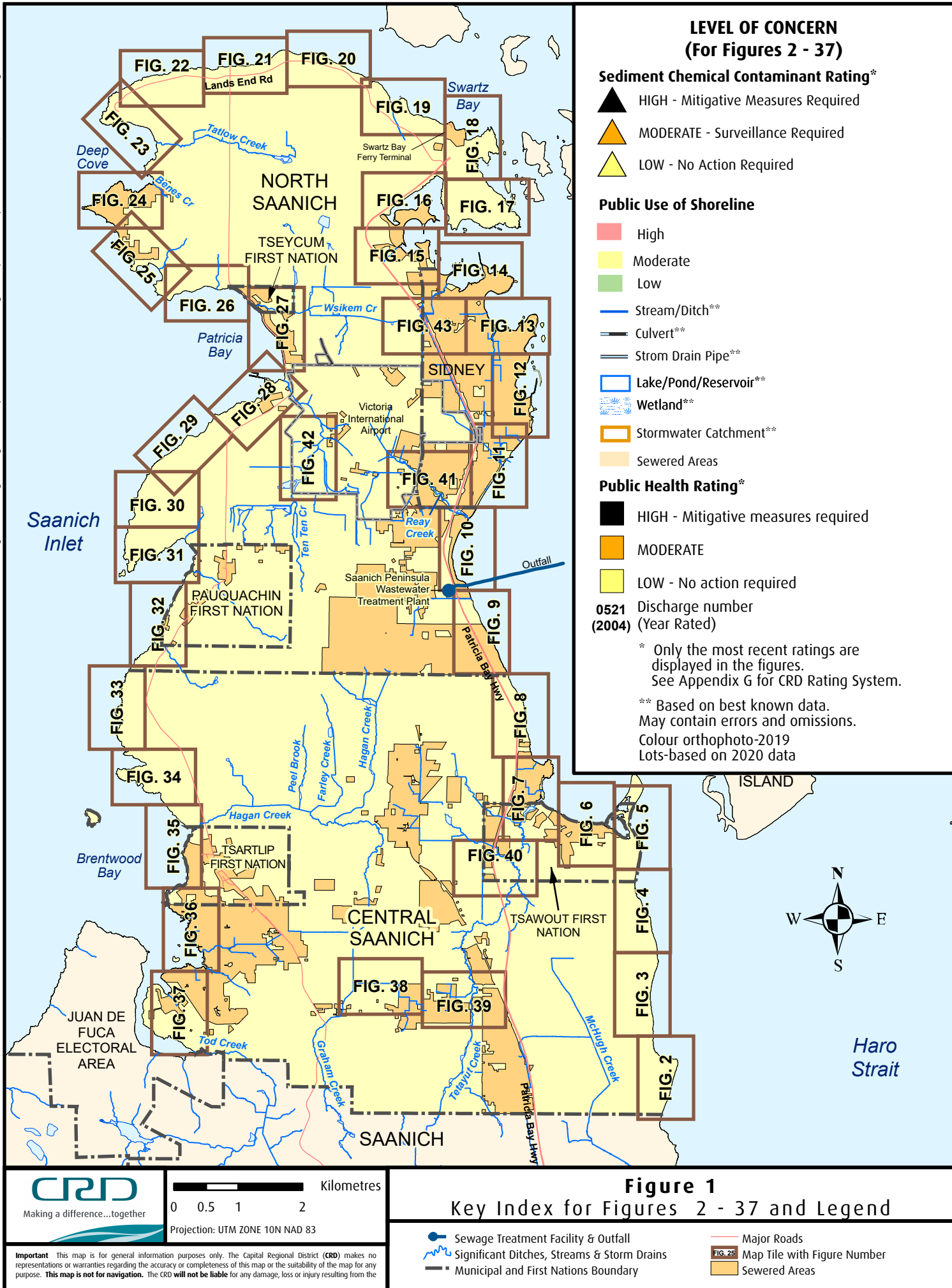


## **APPENDIX A**

### **LOCATION OF STORMWATER DISCHARGES 2020**



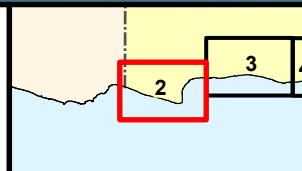




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 2**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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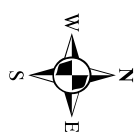




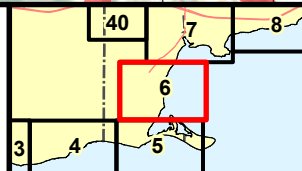




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 6**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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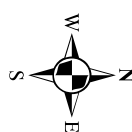




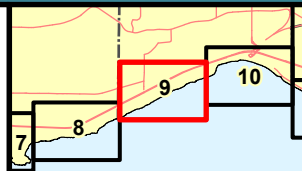




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 9**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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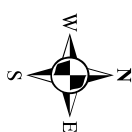




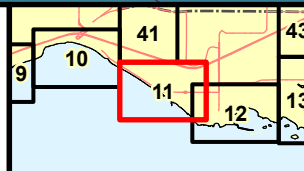


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0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



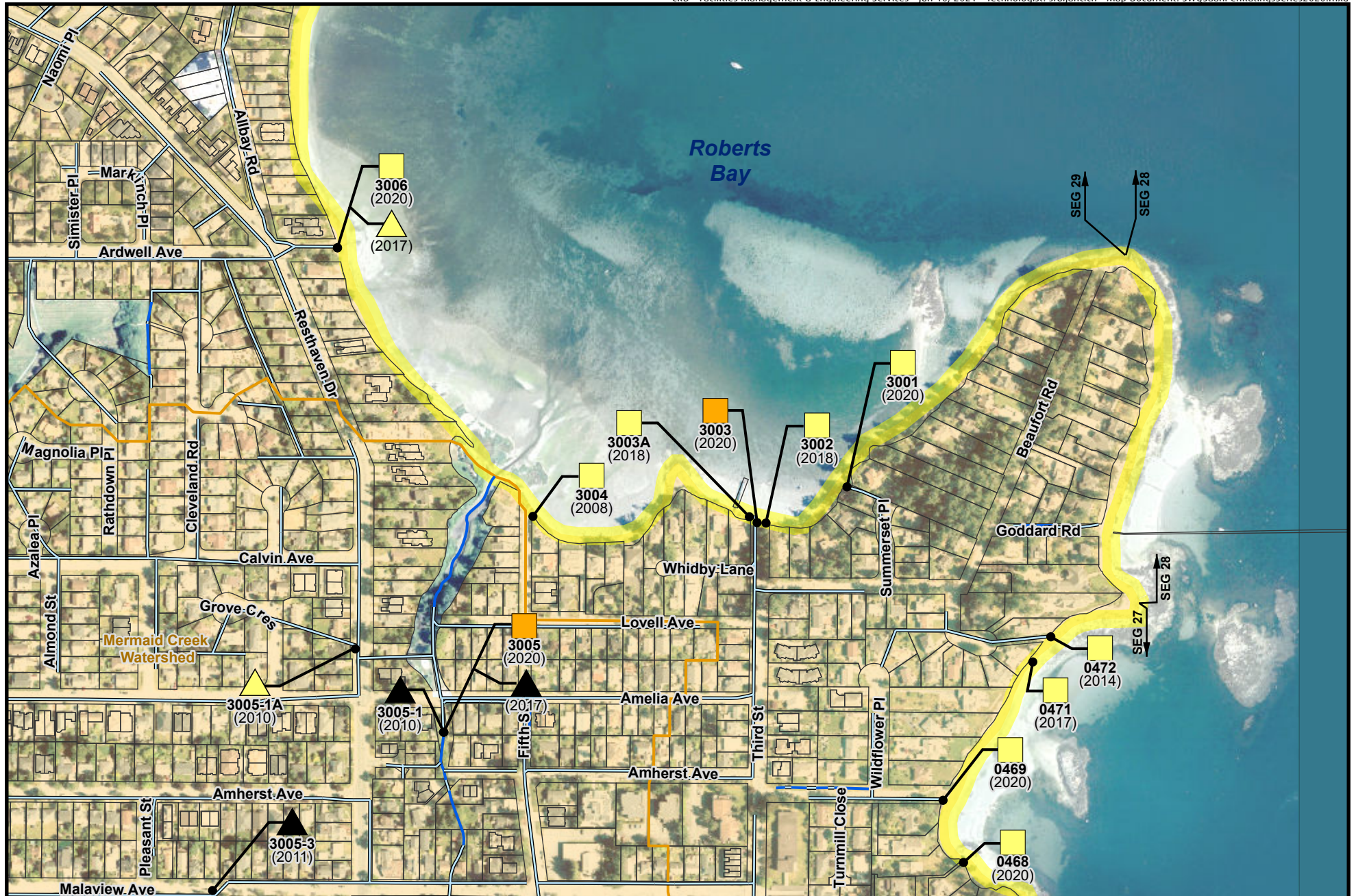
**Figure 11**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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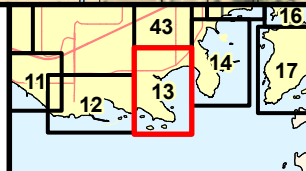


**CRD**  
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0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 13**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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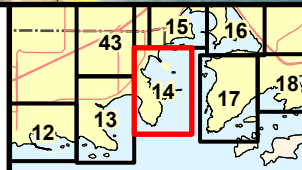


**CRD**  
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0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 14**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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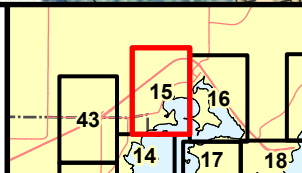




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 15**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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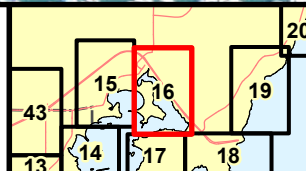




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 16**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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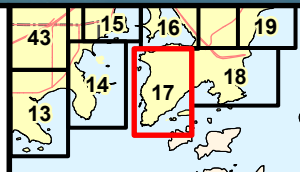




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



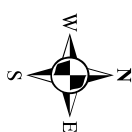
**Figure 17**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

**Important** This map is for general information purposes only. The Capital Regional District (CRD) makes no representations or warranties regarding the accuracy or completeness of this map or the suitability of the map for any purpose. **This map is not for navigation.** The CRD will not be liable for any damage, loss or injury resulting from the use of the map or information on the map and the map may be

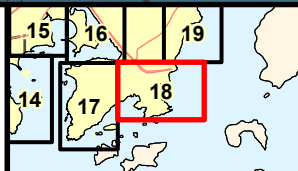




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 18**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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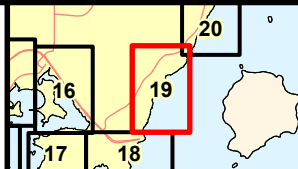


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0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



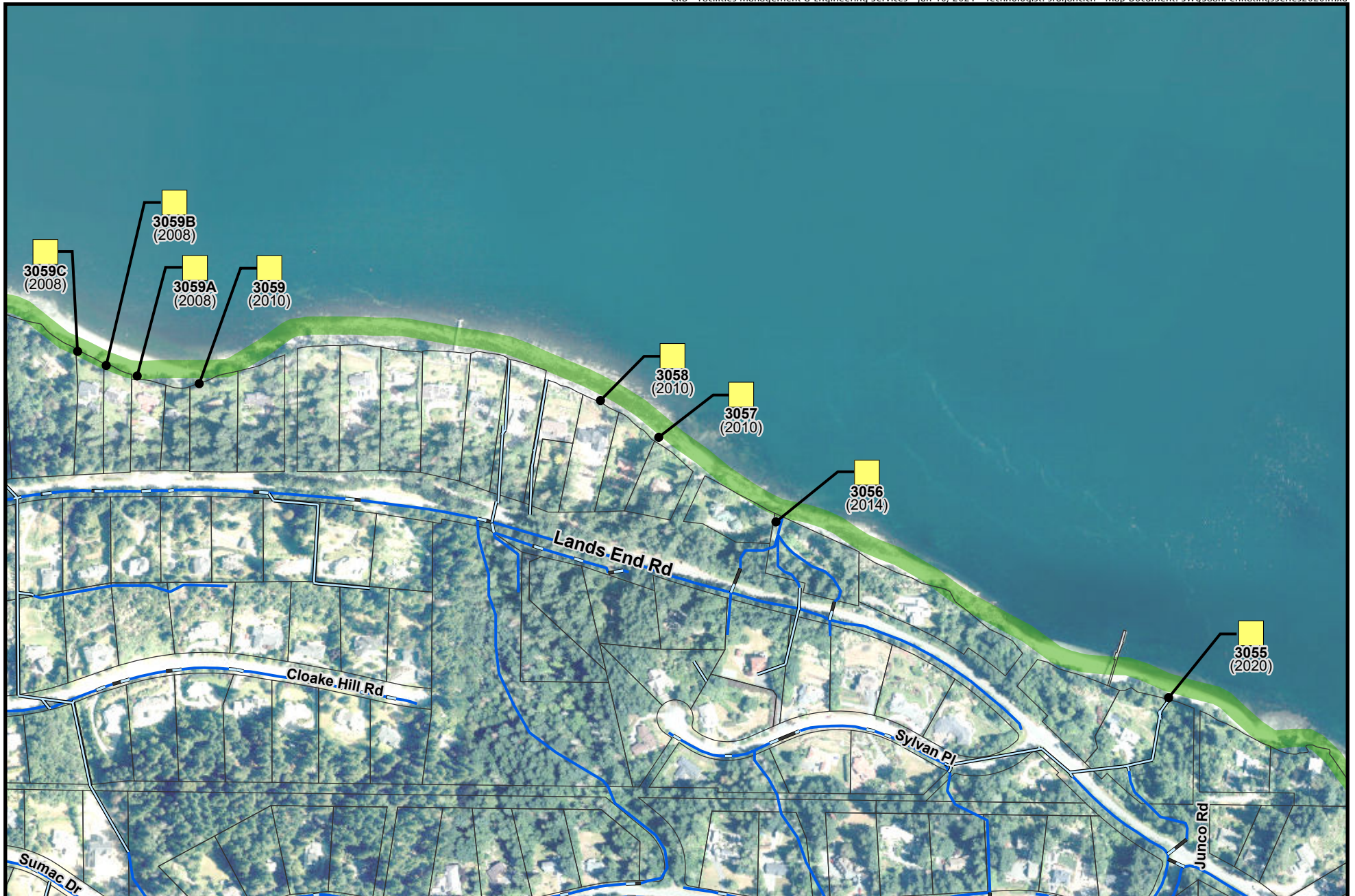
For Key Index  
and Legend  
See Figure 1



**Figure 19**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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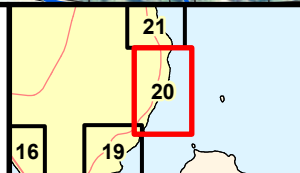


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Projection: UTM ZONE 10N NAD 83



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and Legend  
See Figure 1



**Figure 20**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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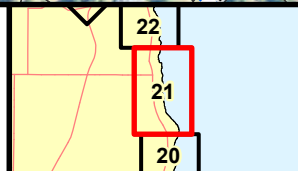


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0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



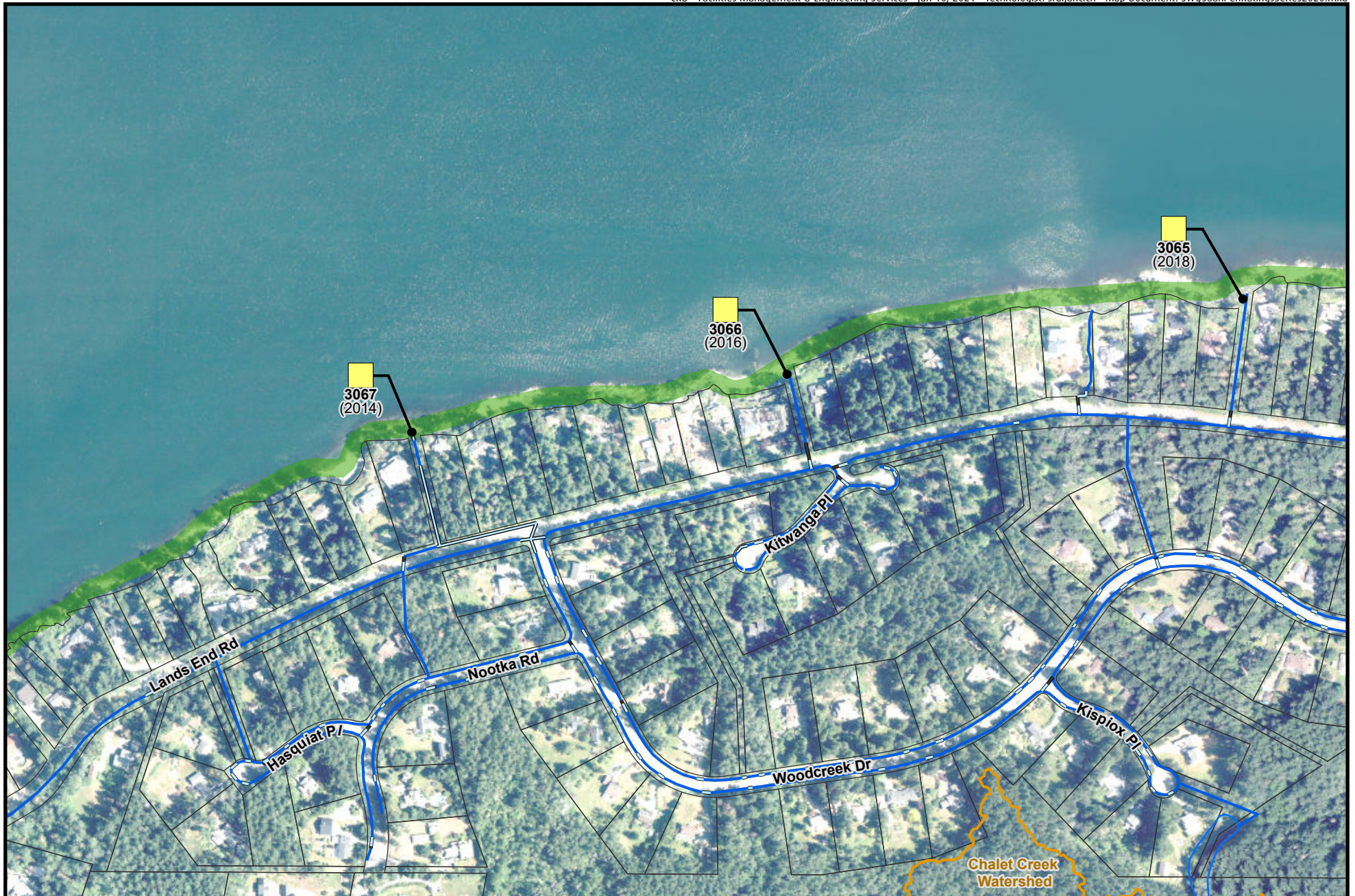
For Key Index  
and Legend  
See Figure 1



**Figure 21**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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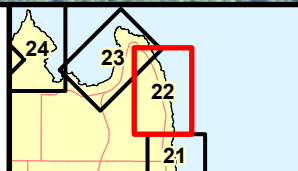




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 22**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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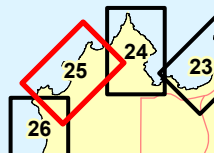




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 25**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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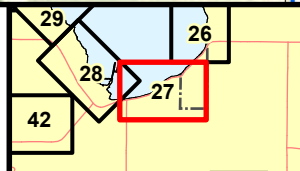


**CRD**  
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0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 27**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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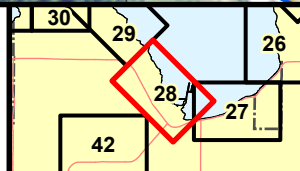




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 28**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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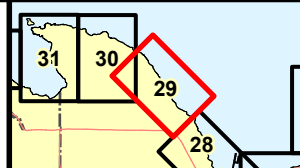




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Projection: UTM ZONE 10N NAD 83



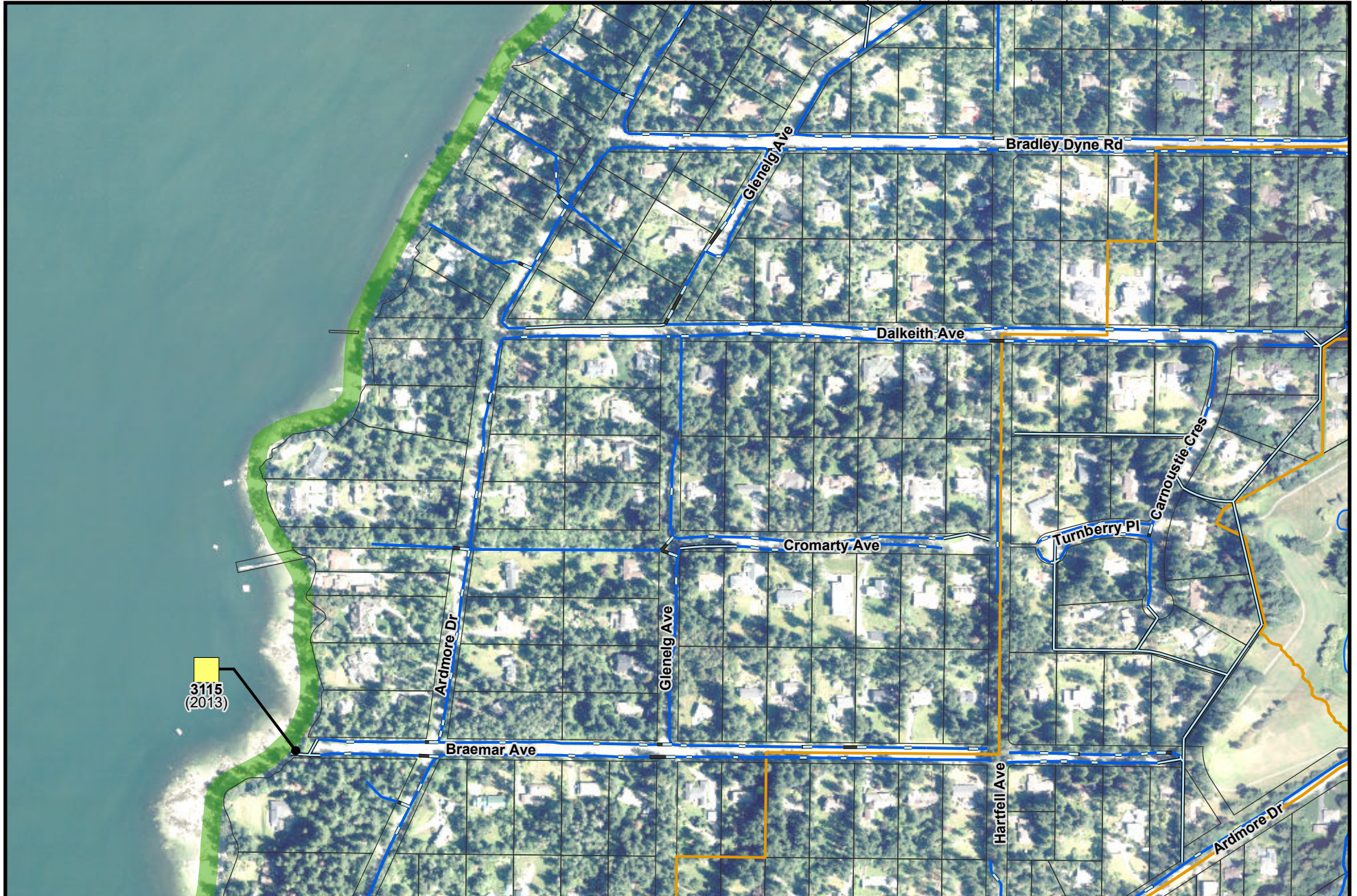
For Key Index  
and Legend  
See Figure 1



**Figure 29**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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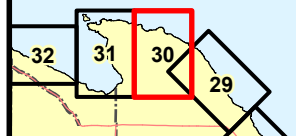


