



Regional District of  
**Kitimat-Stikine**

# 2019 QUEENSWAY SEWER ANNUAL REPORT

January 2020

**Prepared for:**

British Columbia Ministry of  
Environment & Climate Change  
Strategy  
[EnvAuthorizationsReporting@gov.bc.ca](mailto:EnvAuthorizationsReporting@gov.bc.ca)

**Prepared by:**

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## Table of Contents

1.0	Overview .....	2
2.0	Queensway Sewer Laboratory and Field Data.....	3
3.0	Non-Compliance.....	4
Table 1 Queensway Sewer Monthly Data .....		3

## 1.0 Overview

Queensway Sewer is authorized to discharge under Ministry of Environment and Climate Change Strategy Authorization Number 12645. The most recent update to the authorization was conducted on May 23, 2017.

The authorized point of discharge of the Queensway Sewer Facility is to exfiltration lagoon Number 3 or lagoon Number 4 (site reference discharge E220346). No effluent was discharged to the overflow outfall to the Skeena River (site reference discharge E220347) during 2019. Queensway is authorized to discharge an average of 800 m<sup>3</sup>/day and a maximum of 1500 m<sup>3</sup>/day. Queensway Sewer facility discharged a total of 71,394 m<sup>3</sup> of effluent into the exfiltration lagoons during 2019, with a daily maximum of 244.7 m<sup>3</sup> / day in December, and an annual average of 195.6 m<sup>3</sup> / day.

Daily blower hours in 2019 ranged from 16.2 to 22.03 hours per day, with an average of 20.2 hours per day.

Effluent discharge volume is continually measured. In-situ field parameters, including laboratory samples, are collected monthly. Laboratory sample collection and in-situ sampling is conducted from the manhole access point between the outlet of the Aerated Lagoon Cell #2 prior to discharge to one of the exfiltration lagoons. Sampling was conducted in accordance to the “British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Sample, 2013 Edition”.

Authorization 12645 stipulates discharge parameters are not to exceed 60 mg/L for total suspended solids, and 45 mg/L for 5-day biochemical demand. Queensway Sewer experienced two (2) exceedances for 5-day biochemical oxygen demand (BOD) during 2019, detailed explanation found in Section 3.0. There were no exceedances for Total Suspended Solids during 2019.



Photo 1 Overview of Queensway Sewer Treatment Facility

## 2.0 Queensway Sewer Laboratory and Field Data

Table 1 Queensway Sewer Monthly Data

Sample Date	Temperature (°C - Field)	Dissolve Oxygen (mg/L - Field)	pH	BOD <sub>5</sub> (mg/L)	TSS (mg/L)	Total Phosphorus (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Ammonia (mg/L)	Influent Flow Rate (m <sup>3</sup> /day - Monthly average)	Blower Hours (hours/day)
22-Jan-19	1	9	7.4	8.5	4.8	4.2	34.7	32.4	252.3	20.8
19-Feb-19	0.8	4.5	7.3	7.8	5.1	4.5	33.8	34.5	162.75	21.25
19-Mar-19	3.2	3.8	7.2	12	7.4	4.6	39.4	36.9	183.6	20.07
16-Apr-19	12.2	6.5	7.6	9.9	8.8	4.5	44.7	35	185.42	21.42
14-May-19	17.9	5	7.7	16	12	4.5	38.7	35.1	197.21	21.75
19-Jun-19	18	9	7.5	29	10	5.1	35.5	37.1	148.08	16.2
16-Jul-19	20.1	10	7.3	14	21	5.2	40.3	34.3	189.73	22.03
20-Aug-19	17.8	0.5	7.5	<b>74</b>	56	5.5	40.3	34	176.22	18.88
12-Sep-19	14.7	4.5	7.5	23	34	5.3	37.6	31.9	191.26	19.3
24-Sep-19*	15.4	4.6	7.4	28	41	5.2	31.3	27.1	184.33	19.41
8-Oct-19	12.1	3.5	7.4	16	27	5	30.5	26.2	187.7	20.7
23-Oct-19*			7.4	12	23	5.1	28.1	26.1		
19-Nov-19	7.9	4	7.4	<b>140</b>	14	5.8	23.3	21.7	239.09	21.33
10-Dec-19*			7.5	11	7.8	4.2	28.7	26		
17-Dec-19	1.5	7	7.3	8.6	8.9	4.3	32.8	27.5	244.7	19.43

Note: Analysis conducted by Norlabs Northern Laboratories Ltd.

