug-18	166	24-Nov-18	192	24-Feb-19	153	25-May-19	163
25-Aug-18	169	25-Nov-18	246	25-Feb-19	145	26-May-19	172
26-Aug-18	182	26-Nov-18	173	26-Feb-19	142	27-May-19	159
27-Aug-18	160	27-Nov-18	208	27-Feb-19	153	28-May-19	185
28-Aug-18	151	28-Nov-18	206	28-Feb-19	153	29-May-19	174
29-Aug-18	157	29-Nov-18	167	1-Mar-19	148	30-May-19	143
30-Aug-18	156	30-Nov-18	155	2-Mar-19	151	31-May-19	157
31-Aug-18	152	1-Dec-18	169	3-Mar-19	163	1-Jun-19	341
1-Sep-18	178	2-Dec-18	190	4-Mar-19	146	2-Jun-19	391
2-Sep-18	186	3-Dec-18	167	5-Mar-19	140	3-Jun-19	255
3-Sep-18	519	4-Dec-18	171	6-Mar-19	141	4-Jun-19	169
4-Sep-18	222	5-Dec-18	162	7-Mar-19	142	5-Jun-19	159
5-Sep-18	191	6-Dec-18	158	8-Mar-19	160	6-Jun-19	157
6-Sep-18	172	7-Dec-18	156	9-Mar-19	154	7-Jun-19	156
7-Sep-18	164	8-Dec-18	169	10-Mar-19	150	8-Jun-19	153
8-Sep-18	178	9-Dec-18	186	11-Mar-19	147	9-Jun-19	152
9-Sep-18	181	10-Dec-18	149	12-Mar-19	149	10-Jun-19	137
10-Sep-18	163	11-Dec-18	151	13-Mar-19	139	11-Jun-19	134
11-Sep-18	149	12-Dec-18	164	14-Mar-19	133	12-Jun-19	137
12-Sep-18	159	13-Dec-18	153	15-Mar-19	159	13-Jun-19	132
13-Sep-18	150	14-Dec-18	166	16-Mar-19	160	14-Jun-19	127
14-Sep-18	162	15-Dec-18	200	17-Mar-19	165	15-Jun-19	176
15-Sep-18	175	16-Dec-18	186	18-Mar-19	150	16-Jun-19	166
16-Sep-18	178	17-Dec-18	173	19-Mar-19	142	17-Jun-19	137
17-Sep-18	146	18-Dec-18	166	20-Mar-19	140	18-Jun-19	152
18-Sep-18	157	19-Dec-18	215	21-Mar-19	142	19-Jun-19	143
19-Sep-18	151	20-Dec-18	201	22-Mar-19	131	20-Jun-19	137
20-Sep-18	150	21-Dec-18	193	23-Mar-19	161	21-Jun-19	133
21-Sep-18	153	22-Dec-18	250	24-Mar-19	167	22-Jun-19	146
22-Sep-18	168	23-Dec-18	201	25-Mar-19	139	23-Jun-19	155
23-Sep-18	179	24-Dec-18	186	26-Mar-19	126	24-Jun-19	137
24-Sep-18	159	25-Dec-18	161	27-Mar-19	130	25-Jun-19	134
25-Sep-18	247	26-Dec-18	160	28-Mar-19	140	26-Jun-19	128
26-Sep-18	177	27-Dec-18	170	29-Mar-19	129	27-Jun-19	133
27-Sep-18	177	28-Dec-18	151	30-Mar-19	142	28-Jun-19	138
28-Sep-18	173	29-Dec-18	159	31-Mar-19	160	29-Jun-19	149
29-Sep-18	199	30-Dec-18	164	1-Apr-19		30-Jun-19	147
30-Sep-18	196	31-Dec-18	152				