**CRD**  
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0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



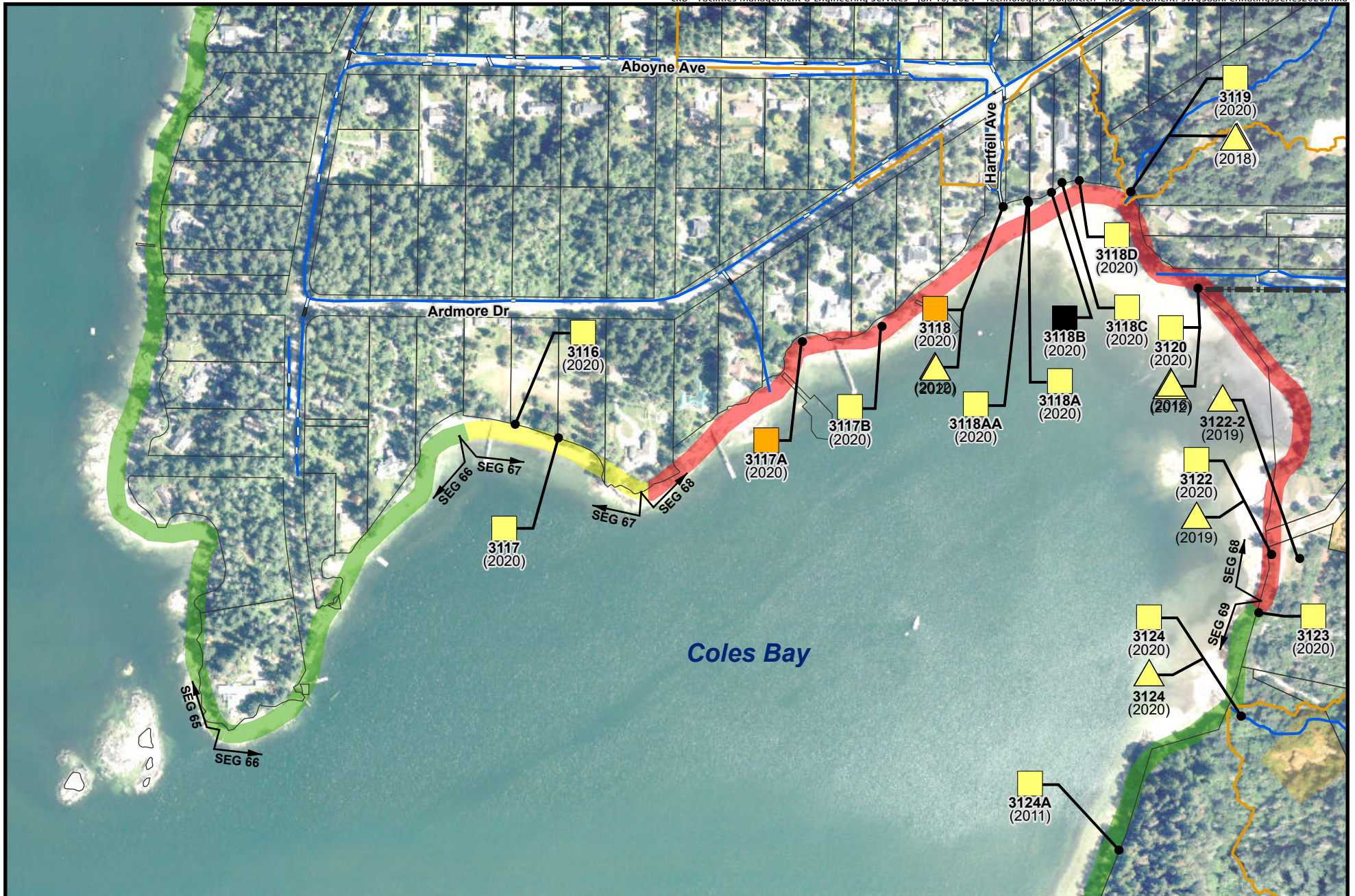
For Key Index  
and Legend  
See Figure 1



**Figure 30**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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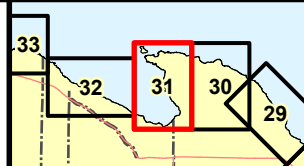


**CRD**  
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0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 31**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

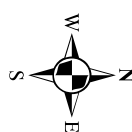
**Important** This map is for general information purposes only. The Capital Regional District (CRD) makes no representations or warranties regarding the accuracy or completeness of this map or the suitability of the map for any purpose. **This map is not for navigation.** The CRD will not be liable for any damage, loss or injury resulting from the use of the map or information on the map and the map may be



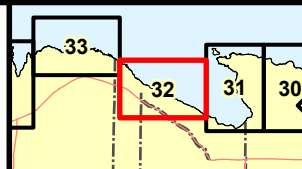


**CRD**  
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0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 32**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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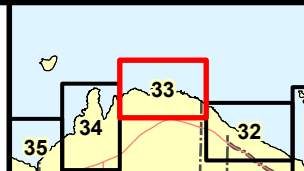




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 33**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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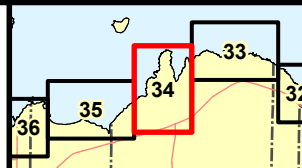


**CRD**  
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0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



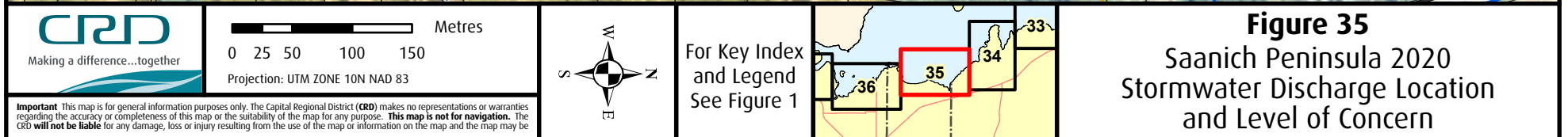
For Key Index  
and Legend  
See Figure 1



**Figure 34**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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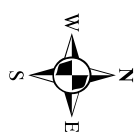


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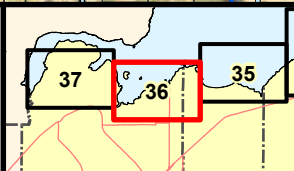




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 36**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

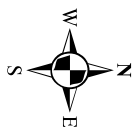
**Important** This map is for general information purposes only. The Capital Regional District (CRD) makes no representations or warranties regarding the accuracy or completeness of this map or the suitability of the map for any purpose. **This map is not for navigation.** The CRD will not be liable for any damage, loss or injury resulting from the use of the map or information on the map and the map may be





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0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



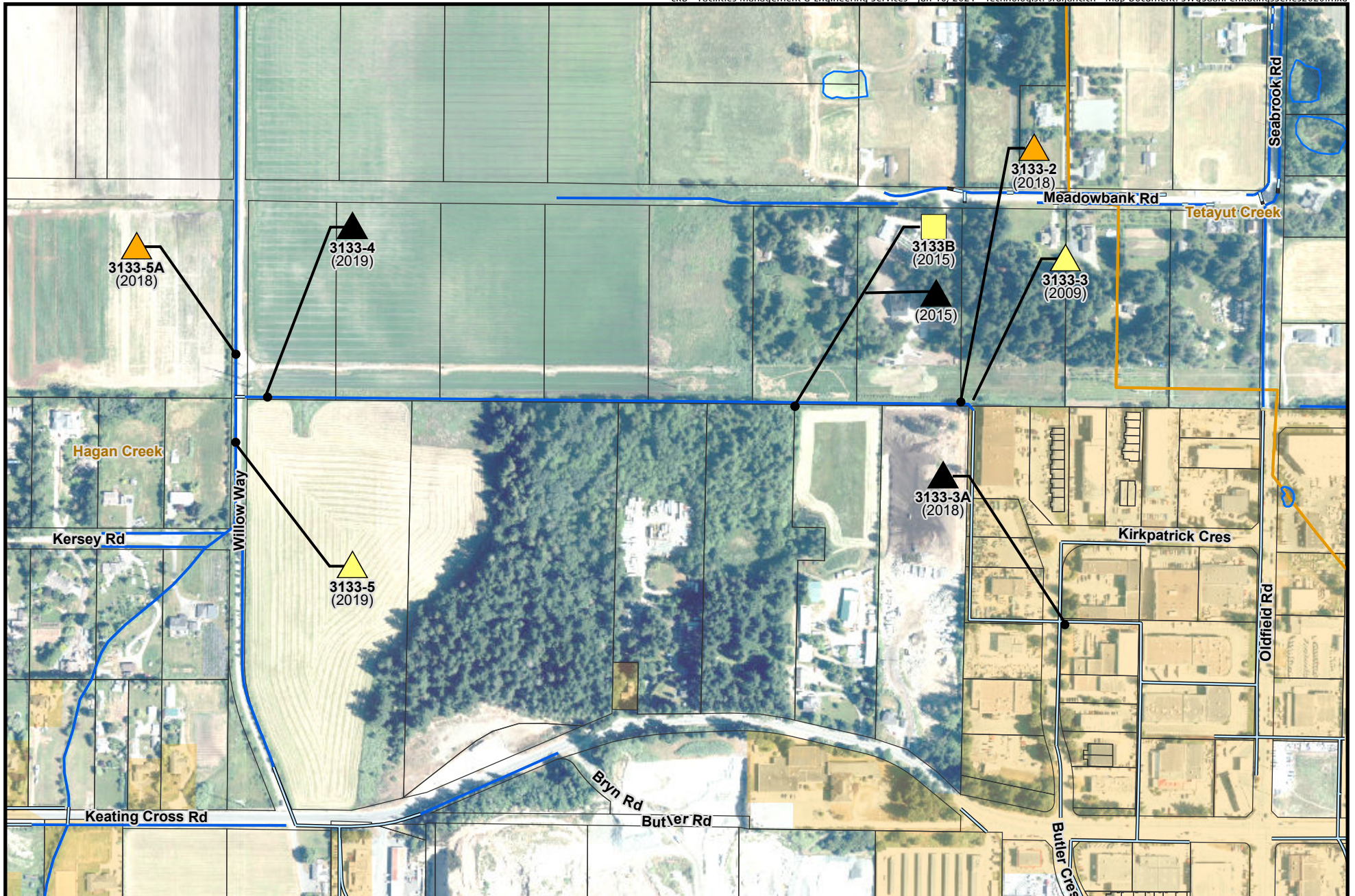
For Key Index  
and Legend  
See Figure 1



**Figure 37**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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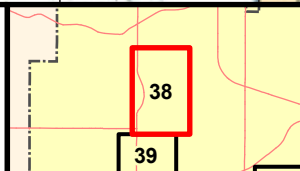




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



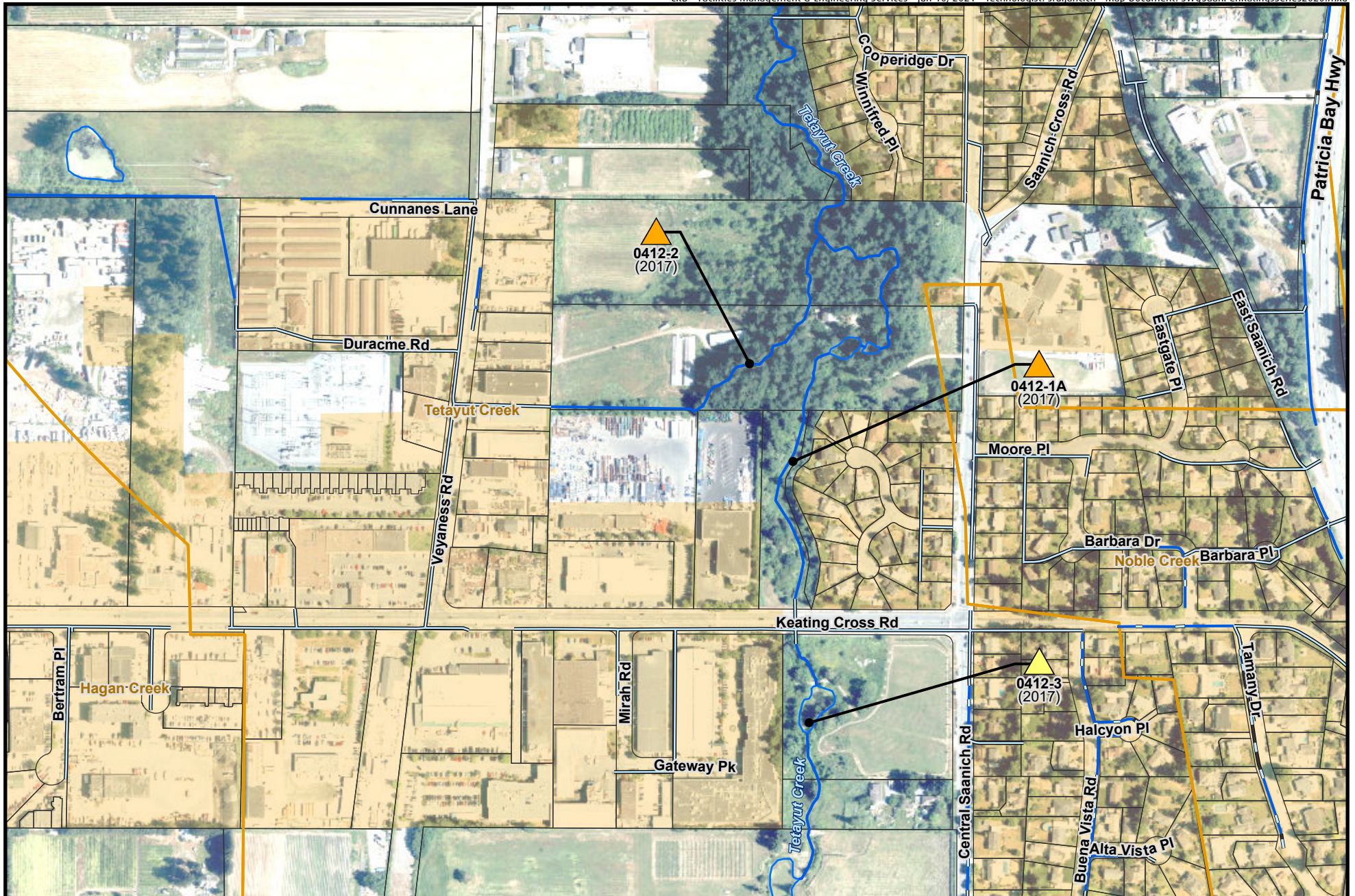
For Key Index  
and Legend  
See Figure 1



**Figure 38**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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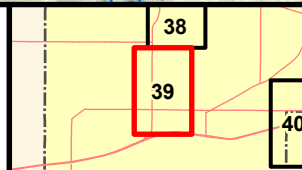




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 39**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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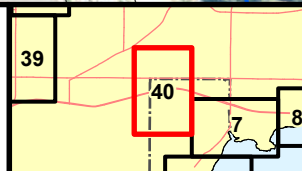




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



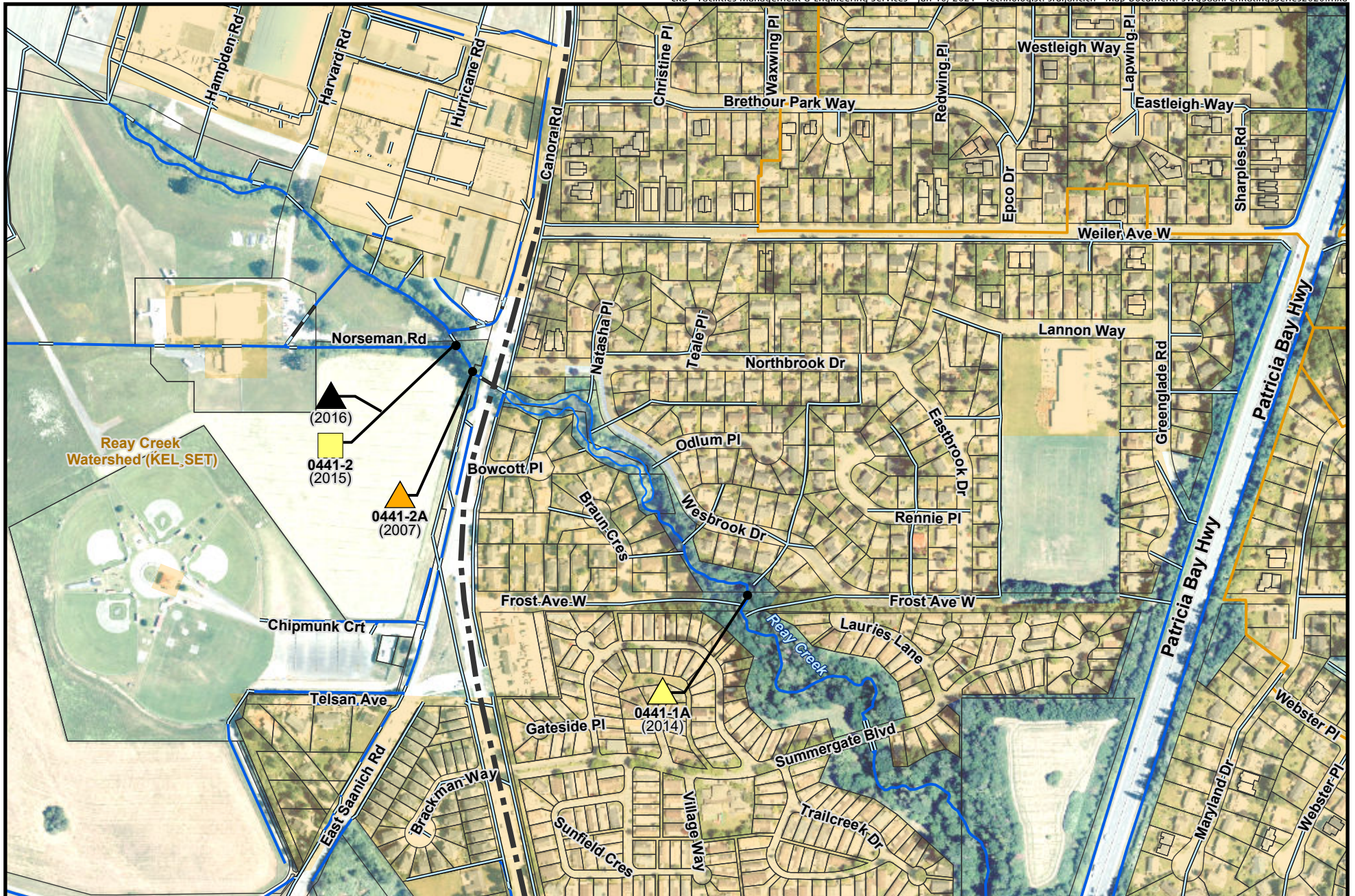
For Key Index  
and Legend  
See Figure 1



**Figure 40**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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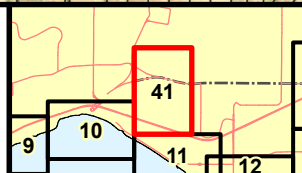


**CRD**  
Making a difference...together

0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



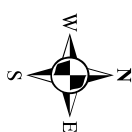
**Figure 41**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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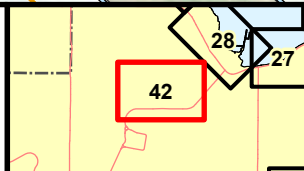




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



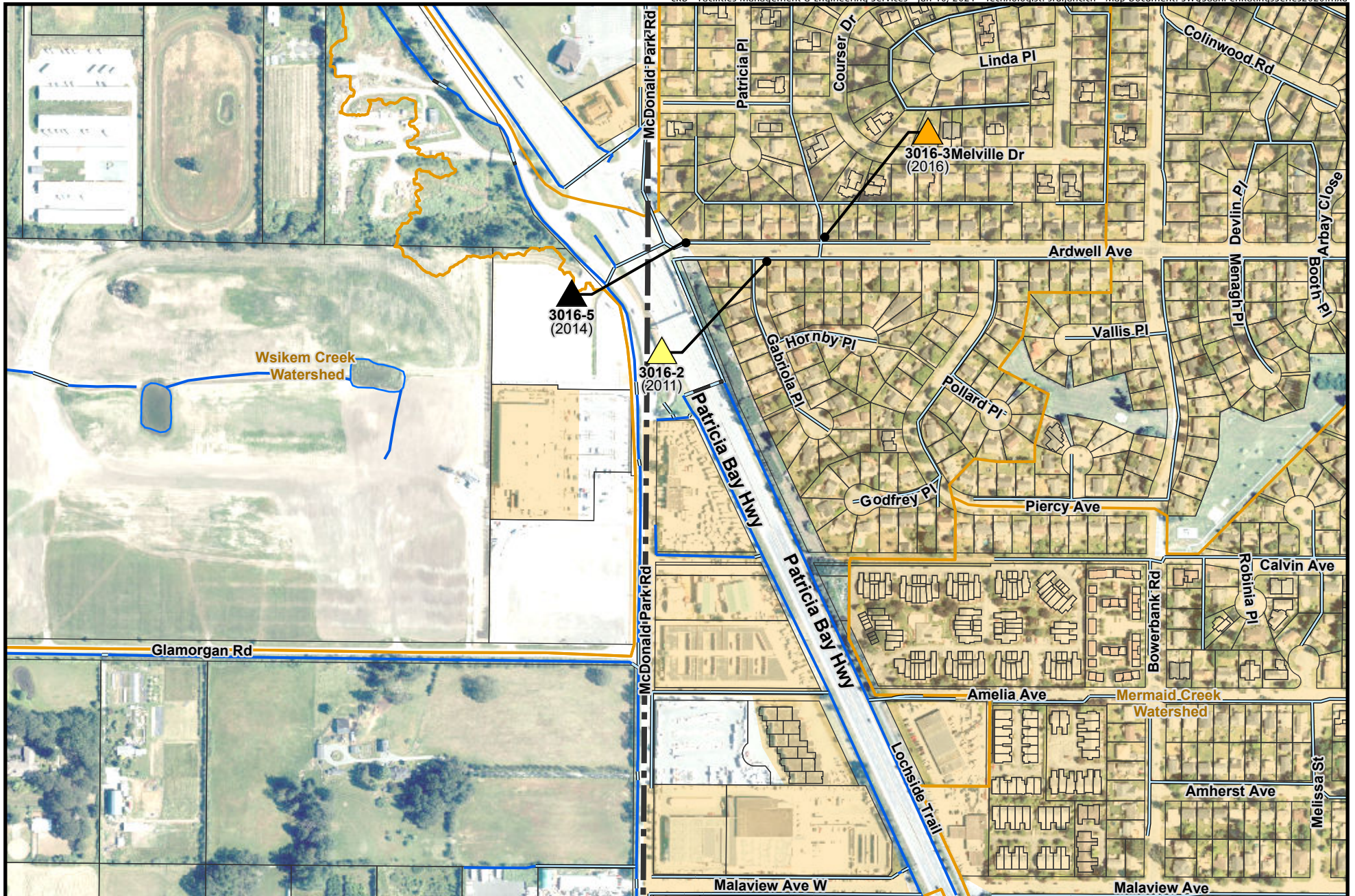
For Key Index  
and Legend  
See Figure 1



**Figure 42**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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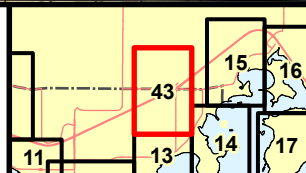




0 25 50 100 150 Metres  
Projection: UTM ZONE 10N NAD 83



For Key Index  
and Legend  
See Figure 1



**Figure 43**  
Saanich Peninsula 2020  
Stormwater Discharge Location  
and Level of Concern

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## **APPENDIX B**

### **BACTERIAL AND FLOW DATA 2020**







# Stormwater Discharge Quality Report

## Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description             | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                                   |
|------------------------|----------------------------------|---------------|-----------------|----------------------------|--------------------------------------------------|
| SW0405                 | Island View Beach                | 2018-02-19    |                 | 10                         | no odour, very amber, unknown flow               |
|                        |                                  | 2018-08-16    |                 |                            | no odour, amber, pooled, unknown flow            |
|                        |                                  | 2019-02-27    |                 | 40                         | no odour, amber, pooled water, unknown flow      |
|                        |                                  | 2019-07-11    | 30              | 220                        | no odour, amber/rusty                            |
|                        |                                  | 2019-10-10    |                 | 48                         | no odour, amber, pooled flow                     |
|                        |                                  | 2020-02-13    | > 40            | 2                          | no odour, very amber, pooled water, some flow    |
|                        |                                  | 2020-07-10    | 65              | 210                        | no odour, very rusty                             |
| SW0407                 | SA-SU Road Saanichton Bay        | 2018-02-05    | 250             | < 10                       | no odour, amber                                  |
|                        |                                  | 2018-02-19    | 200             | 20                         | no odour, amber                                  |
|                        |                                  | 2018-08-16    | 30              |                            | no odour, murky                                  |
|                        |                                  | 2019-02-27    | 120             | 10                         | no odour, clear, potentially tidal, unknown flow |
|                        |                                  | 2019-07-11    | 120             | 70                         | no odour, yellow                                 |
|                        |                                  | 2020-03-26    | > 500           | 32                         | no odour, clear                                  |
|                        |                                  | 2020-09-29    | 50              | 8                          | no odour, slight amber                           |
| SW0409C                | 2788 SA-SU Road                  | 2019-10-28    | 0               |                            | no flow, not sampled                             |
| SW0409CA               | SA-SU Road and Jimmy Road        | 2020-01-23    | 60              | 170                        | no odour, clear                                  |
|                        |                                  | 2020-09-29    |                 |                            | flow too low to sample                           |
| SW0410                 | 20 m north of 2764 SA-SU Road    | 2018-02-05    | 30              | 40                         | no odour, clear                                  |
|                        |                                  | 2018-02-19    | 24              | 30                         | no odour, clear                                  |
|                        |                                  | 2018-02-26    | 12              | 40                         | no odour, clear                                  |
|                        |                                  | 2018-08-16    | 0               |                            | dry, not sampled                                 |
|                        |                                  | 2019-02-27    | 48              | 30                         | no odour, clear                                  |
|                        |                                  | 2019-07-11    | 5               | 150                        | no odour, clear                                  |
|                        |                                  | 2019-10-10    | 20              | 6                          | no odour, clear                                  |
|                        |                                  | 2020-01-23    | > 120           | 82                         | no odour, amber                                  |
|                        |                                  | 2020-09-29    | 5               | 24                         | no odour, clear                                  |
| SW0411                 | SA-SU Road and Mt. Newton X Road | 2019-02-27    | 1               | < 10                       | no odour, clear                                  |
|                        |                                  | 2019-07-11    |                 |                            | flow too low to sample                           |
|                        |                                  | 2020-01-23    | 7               | 1000                       | no odour, clear                                  |
|                        |                                  | 2020-09-29    |                 |                            | flow too low to sample                           |
| SW0411A                | Near 2721 Mt. Newton X Road      | 2018-02-05    | 10              | 10                         | no odour, clear                                  |
|                        |                                  | 2018-02-19    | 10              | < 10                       | no odour, clear                                  |
|                        |                                  | 2018-02-26    | 18              | < 10                       | no odour, clear                                  |
|                        |                                  | 2018-08-16    | 0               |                            | dry, not sampled                                 |