Exceedances shown in **red**.

\* Additional sampling events in September, October, and December were conducted to monitor efficacy of corrective actions taken in response to BOD exceedances.

### 3.0 Non-Compliance

The Queensway Sewer facility had two (2) exceedances for 5-day biochemical oxygen demand (BOD) during 2019. One exceedance occurred during the month of August, with a concentration of 74 mg/L, and the second in November with a concentration of 140 mg/L. During these events all other parameters, both in-situ and analyzed laboratory parameters, were compliant.

It is suspected that both BOD concentration exceedances were due to an increased volume of effluent containing high concentrations of organic matter entering the facility. To remediate the high BOD concentrations, the daily blower hours were increased, as aeration is the form of treatment used at the Queensway facility. Resampling after exceedance events confirmed BOD levels were corrected to compliance-levels.

Following the BOD exceedance in November samples were taken at the two lift-stations along the system to investigate where the influx of high BOD material was coming from. It was determined that high BOD concentrations were entering the system at the Kulspai lift station. This information has been used to target outreach and education for system users that appear to input higher volumes of organic and fatty material into the system.



Document prepared by:

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# Appendix A – Laboratory Analysis Results

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**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
rtooms@rdks.bc.ca

**Work Order:** N901170

**RECEIVED:** 23-Jan-2019

Project: Queensway  
Project Number: -  
Project Manager: Roger Tooms

**REPORTED:** 05-Mar-2019

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**



**Jesse Newton**  
Laboratory Manager



**ANALYTICAL REPORT**

Regional District of Kitimat Stikine

Work Order: N901170

LAB # N901170-01  
 SAMPLED DATE 22-Jan-19  
 SAMPLED TIME 12:30  
 SAMPLE ID Queensway Sewer

**MRL Units**

**General Parameters (Water)**

pH	1.0 pH units	<b>7.4</b>
Biochemical Oxygen Demand / BOD	4.0 mg/L	<b>8.5</b>
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	<b>6.1</b>
Solids, Total Suspended / TSS	1.0 mg/L	<b>4.8</b>
Ammonia (total as N)	0.03 mg/L	<b>32.4</b>
Nitrogen, Total Kjeldahl	1.25 mg/L	<b>34.7</b>
Phosphorus (total)	0.05 mg/L	<b>4.2</b>

**Field Data (Water)**

Conductivity (field)	1.0 uS/cm	<b>690</b>
Dissolved Oxygen (field)	0.10 mg/L	<b>9.00</b>
pH (field)	1.00 -	<b>7.80</b>
Temperature (field)	0.0 °C	<b>1.0</b>

**Glossary of Terms**

MRL	Method Reporting Limit
°C	Degrees Celsius
mg/L	Milligrams per Litre
pH units	pH units
uS/cm	Micro Siemens per centimeter

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
rtooms@rdks.bc.ca

**Work Order:** N902125

**RECEIVED:** 20-Feb-2019

Project: Queensway  
Project Number: -  
Project Manager: Roger Tooms

**REPORTED:** 20-Mar-2019

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**



**Jesse Newton**  
Laboratory Manager

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine

Work Order: N902125

**LAB #** N902125-01  
**SAMPLED DATE** 19-Feb-19  
**SAMPLED TIME** 01:00  
**SAMPLE ID** Queensway  
 Sewer

**MRL Units**

**General Parameters (Water)**

pH	1.0 pH units	<b>7.3</b>
Biochemical Oxygen Demand / BOD	4.0 mg/L	<b>7.8</b>
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	<b>6.0</b>
Solids, Total Suspended / TSS	1.0 mg/L	<b>5.1</b>
Ammonia (total as N)	0.03 mg/L	<b>34.5</b>
Nitrogen, Total Kjeldahl	1.25 mg/L	<b>33.8</b>
Phosphorus (total)	0.05 mg/L	<b>4.5</b>

**Field Data (Water)**

Conductivity (field)	1.0 uS/cm	<b>673</b>
Dissolved Oxygen (field)	0.10 mg/L	<b>4.50</b>
pH (field)	1.00 -	<b>7.60</b>
Temperature (field)	0.0 °C	<b>0.8</b>

**Glossary of Terms**

MRL Method Reporting Limit  
 °C Degrees Celsius  
 mg/L Milligrams per Litre  
 pH units pH units  
 uS/cm Micro Siemens per centimeter