Attachment 1.2: Flows, Governors Bay, Chart

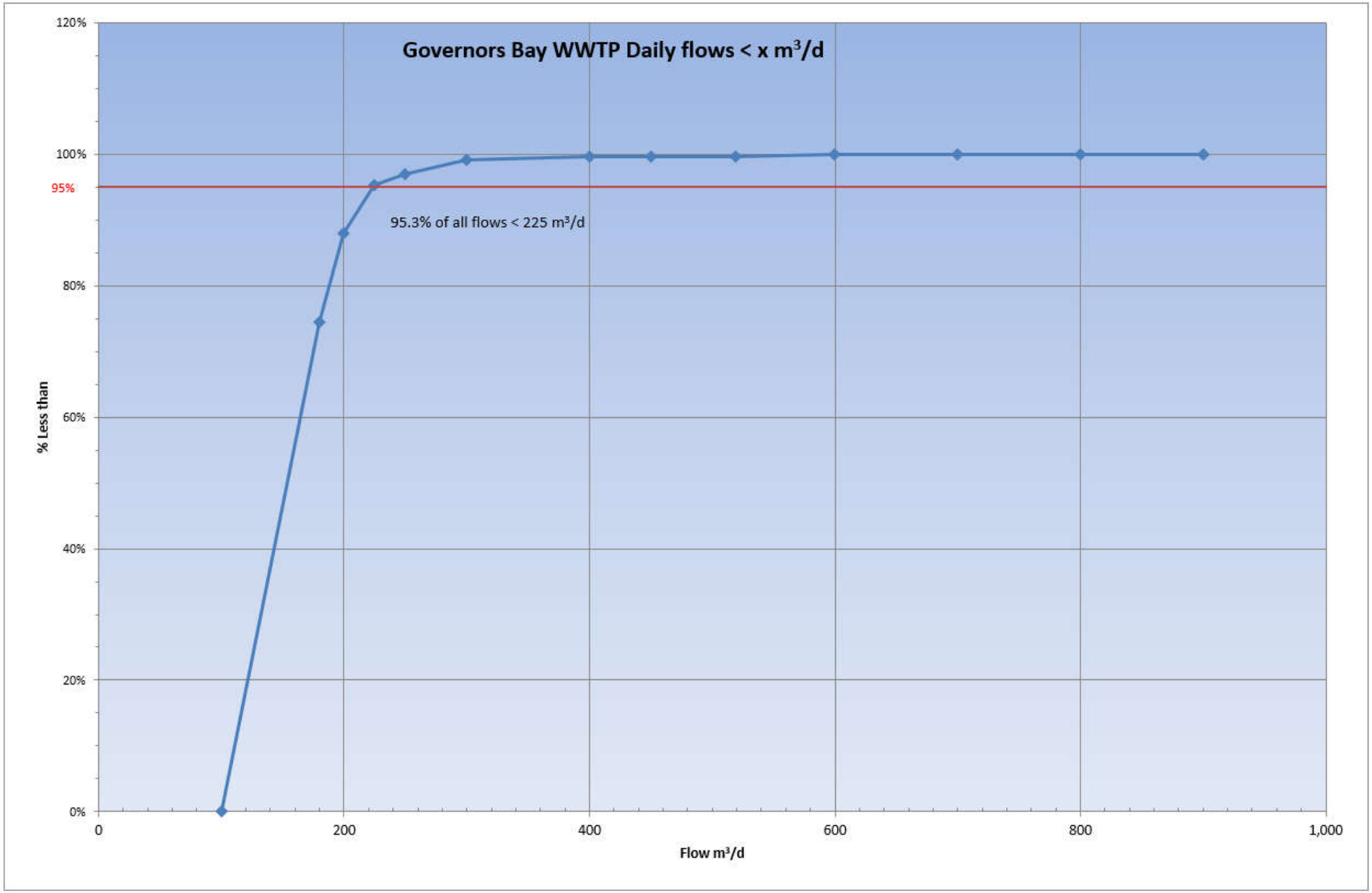



Governors Bay: Jul18 - Oct18
Instantaneous Flows (l/s)
number of exceedences >21 l/s in this period = 2
Consent Max.21 l/s
25
20
15
10
5
0
01 Jul 18
15 Jul 18
29 Jul 18
12 Aug 18
26 Aug 18
09 Sep 18
23 Sep 18
07 Oct 18
21 Oct 18


Governors Bay: Nov19 - Feb19
Instantaneous Flows (l/s)
number of exceedences >21 l/s in this period = 5
Consent Max.21 l/s
25
20
15
10
5
0
01 Nov 18
15 Nov 18
29 Nov 18
13 Dec 18
27 Dec 18
10 Jan 19
24 Jan 19
07 Feb 19
21 Feb 19


Governors Bay: Mar19 - Jun19
Instantaneous Flows (l/s)
Consent Max.21 l/s
number of exceedences >21 l/s in this period = 0
Plot Area
25
20
15
10
5
0
01 Mar 19
15 Mar 19
29 Mar 19
12 Apr 19
26 Apr 19
10 May 19
24 May 19
07 Jun 19
21 Jun 19

Attachment 1.3: Flows, Governors Bay, '% less than'



Attachment 2.1: Lab Data, Governors Bay Wastewater Treatment Plant

Plant:	Governors Bay Wastewater Treatment, Banks Peninsula
Asset Owner:	Christchurch City Council
Laboratory	Christchurch City Council Laboratory, City Water & Waste Unit