**Stormwater Discharge Quality Report**  
**Bacterial and Flow Data (January 2018 to December 2020)**

| Stormwater Discharge # | Location Description                            | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                          |
|------------------------|-------------------------------------------------|---------------|-----------------|----------------------------|-----------------------------------------|
|                        |                                                 | 2019-02-27    | 18              | 10                         | no odour, clear                         |
|                        |                                                 | 2019-07-11    | 3               | 50                         | no odour, clear                         |
|                        |                                                 | 2020-01-23    | 24              | 120                        | no odour, clear                         |
|                        |                                                 | 2020-05-28    | 4               | 10                         | no odour, murky brown                   |
|                        |                                                 | 2020-09-29    | 1               | 53                         | no odour, clear                         |
| SW0411AA               | Near 2769 Mt. Newton Road                       | 2018-02-05    | 8               | 10                         | no odour, clear                         |
|                        |                                                 | 2018-02-19    | 12              | < 10                       | no odour, clear                         |
|                        |                                                 | 2018-02-26    | 10              | 10                         | no odour, clear                         |
|                        |                                                 | 2018-08-16    | 0               |                            | dry, not sampled                        |
|                        |                                                 | 2019-02-27    | 15              | 10                         | no odour, clear                         |
|                        |                                                 | 2019-07-11    | 4               | < 10                       | no odour, slight amber                  |
|                        |                                                 | 2020-01-23    | 38              | 18                         | no odour, murky amber                   |
|                        |                                                 | 2020-05-28    | 3               | 30                         | no odour, slight amber                  |
|                        |                                                 | 2020-09-29    | < 1             | 84                         | no odour, clear                         |
| SW0412                 | Tetayut Creek, 2499 Helmsen's Hollow            | 2018-02-05    | > 2000          | 40                         | no odour, clear                         |
|                        |                                                 | 2018-02-19    | > 1200          | 40                         | no odour, clear                         |
|                        |                                                 | 2018-02-26    | > 400           | 30                         | no odour, clear                         |
|                        |                                                 | 2018-08-16    | > 300           | 150                        | no odour, clear                         |
|                        |                                                 | 2019-03-19    | > 500           | 40                         | no odour, clear                         |
|                        |                                                 | 2019-07-11    | > 1000          | 140                        | no odour, clear                         |
|                        |                                                 | 2019-10-10    | > 500           | 46                         | no odour, clear                         |
|                        |                                                 | 2020-03-23    | > 2000          | 100                        | no odour, clear                         |
|                        |                                                 | 2020-09-29    | 1000            | 89                         | no odour, clear                         |
| SW0412-2E              | Tetayut Creek, upstream of Tetayut Road         | 2019-09-30    |                 | 340                        | no odour, clear, flow not estimated     |
| SW0413                 | Beach access, Mt. Newton X Road                 | 2018-02-19    |                 |                            | flow too low to sample                  |
|                        |                                                 | 2018-08-16    | 0               |                            | dry, not sampled                        |
| SW0414                 | Mt. Newton X Road access east of Lochside Drive | 2018-02-19    | 10              | 10                         | no odour, clear                         |
|                        |                                                 | 2018-08-16    | 8               | 70                         | no odour, clear                         |
|                        |                                                 | 2019-09-30    |                 | 18                         | no odour, clear, flow not estimated     |
| SW0416                 | Ferguson Road beach access                      | 2018-02-19    | 18              | < 100                      | no odour, very turbid from construction |
|                        |                                                 | 2018-03-06    | 10              | 160                        | no odour, turbid brown                  |
|                        |                                                 | 2018-08-01    | 18              | < 10                       | no odour, clear                         |
|                        |                                                 | 2019-02-27    | 100             | 40                         | no odour, clear                         |



## Stormwater Discharge Quality Report

### Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                      | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment            |
|------------------------|-------------------------------------------|---------------|-----------------|----------------------------|---------------------------|
|                        |                                           | 2019-06-19    | 10              | 350                        | no odour, clear           |
|                        |                                           | 2019-10-10    | 9               | 2                          | no odour, clear           |
|                        |                                           | 2020-01-23    | > 200           | 130                        | slight sewer odour, murky |
|                        |                                           | 2020-07-10    | 16              | 11                         | no odour, clear           |
| SW0419                 | 2654 Lancelot Drive, Turgoose Pt. Estates | 2018-02-19    | 10              | 40                         | no odour, clear           |
|                        |                                           | 2018-08-01    | 6               | 140                        | no odour, clear           |
| SW0421A                | Foot of Arthur Drive                      | 2019-03-19    |                 |                            | flow too low to sample    |
|                        |                                           | 2019-06-19    |                 |                            | flow too low to sample    |
|                        |                                           | 2020-02-19    |                 |                            | flow too low to sample    |
|                        |                                           | 2020-07-10    | 0               |                            | dry, not sampled          |
| SW0423                 | Foot of Newman Road                       | 2018-02-19    | 80              | 160                        | no odour, clear           |
|                        |                                           | 2018-08-01    | 3               | 80                         | no odour, clear           |
| SW0424                 | Between 8475 & 8443 Lochside Drive        | 2018-02-19    | 60              | < 10                       | no odour, clear           |
|                        |                                           | 2018-08-01    | 0               |                            | dry, not sampled          |
|                        |                                           | 2019-03-19    | 32              | 30                         | no odour, clear           |
|                        |                                           | 2019-06-19    |                 |                            | flow too low to sample    |
|                        |                                           | 2020-01-23    | > 200           | 50                         | no odour, amber           |
|                        |                                           | 2020-07-10    | < 1             | 1                          | no odour, slight amber    |
| SW0426                 | Wardle Road beach access                  | 2018-02-19    | 40              | 60                         | no odour, clear           |
|                        |                                           | 2018-04-30    | 60              | < 10                       | no odour, clear           |
|                        |                                           | 2018-08-01    | 2               | 10                         | no odour, clear           |
|                        |                                           | 2019-02-27    | 80              | 40                         | no odour, clear           |
|                        |                                           | 2019-06-19    | 3               | 10                         | no odour, clear           |
|                        |                                           | 2020-01-23    | > 200           | 60                         | no odour, amber           |
|                        |                                           | 2020-07-10    | 6               | 600                        | no odour, clear           |
| SW0428                 | Foot of Amity Drive                       | 2018-02-19    | 65              | < 10                       | no odour, clear           |
|                        |                                           | 2018-04-30    | 60              | 80                         | no odour, clear           |
|                        |                                           | 2018-08-01    | 1               | 20                         | no odour, clear           |
|                        |                                           | 2019-02-27    | 80              | < 10                       | no odour, clear           |
|                        |                                           | 2019-06-19    | 5               | < 10                       | no odour, clear           |
|                        |                                           | 2020-01-23    | > 200           | 220                        | no odour, amber           |
|                        |                                           | 2020-07-10    | 8               | 190                        | no odour, slight amber    |



# Stormwater Discharge Quality Report

## Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                           | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                   |
|------------------------|------------------------------------------------|---------------|-----------------|----------------------------|----------------------------------|
| SW0430                 | Ditch at south end of Bazan Bay Park           | 2018-02-19    | 160             | 20                         | no odour, clear                  |
|                        |                                                | 2018-08-01    | 80              | 40                         | no odour, clear                  |
|                        |                                                | 2019-02-27    | 120             | < 10                       | no odour, clear                  |
|                        |                                                | 2019-06-19    | 38              | 10                         | no odour, clear                  |
|                        |                                                | 2020-01-23    | > 300           | 80                         | no odour, clear                  |
|                        |                                                | 2020-07-10    | 18              | 17                         | no odour, slight amber           |
| SW0430A                | 20 m north of Cy Hampton Park path             | 2018-04-30    | 3               | 180                        | no odour, clear                  |
|                        |                                                | 2019-02-27    | 8               | 50                         | no odour, clear                  |
|                        |                                                | 2019-06-19    | 2               | < 10                       | no odour, clear                  |
|                        |                                                | 2020-01-23    | 12              | 40                         | no odour, clear                  |
|                        |                                                | 2020-07-10    | 4               | 8                          | no odour, clear                  |
| SW0430AA               | Cy Hampton Park, south of picnic tables        | 2019-03-19    | 7               | 10                         | no odour, clear                  |
|                        |                                                | 2019-06-19    |                 |                            | flow too low to sample           |
| SW0430B                | 40 m north of Cy Hampton Park path             | 2020-07-10    | 6               | 250                        | no odour, clear                  |
| SW0431                 | Bazan Bay Park, 20 m north of dirt path        | 2018-02-19    | 120             | 10                         | no odour, clear                  |
|                        |                                                | 2018-04-30    | 140             | 50                         | no odour, clear                  |
|                        |                                                | 2018-08-01    | 30              | 270                        | no odour, clear                  |
|                        |                                                | 2019-02-27    | > 200           | 20                         | no odour, clear                  |
|                        |                                                | 2019-06-19    | 55              | 130                        | no odour, clear                  |
|                        |                                                | 2020-01-23    | > 300           | 70                         | no odour, clear                  |
|                        |                                                | 2020-07-10    | 42              | 1000                       | no odour, clear                  |
| SW0432                 | Foot of Bazan Bay Road                         | 2018-02-19    | 120             | 20                         | no odour, clear                  |
|                        |                                                | 2018-04-30    | 160             | 200                        | no odour, clear                  |
|                        |                                                | 2018-08-01    | 70              | 40                         | no odour, clear                  |
|                        |                                                | 2019-02-27    | > 250           | 50                         | no odour, clear                  |
|                        |                                                | 2019-06-19    | 70              | 240                        | no odour, clear                  |
|                        |                                                | 2020-01-23    | > 600           | 29                         | no odour, clear                  |
|                        |                                                | 2020-07-10    | 60              | 160                        | no odour, clear                  |
| SW0435                 | Northeast property line of 9165 Lochside Drive | 2019-04-26    | 80              | 150                        | no odour, clear                  |
|                        |                                                | 2019-06-19    | 68              | 500                        | no odour, clear                  |
|                        |                                                | 2020-02-13    | 100             | 13                         | no odour, clear, otter influence |
|                        |                                                | 2020-07-10    | 65              | 50                         | no odour, clear                  |



# Stormwater Discharge Quality Report

## Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                          | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                                   |
|------------------------|-----------------------------------------------|---------------|-----------------|----------------------------|--------------------------------------------------|
| SW0441                 | Reay Creek, beach access, 9265 Lochside Drive | 2018-03-26    | 250             | 260                        | no odour, clear                                  |
|                        |                                               | 2018-05-15    | > 250           | 140                        | no odour, clear                                  |
|                        |                                               | 2018-06-21    | 120             | 480                        | no odour, clear                                  |
|                        |                                               | 2018-08-16    | 140             | 90                         | no odour, clear                                  |
|                        |                                               | 2019-04-26    | > 250           | 2700                       | no odour, clear                                  |
|                        |                                               | 2019-07-05    | 100             | 280                        | no odour, clear                                  |
|                        |                                               | 2020-02-13    | > 800           | 77                         | no odour, clear                                  |
|                        |                                               | 2020-07-10    | 80              | 130                        | no odour, clear                                  |
|                        |                                               | 2020-12-07    |                 |                            | no odour, clear, pooled                          |
|                        |                                               | 2020-12-16    | > 300           | 52                         | no odour, slight amber                           |
| SW0441-1               | 125m downstream of Frost Road                 | 2020-12-16    | > 300           | 55                         | no odour, slight amber                           |
| SW0441-1A              | Reay Creek, foot of Frost Avenue              | 2018-06-21    | 100             | 200                        | no odour, clear                                  |
|                        |                                               | 2019-07-05    | 60              | 60                         | no odour, clear                                  |
|                        |                                               | 2020-12-07    | > 2000          |                            | no odour, clear                                  |
| SW0441-2               | Reay Creek, Canora Road at Norseman Road      | 2019-07-05    | 40              | 130                        | no odour, clear                                  |
| SW0441-2A              | Reay Creek tributary, south of Norseman Road  | 2019-11-26    | 60              | 18                         | no odour, clear                                  |
| SW0442                 | 9334 Lochside Drive beach access              | 2018-02-20    | < 1             | < 10                       | no odour, clear                                  |
|                        |                                               | 2018-08-02    |                 |                            | flow too low to sample                           |
|                        |                                               | 2019-02-28    |                 | < 10                       | no odour, clear, flow too low to estimate        |
|                        |                                               | 2019-06-21    |                 |                            | flow too low to sample                           |
|                        |                                               | 2020-02-13    | 2               | 20                         | no odour, clear                                  |
|                        |                                               | 2020-07-13    |                 |                            | flow too low to sample                           |
| SW0443                 | 9348 Lochside Drive                           | 2018-02-20    |                 |                            | flow too low to sample                           |
|                        |                                               | 2018-08-02    | 0               |                            | dry, not sampled                                 |
|                        |                                               | 2019-02-28    |                 |                            | flow too low to sample                           |
|                        |                                               | 2019-06-21    | 0               |                            | dry, not sampled                                 |
|                        |                                               | 2020-02-13    | 8               | 40                         | no odour, murky/sudsy, sampled during surge flow |
|                        |                                               | 2020-07-13    | 0               |                            | dry, not sampled                                 |
| SW0445                 | 20m north of steps, 9388 Lochside Drive       | 2018-02-20    | 6               | 20                         | no odour, clear                                  |
|                        |                                               | 2018-08-02    |                 |                            | flow too low to sample                           |
|                        |                                               | 2019-02-28    | 6               | < 10                       | no odour, clear                                  |
|                        |                                               | 2019-06-19    | 7               | 550                        | no odour, amber , suds                           |
|                        |                                               | 2019-10-10    | 2               | 43                         | no odour, clear                                  |



**Stormwater Discharge Quality Report**  
**Bacterial and Flow Data (January 2018 to December 2020)**

| Stormwater Discharge # | Location Description                  | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                                       |
|------------------------|---------------------------------------|---------------|-----------------|----------------------------|------------------------------------------------------|
|                        |                                       | 2020-02-13    | 9               | < 1                        | no odour, clear                                      |
|                        |                                       | 2020-07-13    | 1               | 61                         | no odour, clear                                      |
| SW0446                 | 9462 Lochside Drive beach access      | 2018-02-20    | 4               | < 10                       | no odour, clear, evidence of animal activity in pipe |
|                        |                                       | 2018-08-02    |                 |                            | flow too low to sample                               |
|                        |                                       | 2019-02-28    | 6               | < 10                       | no odour, clear                                      |
|                        |                                       | 2019-06-19    | 2               | 2600                       | no odour, amber , suds                               |
|                        |                                       | 2020-02-13    | 5               | < 1                        | no odour, clear                                      |
|                        |                                       | 2020-03-02    | 3               | 3                          | no odour, slight amber                               |
|                        |                                       | 2020-07-13    | 0               |                            | dry, not sampled                                     |
| SW0447                 | Across from 9498 Lochside Drive       | 2018-02-20    | 4               | 50000                      | no odour, clear                                      |
|                        |                                       | 2018-03-06    | 3               | 570                        | no odour, clear                                      |
|                        |                                       | 2018-05-02    | 5               | 2100                       | no odour, clear                                      |
|                        |                                       | 2018-08-02    | 2               | 40                         | no odour, clear                                      |
|                        |                                       | 2019-02-28    | 8               | 5900                       | no odour, clear                                      |
|                        |                                       | 2019-06-21    | 1               | 20000                      | no odour, slightly amber                             |
|                        |                                       | 2020-02-13    | 9               | 1400                       | no odour, clear                                      |
|                        |                                       | 2020-07-13    | 3               | 84                         | no odour, clear                                      |
| SW0448                 | Foot of Weiller Road, Tulista Park    | 2018-02-20    | 8               | 160                        | no odour, clear                                      |
|                        |                                       | 2018-08-02    | < 1             | 540                        | no odour, amber yellow                               |
|                        |                                       | 2019-02-28    | 6               | < 10                       | no odour, clear                                      |
|                        |                                       | 2019-06-21    | < 1             | < 100                      | no odour, amber                                      |
|                        |                                       | 2020-02-13    | 5               | 560                        | no odour, clear                                      |
|                        |                                       | 2020-07-13    | 1               | 2                          | no odour, clear                                      |
| SW0449                 | Ditch along west side of Tulista Park | 2018-02-20    | 80              | 10                         | no odour, clear                                      |
|                        |                                       | 2018-08-02    | 14              | 200                        | no odour, slight amber                               |
|                        |                                       | 2019-02-28    | 80              | 30                         | no odour, clear                                      |
|                        |                                       | 2019-06-21    | 8               | 2800                       | no odour, amber                                      |
|                        |                                       | 2020-02-13    | 70              | 53                         | no odour, murky                                      |
|                        |                                       | 2020-07-13    | 28              | 80                         | no odour, amber                                      |



# Stormwater Discharge Quality Report

## Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                        | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                                                    |
|------------------------|---------------------------------------------|---------------|-----------------|----------------------------|-------------------------------------------------------------------|
| SW0449-2D              | Manhole 153F, Fifth Street near boat launch | 2019-10-10    |                 | 160                        | no odour, slightly turbid, could not estimate flow                |
|                        |                                             | 2020-07-13    |                 | 1200                       | no odour, clear, pooled water                                     |
| SW0449A                | Manhole at Oakville and Eighth Street       | 2018-08-16    |                 |                            | could not sample due to construction                              |
|                        |                                             | 2019-02-28    |                 | 10                         | no odour, clear, flow too low to estimate                         |
|                        |                                             | 2019-06-21    | 12              | 140                        | no odour, clear                                                   |
|                        |                                             | 2019-07-05    | 48              | 200                        | no odour, clear, collected from manhole 131 during very low tide. |
|                        |                                             | 2020-02-13    | 60              | 710                        | no odour, clear                                                   |
|                        |                                             | 2020-07-13    |                 | 2700                       | no odour, clear, pooled water                                     |
|                        |                                             |               |                 |                            |                                                                   |
| SW0450                 | Below Ocean Avenue and Second Street        | 2018-02-20    | 40              | < 10                       | no odour, clear                                                   |
|                        |                                             | 2018-08-16    | 46              | 240                        | no odour, clear                                                   |
|                        |                                             | 2019-02-28    | 65              | < 10                       | no odour, clear                                                   |
|                        |                                             | 2019-06-21    | 48              | 40                         | no odour, clear                                                   |
|                        |                                             | 2020-02-13    | 100             | 4400                       | no odour, murky                                                   |
|                        |                                             | 2020-07-13    | 12              | 240                        | no odour, clear                                                   |
| SW0456A                | 20 m north of condos near Eastview Park     | 2018-02-20    |                 |                            | flow too low to sample                                            |
|                        |                                             | 2018-08-02    | 0               |                            | dry, not sampled                                                  |
|                        |                                             | 2019-03-18    | 0               |                            | dry, not sampled                                                  |
|                        |                                             | 2019-06-21    | 0               |                            | dry, not sampled                                                  |
|                        |                                             | 2020-02-19    | 1               | 16                         | no odour, clear                                                   |
|                        |                                             | 2020-07-13    |                 |                            | flow too low to sample                                            |
| SW0457A                | Beacon Avenue retaining wall                | 2020-07-13    | 2               | 4                          | no odour, clear                                                   |
| SW0458                 | Foot of Beacon Avenue below Sidney Museum   | 2018-02-20    | 32              | < 10                       | no odour, clear                                                   |
|                        |                                             | 2018-08-02    | 60              | 50                         | no odour, clear                                                   |
|                        |                                             | 2018-11-19    | 80              | 30                         | no odour, clear                                                   |
|                        |                                             | 2019-02-28    | 60              | 10                         | no odour, clear                                                   |
|                        |                                             | 2019-06-21    | 32              | < 10                       | no odour, clear                                                   |
|                        |                                             | 2020-02-13    | 38              | 1                          | no odour, clear                                                   |
|                        |                                             | 2020-07-13    | 50              | < 1                        | no odour, clear                                                   |
|                        |                                             | 2020-09-29    | 12              | < 1                        | no odour, clear                                                   |
| SW0458A                | End of Seaport Road                         | 2018-02-20    | 0               |                            | dry, not sampled                                                  |
|                        |                                             | 2018-08-16    |                 |                            | flow too low to sample                                            |
|                        |                                             | 2019-03-18    |                 |                            | flow too low to sample                                            |
|                        |                                             | 2019-06-21    | 0               |                            | dry, not sampled                                                  |



**Stormwater Discharge Quality Report**  
**Bacterial and Flow Data (January 2018 to December 2020)**

| Stormwater Discharge # | Location Description                           | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment            |
|------------------------|------------------------------------------------|---------------|-----------------|----------------------------|---------------------------|
|                        |                                                | 2020-02-13    | 0               |                            | dry, not sampled          |
|                        |                                                | 2020-07-13    |                 |                            | flow too low to sample    |
| SW0459                 | Behind 9901-3rd Street parking lot             | 2018-02-20    | 6               | < 10                       | no odour, clear           |
|                        |                                                | 2018-08-02    | 1               | 550                        | no odour, clear           |
|                        |                                                | 2019-02-28    | 5               | < 10                       | no odour, clear           |
|                        |                                                | 2019-06-21    | 2               | 340                        | no odour, clear           |
|                        |                                                | 2020-02-13    | 7               | 45                         | no odour, clear           |
|                        |                                                | 2020-07-13    | 1               | 5                          | no odour, amber           |
| SW0462                 | Beach access at 10003 - 3rd Street             | 2020-02-19    |                 |                            | flow too low to sample    |
|                        |                                                | 2020-07-13    | 0               |                            | dry, not sampled          |
| SW0468                 | Beach access at Amherst                        | 2019-02-28    | 1               | < 10                       | no odour, clear           |
|                        |                                                | 2019-06-21    | 0               |                            | dry, not sampled          |
|                        |                                                | 2020-02-19    | 1               | < 1                        | no odour, clear           |
|                        |                                                | 2020-07-13    | 0               |                            | dry, not sampled          |
| SW0469                 | Amherst beach access, 8 m south of steps       | 2018-02-20    | 2               | 130                        | no odour, clear           |
|                        |                                                | 2018-08-02    | 2               | 140                        | no odour, clear           |
|                        |                                                | 2019-02-28    | 2               | 30                         | no odour, clear           |
|                        |                                                | 2019-06-21    | < 1             | 100                        | no odour, clear           |
|                        |                                                | 2020-02-19    | 3               | < 1                        | slight sewer odour, clear |
|                        |                                                | 2020-07-13    | 1               | 83                         | no odour, clear           |
| SW3001                 | 10232 Sommerset Place                          | 2020-02-19    | 1               | 1                          | no odour, clear           |
|                        |                                                | 2020-07-14    | 0               |                            | dry, not sampled          |
| SW3002                 | Roberts Bay beach access at Third Street       | 2018-02-20    | 0               | < 10                       | dry, not sampled          |
|                        |                                                | 2018-08-02    | 0               |                            | dry, not sampled          |
| SW3003                 | Roberts Bay at Third Street                    | 2018-02-20    | 4               | < 10                       | no odour, clear           |
|                        |                                                | 2018-08-02    | 2               | 490                        | no odour, slight amber    |
|                        |                                                | 2019-03-14    | 3               | 50                         | no odour, clear           |
|                        |                                                | 2019-06-21    | 1               | 250                        | no odour, clear           |
|                        |                                                | 2020-02-19    | 4               | < 1                        | no odour, clear           |
|                        |                                                | 2020-07-14    | 3               | 760                        | no odour, clear           |
| SW3003A                | foot of Third Street, west of bottom of stairs | 2018-02-20    | 1               | < 10                       | no odour, clear           |
|                        |                                                | 2018-08-02    | < 1             | < 10                       | no odour, clear           |