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
rtooms@rdks.bc.ca

**Work Order:** N903139

**RECEIVED:** 20-Mar-2019

Project: Queensway  
Project Number: -  
Project Manager: Roger Tooms

**REPORTED:** 20-Apr-2019

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**



**Jesse Newton**  
Laboratory Manager

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine

Work Order: N903139

**LAB #** N903139-01  
**SAMPLED DATE** 19-Mar-19  
**SAMPLED TIME** 13:45  
**SAMPLE ID** Queensway Sewer

**MRL Units**

**General Parameters (Water)**

pH	1.0 pH units	<b>7.2</b>
Biochemical Oxygen Demand / BOD	4.0 mg/L	<b>12</b>
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	<b>9.2</b>
Solids, Total Suspended / TSS	1.0 mg/L	<b>7.4</b>
Ammonia (total as N)	0.03 mg/L	<b>36.9</b>
Nitrogen, Total Kjeldahl	1.25 mg/L	<b>39.4</b>
Phosphorus (total)	0.05 mg/L	<b>4.6</b>

**Field Data (Water)**

Conductivity (field)	1.0 uS/cm	<b>774</b>
Dissolved Oxygen (field)	0.10 mg/L	<b>3.80</b>
pH (field)	1.00 -	<b>7.60</b>
Temperature (field)	0.0 °C	<b>3.2</b>

**Glossary of Terms**

MRL Method Reporting Limit  
 °C Degrees Celsius  
 mg/L Milligrams per Litre  
 pH units pH units  
 uS/cm Micro Siemens per centimeter

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
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**Work Order:** N904134

**RECEIVED:** 17-Apr-2019

Project: Queensway  
Project Number: -  
Project Manager: Roger Tooms

**REPORTED:** 10-May-2019

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**



**Jesse Newton**  
Laboratory Manager

## ANALYTICAL REPORT

Regional District of Kitimat Stikine

Work Order: N904134

LAB #	N904134-01
SAMPLED DATE	16-Apr-19
SAMPLED TIME	15:00
SAMPLE ID	Queensway Sewer

### MRL Units

#### General Parameters (Water)

pH	1.0 pH units	7.6
Biochemical Oxygen Demand / BOD	4.0 mg/L	9.9
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	7.2
Solids, Total Suspended / TSS	1.0 mg/L	8.8
Ammonia (total as N)	0.03 mg/L	35.0
Nitrogen, Total Kjeldahl	2.00 mg/L	44.7
Phosphorus (total)	0.05 mg/L	4.5

#### Field Data (Water)

Conductivity (field)	1.0 uS/cm	587
Dissolved Oxygen (field)	0.10 mg/L	6.50
pH (field)	1.00 -	7.50
Temperature (field)	0.0 °C	12.2

#### Glossary of Terms

MRL	Method Reporting Limit
°C	Degrees Celsius
mg/L	Milligrams per Litre
pH units	pH units
uS/cm	Micro Siemens per centimeter

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
rtooms@rdks.bc.ca

**Work Order:** N905119

**RECEIVED:** 15-May-2019

Project: Queensway  
Project Number: -  
Project Manager: Roger Tooms

**REPORTED:** 24-Jun-2019

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**



**Jesse Newton**  
Laboratory Manager



**ANALYTICAL REPORT**

Regional District of Kitimat Stikine

Work Order: N905119

LAB # N905119-01  
 SAMPLED DATE 14-May-19  
 SAMPLED TIME 14:30  
 SAMPLE ID Queensway Sewer

**MRL Units**

**General Parameters (Water)**

pH	1.0 pH units	7.7
Biochemical Oxygen Demand / BOD	4.0 mg/L	16
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	6.9
Solids, Total Suspended / TSS	1.0 mg/L	12
Ammonia (total as N)	0.03 mg/L	35.1
Nitrogen, Total Kjeldahl	0.500 mg/L	38.7
Phosphorus (total)	0.05 mg/L	4.5

**Field Data (Water)**

Conductivity (field)	1.0 uS/cm	597
Dissolved Oxygen (field)	0.10 mg/L	5.00
pH (field)	1.00 -	7.20
Temperature (field)	0.0 °C	17.9

**Glossary of Terms**

MRL Method Reporting Limit  
 °C Degrees Celsius  
 mg/L Milligrams per Litre  
 pH units pH units  
 uS/cm Micro Siemens per centimeter