Date	BOD_5	DRP	TSS	TN	NH_4-N	NOx	FC	ENT	N_{org}	5-Sample Median BOD_5	TSS	FC	ENT
	[mg/l]	[mg/l]	[mg/l]	[mg/l]	[mg/l]	[mg/l]	CFU/100ml	MPN/100ml	[mg/l]	[mg/l]	[mg/l]	CFU/100ml	MPN/100ml
5-Jul-18	6.7	4.3	3.0	18.80	0.48	15	10	10	4.2	3.9	10.0	20.0	10
13-Aug-18	4.7	3.9	14.0	16.10	0.28	14	10	10	1.7	4.7	10.0	10.0	10
7-Sep-18	2.1	3	8.8	401.00	0.47	3.1	10	10	1	4.7	10.0	10.0	10
11-Oct-18	3.2	2.8	15.0	16.70	1.30	14	10	10	2.6	4.7	14.0	10.0	10
5-Nov-18	2.8	4	16.0	12.70	0.81	9.2	10	10	3.5	3.2	14.0	10.0	10
6-Dec-18	22.0	4.6	32.0	20.40	7.20	11	5900	1770	9.7	3.2	15.0	10.0	10
13-Dec-18	55.0		35.0		1.80		250	160		3.2	16.0	10.0	10
20-Dec-18	2.1		12.0				40	10		3.2	16.0	40.0	10
27-Dec-18	2.3		15.0				10	10		2.8	16.0	40.0	10
3-Jan-19	3.8		25.0				500	740		3.8	25.0	250.0	160
8-Jan-19	1.8	2.9	6.3	12.10	1.80	9.4	10	10	2.7	2.3	15.0	40.0	10
17-Jan-19	2.5		4.2				10	10		2.3	12.0	10.0	10
24-Jan-19	1.7		9.0				110	20		2.3	9.0	10.0	10
30-Jan-19	3.0		4.2				10	10		2.5	6.3	10.0	10
7-Feb-19	1.4	2.8	6.0	18.20	0.19	17	10	10	1.2	2.2	6.0	10.0	10
14-Feb-19	5.7		6.3				10	10		2.8	6.0	10.0	10
21-Feb-19	1.7		5.0				10	10		2.4	6.0	10.0	10
28-Feb-19	2.3		10.0				10	10		2.7	6.0	10.0	10
6-Mar-19	1.5	3.9	6.0	18.00	0.04	15	10	10	2.6	2.0	6.0	10.0	10
16-Apr-19	9.1	6.2	30.0	16.00	4.00	8.8	270	160	6.8	2.3	6.3	10.0	10
1-May-19													
1-Jun-19													
									Limit =	30	30	700	1750
									Exceedances =	0	0	0	0
									MAX =	4.7	25.0	110.0	63.0

	As	Cd	Cr	Cu	Pb	Ni	Zn
	[mg/l]	[mg/l]	[mg/l]	[mg/l]	[mg/l]	[mg/l]	[mg/l]
12-Jan-16	<0.0015	<0.00020	<0.0010	<0.0020	<0.0015	<0.0025	0.0031
18-Jan-17	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.051
17-Jan-18	<0.0010	<0.0010	<0.0010	0.0054	<0.0010	<0.0010	0.055
17-Jan-19	0.0015	<0.0010	<0.0010	0.0042	<0.0010	<0.0010	0.035

Attachment 2.2: Lab Data, Receiving Environment, Rapaki

Rapaki

Date	FC cfu/100mL	Rain Y/N	Rain Prev. Y/N	High Tide hh:mm
5-Jul-18	4	Not Given	Not Given	22:55
13-Aug-18	1	No	No	Not given
7-Sep-18	6	No	No	14:00
11-Oct-18	2	Yes	Yes	6:47
5-Nov-18	1	no	no	15:21
6-Dec-18	2	No	Yes	4:26
9-Jan-19	7	no	no	18:40
7-Feb-19	1	no	no	7:20
6-Mar-19	8	no	no	5:25
16-Apr-19	1	not given	not given	13:36
22-May-19	1	not given	not given	7:07
27-Jun-19	1	No	No	12:06
9-Jul-19	1	No	No	9:38
Median	1	CFU/100mL		
>43 CFU/100 mL	0	Count		