**Stormwater Discharge Quality Report**  
**Bacterial and Flow Data (January 2018 to December 2020)**

| Stormwater Discharge # | Location Description                             | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                            |
|------------------------|--------------------------------------------------|---------------|-----------------|----------------------------|-------------------------------------------|
| SW3005                 | Foot of Fifth Street, Mermaid Canal              | 2018-02-28    |                 | 8600                       | no odour, clear, could not estimate flow  |
|                        |                                                  | 2018-08-03    | 12              | 950                        | no odour, clear                           |
|                        |                                                  | 2019-03-14    | 60              | 230                        | no odour, clear                           |
|                        |                                                  | 2019-06-21    | 8               | 600                        | no odour, clear                           |
|                        |                                                  | 2019-10-22    | 80              | 1600                       | no odour, clear, likely marine influenced |
|                        |                                                  | 2020-03-24    | > 120           | 2600                       | no odour, clear                           |
|                        |                                                  | 2020-05-28    | > 120           | 70                         | no odour, clear                           |
|                        |                                                  | 2020-07-14    | 40              | 50                         | no odour, clear, likely marine influence  |
|                        |                                                  | 2020-11-23    | 60              | 170                        | no odour, murky                           |
| SW3005-1A              | Manhole on road in front of 1021 Resthaven Drive | 2020-11-23    | 40              | 17                         | no odour, murky                           |
| SW3005-2A              | Manhole at 2356/2362 Malaview Avenue             | 2019-12-06    | 30              | 23                         | no odour, clear, may be marine influenced |
| SW3005-3               | Manhole in grass at 2287 Malaview Avenue         | 2020-11-23    | 10              | 19                         | no odour, murky                           |
| SW3005-4               | Manhole at Amelia Ave/Fifth Street               | 2020-11-23    | 90              | 190                        | no odour, murky                           |
| SW3006                 | Foot of Ardwell Avenue                           | 2018-02-28    | 10              | < 10                       | no odour, clear                           |
|                        |                                                  | 2018-08-03    | 3               | 370                        | no odour, clear                           |
|                        |                                                  | 2019-03-14    | 8               | 40                         | no odour, clear                           |
|                        |                                                  | 2019-06-21    | 3               | 120                        | no odour, clear                           |
|                        |                                                  | 2020-02-19    | 12              | 7                          | no odour, clear                           |
|                        |                                                  | 2020-07-14    | 7               | 40                         | no odour, clear                           |
| SW3007                 | Bowken beach access                              | 2018-02-28    | 6               | < 10                       | no odour, clear                           |
|                        |                                                  | 2018-08-03    | 1               | 29000                      | no odour, clear                           |
|                        |                                                  | 2019-03-14    | 4               | 10                         | no odour, clear                           |
|                        |                                                  | 2019-06-21    | 1               | 240                        | no odour, clear                           |
|                        |                                                  | 2019-10-22    | 18              | 72                         | no odour, clear                           |
|                        |                                                  | 2020-02-19    | 7               | 49                         | no odour, clear                           |
|                        |                                                  | 2020-07-14    | 1               | 80                         | no odour, clear                           |
| SW3014                 | DFO Small Craft Harbour Branch; eastern pipe     | 2018-03-06    | 3               | < 10                       | no odour, clear                           |
|                        |                                                  | 2018-08-03    | < 1             | 100                        | no odour, clear                           |
|                        |                                                  | 2019-04-17    | 3               | 110                        | no odour, clear                           |
|                        |                                                  | 2019-06-21    | 1               | 100                        | no odour, clear                           |
|                        |                                                  | 2020-03-24    | 1               | 3                          | no odour, clear                           |
|                        |                                                  | 2020-07-14    | < 1             | 10000                      | no odour, clear                           |



# Stormwater Discharge Quality Report

## Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                         | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                              |
|------------------------|----------------------------------------------|---------------|-----------------|----------------------------|---------------------------------------------|
| SW3015                 | DFO Small Craft Harbour Branch, western pipe | 2018-03-06    | 5               | < 10                       | no odour, clear                             |
|                        |                                              | 2018-08-03    | < 1             | 6400                       | no odour, clear                             |
|                        |                                              | 2019-04-17    | 6               | 30                         | no odour, clear                             |
|                        |                                              | 2019-06-21    | 2               | 2800                       | no odour, clear                             |
|                        |                                              | 2020-03-24    | 2               | 140                        | no odour, clear                             |
|                        |                                              | 2020-07-14    | 1               | 290                        | no odour, clear                             |
| SW3016                 | Behind 10462 Resthaven Road                  | 2018-03-06    | 18              | 320                        | no odour, clear                             |
|                        |                                              | 2018-08-03    | 6               | 180                        | no odour, clear                             |
|                        |                                              | 2019-04-17    | 10              | 2400                       | no odour, clear                             |
|                        |                                              | 2019-06-21    | 2               | 360                        | no odour, clear                             |
|                        |                                              | 2020-03-24    | 24              | 690                        | no odour, clear                             |
|                        |                                              | 2020-07-14    | 18              | 47000                      | no odour, clear, potential marine influence |
| SW3017E                | Northeast end of townhouses at Resthaven     | 2018-03-06    |                 |                            | flow too low to sample                      |
|                        |                                              | 2018-08-03    | 0               |                            | dry, not sampled                            |
| SW3018                 | Behind 2056 White Birch                      | 2020-03-24    | 2               | < 1                        | no odour, clear                             |
|                        |                                              | 2020-07-14    | < 1             | < 1                        | no odour, clear                             |
| SW3019                 | 2056 White Birch, west end of grass          | 2020-03-24    | 2               | 19                         | no odour, clear                             |
|                        |                                              | 2020-07-14    | 3               | 80                         | no odour, clear                             |
| SW3020                 | Blue Heron Road, northeast pipe              | 2019-03-14    | 8               | 90                         | no odour, clear                             |
|                        |                                              | 2019-06-21    | 2               | 110                        | no odour, clear                             |
|                        |                                              | 2020-02-19    | 40              | 90                         | no odour, clear                             |
|                        |                                              | 2020-05-28    | 6               | 10                         | no odour, clear                             |
|                        |                                              | 2020-07-16    | 6               | 340                        | no odour, clear                             |
| SW3020A                | Blue Heron Road, southwest pipe              | 2020-02-19    | 10              | 1                          | no odour, clear                             |
|                        |                                              | 2020-05-28    | 2               | 3                          | no odour, clear                             |
|                        |                                              | 2020-07-16    | 6               | 40                         | no odour, clear                             |
| SW3021                 | McDonald Park Road and Bayfield Road         | 2018-03-06    | 20              | < 10                       | no odour, clear                             |
|                        |                                              | 2018-08-03    | 6               | 110                        | no odour, clear                             |
|                        |                                              | 2019-03-14    | 12              | 20                         | no odour, clear                             |
|                        |                                              | 2019-06-24    | 8               | 70                         | no odour, clear                             |
|                        |                                              | 2019-10-28    | 10              | 4                          | no odour, clear                             |
|                        |                                              | 2020-02-13    | 80              | 3                          | no odour, clear                             |
|                        |                                              | 2020-07-15    | 18              | 7                          | no odour, clear                             |
|                        |                                              | 2020-11-23    | 13              | 7                          | no odour, clear                             |



# Stormwater Discharge Quality Report

## Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                          | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                   |
|------------------------|-----------------------------------------------|---------------|-----------------|----------------------------|----------------------------------|
| SW3021A                | 1835 Marina Drive, southwest corner of marina | 2018-02-28    | 8               | < 10                       | no odour, clear                  |
|                        |                                               | 2018-08-03    | 6               | 1100                       | no odour, clear                  |
|                        |                                               | 2019-03-14    | 6               | 140                        | no odour, clear                  |
|                        |                                               | 2019-06-24    | 5               | 600                        | sulphur odour, amber             |
|                        |                                               | 2020-03-02    | 15              | 46                         | no odour, slight amber           |
|                        |                                               | 2020-07-15    | 9               | 3600                       | no odour, slight green           |
| SW3022                 | North Saanich Marina, west of parking area    | 2019-03-14    | 3               | 20                         | no odour, yellow (iron bacteria) |
|                        |                                               | 2019-06-24    |                 |                            | flow too low to sample           |
| SW3028                 | McDonald Park Road and Highway                | 2018-02-28    | 12              | 40                         | no odour, clear                  |
|                        |                                               | 2018-08-03    | 0               |                            | dry, not sampled                 |
| SW3029                 | McDonald Park Road and Highway                | 2018-02-28    | 16              | 30                         | no odour, clear                  |
|                        |                                               | 2018-08-03    | 0               |                            | dry, not sampled                 |
| SW3033                 | West of foot of Swartz Bay Road               | 2018-03-06    | 22              | < 10                       | no odour, clear                  |
|                        |                                               | 2018-08-03    | 6               | 30                         | no odour, clear                  |
| SW3034D                | Westport Marina, riprap north of boat parking | 2018-02-28    | 14              | 20                         | no odour, clear                  |
|                        |                                               | 2018-08-03    | < 1             | 2500                       | no odour, clear                  |
|                        |                                               | 2019-03-14    | 6               | 10                         | no odour, clear                  |
|                        |                                               | 2019-06-24    | 2               | 40                         | no odour, clear                  |
|                        |                                               | 2020-03-02    | 60              | 77                         | no odour, clear                  |
|                        |                                               | 2020-07-15    | 6               | 330                        | no odour, clear                  |
| SW3034E                | North end of Westport Marina                  | 2018-03-06    | 0               |                            | dry, not sampled                 |
|                        |                                               | 2018-08-03    |                 |                            | flow too low to sample           |
|                        |                                               | 2019-03-14    |                 |                            | flow too low to sample           |
|                        |                                               | 2019-06-24    | 0               |                            | dry, not sampled                 |
|                        |                                               | 2020-03-02    | 4               | < 1                        | no odour, clear                  |
|                        |                                               | 2020-07-15    |                 |                            | flow too low to sample           |
| SW3035C                | West side of foot of Tyron Road               | 2018-02-28    | < 1             | 10                         | no odour, clear                  |
|                        |                                               | 2018-08-03    |                 |                            | flow too low to sample           |
|                        |                                               | 2019-03-14    | < 1             | 870                        | no odour, clear                  |
|                        |                                               | 2019-06-24    | < 1             | 20                         | no odour, clear                  |
|                        |                                               | 2020-03-02    | 4               | 18                         | no odour, clear                  |
|                        |                                               | 2020-07-15    |                 |                            | flow too low to sample           |
| SW3037AA               | Canoe Cove Marino 7 m north of D dock         | 2018-03-06    |                 |                            | flow too low to sample           |
|                        |                                               | 2018-08-03    | 0               |                            | dry, not sampled                 |



# Stormwater Discharge Quality Report

## Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                            | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment         |
|------------------------|-------------------------------------------------|---------------|-----------------|----------------------------|------------------------|
| SW3041                 | Canoe Cove Marina, west of A dock               | 2019-03-14    | 4               | 1400                       | no odour, amber        |
|                        |                                                 | 2019-06-24    | 0               |                            | dry, not sampled       |
|                        |                                                 | 2020-03-02    | 8               | 110                        | no odour, amber        |
|                        |                                                 | 2020-07-15    | 0               |                            | dry, not sampled       |
| SW3042                 | Barnacle Road, east of government dock          | 2019-03-14    | 1               | 10                         | no odour, amber        |
|                        |                                                 | 2019-06-24    | 0               |                            | dry, not sampled       |
|                        |                                                 | 2020-03-02    | 3               | 10                         | no odour, amber        |
|                        |                                                 | 2020-07-15    | 0               |                            | dry, not sampled       |
| SW3050                 | Right-of-way from Ravenscroft Place             | 2018-03-01    | 18              | < 10                       | no odour, clear        |
|                        |                                                 | 2018-08-03    | 0               |                            | dry, not sampled       |
| SW3053                 | Queen Mary Bay, Shearwater Terrace beach access | 2020-03-19    | 6               | 760                        | no odour, clear        |
| SW3054                 | Foot of Dawson Way                              | 2019-03-18    | 88              | 30                         | no odour, clear        |
|                        |                                                 | 2019-06-24    | 13              | 50                         | no odour, clear        |
|                        |                                                 | 2020-03-19    | 40              | 6                          | no odour, clear        |
|                        |                                                 | 2020-07-15    | 30              | 90                         | no odour, clear        |
| SW3055                 | East of wharf, Lands End Road and Sylvan Place  | 2019-03-18    | 16              | 40                         | no odour, clear        |
|                        |                                                 | 2019-06-24    | 3               | 40                         | no odour, amber        |
|                        |                                                 | 2020-05-28    | 7               | 69                         | no odour, clear        |
|                        |                                                 | 2020-07-15    | 3               | 50                         | no odour, clear        |
| SW3065                 | Beach access, 386 Lands End Road                | 2018-03-01    | 42              | 860                        | no odour, clear        |
|                        |                                                 | 2018-08-16    | < 1             | 160                        | no odour, clear        |
| SW3076                 | 200 m west of beach access at Tatlow Road       | 2018-03-01    | 18              | 70                         | no odour, clear        |
|                        |                                                 | 2018-05-15    | 0               |                            | dry, not sampled       |
|                        |                                                 | 2018-08-16    | 0               |                            | dry, not sampled       |
|                        |                                                 | 2019-03-14    | 12              | 20                         | no odour, clear        |
|                        |                                                 | 2019-06-24    | < 1             | 60                         | no odour, clear        |
|                        |                                                 | 2020-03-19    | 4               | 1                          | no odour, slight murky |
|                        |                                                 | 2020-07-16    | 0               |                            | dry, not sampled       |
| SW3077                 | 50 m west of beach access at Tatlow Road        | 2018-03-01    | 4               | 90                         | no odour, clear        |
|                        |                                                 | 2018-05-15    | 4               | 430                        | no odour, clear        |
|                        |                                                 | 2018-08-16    | < 1             | 310                        | no odour, clear        |
|                        |                                                 | 2019-03-14    | 4               | 360                        | no odour, clear        |
|                        |                                                 | 2019-06-24    | < 1             | 200                        | no odour, clear        |



# Stormwater Discharge Quality Report

## Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                        | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                                |
|------------------------|---------------------------------------------|---------------|-----------------|----------------------------|-----------------------------------------------|
|                        |                                             | 2019-08-06    | < 1             | 460                        | no odour, clear                               |
|                        |                                             | 2020-03-19    | < 1             | 75                         | no odour, clear                               |
|                        |                                             | 2020-07-16    | 8               | 3100                       | no odour, clear, construction during sampling |
| SW3078A                | Beach access at foot of Tatlow Road         | 2018-03-01    | 6               | 960                        | no odour, clear                               |
|                        |                                             | 2018-05-15    | 3               | 770                        | no odour, clear                               |
|                        |                                             | 2018-08-16    | 1               | 280                        | no odour, clear                               |
|                        |                                             | 2019-03-14    | 10              | 150                        | no odour, clear                               |
|                        |                                             | 2019-06-24    | 4               | 60                         | no odour, amber                               |
|                        |                                             | 2019-08-06    | < 1             | 900                        | no odour, clear                               |
|                        |                                             | 2020-03-19    | 1               | 740                        | no odour, clear                               |
|                        |                                             | 2020-07-16    | 1               | 810                        | no odour, murky                               |
| SW3078B                | Foot of Tatlow, north of creek in rock wall | 2019-03-14    | 0               |                            | dry, not sampled                              |
|                        |                                             | 2019-06-24    | 0               |                            | dry, not sampled                              |
| SW3079                 | Tatlow Creek, Tatlow Road beach access      | 2018-03-01    | 240             | 30                         | no odour, clear                               |
|                        |                                             | 2018-08-16    | 60              | 220                        | no odour, clear                               |
|                        |                                             | 2019-03-14    | > 500           | 80                         | no odour, clear                               |
|                        |                                             | 2019-06-24    | 22              | 100                        | no odour, clear                               |
|                        |                                             | 2020-03-19    | > 200           | 34                         | no odour, clear                               |
|                        |                                             | 2020-07-16    | 40              | 40                         | no odour, clear                               |
|                        |                                             | 2020-10-27    | 180             | 59                         | -                                             |
|                        |                                             | 2020-12-10    | > 250           | 49                         | no odour, slight amber colour with foam       |
| SW3080                 | Foot of Danton Road                         | 2018-03-01    | 24              | 80                         | no odour, clear                               |
|                        |                                             | 2018-09-27    | 0               |                            | dry, not sampled                              |
| SW3080A                | Bennes Creek, 10992 Kalitan Road            | 2018-03-01    | 8               | 20                         | no odour, clear                               |
|                        |                                             | 2018-09-27    | < 1             | 350                        | no odour, clear                               |
|                        |                                             | 2019-03-18    | 60              | 40                         | no odour, clear                               |
|                        |                                             | 2019-06-26    | 3               | 40                         | no odour, clear                               |
|                        |                                             | 2020-03-19    | 32              | 4                          | no odour, clear                               |
|                        |                                             | 2020-07-16    | 12              | 57                         | no odour, clear                               |
| SW3086                 | Beach access stairs at Norris Road          | 2019-03-18    | 8               | 10                         | no odour, clear                               |
|                        |                                             | 2019-06-26    | 0               |                            | dry, not sampled                              |
|                        |                                             | 2020-03-19    | 7               | 42                         | no odour, clear                               |
|                        |                                             | 2020-07-16    |                 |                            | flow too low to sample                        |



**Stormwater Discharge Quality Report**  
**Bacterial and Flow Data (January 2018 to December 2020)**

| Stormwater Discharge # | Location Description                               | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment         |
|------------------------|----------------------------------------------------|---------------|-----------------|----------------------------|------------------------|
| SW3089AA               | East side of stairs below 693 Finlayson            | 2018-03-01    | < 1             | 410                        | no odour, clear        |
|                        |                                                    | 2018-09-27    | 0               |                            | dry, not sampled       |
|                        |                                                    | 2019-03-18    | 2               | 80                         | no odour, clear        |
|                        |                                                    | 2019-06-26    | 0               |                            | dry, not sampled       |
|                        |                                                    | 2020-03-19    | 0               |                            | dry, not sampled       |
|                        |                                                    | 2020-07-16    | 0               |                            | dry, not sampled       |
| SW3090                 | 100 m north of 10429 West Saanich Road             | 2018-03-01    | 18              | 20                         | no odour, clear        |
|                        |                                                    | 2018-09-27    | 0               |                            | dry, not sampled       |
|                        |                                                    | 2019-03-18    | 42              | 30                         | no odour, clear        |
|                        |                                                    | 2019-06-26    | 0               |                            | dry, not sampled       |
|                        |                                                    | 2019-10-28    | 6               | 6                          | no odour, clear        |
|                        |                                                    | 2020-03-19    | 10              | < 1                        | no odour, clear        |
| SW3091                 | 25 m north of 10425 West Saanich Road              | 2020-07-16    | 0               |                            | dry, not sampled       |
|                        |                                                    | 2019-03-18    | 10              | 10                         | no odour, clear        |
|                        |                                                    | 2019-06-26    | 0               |                            | dry, not sampled       |
|                        |                                                    | 2020-03-19    | 0               |                            | dry, not sampled       |
| SW3092                 | 100 m south of 10429 West Saanich Road             | 2020-09-29    | 0               |                            | dry, not sampled       |
|                        |                                                    | 2018-03-26    |                 |                            | flow too low to sample |
|                        |                                                    | 2018-09-27    | 0               |                            | dry, not sampled       |
|                        |                                                    | 2019-03-18    |                 |                            | flow too low to sample |
|                        |                                                    | 2019-06-26    | 0               |                            | dry, not sampled       |
|                        |                                                    | 2020-03-19    | 0               |                            | dry, not sampled       |
| SW3095                 | Tseycum Creek 10 m north of 1036 West Saanich Road | 2020-09-29    | 0               |                            | dry, not sampled       |
|                        |                                                    | 2018-03-26    | 200             | 44000                      | no odour, clear        |
|                        |                                                    | 2018-09-27    | 32              | 110000                     | no odour, clear        |
|                        |                                                    | 2018-10-03    | 32              | 5200                       | no odour, clear        |
|                        |                                                    | 2019-03-19    | 80              | 860                        | no odour, clear        |
|                        |                                                    | 2019-06-26    | 12              | 3000                       | no odour, clear        |
|                        |                                                    | 2019-10-28    | 40              | 3600                       | no odour, clear        |
|                        |                                                    | 2020-03-19    | > 80            | 34000                      | sewer odour, murky     |
|                        |                                                    | 2020-07-16    | 24              | 2800                       | no odour, clear        |



## Stormwater Discharge Quality Report

### Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                         | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment         |
|------------------------|----------------------------------------------|---------------|-----------------|----------------------------|------------------------|
| SW3098                 | 10 m south of Munro Road beach access stairs | 2018-03-01    | 0               |                            | dry, not sampled       |
|                        |                                              | 2018-09-27    | 0               |                            | dry, not sampled       |
|                        |                                              | 2019-03-19    | < 1             | < 10                       | no odour, clear        |
|                        |                                              | 2019-06-26    | 0               |                            | dry, not sampled       |
| SW3102                 | Middle of cemetery                           | 2019-03-19    | < 1             | 50                         | no odour, clear        |
|                        |                                              | 2019-06-26    | 0               |                            | dry, not sampled       |
|                        |                                              | 2020-03-19    | 1               | < 1                        | no odour, clear        |
|                        |                                              | 2020-09-29    | 0               |                            | dry, not sampled       |
| SW3102A                | Below south side of Patricia Bay Park        | 2019-03-19    | 0               |                            | dry, not sampled       |
|                        |                                              | 2019-06-26    | 0               |                            | dry, not sampled       |
|                        |                                              | 2020-03-19    | 0               |                            | dry, not sampled       |
|                        |                                              | 2020-09-29    | 0               |                            | dry, not sampled       |
| SW3102B                | Seaplane base, ditch north corner of fence   | 2019-03-19    | 0               |                            | dry, not sampled       |
|                        |                                              | 2019-06-26    | 0               |                            | dry, not sampled       |
|                        |                                              | 2020-03-19    | 0               |                            | dry, not sampled       |
|                        |                                              | 2020-09-29    | 0               |                            | dry, not sampled       |
| SW3104                 | Ten Ten creek, north end of seaplane base    | 2018-03-26    | < 250           | 10                         | no odour, clear        |
|                        |                                              | 2018-09-27    | 40              | 240                        | no odour, clear        |
|                        |                                              | 2018-11-01    | 50              | 120                        | no odour, clear        |
|                        |                                              | 2018-11-08    | 50              | 80                         | no odour, clear        |
|                        |                                              | 2018-11-15    | 100             | 290                        | no odour, clear        |
|                        |                                              | 2018-11-20    | 80              | 140                        | no odour, clear        |
|                        |                                              | 2019-04-17    | 180             | 70                         | no odour, clear        |
|                        |                                              | 2019-07-11    | > 80            | 160                        | no odour, slight amber |
|                        |                                              | 2019-12-03    | > 300           | 9                          | no odour, clear        |
|                        |                                              | 2020-03-23    | > 1000          | 24                         | no odour, clear        |
|                        |                                              | 2020-09-29    | 50              | 25                         | no odour, clear        |
| SW3104-2               | Ten Ten Creek at Willingdon Road             | 2018-11-01    | 40              | 3200                       | no odour, clear        |
|                        |                                              | 2018-11-08    | 35              | 20                         | no odour, clear        |
|                        |                                              | 2018-11-15    | 40              | 150                        | no odour, clear        |
|                        |                                              | 2018-11-20    | 40              | 30                         | no odour, clear        |
|                        |                                              | 2019-12-03    | > 300           | 5                          | no odour, clear        |