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
rtooms@rdks.bc.ca

**Work Order:** N906178

**RECEIVED:** 20-Jun-2019

Project: Queensway  
Project Number: -  
Project Manager: Roger Tooms

**REPORTED:** 21-Jul-2019

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**



**Jesse Newton**  
Laboratory Manager

**ANALYTICAL REPORT**

**Regional District of Kitimat Stikine**

**Work Order:** N906178

**LAB #** N906178-01  
**SAMPLED DATE** 19-Jun-19  
**SAMPLED TIME** 12:30  
**SAMPLE ID** Queensway Sewer

**MRL Units**

**General Parameters (Water)**

pH	1.0 pH units	<b>7.5</b>
Biochemical Oxygen Demand / BOD	4.0 mg/L	<b>29</b>
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	<b>6.8</b>
Solids, Total Suspended / TSS	1.0 mg/L	<b>10</b>
Ammonia (total as N)	0.03 mg/L	<b>37.1</b>
Nitrogen, Total Kjeldahl	1.25 mg/L	<b>35.5</b>
Phosphorus (total)	0.05 mg/L	<b>5.1</b>

**Field Data (Water)**

Conductivity (field)	1.0 uS/cm	<b>522</b>
Dissolved Oxygen (field)	0.10 mg/L	<b>9.00</b>
pH (field)	1.00 -	<b>7.25</b>
Temperature (field)	0.0 °C	<b>18.0</b>

**Glossary of Terms**

MRL	Method Reporting Limit
°C	Degrees Celsius
mg/L	Milligrams per Litre
pH units	pH units
uS/cm	Micro Siemens per centimeter

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
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**Work Order:** N907153

**RECEIVED:** 17-Jul-2019

Project: Queensway  
Project Number: -  
Project Manager: Roger Tooms

**REPORTED:** 14-Aug-2019

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**



**Jesse Newton**  
Laboratory Manager

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine

Work Order: N907153

**LAB #** N907153-01  
**SAMPLED DATE** 16-Jul-19  
**SAMPLED TIME** 09:40  
**SAMPLE ID** Queensway Sewer

**MRL Units**

**General Parameters (Water)**

pH	1.0 pH units	<b>7.3</b>
Biochemical Oxygen Demand / BOD	4.0 mg/L	<b>14</b>
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	<b>7.0</b>
Solids, Total Suspended / TSS	1.0 mg/L	<b>21</b>
Ammonia (total as N)	0.03 mg/L	<b>34.3</b>
Nitrogen, Total Kjeldahl	2.00 mg/L	<b>40.3</b>
Phosphorus (total)	0.05 mg/L	<b>5.2</b>

**Field Data (Water)**

Conductivity (field)	1.0 uS/cm	<b>610</b>
Dissolved Oxygen (field)	0.10 mg/L	<b>10.0</b>
pH (field)	1.00 -	<b>7.40</b>
Temperature (field)	0.0 °C	<b>20.1</b>

**Glossary of Terms**

MRL Method Reporting Limit  
 °C Degrees Celsius  
 mg/L Milligrams per Litre  
 pH units pH units  
 uS/cm Micro Siemens per centimeter

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
rtooms@rdks.bc.ca

**Work Order:** N908151

**RECEIVED:** 21-Aug-2019

Project: Queensway  
Project Number: -  
Project Manager: Roger Tooms

**REPORTED:** 10-Sep-2019

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**



**Jesse Newton**  
Laboratory Manager

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine

Work Order: N908151

**LAB #** N908151-01  
**SAMPLED DATE** 20-Aug-19  
**SAMPLED TIME** 09:00  
**SAMPLE ID** Queensway Sewer

**MRL Units**

**General Parameters (Water)**

pH	1.0 pH units	<b>7.5</b>
Biochemical Oxygen Demand / BOD	4.0 mg/L	<b>74</b>
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	<b>11</b>
Solids, Total Suspended / TSS	1.0 mg/L	<b>56</b>
Ammonia (total as N)	0.03 mg/L	<b>34.0</b>
Nitrogen, Total Kjeldahl	1.00 mg/L	<b>40.3</b>
Phosphorus (total)	0.05 mg/L	<b>5.5</b>