Attachment 2.3: Lab Data, Receiving Environment

Governors Bay	OF - 50m due				Quail	OF - 50m due				Quail	OF - 50m due				Quail	OF - 50m due				Quail
Consent CRC101760	North	East	South	West	Control	North	East	South	West	Control	North	East	South	West	Control	North	East	South	West	Control
Date	TN mg/L	TN mg/L	TN mg/L	TN mg/L	TN mg/L	NH3 mg/L	NH3 mg/L	NH3 mg/L	NH3 mg/L	NH3 mg/L	NOX mg/L	NOX mg/L	NOX mg/L	NOX mg/L	NOX mg/L	DRP mg/L	DRP mg/L	DRP mg/L	DRP mg/L	DRP mg/L
			not to exceed 1.0					not to exceed 0.91												
7-Sep-18	0.42	0.42	1.400	0.41	0.3	0.019	0.03	0.016	0.015	0.019	0.048	0.061	0.058	0.053	0.049	0.017	0.016	0.017	0.015	0.014
5-Nov-18	0.22	0.19	0.19	0.26	0.19	0.005	0.005	0.005	0.005	0.005	0.039	0.010	0.010	0.010	0.010	0.042	0.024	0.024	0.023	0.006
6-Dec-18	0.2	0.21	0.27	0.23	0.16	0.005	0.005	0.005	0.005	0.015	0.010	0.010	0.010	0.010	0.010	0.0072	0.0064	0.0065	0.0076	0.0079
8-Jan-19	0.26	0.26	0.33	0.36	0.31	0.01	0.0083	0.0087	0.011	0.0077	0.010	0.010	0.010	0.010	0.011	0.014	0.014	0.016	0.015	0.0077
7-Feb-19	0.21	0.2	0.29	0.19	0.19	0.017	0.018	0.016	0.023	0.021	0.010	0.010	0.010	0.010	0.010	0.0092	0.011	0.012	0.011	0.0087
6-Mar-19	0.16	0.11	0.18	0.14	0.094	0.016	0.005	0.014	0.013	0.019	0.010	0.010	0.010	0.010	0.010	0.0087	0.0053	0.011	0.0079	0.003
1-May-19																				
1-Jun-19	Discharge from Governors Bay Treatment ceased on 02 May 2019																			
average	0.245	0.232	0.443	0.265	0.207	0.012	0.012	0.011	0.012	0.014	0.021	0.019	0.018	0.017	0.017	0.016	0.013	0.014	0.013	0.008
maximum	0.420	0.420	1.400	0.410	0.310	0.019	0.030	0.016	0.023	0.021	0.048	0.061	0.058	0.053	0.049	0.042	0.024	0.024	0.023	0.014

Governors Bay	OF - 50m due				Quail	OF - 50m due				Quail	OF - 50m due				Quail	OF - 50m due				Quail
Consent CRC101760	North	East	South	West	Control	North	East	South	West	Control	North	East	South	West	Control	North	East	South	West	Control
Date	TSS mg/L	TSS mg/L	TSS mg/L	TSS mg/L	TSS mg/L	Chla mg/L	Chla mg/L	Chla mg/L	Chla mg/L	Chla mg/L	ENT MPN/100ml	ENT MPN/100ml	ENT MPN/100ml	ENT MPN/100ml	ENT MPN/100ml	FC MPN/100ml	FC MPN/100ml	FC MPN/100ml	FC MPN/100ml	FC MPN/100ml
7-Sep-18	68	87	66	66	36	2.1	1.7	2.1	2.2	3	10	10	10	10	10	4	7	3	7	8
5-Nov-18	29	18	21	22	11	1.7	1.1	0.99	1.2	5.2	10	10	10	10	10	1	1	1	1	1
6-Dec-18	42	35	33	36	19	5.6	4.9	4.6	5.7	3	10	10	10	10	10	4	2	2	5	8
8-Jan-19	27	36	26	34	16	3.4	3.5	3.3	3.5	3.3	10	10	10	10	10	1	1	1	1	1
7-Feb-19	19	20	20	19	11	3.6	3.9	4.6	3.5	2.8	10	10	10	10	10	1	1	1	1	1
6-Mar-19	19	22	15	20	13	1.3	1.6	1.6	1.1	1.7	10	10	10	10	10	1	1	1	1	1
1-May-19																				
1-Jun-19	Discharge from Governors Bay Treatment ceased on 02 May 2019																			
average	34.00	36.33	30.17	32.83	17.67	2.95	2.78	2.87	2.87	3.17	10.00	10.00	10.00	10.00	10.00	2.00	2.17	1.50	2.67	3.33
maximum	68	87	66	66	36	6	5	5	6	5	10	10	10	10	10	4	7	3	7	8