**Stormwater Discharge Quality Report**  
**Bacterial and Flow Data (January 2018 to December 2020)**

| Stormwater Discharge # | Location Description                                                                 | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                |
|------------------------|--------------------------------------------------------------------------------------|---------------|-----------------|----------------------------|-------------------------------|
| SW3104-3               | Ten Ten Creek, downstream of confluence from airport                                 | 2018-11-01    | 25              | 20000                      | no odour, clear               |
|                        |                                                                                      | 2018-11-08    | 15              | 90                         | no odour, clear               |
|                        |                                                                                      | 2018-11-15    | 25              | 200                        | no odour, clear               |
|                        |                                                                                      | 2018-11-20    | 20              | 160                        | no odour, clear               |
| SW3104-4               | Ten Ten Creek, upstream of pond at the southwest corner of Victoria Airport property | 2018-11-01    | 3               | 490                        | no odour, clear               |
|                        |                                                                                      | 2018-11-08    | 2               | 20                         | no odour, clear               |
|                        |                                                                                      | 2018-11-15    | 3               | 330                        | no odour, clear               |
|                        |                                                                                      | 2018-11-20    | 3               | 80                         | no odour, clear               |
| SW3110                 | 10 m west of Briarwood Place beach access                                            | 2018-03-01    | 3               | < 10                       | no odour, clear               |
|                        |                                                                                      | 2018-09-28    | 0               |                            | dry, not sampled              |
| SW3112                 | Below road allowance at Glenelg and Ardmore                                          | 2018-03-01    | 24              | 10                         | no odour, clear               |
|                        |                                                                                      | 2018-09-28    | 0               |                            | dry, not sampled              |
| SW3116                 | 577 Ardmore Drive, west side                                                         | 2018-03-01    |                 |                            | could not access property     |
|                        |                                                                                      | 2018-09-28    | 0               |                            | dry, not sampled              |
|                        |                                                                                      | 2020-03-20    | 0               |                            | dry, not sampled              |
|                        |                                                                                      | 2020-09-15    | 0               |                            | dry, not sampled              |
|                        |                                                                                      | 2020-12-10    |                 |                            | flow too low to sample        |
| SW3117                 | 577 Ardmore Drive; east side                                                         | 2018-03-01    |                 |                            | could not access property     |
|                        |                                                                                      | 2018-09-28    | 0               |                            | dry, not sampled              |
|                        |                                                                                      | 2020-03-20    | 0               |                            | dry, not sampled              |
|                        |                                                                                      | 2020-09-15    | 0               |                            | dry, not sampled              |
|                        |                                                                                      | 2020-12-10    |                 |                            | flow too low to sample        |
| SW3117A                | Southeast of 673 Ardmore Drive, black PVC pipe                                       | 2020-12-10    | 14              | 450                        | no odour, clear, construction |
| SW3117B                | 703 Ardmore Drive, white PVC pipe in rock patio                                      | 2020-09-15    | < 1             | 18                         | no odour, clear               |
|                        |                                                                                      | 2020-09-17    | < 1             | 7                          | no odour, clear               |
|                        |                                                                                      | 2020-12-10    | 3               | 1                          | no odour, clear               |
| SW3118                 | Foot of Hartfell Avenue                                                              | 2018-03-02    | 90              | 900                        | no odour, slightly amber      |
|                        |                                                                                      | 2018-09-20    | 0               |                            | dry, not sampled              |
|                        |                                                                                      | 2019-02-19    | 80              | 690                        | no odour, clear               |
|                        |                                                                                      | 2019-02-19    | 80              | 680                        | no odour, clear               |
|                        |                                                                                      | 2019-02-19    | 80              | 720                        | no odour, clear               |



# Stormwater Discharge Quality Report

## Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                 | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                      |
|------------------------|--------------------------------------|---------------|-----------------|----------------------------|-------------------------------------|
|                        |                                      | 2019-02-19    | 80              | 710                        | no odour, clear                     |
|                        |                                      | 2019-02-19    | 80              | 520                        | no odour, clear                     |
|                        |                                      | 2019-06-27    | 8               | 7400                       | no odour, slight amber              |
|                        |                                      | 2019-08-31    | 0               |                            | dry, not sampled                    |
|                        |                                      | 2020-03-20    | 24              | 89                         | no odour, clear                     |
|                        |                                      | 2020-09-15    | 0               |                            | dry, not sampled                    |
|                        |                                      | 2020-11-23    | 15              | 20                         | no odour, clear                     |
|                        |                                      | 2020-12-10    | 32              | 65                         | no odour, clear                     |
| SW3118A                | 20 m east of Hartfell beach access   | 2020-04-28    | 3               | < 1                        | no odour, clear                     |
|                        |                                      | 2020-09-15    | < 1             | 7                          | no odour, clear                     |
|                        |                                      | 2020-09-17    | < 1             | 4                          | no odour, slight amber              |
|                        |                                      | 2020-12-10    | 4               | 1                          | no odour, clear                     |
| SW3118AA               | 18 m east of Hartfell beach access   | 2020-09-15    | 0               |                            | dry, not sampled                    |
|                        |                                      | 2020-12-10    |                 |                            | flow too low to sample              |
| SW3118B                | 30 m east Hartfell beach access      | 2020-09-15    | < 1             | 1300                       | no odour, brown (stirred up bottom) |
|                        |                                      | 2020-09-17    | 0               |                            | dry, not sampled                    |
|                        |                                      | 2020-12-10    | 3               | 4800                       | no odour, clear                     |
| SW3118C                | 45 m east of Hartfell beach access   | 2020-09-15    | 0               |                            | could not find pipe, no flow found  |
|                        |                                      | 2020-12-10    | 4               | 41                         | no odour, clear                     |
| SW3118D                | 50 m east of Hartfell beach access   | 2019-07-15    | < 1             | 220                        | no odour, clear                     |
|                        |                                      | 2020-04-28    | 12              | 440                        | no odour, slightly murky            |
|                        |                                      | 2020-09-15    | 0               |                            | dry, not sampled                    |
|                        |                                      | 2020-12-10    | 3               | < 1                        | no odour, clear                     |
| SW3119                 | Coles Bay Regional Park beach access | 2018-03-02    | 200             | 90                         | no odour, brown                     |
|                        |                                      | 2018-09-20    | 0               |                            | dry, not sampled                    |
|                        |                                      | 2019-02-19    | 68              | 150                        | no odour, clear                     |
|                        |                                      | 2019-06-27    | 18              | 5600                       | no odour, slight amber              |
|                        |                                      | 2019-07-15    |                 |                            | flow too low to sample              |
|                        |                                      | 2019-08-31    |                 |                            | flow too low to sample              |
|                        |                                      | 2020-03-20    | 40              | 7                          | no odour, clear                     |
|                        |                                      | 2020-04-28    | 20              | 41                         | no odour, clear                     |
|                        |                                      | 2020-09-17    | 0               |                            | dry, not sampled                    |
|                        |                                      | 2020-12-10    | 32              | 40                         | no odour, clear                     |



**Stormwater Discharge Quality Report**  
**Bacterial and Flow Data (January 2018 to December 2020)**

| Stormwater Discharge # | Location Description                                         | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment            |
|------------------------|--------------------------------------------------------------|---------------|-----------------|----------------------------|---------------------------|
| SW3120                 | Wood steps at foot of McTavish Road                          | 2018-03-02    | > 300           | 390                        | no odour, slightly amber  |
|                        |                                                              | 2018-09-20    | 0               |                            | dry, not sampled          |
|                        |                                                              | 2019-02-19    | 240             | 310                        | no odour, clear           |
|                        |                                                              | 2019-06-27    | 20              | 9600                       | no odour, slight amber    |
|                        |                                                              | 2019-07-15    | 4               | 170                        | no odour, clear           |
|                        |                                                              | 2019-08-31    | 0               |                            | dry, not sampled          |
|                        |                                                              | 2020-03-20    | 40              | 25                         | no odour, clear           |
|                        |                                                              | 2020-04-28    | 20              | 79                         | no odour, clear           |
|                        |                                                              | 2020-09-17    | 0               |                            | dry, not sampled          |
|                        |                                                              | 2020-12-10    | 45              | 90                         | no odour, clear           |
| SW3122                 | 40 m south of Pauquachin First Nation boat ramp              | 2019-10-28    | < 1             | 600                        | no odour, clear           |
|                        |                                                              | 2020-09-17    | 0               |                            | dry, not sampled          |
| SW3123                 | 50 m south of Pauquachin First Nation boat ramp              | 2018-03-05    | 18              | 20                         | no odour, clear           |
|                        |                                                              | 2018-09-20    | 0               |                            | dry, not sampled          |
|                        |                                                              | 2019-03-22    | 36              | 10                         | no odour, clear           |
|                        |                                                              | 2019-06-27    | 0               |                            | dry, not sampled          |
|                        |                                                              | 2020-03-20    | 22              | 2                          | no odour, clear           |
|                        |                                                              | 2020-09-17    | 0               |                            | dry, not sampled          |
| SW3124                 | 200 m south of Pauquachin First Nation boat ramp             | 2018-03-05    | 350             | < 10                       | no odour, clear           |
|                        |                                                              | 2018-09-20    |                 |                            | flow too low to sample    |
|                        |                                                              | 2019-03-22    | > 250           | < 10                       | no odour, clear           |
|                        |                                                              | 2019-06-27    | 52              | 540                        | no odour, clear           |
|                        |                                                              | 2019-08-31    | 8               | 790                        | no odour, clear           |
|                        |                                                              | 2020-03-20    | > 200           | 30                         | no odour, clear           |
|                        |                                                              | 2020-09-17    | 8               | 54                         | no odour, clear           |
| SW3124-2               | Downstream of West Saanich Road                              | 2020-06-04    | 7               | 1                          | slight sewer odour, clear |
|                        |                                                              | 2020-09-17    | 0               |                            | dry, not sampled          |
| SW3124B                | Between 8660 and 8640 Kleewyck Road, 30 m north of boathouse | 2020-09-17    | 0               |                            | dry, not sampled          |
| SW3125                 | Kleewyck Road                                                | 2020-09-17    | 0               |                            | dry, not sampled          |
| SW3125A                | 1 m east of wood stairs, 8580 Mink Road                      | 2020-09-17    | < 1             | 250                        | no odour, amber           |
| SW3125B                | Between 8560 and 8580 Mink Road                              | 2020-09-17    | 0               |                            | dry, not sampled          |
| SW3125C                | Below 570 Seacliff Road                                      | 2020-09-17    | 0               |                            | dry, not sampled          |



# Stormwater Discharge Quality Report

## Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                           | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment         |
|------------------------|------------------------------------------------|---------------|-----------------|----------------------------|------------------------|
| SW3126                 | Under patio at 750 Seacliff Road               | 2020-09-17    | 0               |                            | dry, not sampled       |
| SW3126A                | Below 8530 West Saanich Road                   | 2020-09-17    | 0               |                            | dry, not sampled       |
| SW3127                 | Salmon Creek, 570 Lawrence Road                | 2020-09-17    | 0               |                            | dry, not sampled       |
| SW3127AA               | Between 530 and 531 Salmon Road                | 2018-03-05    |                 |                            | flow too low to sample |
|                        |                                                | 2018-09-20    | 0               |                            | dry, not sampled       |
| SW3132                 | 100 m south of patio at 675 Senanus Drive      | 2018-03-05    | 12              | 30                         | no odour, clear        |
|                        |                                                | 2018-09-20    | 0               |                            | dry, not sampled       |
| SW3133                 | Hagan Creek, south side of Woodwyn Farm        | 2018-03-05    | > 500           | 80                         | no odour, clear        |
|                        |                                                | 2018-09-20    | > 300           | 10                         | no odour, clear        |
|                        |                                                | 2019-03-22    | > 300           | 10                         | no odour, clear        |
|                        |                                                | 2019-06-27    | > 500           | 170                        | no odour, clear        |
|                        |                                                | 2019-10-17    | > 2000          | 250                        | no odour, slight amber |
|                        |                                                | 2019-11-26    | > 3000          | 9                          | no odour, clear        |
|                        |                                                | 2020-03-20    | > 2000          | 14                         | no odour, clear        |
|                        |                                                | 2020-07-17    | > 400           | 66                         | no odour, clear        |
|                        |                                                | 2020-08-11    | > 2000          | 15                         | no odour, clear        |
|                        |                                                | 2020-08-18    | > 2000          | 31                         | no odour, amber        |
|                        |                                                | 2020-08-25    | > 2000          | 2                          | no odour, clear        |
|                        |                                                | 2020-09-01    | > 2000          | 7                          | no odour, clear        |
|                        |                                                | 2020-09-08    | > 2000          | 26                         | no odour, clear        |
|                        |                                                | 2020-09-24    | > 2500          | 1500                       | no odour, murky brown  |
|                        |                                                | 2020-10-13    | > 2000          | 1000                       | no odour, brown        |
|                        |                                                | 2020-10-20    | > 2000          | 29                         | no odour, clear        |
|                        |                                                | 2020-10-27    | > 2000          | 40                         | no odour, clear        |
|                        |                                                | 2020-11-04    | > 2000          | 1300                       | no odour, slight amber |
|                        |                                                | 2020-11-12    | > 2000          | 8                          | no odour, clear        |
| SW3133-1B              | Graham Creek above confluence with Hagan Creek | 2020-08-11    | > 200           | 29                         | no odour, clear        |
|                        |                                                | 2020-08-18    | > 200           | 160                        | no odour, clear        |
|                        |                                                | 2020-08-25    | > 200           | 82                         | no odour, clear        |
|                        |                                                | 2020-09-01    | > 200           | 140                        | no odour, clear        |
|                        |                                                | 2020-09-08    | > 200           | 110                        | no odour, clear        |
|                        |                                                | 2020-09-24    | > 1000          | 2200                       | no odour, amber        |
|                        |                                                | 2020-10-13    | > 1000          | 5500                       | no odour, turbid brown |



# Stormwater Discharge Quality Report

## Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                                            | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                                     |
|------------------------|-----------------------------------------------------------------|---------------|-----------------|----------------------------|----------------------------------------------------|
|                        |                                                                 | 2020-10-20    | 800             | 46                         | no odour, clear                                    |
|                        |                                                                 | 2020-10-27    | 700             | 30                         | no odour, clear                                    |
|                        |                                                                 | 2020-11-04    | 800             | 1100                       | no odour, slight amber                             |
|                        |                                                                 | 2020-11-12    | 1000            | 26                         | no odour, clear                                    |
| SW3133-2               | Hagan Creek, ditch downstream of Keating Industrial Park        | 2018-05-02    | 40              | 5600                       | no odour, slightly murky                           |
|                        |                                                                 | 2018-05-09    | 46              | 7600                       | no odour, murky                                    |
|                        |                                                                 | 2018-07-09    | 20              | 1800                       | sewer/organic odour, clear                         |
|                        |                                                                 | 2018-09-20    | 36              | 110000                     | slight chemical odour, clear                       |
|                        |                                                                 | 2018-11-19    | 60              | 7700                       | chemical odour, slightly murky                     |
|                        |                                                                 | 2019-08-06    | 8               | 300                        | organic/chemical odour, clear                      |
|                        |                                                                 | 2019-10-17    | 80              | 40000                      | no odour, murky grey                               |
|                        |                                                                 | 2019-10-28    | 24              | 2800                       | no odour, murky                                    |
|                        |                                                                 | 2019-11-26    | 40              | 170                        | no odour, clear                                    |
|                        |                                                                 | 2020-07-17    | 38              | 81000                      | musty organic odour, murky                         |
|                        |                                                                 | 2020-07-21    | 35              | 8000                       | organic odour, murky                               |
|                        |                                                                 | 2020-09-24    | 48              | 7500                       | sewer odour, murky grey/brown                      |
|                        |                                                                 | 2020-10-13    | 68              | 7900                       | no odour, murky grey                               |
|                        |                                                                 | 2020-10-23    | > 300           | 1900                       | organic odour, murky brown                         |
|                        |                                                                 | 2020-12-08    | 100             | 2600                       | organic odour, murky brown                         |
| SW3133-3B              | Manholes 23-49 west side of Kirkpatrick Crescent /Oldfield Road | 2020-07-21    | 12              | 190000<br>00               | sewer/garbage odour, dark                          |
|                        |                                                                 | 2020-12-08    | 30              | 22000                      | organic odour, very turbid brown                   |
| SW3133-4               | Stevens Creek, ditch on Willow Way upstream of Graham Creek     | 2018-11-19    | 80              | 260                        | chemical odour, amber                              |
|                        |                                                                 | 2019-10-17    | 150             | 62000                      | no odour, clear                                    |
|                        |                                                                 | 2020-07-21    |                 | 26                         | no odour, clear, unknown flow (pooled)             |
|                        |                                                                 | 2020-08-11    | 80              | 320                        | no odour, clear                                    |
|                        |                                                                 | 2020-08-18    | 70              | 670                        | no odour, clear                                    |
|                        |                                                                 | 2020-08-25    | 60              | 90                         | no odour, clear                                    |
|                        |                                                                 | 2020-09-01    | 40              | 140                        | no odour, clear                                    |
|                        |                                                                 | 2020-09-08    | 30              | 85                         | no odour, clear, vegetation in channel slowed flow |
|                        |                                                                 | 2020-09-24    | 200             | 15000                      | no odour, murky brown                              |



**Stormwater Discharge Quality Report**  
**Bacterial and Flow Data (January 2018 to December 2020)**

| Stormwater Discharge # | Location Description                                    | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                                   |
|------------------------|---------------------------------------------------------|---------------|-----------------|----------------------------|--------------------------------------------------|
|                        |                                                         | 2020-10-13    | > 250           | 9000                       | no odour, turbid brown                           |
|                        |                                                         | 2020-10-20    | 200             | 2000                       | no odour, clear                                  |
|                        |                                                         | 2020-10-27    | 180             | 100                        | no odour, slight murky                           |
|                        |                                                         | 2020-11-04    | 160             | 1000                       | no odour, slight murky                           |
|                        |                                                         | 2020-11-12    | 200             | 2500                       | no odour, slight amber                           |
| SW3133-4A              | Stevens Creek, upstream of confluence with Stinky Ditch | 2020-07-21    | 50              | 540                        | no odour, clear                                  |
| SW3133-5               | Graham Creek above confluence with Stevens Creek        | 2018-11-19    | 60              | 180                        | no odour, clear                                  |
|                        |                                                         | 2019-10-17    | 100             | 1200                       | no odour, slight amber                           |
|                        |                                                         | 2020-07-21    | 18              | 160                        | no odour, clear                                  |
|                        |                                                         | 2020-08-11    | 40              | 240                        | no odour, clear                                  |
|                        |                                                         | 2020-08-18    | 30              | 120                        | no odour, clear                                  |
|                        |                                                         | 2020-08-25    | 30              | 540                        | no odour, clear                                  |
|                        |                                                         | 2020-09-01    | 26              | 200                        | no odour, clear                                  |
|                        |                                                         | 2020-09-08    | 26              | 42                         | no odour, clear                                  |
|                        |                                                         | 2020-09-24    | 80              | 7700                       | no odour, amber                                  |
|                        |                                                         | 2020-10-13    | > 250           | 6800                       | no odour, turbid brown                           |
|                        |                                                         | 2020-10-20    | 250             | 150                        | no odour, clear                                  |
|                        |                                                         | 2020-10-27    | 200             | 90                         | no odour, clear                                  |
|                        |                                                         | 2020-11-04    | 200             | 2200                       | no odour, clear                                  |
|                        |                                                         | 2020-11-12    | 250             | 470                        | no odour, clear                                  |
| SW3133-5A              | Graham Creek below confluence with Stevens Creek        | 2018-11-19    | 120             | 60                         | no odour, slight amber                           |
| SW3135                 | Above viewing platform, Tsartlip First Nation           | 2018-03-05    | 24              | < 10                       | no odour, clear                                  |
|                        |                                                         | 2018-09-20    | 0               |                            | dry, not sampled                                 |
|                        |                                                         | 2020-11-26    | 3               | 1                          | no odour, clear                                  |
| SW3136                 | Intersection of Etienne Road and Tsartlip Drive         | 2020-11-26    | 80              | 56                         | no odour, clear, sampled due to significant flow |
| SW3136A                | Shoreline west of Tsartlip Drive                        | 2018-03-05    | 8               | < 10                       | no odour, clear                                  |
|                        |                                                         | 2018-09-20    | 0               |                            | dry, not sampled                                 |
|                        |                                                         | 2019-03-22    | < 1             | 30                         | no odour, clear                                  |
|                        |                                                         | 2019-06-27    |                 |                            | flow too low to sample                           |
|                        |                                                         | 2020-03-24    |                 |                            | flow too low to sample                           |
|                        |                                                         | 2020-09-29    | 0               |                            | dry, not sampled                                 |



## Stormwater Discharge Quality Report

### Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                           | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment                                    |
|------------------------|------------------------------------------------|---------------|-----------------|----------------------------|---------------------------------------------------|
|                        |                                                | 2020-11-26    | 2               | 66                         | no odour, murky brown                             |
| SW3136B                | Tsartlip First Nation                          | 2020-11-26    | 7               | 28                         | no odour, clear                                   |
| SW3138                 | South side of Tsartlip boat launch parking lot | 2018-03-05    | 18              | 40                         | no odour, clear                                   |
|                        |                                                | 2018-09-20    | 0               |                            | dry, not sampled                                  |
|                        |                                                | 2018-11-05    | 1               | 4800                       | no odour, clear, discarded animal organs upstream |
|                        |                                                | 2019-02-19    | 8               | 140                        | no odour, clear, upgraded pipe                    |
|                        |                                                | 2019-06-27    | 9               | 360                        | no odour, brown                                   |
|                        |                                                | 2019-10-17    | 10              | 230                        | no odour, clear                                   |
|                        |                                                | 2020-03-24    | 8               | 1                          | no odour, clear                                   |
|                        |                                                | 2020-09-29    |                 |                            | flow too low to sample                            |
|                        |                                                | 2020-11-26    | 35              | 22                         | no odour, slightly murky                          |
| SW3138A                | Beach access at end of Stelly's Cross Road     | 2018-06-28    |                 |                            | dry, not sampled                                  |
|                        |                                                | 2018-09-07    | 0               |                            | dry, not sampled                                  |
|                        |                                                | 2018-10-22    | 0               |                            | dry, not sampled                                  |
|                        |                                                | 2018-11-05    | 0               |                            | dry, not sampled                                  |
|                        |                                                | 2019-02-19    |                 |                            | flow too low to sample                            |
|                        |                                                | 2019-06-27    | 0               |                            | dry, not sampled                                  |
| SW3142                 | North of ferry wharf, foot of Verdier Avenue   | 2018-03-05    | 42              | 20                         | no odour, clear                                   |
|                        |                                                | 2018-06-25    | 20              | 230                        | no odour, slightly sudsy/murky                    |
|                        |                                                | 2018-09-20    | 18              | 40                         | no odour, clear                                   |
|                        |                                                | 2019-02-19    | 12              | 100                        | no odour, clear                                   |
|                        |                                                | 2019-06-27    | 10              | 2000                       | no odour, clear                                   |
|                        |                                                | 2019-07-15    | 6               | 20                         | no odour, clear                                   |
|                        |                                                | 2020-02-27    | 20              | 17                         | no odour, clear                                   |
|                        |                                                | 2020-07-20    | 3               | 9                          | no odour, clear                                   |
| SW3143                 | North end of Brentwood Inn, Verdier Avenue     | 2019-04-26    | 0               |                            | sampling site discontinued                        |
| SW3143A                | South side of Verdier Park                     | 2019-04-26    | 0               |                            | sampling site discontinued                        |
| SW3144                 | 15 m north of Brentwood Inn wharf              | 2019-07-15    | 10              | 230                        | taken due to high flow, no odour, clear           |
| SW3144A                | Just east of Brentwood Inn wharf               | 2019-07-15    | 18              | < 10                       | new location, no odour, clear                     |
| SW3145                 | Foot of Clarke Road                            | 2018-03-05    | 18              | < 10                       | no odour, clear                                   |
|                        |                                                | 2018-05-22    | 6               | 10                         | no odour, clear                                   |
|                        |                                                | 2018-06-25    | 16              | 140                        | no odour, clear                                   |
|                        |                                                | 2018-06-28    |                 |                            | dry, not sampled                                  |



**Stormwater Discharge Quality Report**  
**Bacterial and Flow Data (January 2018 to December 2020)**

| Stormwater Discharge # | Location Description                                   | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/ 100 mL | Sample Comment            |
|------------------------|--------------------------------------------------------|---------------|-----------------|----------------------------|---------------------------|
|                        |                                                        | 2018-07-11    |                 |                            | dry, not sampled          |
|                        |                                                        | 2018-09-20    | 0               |                            | dry, not sampled          |
|                        |                                                        | 2018-11-05    | 18              | 150                        | no odour, clear           |
|                        |                                                        | 2019-06-27    | 3               | 2200                       | no odour, clear           |
|                        |                                                        | 2019-07-17    | 2               | 2400                       | no odour, olive colour    |
|                        |                                                        | 2019-08-06    |                 |                            | flow too low to sample    |
|                        |                                                        | 2019-08-31    | 0               |                            | dry, not sampled          |
|                        |                                                        | 2020-02-27    | 30              | 1                          | no odour, clear           |
|                        |                                                        | 2020-06-04    | 4               | 10                         | slight sewer odour, clear |
|                        |                                                        | 2020-07-20    | 0               |                            | dry, not sampled          |
|                        |                                                        | 2020-09-29    | 1               | 4400                       | no odour, clear           |
| SW3145A                | Devonshire beach access, south of 7078 Brentwood Drive | 2018-05-22    | 8               | 300                        | no odour, clear           |
|                        |                                                        | 2018-09-28    | 0               |                            | dry, not sampled          |
|                        |                                                        | 2019-02-19    | 48              | 390                        | no odour, clear           |
|                        |                                                        | 2019-07-05    | 6               | 10                         | no odour, clear           |
|                        |                                                        | 2020-02-27    | 18              | 50                         | no odour, clear           |
|                        |                                                        | 2020-07-20    | 4               | 7                          | no odour, clear           |
| SW3146                 | Brentwood Drive near Marchant Road                     | 2018-03-05    | 70              | 190                        | no odour, clear           |
|                        |                                                        | 2018-09-20    | 20              | 350                        | no odour, clear           |
|                        |                                                        | 2019-02-19    | > 500           | 3700                       | no odour, clear           |
|                        |                                                        | 2019-07-05    | 45              | 920                        | no odour, clear           |
|                        |                                                        | 2019-10-28    | 140             | 700                        | no odour, clear           |
|                        |                                                        | 2020-02-27    | > 500           | 3500                       | no odour, clear           |
|                        |                                                        | 2020-07-20    | 42              | 230                        | no odour, clear           |
| SW3147                 | Foot of Marchant Road                                  | 2020-02-27    | 18              | 3                          | no odour, clear           |
|                        |                                                        | 2020-07-20    | 8               | 100                        | no odour, clear           |
| SW3147A                | End of Grilse Lane                                     | 2018-03-26    | 2               | 190                        | no odour, clear           |
|                        |                                                        | 2018-09-28    | 0               |                            | dry, not sampled          |
|                        |                                                        | 2019-04-17    | 1               | 40                         | no odour, clear           |
|                        |                                                        | 2019-07-05    | 0               |                            | dry, not sampled          |
| SW3149A                | Middle of Port Royale in riprap                        | 2018-03-05    |                 |                            | flow too low to sample    |
|                        |                                                        | 2018-09-28    | 0               |                            | dry, not sampled          |
|                        |                                                        | 2019-04-17    | 0               |                            | dry, not sampled          |