**Field Data (Water)**

Conductivity (field)	1.0 uS/cm	<b>526</b>
Dissolved Oxygen (field)	0.10 mg/L	<b>0.50</b>
pH (field)	1.00 -	<b>7.08</b>
Temperature (field)	0.0 °C	<b>17.8</b>

**Glossary of Terms**

MRL Method Reporting Limit  
 °C Degrees Celsius  
 mg/L Milligrams per Litre  
 pH units pH units  
 uS/cm Micro Siemens per centimeter

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
rtooms@rdks.bc.ca

**Work Order:** N909098

**RECEIVED:** 13-Sep-2019

Project: Queensway  
Project Number: -  
Project Manager: Roger Tooms

**REPORTED:** 18-Oct-2019

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**



**Jesse Newton**  
Laboratory Manager



**ANALYTICAL REPORT**

Regional District of Kitimat Stikine

Work Order: N909098

**LAB #** N909098-01  
**SAMPLED DATE** 12-Sep-19  
**SAMPLED TIME** 13:20  
**SAMPLE ID** Queensway Sewer

**MRL Units**

**General Parameters (Water)**

pH	1.0 pH units	<b>7.5</b>
Biochemical Oxygen Demand / BOD	4.0 mg/L	<b>23</b>
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	<b>7.5</b>
Solids, Total Suspended / TSS	1.0 mg/L	<b>34</b>
Ammonia (total as N)	0.03 mg/L	<b>31.9</b>
Nitrogen, Total Kjeldahl	1.00 mg/L	<b>37.6</b>
Phosphorus (total)	0.05 mg/L	<b>5.3</b>

**Field Data (Water)**

Conductivity (field)	1.0 uS/cm	<b>763</b>
Dissolved Oxygen (field)	0.10 mg/L	<b>4.50</b>
pH (field)	1.00 -	<b>7.20</b>
Temperature (field)	0.0 °C	<b>14.7</b>

**Glossary of Terms**

MRL	Method Reporting Limit
°C	Degrees Celsius
mg/L	Milligrams per Litre
pH units	pH units
uS/cm	Micro Siemens per centimeter

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
rtooms@rdks.bc.ca

**Work Order:** N909171

**RECEIVED:** 25-Sep-2019

**Project:** Queensway

**Project Number:** -

**Project Manager:** Roger Tooms

**REPORTED:** 20-Oct-2019

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**

**Dean Browne For Jesse Newton**  
Laboratory Manager

## ANALYTICAL REPORT

Regional District of Kitimat Stikine

Work Order: N909171

LAB #	N909171-01	N909171-02	N909171-03	N909171-04
SAMPLED DATE	24-Sep-19	24-Sep-19	24-Sep-19	24-Sep-19
SAMPLED TIME	14:25	14:40	14:50	15:35
SAMPLE ID	Effluent	Inlet to Secondary Treatment	Inlet	Kulspai Lift Station

### MRL Units

#### General Parameters (Water)

Parameter	Unit	N909171-01	N909171-02	N909171-03	N909171-04
pH	1.0 pH units	7.4	7.4	6.9	6.9
Biochemical Oxygen Demand / BOD	4.0 mg/L	28	42	170	180
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	14	23	130	170
Solids, Total Suspended / TSS	1.0 mg/L	41	50	62	42
Ammonia (total as N)	0.03 mg/L	27.1	23.4	50.5	26.9
Nitrogen, Total Kjeldahl	2.50 mg/L	31.3	30.9	59.6	31.7
Phosphorus (total)	0.05 mg/L	5.2	5.5	6.4	7.4

#### Field Data (Water)

Parameter	Unit	N909171-01	N909171-02	N909171-03	N909171-04
Conductivity (field)	1.0 uS/cm	591	578	791	494
Dissolved Oxygen (field)	0.10 mg/L	4.60	4.20	1.00	0.80
pH (field)	1.00 -	7.20	7.00	6.80	6.60
Temperature (field)	0.0 °C	15.4	15.7	15.8	15.8

## ANALYTICAL REPORT

Regional District of Kitimat Stikine

Work Order: N909171

LAB #	N909171-05
SAMPLED DATE	24-Sep-19
SAMPLED TIME	16:15
SAMPLE ID	Phase 2 Comm Core Lift Station

### MRL Units

#### General Parameters (Water)

pH	1.0 pH units	7.1
Biochemical Oxygen Demand / BOD	4.0 mg/L	130
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	110
Solids, Total Suspended / TSS	1.0 mg/L	43
Ammonia (total as N)	0.03 mg/L	39.1
Nitrogen, Total Kjeldahl	2.50 mg/L	45.9
Phosphorus (total)	0.05 mg/L	4.4

#### Field Data (Water)

Conductivity (field)	1.0 uS/cm	702
Dissolved Oxygen (field)	0.10 mg/L	0.50
pH (field)	1.00 -	6.50
Temperature (field)	0.0 °C	19.8

#### Glossary of Terms

MRL	Method Reporting Limit
°C	Degrees Celsius
mg/L	Milligrams per Litre
pH units	pH units
uS/cm	Micro Siemens per centimeter

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
rtooms@rdks.bc.ca

**Work Order:** N910077

**RECEIVED:** 09-Oct-2019

**Project:** Queensway

**Project Number:** -

**Project Manager:** Roger Tooms

**REPORTED:** 07-Nov-2019

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**

**Dean Browne For Jesse Newton**  
Laboratory Manager

## ANALYTICAL REPORT

Regional District of Kitimat Stikine

Work Order: N910077

<b>LAB #</b>	<b>N910077-01</b>
<b>SAMPLED DATE</b>	<b>08-Oct-19</b>
<b>SAMPLED TIME</b>	<b>13:40</b>
<b>SAMPLE ID</b>	<b>Queensway Sewer</b>

### MRL Units

#### General Parameters (Water)

pH	1.0 pH units	<b>7.4</b>
Biochemical Oxygen Demand / BOD	4.0 mg/L	<b>16</b>
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	<b>11</b>
Solids, Total Suspended / TSS	1.0 mg/L	<b>27</b>
Ammonia (total as N)	0.03 mg/L	<b>26.2</b>
Nitrogen, Total Kjeldahl	0.500 mg/L	<b>30.5</b>
Phosphorus (total)	0.05 mg/L	<b>5.0</b>

#### Field Data (Water)

Conductivity (field)	1.0 uS/cm	<b>653</b>
Dissolved Oxygen (field)	0.10 mg/L	<b>3.50</b>
pH (field)	1.00 -	<b>7.50</b>
Temperature (field)	0.0 °C	<b>12.1</b>

#### Glossary of Terms

MRL	Method Reporting Limit
°C	Degrees Celsius
mg/L	Milligrams per Litre
pH units	pH units
uS/cm	Micro Siemens per centimeter

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
mgull@rdks.bc.ca

**Work Order:** N910177

**RECEIVED:** 24-Oct-2019

Project: Queensway  
Project Number: -  
Project Manager: Michael Gull

**REPORTED:** 26-Nov-2019

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**

**Dean Browne For Jesse Newton**  
Laboratory Manager

**ANALYTICAL REPORT**

**Regional District of Kitimat Stikine**

**Work Order:** N910177

**LAB #** N910177-01  
**SAMPLED DATE** 23-Oct-19  
**SAMPLED TIME** 14:15  
**SAMPLE ID** Queensway Sewer

**MRL Units**

**General Parameters (Water)**

pH	1.0 pH units	<b>7.4</b>
Biochemical Oxygen Demand / BOD	4.0 mg/L	<b>12</b>
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	<b>8.8</b>
Solids, Total Suspended / TSS	1.0 mg/L	<b>23</b>
Ammonia (total as N)	0.03 mg/L	<b>26.1</b>
Nitrogen, Total Kjeldahl	1.00 mg/L	<b>28.1</b>
Phosphorus (total)	0.05 mg/L	<b>5.1</b>

**Glossary of Terms**

MRL Method Reporting Limit  
 mg/L Milligrams per Litre  
 pH units pH units



**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
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**Work Order:** N911137

**RECEIVED:** 20-Nov-2019

Project: Queensway  
Project Number: -  
Project Manager: Michael Gull

**REPORTED:** 09-Dec-2019

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**

**Dean Browne For Jesse Newton**  
Laboratory Manager

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine

Work Order: N911137

LAB # N911137-01  
 SAMPLED DATE 19-Nov-19  
 SAMPLED TIME 14:15  
 SAMPLE ID Queensway Sewer