## Stormwater Discharge Quality Report

### Bacterial and Flow Data (January 2018 to December 2020)

| Stormwater Discharge # | Location Description                              | Sampling Date | Flow Rate L/min | <i>E. Coli</i> CFU/100 mL | Sample Comment                                 |
|------------------------|---------------------------------------------------|---------------|-----------------|---------------------------|------------------------------------------------|
|                        |                                                   | 2019-07-05    | 0               |                           | dry, not sampled                               |
| SW3150                 | Below Port Royale Walkway, 40 m east of wharf     | 2018-03-05    | 14              | 20                        | no odour, clear                                |
|                        |                                                   | 2018-09-28    | 6               | 97000                     | no odour, clear                                |
|                        |                                                   | 2018-10-03    | 7               | 450                       | no odour, clear                                |
|                        |                                                   | 2019-02-19    | > 200           | 30                        | no odour, clear, potential tidal influence     |
|                        |                                                   | 2019-04-17    | 8               | 30                        | no odour, clear                                |
|                        |                                                   | 2019-07-05    | 2               | 770000                    | no odour, clear                                |
|                        |                                                   | 2019-07-15    | 1               | 110000                    | no odour, clear                                |
|                        |                                                   | 2019-07-17    | 2               | 24000                     | no odour, clear                                |
|                        |                                                   | 2019-08-06    |                 |                           | flow too low to sample                         |
|                        |                                                   | 2020-03-24    | 9               | 140000                    | no odour, clear                                |
|                        |                                                   | 2020-06-04    | 7               | 87                        | sewer odour, clear, sampled before storm surge |
|                        |                                                   | 2020-06-04    | 48              | 1100                      | earthy odour, dirty, sampled after storm surge |
|                        |                                                   | 2020-07-20    | < 1             | 120                       | no odour, clear                                |
| SW3153                 | Small bay at Butchart Gardens                     | 2018-03-26    | 10              | 10                        | no odour, clear                                |
|                        |                                                   | 2018-09-28    | 0               |                           | dry, not sampled                               |
|                        |                                                   | 2019-04-26    | 3               | 40                        | no odour, clear                                |
|                        |                                                   | 2019-07-05    | 0               |                           | dry, not sampled                               |
|                        |                                                   | 2020-03-24    | 8               | 4                         | no odour, clear                                |
|                        |                                                   | 2020-07-20    | 0               |                           | dry, not sampled                               |
| SW3154                 | Tod Creek, south of Butchart Gardens in Tod inlet | 2018-03-26    | > 2000          | < 10                      | no odour, clear                                |
|                        |                                                   | 2018-09-28    | 80              | 10                        | no odour, clear                                |
|                        |                                                   | 2019-04-26    | > 2000          | 140                       | no odour, amber                                |
|                        |                                                   | 2019-07-05    | 80              | 340                       | no odour, clear                                |
|                        |                                                   | 2020-03-24    | > 2000          | 6                         | no odour, clear                                |
|                        |                                                   | 2020-07-20    | > 90            | 20                        | no odour, clear                                |
|                        |                                                   | 2020-12-16    | > 2000          | 13                        | no odour, clear                                |

**Notes:**

Flow is visually estimated

Null means the measurement was attempted but due to conditions, flow could not be estimated or sample could not be collected.

Shaded cells have an *E.coli* count >400 CFU/100 mL; British Columbia Ministry of Environment's guideline for primary recreational activities is a maximum of 400 CFU/100 mL and a geometric mean of 200 CFU/100 mL based on a minimum of 5 samples



## **APPENDIX C**

### **PUBLIC HEALTH CONCERN RATINGS 2020**





**Stormwater Quality Report  
Public Health Concern Ratings**

| CRD Discharge No. | Report Figure No. | Jurisdiction at Discharge | Rating               |                      |                | Level of Concern |             |             | Comments                                  | Recommendations                               |
|-------------------|-------------------|---------------------------|----------------------|----------------------|----------------|------------------|-------------|-------------|-------------------------------------------|-----------------------------------------------|
|                   |                   |                           | <i>E.coli</i> Rating | Public Shoreline Use | Overall Rating | 2018             | 2019        | 2020        |                                           |                                               |
| 405               | 4                 | Central Saanich           | 2                    | 2                    | 4              | low              | moderate    | moderate    | Pooled water, Island View beach           | Continue monitoring                           |
| 416               | 7                 | Central Saanich           | 1                    | 3                    | 4              | low              | low         | low         | Slightly elevated in summer               | Resample in 2026                              |
| 421A              | 8                 | Central Saanich           | 2                    | 1                    | 3              | NA               | low         | low         | No flows                                  | Resample in 2026                              |
| 3133              | 35                | Central Saanich           | 2                    | 3                    | 5              | moderate         | moderate    | moderate    | SPSO, Hagan Creek                         | Continue monitoring                           |
| 3135              | 35                | Tsartlip/Central Saanich  | 1                    | 3                    | 4              | NA               | NA          | low         |                                           | Confirm rating                                |
| 3136              | 35                | Tsartlip/Central Saanich  | 1                    | 3                    | 4              | NA               | NA          | low         | Sampled once                              | Confirm rating                                |
| 3142              | 36                | Central Saanich           | 1                    | 2                    | 3              | moderate         | moderate    | moderate    | Elevated intermittently, suds observed    | Continue monitoring                           |
| 3145              | 36                | Central Saanich           | 2                    | 3                    | 5              | low              | <b>high</b> | <b>high</b> | Elevated in summer                        | Confirm rating and continue investigations    |
| 3145A             | 36                | Central Saanich           | 1                    | 2                    | 3              | moderate         | moderate    | low         | Dry in summer                             | Continue monitoring                           |
| 3146              | 36                | Central Saanich           | 2                    | 2                    | 4              | moderate         | moderate    | moderate    | SPSO                                      | Continue monitoring                           |
| 3150              | 36                | Central Saanich           | 2                    | 2                    | 4              | <b>high</b>      | <b>high</b> | moderate    | Brentwood Bay                             | Continue monitoring and source investigations |
| 3153              | 37                | Central Saanich           | 1                    | 2                    | 3              | moderate         | low         | low         | Low flow                                  | Confirm rating                                |
| 3154              | 37                | Central Saanich           | 2                    | 2                    | 4              | low              | moderate    | low         | Tod Creek                                 | Continue monitoring                           |
| 424               | 8                 | North Saanich             | 1                    | 1                    | 2              | low              | low         | low         | No flow in summer. Bazan Bay              | Resample in 2023                              |
| 426               | 9                 | North Saanich             | 2                    | 1                    | 3              | low              | low         | low         | Bazan Bay, no human bacteria measured     | Continue monitoring                           |
| 428               | 9                 | North Saanich             | 2                    | 1                    | 3              | low              | low         | low         | Bazan Bay                                 | Resample in 2023                              |
| 430               | 9                 | North Saanich             | 1                    | 1                    | 2              | low              | low         | low         | Bazan Bay                                 | Resample in 2023                              |
| 430A              | 9                 | North Saanich             | 1                    | 1                    | 2              | low              | low         | low         | Bazan Bay, high counts intermittently     | Resample in 2023                              |
| 430B              | 9                 | North Saanich             | 2                    | 1                    | 3              | NA               | NA          | low         | New location, dog park                    | Confirm rating                                |
| 431               | 9                 | North Saanich             | 2                    | 1                    | 3              | low              | low         | low         | Bazan Bay, elevated counts intermittently | Continue monitoring                           |
| 432               | 10                | North Saanich             | 1                    | 1                    | 2              | low              | low         | low         | Bazan Bay                                 | Resample in 2023                              |
| 435               | 10                | North Saanich             | 1                    | 1                    | 2              | NA               | low         | low         | Bazan Bay                                 | Resample in 2023                              |
| 441               | 10                | North Saanich             | 1                    | 3                    | 4              | <b>high</b>      | <b>high</b> | moderate    | Reay Creek, birds upstream                | Continue monitoring                           |
| 442               | 10                | North Saanich             | 1                    | 3                    | 4              | moderate         | low         | low         |                                           | Resample in 2023                              |



**Stormwater Quality Report  
Public Health Concern Ratings**

| CRD Discharge No. | Report Figure No. | Jurisdiction at Discharge | Rating               |                      |                | Level of Concern |             |             | Comments                                    | Recommendations                               |
|-------------------|-------------------|---------------------------|----------------------|----------------------|----------------|------------------|-------------|-------------|---------------------------------------------|-----------------------------------------------|
|                   |                   |                           | <i>E.coli</i> Rating | Public Shoreline Use | Overall Rating | 2018             | 2019        | 2020        |                                             |                                               |
| 3020              | 15                | North Saanich             | 2                    | 2                    | 4              | NA               | low         | moderate    |                                             | Confirm rating                                |
| 3020A             | 15                | North Saanich             | 2                    | 2                    | 4              | NA               | NA          | low         |                                             | Confirm rating                                |
| 3021              | 15                | North Saanich             | 1                    | 2                    | 3              | low              | low         | low         | Construction nearby, low flow in summer     | Resample in 2026                              |
| 3021A             | 16                | North Saanich             | 2                    | 2                    | 4              | moderate         | moderate    | moderate    |                                             | Continue monitoring                           |
| 3034D             | 16                | North Saanich             | 2                    | 1                    | 3              | moderate         | low         | low         | <i>E.coli</i> elevated in summer, flow low  | Resample in 2026                              |
| 3034E             | 16                | North Saanich             | 2                    | 1                    | 3              | NA               | low         | low         |                                             | Resample in 2026                              |
| 3035C             | 17                | North Saanich             | 2                    | 1                    | 3              | low              | low         | low         | Bryden Bay                                  | Resample in 2026                              |
| 3041              | 18                | North Saanich             | 1                    | 2                    | 3              | NA               | moderate    | low         |                                             | Confirm rating                                |
| 3054              | 19                | North Saanich             | 1                    | 1                    | 2              | NA               | low         | low         |                                             | Resample in 2026                              |
| 3055              | 20                | North Saanich             | 1                    | 1                    | 2              | NA               | NA          | low         |                                             | Resample in 2026                              |
| 3076              | 23                | North Saanich             | 1                    | 3                    | 4              | moderate         | low         | low         | Deep Cove, dry, elevated in past            | Resample in 2026                              |
| 3077              | 23                | North Saanich             | 2                    | 3                    | 5              | <u>high</u>      | <u>high</u> | <u>high</u> | Deep Cove, counts lower in 2018             | Continue monitoring and source investigations |
| 3078A             | 23                | North Saanich             | 2                    | 3                    | 5              | <u>high</u>      | <u>high</u> | <u>high</u> | Deep Cove, human bacteria present           | Continue monitoring and source investigations |
| 3078B             | 23                | North Saanich             | 1                    | 3                    | 4              | NA               | low         | low         | Dry                                         | Resample in 2026                              |
| 3079              | 23                | North Saanich             | 1                    | 3                    | 4              | moderate         | moderate    | moderate    | Tatlow/Chalet Creek, human bacteria present | Continue monitoring                           |
| 3080A             | 24                | North Saanich             | 1                    | 1                    | 2              | low              | low         | low         | Benes Creek                                 | Continue monitoring                           |
| 3086              | 25                | North Saanich             | 1                    | 3                    | 4              | NA               | low         | low         |                                             | Resample in 2026                              |
| 3089AA            | 26                | North Saanich             | 1                    | 3                    | 4              | moderate         | low         | low         | Mostly dry                                  | Resample in 2026                              |
| 3102              | 27                | North Saanich             | 1                    | 3                    | 4              | NA               | low         | low         | Dry                                         | Resample in 2026                              |
| 3102A             | 28                | North Saanich             | 1                    | 3                    | 4              | NA               | low         | low         | Dry                                         | Resample in 2026                              |
| 3102B             | 28                | North Saanich             | 1                    | 2                    | 3              | NA               | low         | low         | Dry                                         | Resample in 2026                              |
| 3104              | 28                | North Saanich             | 1                    | 2                    | 3              | low              | low         | low         | SPSO, Ten Ten Creek                         | Continue monitoring                           |
| 3116              | 31                | North Saanich             | 1                    | 2                    | 3              | low              | NA          | low         |                                             | Resample in 2026                              |
| 3117              | 31                | North Saanich             | 1                    | 2                    | 3              | NA               | low         | low         |                                             |                                               |
| 3117A             | 31                | North Saanich             | 2                    | 2                    | 4              | NA               | NA          | moderate    | New, private                                | Confirm rating                                |
| 3117B             | 31                | North Saanich             | 1                    | 2                    | 3              | NA               | NA          | Low         | Private discharge                           | Confirm rating                                |
| 3118              | 31                | North Saanich             | 1                    | 3                    | 4              | <u>high</u>      | <u>high</u> | moderate    | Source(s) fixed, counts lower               | Continue monitoring                           |

**Stormwater Quality Report  
Public Health Concern Ratings**

| CRD Discharge No. | Report Figure No. | Jurisdiction at Discharge    | Rating               |                      |                | Level of Concern |             |             | Comments                                  | Recommendations                               |
|-------------------|-------------------|------------------------------|----------------------|----------------------|----------------|------------------|-------------|-------------|-------------------------------------------|-----------------------------------------------|
|                   |                   |                              | <i>E.coli</i> Rating | Public Shoreline Use | Overall Rating | 2018             | 2019        | 2020        |                                           |                                               |
| 3118A             | 31                | North Saanich                | 1                    | 3                    | 4              | NA               | NA          | low         |                                           | Confirm rating                                |
| 3118AA            | 31                | North Saanich                | 1                    | 3                    | 4              | NA               | NA          | low         | Dry                                       | Confirm rating                                |
| 3118B             | 31                | North Saanich                | 2                    | 3                    | 5              | NA               | NA          | <u>high</u> | High counts in summer and winter          | Continue monitoring and source investigations |
| 3118C             | 31                | North Saanich                | 1                    | 3                    | 4              | NA               | NA          | low         |                                           | Confirm rating                                |
| 3118D             | 31                | North Saanich                | 1                    | 3                    | 4              | NA               | NA          | low         |                                           |                                               |
| 3119              | 31                | North Saanich                | 1                    | 3                    | 4              | moderate         | moderate    | low         | Coles Bay                                 | Confirm rating                                |
| 3120              | 31                | North Saanich                | 1                    | 3                    | 4              | moderate         | moderate    | low         | Coles Bay                                 | Continue monitoring                           |
| 3122              | 31                | Pauquachin/<br>North Saanich | 1                    | 3                    | 4              | NA               | NA          | low         |                                           |                                               |
| 443               | 10                | Sidney                       | 1                    | 3                    | 4              | low              | low         | low         | <i>E.coli</i> low, low flows              | Resample in 2026                              |
| 445               | 11                | Sidney                       | 1                    | 3                    | 4              | low              | low         | low         | SPSO                                      | Resample in 2026                              |
| 446               | 11                | Sidney                       | 1                    | 3                    | 4              | low              | moderate    | low         | Suds in discharge                         | Confirm rating                                |
| 447               | 11                | Sidney                       | 2                    | 3                    | 5              | <u>high</u>      | <u>high</u> | <u>high</u> | Counts fluctuate                          | Continue monitoring and source investigations |
| 448               | 11                | Sidney                       | 2                    | 3                    | 5              | moderate         | moderate    | moderate    | Low flow in summer. SPSO                  | Continue monitoring                           |
| 449               | 11                | Sidney                       | 1                    | 3                    | 4              | moderate         | <u>high</u> | moderate    | Counts fluctuate                          | Continue monitoring and source investigations |
| 449A              | 11                | Sidney                       | 2                    | 3                    | 5              | moderate         | moderate    | moderate    | Low flows, lower counts, extended outfall | Confirm rating                                |
| 450               | 11                | Sidney                       | 2                    | 3                    | 5              | moderate         | low         | moderate    | Elevated count in winter                  | Confirm rating                                |
| 456A              | 12                | Sidney                       | 1                    | 3                    | 4              | low              | low         | low         |                                           | Resample in 2026                              |
| 458               | 12                | Sidney                       | 1                    | 3                    | 4              | moderate         | low         | low         | Foot of Beacon Avenue                     | Resample in 2026                              |
| 458A              | 12                | Sidney                       | 1                    | 2                    | 3              | low              | low         | low         | Low flows                                 | Resample in 2026                              |
| 459               | 12                | Sidney                       | 2                    | 2                    | 4              | low              | moderate    | low         | Elevated count                            | Confirm rating                                |
| 462               | 12                | Sidney                       | 2                    | 2                    | 4              | NA               | NA          | low         | Dry                                       | Resample in 2026                              |
| 468               | 13                | Sidney                       | 1                    | 2                    | 3              | NA               | low         | low         | Low flow                                  | Resample in 2026                              |
| 469               | 13                | Sidney                       | 1                    | 2                    | 3              | low              | low         | low         | Low flow                                  | Resample in 2026                              |
| 3001              | 13                | Sidney                       | 1                    | 2                    | 3              | NA               | NA          | low         |                                           | Resample in 2026                              |
| 3003              | 13                | Sidney                       | 2                    | 2                    | 4              | moderate         | moderate    | moderate    | Low flow                                  | Confirm rating                                |
| 3005              | 13                | Sidney                       | 2                    | 2                    | 4              | moderate         | moderate    | moderate    | Occasionally elevated, SPSO               | Continue monitoring                           |
| 3006              | 13                | Sidney                       | 1                    | 2                    | 3              | moderate         | low         | low         | SPSO                                      | Resample in 2026                              |



**Stormwater Quality Report  
Public Health Concern Ratings**

| CRD Discharge No. | Report Figure No. | Jurisdiction at Discharge    | Rating               |                      |                | Level of Concern |             |             | Comments                                                           | Recommendations                           |
|-------------------|-------------------|------------------------------|----------------------|----------------------|----------------|------------------|-------------|-------------|--------------------------------------------------------------------|-------------------------------------------|
|                   |                   |                              | <i>E.coli</i> Rating | Public Shoreline Use | Overall Rating | 2018             | 2019        | 2020        |                                                                    |                                           |
| 3007              | 14                | Sidney                       | 1                    | 2                    | 3              | <u>high</u>      | moderate    | low         | Foot of Bowden                                                     | Continue monitoring                       |
| 3014              | 14                | Sidney                       | 3                    | 2                    | 5              | moderate         | low         | moderate    | Low <i>E.coli</i> , low flows, one high count lower when resampled | Confirm rating                            |
| 3015              | 14                | Sidney                       | 2                    | 1                    | 3              | moderate         | moderate    | low         |                                                                    | Confirm rating                            |
| 3016              | 14                | Sidney                       | 3                    | 2                    | 5              | moderate         | moderate    | <u>high</u> | Elevated <i>E.coli</i> in summer, SPSO                             | Continue monitoring                       |
| 3018              | 15                | Sidney                       | 1                    | 2                    | 3              | NA               | NA          | low         |                                                                    | Resample in 2026                          |
| 3019              | 15                | Sidney                       | 1                    | 2                    | 3              | NA               | NA          | low         |                                                                    | Resample in 2026                          |
| 3090              | 26                | Tseycum/<br>North Saanich    | 1                    | 3                    | 4              | low              | low         | low         |                                                                    | Continue monitoring                       |
| 3091              | 26                | Tseycum/<br>North Saanich    | 1                    | 3                    | 4              | NA               | low         | low         | Dry in summer                                                      | Confirm rating                            |
| 3092              | 26                | Tseycum/<br>North Saanich    | 1                    | 3                    | 4              | low              | low         | low         | Mostly dry                                                         | Resample in 2026                          |
| 3095              | 27                | Tseycum/<br>North Saanich    | 3                    | 3                    | 6              | <u>high</u>      | <u>high</u> | <u>high</u> | Tseycum Creek, SPSO                                                | Continue monitoring, start investigations |
| 3122              | 31                | Pauquachin/<br>North Saanich | 2                    | 3                    | 5              | NA               | NA          | moderate    |                                                                    | Confirm rating                            |
| 3123              | 31                | Pauquachin/<br>North Saanich | 1                    | 3                    | 4              | low              | low         | low         | Dry in summer                                                      | Continue monitoring                       |
| 3124              | 31                | Pauquachin/<br>North Saanich | 1                    | 2                    | 3              | low              | moderate    | low         | Low upstream as well, bathing may occur upstream                   | Continue monitoring                       |
| 3136A             | 35                | Tsartlip/<br>Central Saanich | 1                    | 3                    | 4              | low              | low         | low         |                                                                    | Continue monitoring                       |
| 3138              | 36                | Tsartlip/<br>Central Saanich | 1                    | 3                    | 4              | moderate         | moderate    | low         | Dry in summer                                                      | Continue monitoring                       |
| 407               | 5                 | Tsawout/<br>Central Saanich  | 1                    | 3                    | 4              | low              | low         | low         | Tsawout Creek                                                      | resample in 2023                          |
| 410               | 6                 | Tsawout/<br>Central Saanich  | 1                    | 3                    | 4              | low              | low         | low         |                                                                    | resample in 2023                          |
| 411               | 6                 | Tsawout/<br>Central Saanich  | 2                    | 3                    | 5              | NA               | low         | moderate    |                                                                    | Confirm rating                            |

Stormwater Quality Report  
Public Health Concern Ratings

| CRD Discharge No. | Report Figure No. | Jurisdiction at Discharge   | Rating               |                      |                | Level of Concern |      |      | Comments      | Recommendations     |
|-------------------|-------------------|-----------------------------|----------------------|----------------------|----------------|------------------|------|------|---------------|---------------------|
|                   |                   |                             | <i>E.coli</i> Rating | Public Shoreline Use | Overall Rating | 2018             | 2019 | 2020 |               |                     |
| 411AA             | 6                 | Tsawout/<br>Central Saanich | 1                    | 3                    | 4              | low              | low  | low  |               | Resample in 2023    |
| 411A              | 6                 | Tsawout/<br>Central Saanich | 1                    | 3                    | 4              | low              | low  | low  | Dry in summer | Resample in 2023    |
| 411AA             | 6                 | Tsawout/<br>Central Saanich | 1                    | 3                    | 4              | low              | low  | low  |               | Resample in 2023    |
| 412               | 7                 | Tsawout/<br>Central Saanich | 1                    | 2                    | 3              | low              | low  | low  | Tetayut Creek | Continue monitoring |

**Notes**  
Level of Concern determined by sum of the *E.coli* and shoreline ratings. Low = sums of 2 and 3, moderate= sum of 4 and high = sums of 5 and 6.  
NA = Not rated because it was not one of the discharges assessed this year  
SPSO = This discharge acts as a sewage pump station overflow





## **APPENDIX D**

### ***E. COLI*/SAMPLING QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM 2020**





**APPENDIX D**  
***E. COLI*/SAMPLING QUALITY ASSURANCE**  
**AND QUALITY CONTROL PROGRAM**  
**2020**

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## APPENDIX D

### ***E. COLI*/SAMPLING QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM FOR 2020**

#### **1.0 INTRODUCTION**

Quality Assurance and Quality Control (QA/QC) programs are protocols adopted to ensure that results of any study are valid, internally consistent and comparable with similar projects. These protocols are set out in writing and based on current and relevant research on related topics.

Data collected for the quality assurance (QA) program are used to ensure consistency in field handling and analytical methods. If data exceed a specified precision criterion then the lab is notified of a potential problem in the procedure and steps are taken to resolve the issue.

#### **2.0 METHODS FOR BACTERIAL SAMPLING**

All water samples were collected in 250-mL wide-mouth polypropylene bottles supplied by the analytical laboratories (Bureau Veritas Laboratories formerly Maxxam Analytics International Corporation in Victoria). Labelled samples were stored in an insulated cooler with ice packs for protection from prolonged exposure to UV light and delivered the same day to the laboratory. *Escherichia coli* bacteria (*E. coli*) were analyzed following the procedures in Standard Methods (APHA, 1998) and reported as colony forming units per 100 mL (CFU/100 mL).