**MRL Units**

**General Parameters (Water)**

pH	1.0 pH units	<b>7.4</b>
Biochemical Oxygen Demand / BOD	4.0 mg/L	<b>140</b>
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	<b>15</b>
Solids, Total Suspended / TSS	1.0 mg/L	<b>14</b>
Ammonia (total as N)	0.03 mg/L	<b>21.7</b>
Nitrogen, Total Kjeldahl	0.500 mg/L	<b>23.3</b>
Phosphorus (total)	0.05 mg/L	<b>5.8</b>

**Field Data (Water)**

Conductivity (field)	1.0 uS/cm	<b>549</b>
Dissolved Oxygen (field)	0.10 mg/L	<b>4.00</b>
pH (field)	1.00 -	<b>7.40</b>
Temperature (field)	0.0 °C	<b>7.9</b>

**Glossary of Terms**

MRL Method Reporting Limit  
 °C Degrees Celsius  
 mg/L Milligrams per Litre  
 pH units pH units  
 uS/cm Micro Siemens per centimeter

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
mgull@rdks.bc.ca

**Work Order:** N912080

**RECEIVED:** 11-Dec-2019

Project: Queensway  
Project Number: -  
Project Manager: Michael Gull

**REPORTED:** 02-Jan-2020

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**

**Dean Browne For Jesse Newton**  
Laboratory Manager

**ANALYTICAL REPORT**

**Regional District of Kitimat Stikine**

**Work Order:** N912080

**LAB #** N912080-01  
**SAMPLED DATE** 10-Dec-19  
**SAMPLED TIME** 13:30  
**SAMPLE ID** Queensway Sewer

**MRL Units**

**General Parameters (Water)**

pH	1.0 pH units	<b>7.5</b>
Biochemical Oxygen Demand / BOD	4.0 mg/L	<b>11</b>
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	<b>8.0</b>
Solids, Total Suspended / TSS	1.0 mg/L	<b>7.8</b>
Ammonia (total as N)	0.03 mg/L	<b>26.0</b>
Nitrogen, Total Kjeldahl	0.500 mg/L	<b>28.7</b>
Phosphorus (total)	0.05 mg/L	<b>4.2</b>

**Glossary of Terms**

MRL Method Reporting Limit  
 mg/L Milligrams per Litre  
 pH units pH units

**ANALYTICAL REPORT**

Regional District of Kitimat Stikine  
300 - 4545 Lazelle Avenue  
Terrace BC, V8G 4E1  
mgull@rdks.bc.ca

**Work Order:** N912125

**RECEIVED:** 18-Dec-2019

Project: Queensway  
Project Number: -  
Project Manager: Michael Gull

**REPORTED:** 18-Jan-2020

All analyses were performed in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

**Northern Laboratories (2010) Ltd.**



**Jesse Newton**  
Laboratory Manager

## ANALYTICAL REPORT

**Regional District of Kitimat Stikine**

**Work Order:** N912125

LAB #	N912125-01	N912125-02	N912125-03
<b>SAMPLED DATE</b>	17-Dec-19	17-Dec-19	17-Dec-19
<b>SAMPLED TIME</b>	12:10	12:30	12:00
<b>SAMPLE ID</b>	Queensway Sewer	Lagoon	Field Blank

**MRL Units**

**General Parameters (Water)**

Parameter	MRL	N912125-01	N912125-02	N912125-03
pH	1.0 pH units	7.3	7.4	5.7
Biochemical Oxygen Demand / BOD	4.0 mg/L	8.6	8.6	<4.0
Carbonaceous Biochemical Oxygen Demand / CBOD	4.0 mg/L	5.7	<5.0	<4.0
Solids, Total Suspended / TSS	1.0 mg/L	8.9	9.2	<1.0
Ammonia (total as N)	0.03 mg/L	27.5	27.6	<0.03
Nitrogen, Total Kjeldahl	0.050 mg/L	32.8	33.2	<0.050
Phosphorus (total)	0.05 mg/L	4.3	4.5	<0.1

**Field Data (Water)**

Parameter	MRL	N912125-01	N912125-02	N912125-03
Conductivity (field)	1.0 uS/cm	609	594	<1.0
Dissolved Oxygen (field)	0.10 mg/L	7.00	6.00	<0.10
pH (field)	1.00 -	7.60	7.50	<1.00
Temperature (field)	0.0 °C	1.5	0.7	<0.0

**Glossary of Terms**

MRL	Method Reporting Limit
<	Less than the reported detection limit (RDL)
°C	Degrees Celsius
mg/L	Milligrams per Litre
pH units	pH units
uS/cm	Micro Siemens per centimeter