##### **2.1 Stormwater Discharge Sampling**

Where possible, stormwater samples were collected from the point of discharge. Where this was not possible, the stormwater system was followed back to the nearest point where samples could be taken.

##### **2.2 Quality Assurance**

###### **2.2.1 Stormwater Sample Replicates (Field Splits)**

Ten percent of the total number of samples collected were replicated in the field (field replicates) and are identified in this report as field splits. A single sample was collected in a laboratory-prepared 1-litre sample bottle and inverted 30 times to ensure that the sample was homogeneous. The sample was split evenly into two sample bottles. The two bottles were labelled and sent to the lab for analysis as separate samples, but not identified as field splits.

###### **2.2.2 Quality Control Assessment**

To establish the precision criteria 18 replicates (field splits) were analyzed for *E. coli* bacteria. Field splits were collected from six stormwater discharges on the Saanich Peninsula. Discharges were chosen based on previous results, specifically high, moderate or low levels of *E. coli* concentrations. The QA sampling for the assessment was for all *E. coli* samples analyzed by Maxxam. The three levels of *E. coli* concentrations were selected to represent the variance in the samples analyzed during the sampling program. Three grab samples were taken at each of the six stations and split into two replicate sample bottles. Three blank samples of potable water were also collected as part of the assessment. Samples were supplied to the lab with individual numbers.

###### **2.2.3 Calculation of Quality Assurance Results**

Laboratory precision for *E. coli* analysis is determined by analyzing several pairs of field samples (field splits). The following procedure is the same as that used for fecal coliforms from Standard Methods, 20th edition (APHA, 1998).



The data are arranged in pairs (D1 and D2). The log of each field measurement is determined (L1, L2) and the difference (range) in the log value between each pair of field splits is calculated:  $R = (L2 - L1)$ . An average range (Mean-R) is then determined for all of the pairs.

The precision criterion is calculated by multiplying the Mean-R by 3.27 and is rounded to one decimal place.

The log range (R) is calculated for each of the field splits and compared to the precision criterion, to determine whether the sample is acceptable or not, according to the following criteria:

Acceptable (A)      If the calculation is less than the precision criterion, then the field data are within normal variability.

Unacceptable (U)    If the calculation is greater than the precision criterion, then the field data are outside of the normal variability. Data collected after the last "acceptable" set of data should be discarded and no further analysis should be done until the source of the problem is identified by the lab.

It is important not to put too severe an interpretation on the results, especially when they are close to the "unacceptable" guideline. Each result represents a value within a 95% confidence interval, which gets proportionately larger as the actual result gets smaller. Therefore, one can expect, through randomness, 5% of the samples to be outside of the precision criterion. Also, bacterial counts under 200 CFU/100 mL are considered too small to accurately calculate or compare to a precision criterion (APHA, 1998). It is also important to note that discharges with *E. coli* counts lower than 200 CFU/100 mL receive a low public health concern rating.

The results should be rounded to one decimal place and compared to the precision criterion (e.g., 0.3). If the calculated value from the duplicate results still exceeds the criterion, then an informal investigation of the laboratory should be initiated. If only a few duplicates are unacceptable (i.e., one out of every 20 pairs of duplicates), the lab is probably meeting the guideline.

The overall process is intended to act as an alarm, alerting the study group to potential problems with the sampling and analytical procedures.

### **3.0 RESULTS**

CRD staff collected 18 pairs of stormwater samples from six discharges having high, moderate or low levels of bacteria. Samples were analyzed for *E. coli* concentration used to calculate the precision criterion.

#### **3.1 Blanks**

Staff submitted three blank samples (tap water) to the lab for *E. coli* analysis. Blanks were reported as having <1 CFU/100 mL. Therefore, the results meet the QA requirements.

#### **3.2 Precision Criteria**

Table 1 shows lab results of the 18 pairs of samples used to determine the precision criterion. The calculated precision criterion was 0.4.

#### **3.3 Field Splits**

Table 2 presents results for the field splits collected during the wet period. Data were compared to the precision criterion of 0.4. Two of the field splits exceeded the precision criterion, however, one of these had low results (<200 CFU/100 mL), which are not expected to meet the criterion. In addition, it is expected that 5% of the results will exceed the criterion, due to randomness; therefore, the data are acceptable.

Table 3 presents results for the field splits collected during the dry period. None of the field splits exceeded the precision criterion. Therefore, the data are acceptable.

**Table 1. 2020 Precision Criterion Calculation**

| Date   | Discharge No.                                         | Pair No. | 1st Duplicate D1 | 2nd Duplicate D2 | Log of D1 L1 | Log of D2 L2 | Range of Logs (Rlog) (Log L1 - Log L2) |
|--------|-------------------------------------------------------|----------|------------------|------------------|--------------|--------------|----------------------------------------|
| 30-Jan | 932                                                   | 1        | <1               | <1               | 0            | 0            | 0.0000                                 |
|        |                                                       | 2        | <1               | <1               | 0            | 0            | 0.0000                                 |
|        |                                                       | 3        | <1               | <1               | 0            | 0            | 0.0000                                 |
| 20-Jan | 323                                                   | 1        | 28               | 10               | 1.4472       | 1.0000       | 0.4472                                 |
|        |                                                       | 2        | 25               | 28               | 1.3979       | 1.4472       | 0.0492                                 |
|        |                                                       | 3        | 36               | 29               | 1.5563025    | 1.462398     | 0.0939                                 |
| 17-Jan | 503                                                   | 1        | 1000             | 1300             | 3.0000       | 3.1139       | 0.1139                                 |
|        |                                                       | 2        | 900              | 1100             | 2.9542       | 3.0414       | 0.0872                                 |
|        |                                                       | 3        | 1400             | 1300             | 3.146128     | 3.1139434    | 0.0322                                 |
| 17-Jan | 222                                                   | 1        | 3700             | 4300             | 3.5682       | 3.6335       | 0.0653                                 |
|        |                                                       | 2        | 3600             | 2700             | 3.5563       | 3.4314       | 0.1249                                 |
|        |                                                       | 3        | 3400             | 3900             | 3.5314789    | 3.5910646    | 0.0596                                 |
| 3-Mar  | 744B                                                  | 1        | 110000           | 58000            | 5.0414       | 4.7634       | 0.2780                                 |
|        |                                                       | 2        | 48000            | 66000            | 4.6812       | 4.8195       | 0.1383                                 |
|        |                                                       | 3        | 59000            | 100000           | 4.770852     | 5            | 0.2291                                 |
| 3-Mar  | 777A                                                  | 1        | 20000            | 27000            | 4.3010       | 4.4314       | 0.1303                                 |
|        |                                                       | 2        | 22000            | 19000            | 4.3424       | 4.2788       | 0.0637                                 |
|        |                                                       | 3        | 13000            | 21000            | 4.1139       | 4.3222       | 0.2083                                 |
|        | Mean - R <sub>log</sub> (Sum R <sub>log</sub> /18)    |          |                  |                  |              |              | 0.1178                                 |
|        | Precision Criterion (3.27 x Mean - R <sub>log</sub> ) |          |                  |                  |              |              | 0.3853                                 |



**Table 2. Comparison of Field Splits to Precision Criterion – 2020 Dry Period**

| Date   | Discharge | Bacterial Counts (CFU/100 mL) | Log    | Log Range | Acceptable (A) or Unacceptable (U) |
|--------|-----------|-------------------------------|--------|-----------|------------------------------------|
| 10-Jul | 426       | 600                           | 2.7782 | 0.0792    | A                                  |
|        |           | 500                           | 2.6990 |           |                                    |
| 13-Jul | 449       | 80                            | 1.9031 | 0.0835    | A                                  |
|        |           | 66                            | 1.8195 |           |                                    |
| 15-Jul | 3021A     | 3600                          | 3.5563 | 0.0872    | A                                  |
|        |           | 4400                          | 3.6435 |           |                                    |
| 16-Jul | 3078A     | 810                           | 2.9085 | 0.1091    | A                                  |
|        |           | 630                           | 2.7993 |           |                                    |
| 20-Jul | 3142      | 9                             | 0.9542 | 0.0872    | A                                  |
|        |           | 11                            | 1.0414 |           |                                    |
| 25-Aug | 3133      | 6                             | 0.7782 | 0.4771    | A*                                 |
|        |           | 2                             | 0.3010 |           |                                    |
| 8-Sep  | 3133-4    | 85                            | 1.9294 | 0.0574    | A                                  |
|        |           | 97                            | 1.9868 |           |                                    |
| 17-Sep | 3124      | 54                            | 1.7324 | 0.0889    | A                                  |
|        |           | 44                            | 1.6435 |           |                                    |
| 29-Sep | 410       | 24                            | 1.3802 | 0.0669    | A                                  |
|        |           | 28                            | 1.4472 |           |                                    |
| 29-Sep | 412       | 89                            | 1.9494 | 0.2592    | A                                  |
|        |           | 49                            | 1.6902 |           |                                    |
| 29-Sep | 458       | 1                             | 0.0000 | 0.0000    | A                                  |
|        |           | 1                             | 0.0000 |           |                                    |
| 29-Sep | 3145      | 4400                          | 3.6435 | 0.41300   | U                                  |
|        |           | 1700                          | 3.2304 |           |                                    |

**Notes:**

A: calculated data is less than the precision criterion and, therefore, falls within normal variability.

U: calculated data is greater than the precision criterion and, therefore, falls outside normal variability.

A\*: any *E. coli* count under 200 is considered too small an amount to calculate precision.

**Table 3. Comparison of Field Splits to Precision Criterion – 2020 Wet Period**

| Date   | Discharge | Bacterial Counts (CFU/100 mL) | Log    | Log Range | Acceptable (A) or Unacceptable (U) |
|--------|-----------|-------------------------------|--------|-----------|------------------------------------|
| 23-Jan | 416       | 130                           | 2.1139 | 0.0322    | A                                  |
|        |           | 140                           | 2.1461 |           |                                    |
| 23-Jan | 424       | 50                            | 1.6990 | 0.1461    | A                                  |
|        |           | 70                            | 1.8451 |           |                                    |
| 13-Feb | 447       | 1400                          | 3.1461 | 0.0322    | A                                  |
|        |           | 1300                          | 3.1139 |           |                                    |
| 13-Feb | 449A      | 710                           | 2.8513 | 0.0238    | A                                  |
|        |           | 750                           | 2.8751 |           |                                    |
| 27-Feb | 3146      | 3500                          | 3.5441 | 0.2341    | A                                  |
|        |           | 6000                          | 3.7782 |           |                                    |
| 19-Mar | 3078A     | 740                           | 2.8692 | 0.0173    | A                                  |
|        |           | 770                           | 2.8865 |           |                                    |
| 20-Mar | 3133      | 14                            | 1.1461 | 0.0000    | A                                  |
|        |           | 14                            | 1.1461 |           |                                    |
| 24-Mar | 3138      | 1                             | 0.0000 | 0.0000    | A                                  |
|        |           | 1                             | 0.0000 |           |                                    |
| 24-Mar | 3150      | 140000                        | 5.1461 | 0.0000    | A                                  |
|        |           | 140000                        | 5.1461 |           |                                    |
| 28-May | 3055      | 69                            | 1.8388 | 0.0327    | A                                  |
|        |           | 64                            | 1.8062 |           |                                    |

**Notes:**

CFU: Colony forming units

A: calculated data is less than the precision criterion and, therefore, falls within normal variability.

U: calculated data is greater than the precision criterion and, therefore, falls outside normal variability.

A\*: any *E. coli* count under 200 is considered too small an amount to calculate precision.

## 4.0 CONCLUSIONS

All requirements for the stormwater monitoring QA/QC program were carried out in 2020. All QA/QC results were acceptable for rating stormwater discharges for public health concerns.

## 5.0 REFERENCES

APHA, 1998. American Public Health Association, American Water Works Association, Water Pollution Control Federation, 20th Edition. Standard Methods for the Examination of Water and Wastewater.





## **APPENDIX E**

### **Contaminant Data and Ratings for Environmental Concern**





**Table 1. 2020 Stormwater Sediment Contaminant Concentrations**

|                                    |                 |                                 |            | Arsenic | Cadmium | Chromium | Copper | Lead | Mercury | Silver | Zinc | HPAH    | LPAH    | TOC    |
|------------------------------------|-----------------|---------------------------------|------------|---------|---------|----------|--------|------|---------|--------|------|---------|---------|--------|
| Marine Sediment Quality Guidelines |                 |                                 | CRD MSQG   | 57      | 5.1     | 260      | 390    | 450  | 0.41    | 6.1    | 410  | 12      | 5.2     | -      |
|                                    |                 |                                 | CCME ISQG  | 7.24    | 0.7     | 52.3     | 18.7   | 30.2 | 0.13    | 1      | 124  | -       | -       | -      |
|                                    |                 |                                 | CCME PEL   | 41.6    | 4.2     | 160      | 108    | 112  | 0.7     | 2.2    | 271  | -       | -       | -      |
| Vancouver Island Background        |                 |                                 |            | 4       | 0.95    | 65       | 100    | 40   | 0.15    | 1      | 150  | -       | -       | -      |
| SW0405                             | Central Saanich | Island View Beach               | 2019-10-10 | 3.82    | 0.171   | 21.5     | 10.4   | 2.31 | < 0.05  | < 0.05 | 34.9 | < 0.001 | 0.0048  | 1.7    |
| SW0409C                            | Central Saanich | 2788 SA-SU Rd.                  | 2019-10-28 | 3.04    | 0.232   | 25.1     | 57.8   | 21   | < 0.05  | 0.083  | 156  | 0.13    | 0.068   | 1.7    |
| SW0410                             | Central Saanich | N of 2764 SA-SU Rd.             | 2019-10-10 | 1.92    | 0.066   | 17.2     | 16.4   | 11.5 | < 0.05  | < 0.05 | 66.9 | 0.35    | 0.049   | 0.46   |
| SW0412                             | Central Saanich | Tetayut Crk, culvert            | 2019-10-10 | 1.83    | 0.058   | 19.5     | 12.4   | 3.63 | < 0.05  | < 0.05 | 59.7 | 0.046   | 0.0091  | 3      |
| SW0416                             | Central Saanich | Ferguson Rd. beach access       | 2019-10-10 | 5.62    | 0.144   | 36.1     | 45     | 8.52 | < 0.05  | 0.072  | 88.1 | 0.021   | 0.0022  | 1.3    |
| SW0441                             | Sidney          | Reay Creek, beach access        | 2020-12-16 | 13.8    | 0.253   | 37.7     | 69.8   | 12.8 | 0.07    | 0.15   | 253  | 0.1     | 0.023   | 3.6    |
| SW0441-1                           | Sidney          | d/s of Frost Rd                 | 2020-12-16 | 6.17    | 0.207   | 32       | 54.5   | 13.3 | < 0.05  | 0.074  | 170  | 0.051   | 0.0049  | 3.3    |
| SW0449-2D                          | Sidney          | MH153F on Fifth Street          | 2019-10-10 | 2.85    | 0.127   | 43.8     | 40.6   | 11.5 | < 0.05  | < 0.05 | 163  | 0.36    | 0.11    | 3.2    |
| SW0449-2D                          | Sidney          | MH153F on Fifth Street          | 2020-07-13 | 3.14    | 0.061   | 17.1     | 29.4   | 8.71 | < 0.05  | < 0.05 | 164  | 0.41    | 0.071   | 0.4    |
| SW3021                             | North Saanich   | McDonald Park Rd., Bayfield Rd. | 2019-10-28 | 4.17    | 0.291   | 24.7     | 33.1   | 26.2 | 0.254   | 0.185  | 127  | 0.25    | 0.044   | 1.5    |
| SW3021                             | North Saanich   | McDonald Park Rd., Bayfield Rd. | 2020-11-23 | 3.28    | 0.288   | 23.9     | 28.1   | 40.3 | 0.418   | 0.297  | 133  | 0.89    | 0.11    | 3.8    |
| SW3090                             | North Saanich   | N of 10429 West Saanich Rd.     | 2019-10-28 | 7       | 0.075   | 45.3     | 49.9   | 8.77 | 0.061   | < 0.05 | 107  | 0.01    | 0.016   | < 0.05 |
| SW3104                             | North Saanich   | Ten Ten Creek                   | 2019-12-03 | 5.54    | 0.182   | 24       | 38.2   | 7.53 | 0.05    | 0.127  | 143  | 0.92    | 0.22    | 4.9    |
| SW3104-2                           | North Saanich   | Ten Ten at Willingdon Rd.       | 2019-12-03 | 14      | 0.402   | 46.5     | 130    | 17.4 | 0.089   | 0.154  | 360  | 0.75    | 0.12    | 6.4    |
| SW3118                             | North Saanich   | foot of Hartfell Ave.           | 2020-11-23 | 3.81    | 0.125   | 29.7     | 45.5   | 8.4  | 0.051   | 0.075  | 116  | 0.91    | 0.097   | 5.4    |
| SW3122                             | North Saanich   | Pauquachin First Nation         | 2019-10-28 | 4.62    | 0.23    | 32       | 48     | 23.7 | 0.061   | 0.094  | 100  | 0.15    | 0.029   | 3.1    |
| SW3122-2                           | North Saanich   | Pauquachin Lane in ditch        | 2019-10-28 | 7.46    | 0.088   | 46.9     | 48.7   | 8.4  | 0.054   | < 0.05 | 77   | 0.0099  | 0.0041  | 1.4    |
| SW3133                             | Central Saanich | Hagan Creek mouth               | 2019-10-17 | 2.74    | 0.107   | 19.7     | 17.6   | 5.24 | < 0.05  | < 0.05 | 67.7 | 0.023   | 0.0043  | 0.76   |
| SW3133                             | Central Saanich | Hagan Creek mouth               | 2020-09-08 | 1.8     | 0.06    | 17.1     | 11.7   | 3.28 | < 0.05  | < 0.05 | 44.4 | 0.12    | 0.02    | 0.2    |
| SW3133-1B                          | Central Saanich | Graham Creek (Hagan Watershed)  | 2020-09-01 | 2.01    | 0.053   | 17.5     | 15.5   | 2.31 | < 0.05  | 0.092  | 42.3 | < 0.001 | < 0.001 | 0.083  |
| SW3133-2                           | Central Saanich | Hagan Crk, Industrial Park      | 2019-10-17 | 2.2     | 0.158   | 226      | 77.9   | 9.03 | < 0.05  | < 0.05 | 121  | 0.054   | 0.019   | 0.41   |
| SW3133-4                           | Central Saanich | Stevens Creek (Hagan Watershed) | 2019-10-17 | 6.56    | 1.23    | 237      | 191    | 49.3 | 0.117   | 0.348  | 459  | 1.7     | 0.38    | 12     |
| SW3133-5                           | Central Saanich | Graham Creek (Hagan Watershed)  | 2019-10-17 | 6.21    | 0.109   | 43       | 54.4   | 6.82 | 0.061   | 0.082  | 92.1 | 0.052   | 0.023   | 0.88   |
| SW3135                             | Central Saanich | Tsartlip First Nation           | 2020-11-26 | 6.45    | 0.962   | 27.7     | 169    | 52.9 | 0.076   | 0.1    | 300  | 0.022   | 0.0048  | 2      |
| SW3136A                            | Central Saanich | Tsartlip Drive                  | 2020-11-26 | 5.14    | 0.37    | 31.2     | 35.5   | 22   | < 0.05  | 0.081  | 147  | 0.034   | 0.0061  | 4.2    |
| SW3136A-2                          | Central Saanich | Tsartlip Drive                  | 2019-10-17 | 4.15    | 0.272   | 32       | 46.7   | 17.9 | 0.054   | 0.096  | 138  | 0.061   | 0.014   | 2      |
| SW3136B                            | Central Saanich | Tsartlip Drive                  | 2020-11-26 | 7.62    | 0.208   | 37.4     | 39.9   | 9.01 | < 0.05  | 0.062  | 89.1 | 0.013   | 0.0059  | 2.6    |
| SW3138                             | Central Saanich | Tsartlip boat launch            | 2019-10-17 | 6.88    | 0.214   | 33.9     | 60.4   | 9.68 | < 0.05  | 0.071  | 83.9 | 0.17    | 0.019   | 1.1    |
| SW3138                             | Central Saanich | Tsartlip boat launch            | 2020-11-26 | 1.86    | 0.062   | 22.9     | 38.8   | 3.44 | < 0.05  | < 0.05 | 47.3 | 0.069   | 0.0084  | 0.38   |
| SW3146                             | Central Saanich | Brentwood Drive & Marchant Road | 2019-10-28 | 3.05    | 0.095   | 16.9     | 34.3   | 6.92 | < 0.05  | < 0.05 | 142  | < 0.001 | < 0.001 | 0.36   |
| SW3153                             | Central Saanich | Butchart Gardens                | 2019-12-03 | 6.8     | 0.251   | 43.1     | 40     | 19.1 | < 0.05  | 0.105  | 105  | 0.053   | 0.24    | 4.3    |
| SW3154                             | Central Saanich | Tod Creek mouth                 | 2020-12-16 | 7.1     | 0.273   | 19.8     | 58.8   | 40.3 | < 0.05  | < 0.05 | 136  | 0.026   | 0.016   | 1.7    |

Notes on next page



Table 1, cont’d

Notes:

- Concentrations are in mg/kg
- CRD MSQG =Marine sediment quality guidelines adopted from Washington State's Department of Ecology for protection of aquatic life.
- LPAH and HPAH are low and high molecular weight polycyclic aromatic hydrocarbons, respectively
- CCME = Canadian Council of Ministers of the Environment
- ISQG = interim sediment quality guideline; concentrations above this level but below the PEL will occasionally result in adverse effects on aquatic life
- PEL = probable effects level; concentrations above this level will frequently result in adverse effects to aquatic life
- Vancouver Island Background Concentrations are regional estimates (95<sup>th</sup> percentiles) from BC MOE; [https://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/protocols/protocol\\_4.pdf](https://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/protocols/protocol_4.pdf)
- Italised values are those that exceed a guideline but are below the Vancouver Island background concentration
- Value is greater than or equal to the CCME ISQG
- Value is greater than or equal to the CCME PEL
- Value it greater than or equal to CRD MSQG and adverse effects to aquatic life are likely to occur
- For mercury only, the CRD MSQG is lower than the CCME PEL
- Some samples are not collected at the discharge to marine and therefore marine guidelines are not applicable but are used for screening purposes

**Table 2. 2020 Sediment Contaminant Ratings**

| Station   |             | Arsenic                             | Cadmium | Chromium | Copper | Lead | Mercury | Silver | Zinc | HPAH | LPAH | Sum of Ratios | Contaminant Rating |
|-----------|-------------|-------------------------------------|---------|----------|--------|------|---------|--------|------|------|------|---------------|--------------------|
|           | CRD MSQG    | 57                                  | 5.1     | 260      | 390    | 450  | 0.41    | 6.1    | 410  | 12   | 5.2  |               |                    |
|           | Sample Date | Ratio of Concentration to Guideline |         |          |        |      |         |        |      |      |      |               |                    |
| SW0405    | 2019-10-10  | 0.07                                | 0.03    | 0.08     | 0.03   | 0.01 | 0.12    | 0.01   | 0.09 | 0.00 | 0.00 | 0.43          | Low                |
| SW0409C   | 2019-10-28  | 0.05                                | 0.05    | 0.10     | 0.15   | 0.05 | 0.12    | 0.01   | 0.38 | 0.01 | 0.01 | 0.93          | Low                |
| SW0410    | 2019-10-10  | 0.03                                | 0.01    | 0.07     | 0.04   | 0.03 | 0.12    | 0.01   | 0.16 | 0.03 | 0.01 | 0.51          | Low                |
| SW0412    | 2019-10-10  | 0.03                                | 0.01    | 0.08     | 0.03   | 0.01 | 0.12    | 0.01   | 0.15 | 0.00 | 0.00 | 0.44          | Low                |
| SW0416    | 2019-10-10  | 0.10                                | 0.03    | 0.14     | 0.12   | 0.02 | 0.12    | 0.01   | 0.21 | 0.00 | 0.00 | 0.75          | Low                |
| SW0441    | 2020-12-16  | 0.24                                | 0.05    | 0.15     | 0.18   | 0.03 | 0.17    | 0.02   | 0.62 | 0.01 | 0.00 | 1.47          | Moderate           |
| SW0441-1  | 2020-12-16  | 0.11                                | 0.04    | 0.12     | 0.14   | 0.03 | 0.12    | 0.01   | 0.41 | 0.00 | 0.00 | 1.00          | Moderate           |
| SW0449-2D | 2019-10-10  | 0.05                                | 0.02    | 0.17     | 0.10   | 0.03 | 0.12    | 0.01   | 0.40 | 0.03 | 0.02 | 0.95          | Low                |
| SW0449-2D | 2020-07-13  | 0.06                                | 0.01    | 0.07     | 0.08   | 0.02 | 0.12    | 0.01   | 0.40 | 0.03 | 0.01 | 0.81          | Low                |
| SW3021    | 2019-10-28  | 0.07                                | 0.06    | 0.10     | 0.08   | 0.06 | 0.62    | 0.03   | 0.31 | 0.02 | 0.01 | 1.36          | Moderate           |
| SW3021    | 2020-11-23  | 0.06                                | 0.06    | 0.09     | 0.07   | 0.09 | 1.02    | 0.05   | 0.32 | 0.07 | 0.02 | 1.86          | High               |
| SW3090    | 2019-10-28  | 0.12                                | 0.01    | 0.17     | 0.13   | 0.02 | 0.15    | 0.01   | 0.26 | 0.00 | 0.00 | 0.88          | Low                |
| SW3104    | 2019-12-03  | 0.10                                | 0.04    | 0.09     | 0.10   | 0.02 | 0.12    | 0.02   | 0.35 | 0.08 | 0.04 | 0.95          | Low                |
| SW3104-2  | 2019-12-03  | 0.25                                | 0.08    | 0.18     | 0.33   | 0.04 | 0.22    | 0.03   | 0.88 | 0.06 | 0.02 | 2.08          | Low                |
| SW3118    | 2020-11-23  | 0.07                                | 0.02    | 0.11     | 0.12   | 0.02 | 0.12    | 0.01   | 0.28 | 0.08 | 0.02 | 0.86          | Low                |
| SW3122    | 2019-10-28  | 0.08                                | 0.05    | 0.12     | 0.12   | 0.05 | 0.15    | 0.02   | 0.24 | 0.01 | 0.01 | 0.85          | Low                |
| SW3122-2  | 2019-10-28  | 0.13                                | 0.02    | 0.18     | 0.12   | 0.02 | 0.13    | 0.01   | 0.19 | 0.00 | 0.00 | 0.80          | Low                |
| SW3133    | 2019-10-17  | 0.05                                | 0.02    | 0.08     | 0.05   | 0.01 | 0.12    | 0.01   | 0.17 | 0.00 | 0.00 | 0.50          | Low                |
| SW3133    | 2020-09-08  | 0.03                                | 0.01    | 0.07     | 0.03   | 0.01 | 0.12    | 0.01   | 0.11 | 0.01 | 0.00 | 0.40          | Low                |
| SW3133-1B | 2020-09-01  | 0.04                                | 0.01    | 0.07     | 0.04   | 0.01 | 0.12    | 0.02   | 0.10 | 0.00 | 0.00 | 0.40          | Low                |
| SW3133-2  | 2019-10-17  | 0.04                                | 0.03    | 0.87     | 0.20   | 0.02 | 0.12    | 0.01   | 0.30 | 0.00 | 0.00 | 1.59          | Moderate           |
| SW3133-4  | 2019-10-17  | 0.12                                | 0.24    | 0.91     | 0.49   | 0.11 | 0.29    | 0.06   | 1.12 | 0.14 | 0.07 | 3.54          | High               |
| SW3133-5  | 2019-10-17  | 0.11                                | 0.02    | 0.17     | 0.14   | 0.02 | 0.15    | 0.01   | 0.22 | 0.00 | 0.00 | 0.85          | Low                |
| SW3135    | 2020-11-26  | 0.11                                | 0.19    | 0.11     | 0.43   | 0.12 | 0.19    | 0.02   | 0.73 | 0.00 | 0.00 | 1.90          | Moderate           |
| SW3136A   | 2020-11-26  | 0.09                                | 0.07    | 0.12     | 0.09   | 0.05 | 0.12    | 0.01   | 0.36 | 0.00 | 0.00 | 0.92          | Low                |
| SW3136A-2 | 2019-10-17  | 0.07                                | 0.05    | 0.12     | 0.12   | 0.04 | 0.13    | 0.02   | 0.34 | 0.01 | 0.00 | 0.90          | Low                |
| SW3136B   | 2020-11-26  | 0.13                                | 0.04    | 0.14     | 0.10   | 0.02 | 0.12    | 0.01   | 0.22 | 0.00 | 0.00 | 0.79          | Low                |
| SW3138    | 2019-10-17  | 0.12                                | 0.04    | 0.13     | 0.15   | 0.02 | 0.12    | 0.01   | 0.20 | 0.01 | 0.00 | 0.83          | Low                |
| SW3138    | 2020-11-26  | 0.03                                | 0.01    | 0.09     | 0.10   | 0.01 | 0.12    | 0.01   | 0.12 | 0.01 | 0.00 | 0.49          | Low                |
| SW3146    | 2019-10-28  | 0.05                                | 0.02    | 0.07     | 0.09   | 0.02 | 0.12    | 0.01   | 0.35 | 0.00 | 0.00 | 0.72          | Low                |
| SW3153    | 2019-12-03  | 0.12                                | 0.05    | 0.17     | 0.10   | 0.04 | 0.12    | 0.02   | 0.26 | 0.00 | 0.05 | 0.93          | Low                |
| SW3154    | 2020-12-16  | 0.12                                | 0.05    | 0.08     | 0.15   | 0.09 | 0.12    | 0.01   | 0.33 | 0.00 | 0.00 | 0.96          | Low                |

**Notes:**

CRD MSQG =Marine sediment quality guidelines adopted from Washington State's Department of Ecology for protection of aquatic life.

These are ratios of the measured value over the MSQG

LPAH and HPAH are low and high molecular weight polycyclic aromatic hydrocarbons, respectively

values are approaching (i.e.>0.75 the value of) the guideline

values exceed the MSQG

Some samples are not collected at the discharge to marine and therefore marine guidelines are not applicable but are used for screening purposes



Table 3. Summary of Contaminant Ratings for Environmental Concern

| Discharge #<br>(Location)           | Figure # | Jurisdiction         | Contaminant Ratings |      |          |          |      |          | Comments & Recommendations |                                                                                                                                                                                                                                                                                   |
|-------------------------------------|----------|----------------------|---------------------|------|----------|----------|------|----------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     |          |                      | 2014                | 2015 | 2016     | 2017     | 2018 | 2019     | 2020                       |                                                                                                                                                                                                                                                                                   |
| <b>405</b><br>(Island View Beach)   | 4        | Central Saanich      | -                   | -    | -        | -        | Low  | Low      | -                          | Resample in 2024 to monitor for change.                                                                                                                                                                                                                                           |
| <b>407</b><br>(Saanichton Bay)      | 5        | Tsawout First Nation | -                   | -    | -        | Low      | -    | -        | -                          | Rated low in 2005, 2011 and 2017. Resample in 2022 to monitor for change.                                                                                                                                                                                                         |
| <b>409C</b><br>(Saanichton Bay)     | 6        | Tsawout First Nation | -                   | -    | -        | -        | Low  | Low      | -                          | Resample in 2024 to monitor for change.                                                                                                                                                                                                                                           |
| <b>410</b><br>(Saanichton Bay)      | 6        | Tsawout First Nation | Low                 | -    | -        | -        | -    | Low      | -                          | Elevated lead in 2012. Resample in 2025.                                                                                                                                                                                                                                          |
| <b>411A</b><br>(Saanichton Bay)     | 6        | Tsawout First Nation | -                   | -    | Low      | -        | -    | -        | -                          | Rated low in 2011 and 2016. Rated moderate in 2008. Resample in 2021 to confirm rating.                                                                                                                                                                                           |
| <b>412</b><br>(Tetayut Creek)       | 7        | Tsawout First Nation | -                   | Low  | Low      | Low      | -    | Low      | -                          | Low at discharge, but elevated levels upstream. Resample discharge in 2024 to monitor for change.                                                                                                                                                                                 |
| <b>416</b><br>(Foot of Ferguson Rd) | 7        | Central Saanich      | -                   | -    | Moderate | -        | Low  | Low      | -                          | Rated low in 1999, 2000 and 2011. Resample in 2024 to monitor for change.                                                                                                                                                                                                         |
| <b>435</b><br>(Bazan Bay)           | 10       | North Saanich        | -                   | -    | -        | Low      | Low  | -        | -                          | High upstream near highway, but low at discharge and in marine. Resample in 2023 to monitor for change.                                                                                                                                                                           |
| <b>441</b><br>(Reay Creek)          | 10       | North Saanich        | High                | High | High     | -        | -    | -        | Moderate                   | Remedial action undertaken, continue monitoring.                                                                                                                                                                                                                                  |
| <b>445</b><br>(Foot of Frost Ave.)  | 11       | Sidney               | -                   | -    | -        | -        | -    | -        | NR                         | Rated high yearly (2002 to 2007) due to zinc. HPAH elevated in 2005. U/S: 445-2 high in 2007 due to mercury and PAHs. No sediment available since 2009. Slightly elevated copper and zinc in water. Sample water in fall 2021.                                                    |
| <b>449</b><br>(Tulista Park)        | 11       | Sidney               | -                   | -    | -        | Moderate | Low  | Moderate | Low *                      | Tidally influenced at discharge. Sample 449-2D for rating. *Zn low in sediment, but copper and zinc elevated in one water sample. Sample water in fall 2021.                                                                                                                      |
| <b>450</b><br>(Foot of Ocean Ave.)  | 11       | Sidney               | -                   | -    | -        | Low      | -    | -        | -                          | Rated moderate in 2005 and 2007 due to cumulative contaminants. Rated low in 2011, 2012 and 2017. Resample in 2022 to monitor for change.                                                                                                                                         |
| <b>467</b><br>(Foot of Shoreacres)  | 12       | Sidney               | -                   | -    | -        | Low      | -    | -        | -                          | Resample in 2022 to monitor for change.                                                                                                                                                                                                                                           |
| <b>3005</b><br>(Mermaid Canal)      | 13       | Sidney               | -                   | -    | -        | High     | -    | -        | NR                         | Rated high due to Zn and PAH. Marine data >CCME ISQG for Cu, Pb, Hg and Zn. Zn and Cu elevated in water (2020). Elevated As, Cu, Pb and Zn at 3005-3 (2011). Sediment usually not available. <b>Action Required</b> (higher priority). Continue source investigations with water. |
| <b>3006</b><br>(Roberts Bay)        | 13       | Sidney               | -                   | -    | -        | Low      | -    | -        | -                          | Resample in 2022 to monitor for change.                                                                                                                                                                                                                                           |

Table 3, cont'd

| Discharge #<br>(Location)                       | Figure # | Jurisdiction            | Contaminant Ratings |          |          |                 |                   |                  | Comments & Recommendations |                                                                                                                                                                                               |
|-------------------------------------------------|----------|-------------------------|---------------------|----------|----------|-----------------|-------------------|------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                 |          |                         | 2014                | 2015     | 2016     | 2017            | 2018              | 2019             | 2020                       |                                                                                                                                                                                               |
| <b>3016</b><br>(All Bay)                        | 14       | Sidney                  | Moderate            | Low      | Low      | Moderate        | Moderate          | -                | -                          | Rated moderate due to Cu and Zn > CCME ISQG. Upstream arsenic concentrations lower. Sidney flushed line in fall 2015. Resample in 2021.                                                       |
| <b>3021</b><br>(Tsehum Harbour)                 | 15       | North Saanich           | -                   | -        | -        | -               | <b>High</b>       | Moderate         | <b>High</b>                | 2020: elevated Hg and Pb in sediment, no exceedances in water. Confirm rating.                                                                                                                |
| <b>3077</b><br>(Deep Cove)                      | 23       | North Saanich           | -                   | -        | -        | -               | -                 | -                | NR                         | In 2020, Cu and Zn 10X above BC ENV marine guidelines. Pipe buried; measure aqueous metals. Confirm rating in 2021.                                                                           |
| <b>3079</b><br>(Tatlow Creek.)                  | 23       | North Saanich           | -                   | -        | -        | -               | Low               | -                | -                          | Rated low in 2000 and 2008. Resample in 2023 to monitor for change.                                                                                                                           |
| <b>3080A</b><br>(Benes Creek)                   | 24       | North Saanich           | -                   | High     | Low      | Low             | Low               | -                | -                          | Rated high in 2015 due to mercury, possible lab error. Resample in 2023 to monitor for change.                                                                                                |
| <b>3090</b><br>(Patricia Bay)                   | 26       | Tseycum First Nation    | -                   | -        | -        | Low             | Low               | Low              | -                          | Rated low in 2001, 2005 and 2010. Resample in 2024 to monitor for change.                                                                                                                     |
| <b>3095</b><br>(Tseycum Creek)                  | 27       | Tseycum First Nation    | Low                 | -        | -        | Low             | Low               | -                | -                          | Rated low in previous years. Resample in 2023 to monitor for change.                                                                                                                          |
| <b>3104</b><br>(Ten Ten Creek)                  | 28       | North Saanich           | -                   | -        | -        | <b>High</b>     | Moderate High u/s | Low High u/s     | -                          | Zn and Cu above the PEL at Willingdon Road, but low at discharge. Transport Canada remediated gross contaminants in the catchment area. Resample discharge and upstream above 3104-2 in 2021. |
| <b>3118</b><br>(Coles Bay)                      | 31       | North Saanich           | Low                 | -        | -        | -               | -                 | -                | Low                        | Rated low in 2001, 2005 and 2011. Rated moderate in 2006, 2008, and 2012. Resample in 2025.                                                                                                   |
| <b>3119</b><br>(Coles Bay)                      | 31       | North Saanich           | -                   | High     | -        | Low             | Low               | -                | -                          | Rated low in 1998, 2004 and 2011. Rated high in 2015 due to mercury; possible lab error. Resample in 2023 to monitor for change.                                                              |
| <b>3120</b><br>(Coles Bay)                      | 31       | North Saanich           | -                   | -        | Low      | -               | -                 | -                | -                          | Rated low in 1999, 2006, 2011 and 2016. Resample in 2021 to monitor for change.                                                                                                               |
| <b>3122</b><br>(Coles Bay)                      | 31       | Pauquachin First Nation | -                   | High     | Low      | <b>High</b>     | Low               | Low              | -                          | Rated low in past. Rated high in 2015 due to Hg, and in 2017 due to Ca. Resample in 2024.                                                                                                     |
| <b>3124</b><br>(Coles Bay)                      | 31       | Pauquachin First Nation | -                   | -        | -        | -               | Low               | -                | -                          | Rated low in 2001 & 2005. Resample in 2023 to monitor for change.                                                                                                                             |
| <b>3133</b><br>(Hagan Creek)                    | 35       | Tsartlip First Nation   | Low                 | High U/S | -        | Low to High U/S | Low to High U/S   | Low but High U/S | Low                        | Rated low at point of discharge. Elevated As, Ca, Cr, Cu, Pb and Zn upstream. Resample discharge in 2025. Continue investigations around Keating Industrial Park                              |
| <b>3135</b><br>(South of Hagan Bight.)          | 35       | Tsartlip First Nation   | -                   | -        | -        | Moderate        | -                 | -                | Moderate                   | Copper and zinc elevated above CCME PEL. U/S: stations were rated low. Resample in 2021.                                                                                                      |
| <b>3136A</b><br>(Stream, south of Hagan Bight)  | 35       | Tsartlip First Nation   | High                | Moderate | Moderate | -               | -                 | Low              | Low                        | No exceedances of guidelines in 2015. Rated high in 2014 due to zinc. Resample in 2025.                                                                                                       |
| <b>3136B</b><br>(North of Tsartlip boat launch) | 35       | Tsartlip First Nation   | -                   | -        | -        | -               | -                 | -                | Low                        | Rated low in 2002 and 2008. Resample in 2025.                                                                                                                                                 |



Table 3, cont'd

| Discharge #<br>(Location)                   | Figure # | Jurisdiction          | Contaminant Ratings |      |      |          |      |      | Comments & Recommendations |                                                                                                                                                                                                           |
|---------------------------------------------|----------|-----------------------|---------------------|------|------|----------|------|------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             |          |                       | 2014                | 2015 | 2016 | 2017     | 2018 | 2019 | 2020                       |                                                                                                                                                                                                           |
| 3138<br>(Brentwood Bay, north of boat ramp) | 36       | Tsartlip First Nation | -                   | High | High | -        | High | Low  | Low                        | Rated high between 2004-2013 due to zinc. Tsartlip replaced pipes. Resample in 2025.                                                                                                                      |
| 3146<br>(Brentwood Drive)                   | 36       | Central Saanich       | Low                 | -    | -    | -        | -    | Low  | -                          | Rated low in 2006, 2007. Resample in 2024.                                                                                                                                                                |
| 3148<br>(Brentwood Bay)                     | 36       | Central Saanich       | -                   | -    | -    | -        | Low  | -    | -                          | Rated low in 2000, 2005, 2010 and 2011. Resample in 2023 to monitor for change.                                                                                                                           |
| 3153<br>(Brentwood Bay)                     | 37       | Central Saanich       | -                   | -    | -    | Moderate | -    | -    | -                          | Elevated levels of Zn, but rated moderate because the sediment is pumped out. U/S: in 2008 & 2009, station 3153-1 rated low. Remedial action undertaken, confirm sediment is still being removed in 2020. |
| 3154<br>(Tod Creek)                         | 43       | Central Saanich       | -                   | Low  | -    | Moderate | -    | -    | Low                        | U/S: station 3154-1 rated low. As, Cd, Cu, Pb, Zn elevated above CCME ISQG at mouth. Resample in 2022 to monitor for change.                                                                              |

Notes:  
POD = Point of discharge; U/S = upstream  
CCME = Canadian Council of Ministers of the Environment  
ISQG = Interim sediment quality guidelines  
U/S = Upstream  
NR = not rated due to lack of sediment but water sample collected

**Table 4. 2020 Stream Sediment Data**

|                |           |                                    | Arsenic | Cadmium | Chromium | Copper | Lead | Mercury | Silver | Zinc | HPAH    | LPAH    |
|----------------|-----------|------------------------------------|---------|---------|----------|--------|------|---------|--------|------|---------|---------|
|                |           | <b>CCME (ISQG)</b>                 | 5.9     | 0.6     | 37.3     | 35.7   | 35   | 0.17    | 0.5    | 123  | 0.1     | 0.1     |
|                |           | <b>CCME (PEL)</b>                  | 17      | 3.5     | 90       | 197    | 91.3 | 0.486   | -      | 315  |         |         |
|                |           | <b>Vancouver Island Background</b> | 4       | 0.95    | 65       | 100    | 40   | 0.15    | 1      | 150  | -       | -       |
| Reay Creek     | SW0441    | 2020-12-16                         | 13.8    | 0.253   | 37.7     | 69.8   | 12.8 | 0.07    | 0.15   | 253  | 0.1     | 0.023   |
|                | SW0441-1  | 2020-12-16                         | 6.17    | 0.207   | 32       | 54.5   | 13.3 | < 0.05  | 0.074  | 170  | 0.051   | 0.0049  |
| Ten Ten        | SW3104    | 2019-12-03                         | 5.54    | 0.182   | 24       | 38.2   | 7.53 | 0.05    | 0.127  | 143  | 0.92    | 0.22    |
|                | SW3104-2  | 2019-12-03                         | 14      | 0.402   | 46.5     | 130    | 17.4 | 0.089   | 0.154  | 360  | 0.75    | 0.12    |
| Hagan Creek    | SW3133    | 2019-10-17                         | 2.74    | 0.107   | 19.7     | 17.6   | 5.24 | < 0.05  | < 0.05 | 67.7 | 0.023   | 0.0043  |
|                | SW3133    | 2020-09-08                         | 1.8     | 0.06    | 17.1     | 11.7   | 3.28 | < 0.05  | < 0.05 | 44.4 | 0.12    | 0.02    |
| Graham Creek   | SW3133-1B | 2020-09-01                         | 2.01    | 0.053   | 17.5     | 15.5   | 2.31 | < 0.05  | 0.092  | 42.3 | < 0.001 | < 0.001 |
|                | SW3133-2  | 2019-10-17                         | 2.2     | 0.158   | 226      | 77.9   | 9.03 | < 0.05  | < 0.05 | 121  | 0.054   | 0.019   |
| Steven's Creek | SW3133-4  | 2019-10-17                         | 6.56    | 1.23    | 237      | 191    | 49.3 | 0.117   | 0.348  | 459  | 1.7     | 0.38    |
| Graham Creek   | SW3133-5  | 2019-10-17                         | 6.21    | 0.109   | 43       | 54.4   | 6.82 | 0.061   | 0.082  | 92.1 | 0.052   | 0.023   |
| Tod Creek      | SW3154    | 2020-12-16                         | 7.1     | 0.273   | 19.8     | 58.8   | 40.3 | < 0.05  | < 0.05 | 136  | 0.026   | 0.016   |

**Notes:**

Concentrations are in mg/kg

CCME = Canadian Council of Ministers of the Environment

ISQG = interim sediment quality guideline; concentrations above this level but below the PEL will occasionally result in adverse effects on aquatic life

PEL = probable effects level; concentrations above this level will frequently result in adverse effects to aquatic life

Vancouver Island Background Concentrations are regional estimates (95<sup>th</sup> percentiles); [https://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/protocols/protocol\\_4.pdf](https://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/protocols/protocol_4.pdf)

LPAH and HPAH are low and high molecular weight polycyclic aromatic hydrocarbons, respectively

italicized values are those that exceed a guideline but are below the Vancouver Island background concentration

value is greater than or equal to the CCME ISQG

value is greater than or equal to the CCME PEL



**Table 5. 2020 Stormwater Aqueous Metals Concentrations on Saanich Peninsula**

| Benchmarks                            |            | Aluminum         |   | Antimony | Arsenic | Barium |   | Beryllium |   | Bismuth | Boron             |   | Cadmium           |  | Calcium |   | Chromium |   | Cobalt |  | Copper           |   | Flow Rate |
|---------------------------------------|------------|------------------|---|----------|---------|--------|---|-----------|---|---------|-------------------|---|-------------------|--|---------|---|----------|---|--------|--|------------------|---|-----------|
| BC Marine Aquatic Life Guidelines     | max        |                  |   |          | 12.5    |        |   |           |   |         | 1200 <sup>1</sup> |   | 0.12              |  |         |   |          |   |        |  | 3                |   |           |
|                                       | average    |                  |   |          |         |        |   |           |   |         |                   |   | -                 |  |         |   |          |   |        |  | 2                |   |           |
| BC Freshwater Aquatic Life Guidelines | max        | 100 <sup>2</sup> |   |          | 5       |        |   |           |   |         |                   |   | 0.38 <sup>2</sup> |  |         |   |          |   |        |  | 8.5 <sup>3</sup> |   |           |
|                                       | average    | 50 <sup>2</sup>  |   |          |         |        |   |           |   |         |                   |   | 0.15 <sup>2</sup> |  |         |   |          |   |        |  | 1.4 <sup>3</sup> |   |           |
| Upper Craigflower Creek <sup>4</sup>  | average    | 159              |   | 0.06     | 0.29    | 5.71   |   | 0.01      |   | 0.01    | 29                |   | 0.01              |  | 19      |   | 0.31     |   | 0.13   |  | 1.21             |   | -         |
| SW0441                                | 2020-12-07 | 405              |   | 0.155    | 0.526   | 12.2   |   | 0.011     | < | 0.01    | 26                |   | 0.12              |  | 27.6    |   | 1.09     |   | 0.328  |  | 3.69             |   | NULL      |
|                                       | 2020-12-16 | 1040             |   | 0.114    | 0.691   | 13.4   |   | 0.019     | < | 0.01    | 30                |   | 0.0149            |  | 19.9    |   | 1.46     |   | 0.427  |  | 4.82             | > | 300       |
| SW0441-1                              | 2020-12-16 | 1330             |   | 0.089    | 0.768   | 16     |   | 0.025     | < | 0.01    | 31                |   | 0.0191            |  | 20.3    |   | 1.87     |   | 0.558  |  | 5.29             | > | 300       |
| SW0441-1A                             | 2020-12-07 | 316              |   | 0.178    | 0.458   | 11.7   | < | 0.01      | < | 0.01    | 22                |   | 0.0599            |  | 25.9    |   | 0.9      |   | 0.248  |  | 3.88             | > | 2000      |
| SW0445                                | 2020-07-13 | 391              |   | 0.194    | 0.787   | 23.9   | < | 0.01      | < | 0.01    | 54                |   | 0.017             |  | 56      |   | 0.81     |   | 0.223  |  | 8.65             |   | 1         |
| SW0449-2D                             | 2020-07-13 | 4460             |   | 0.726    | 2.24    | 62     |   | 0.08      |   | 0.039   | 164               |   | 0.0857            |  | 84.9    |   | 7.98     |   | 3.38   |  | 25.5             |   | NULL      |
| SW0458                                | 2020-09-29 | 24               | < | 0.4      | 2.79    | 11.1   | < | 0.2       | < | 0.1     | 4360              | < | 0.1               |  | 430     | < | 2        | < | 0.1    |  | 1.4              |   | 12        |
| SW3005                                | 2019-10-22 | 420              |   | 0.385    | 0.887   | 20.8   | < | 0.02      | < | 0.02    | 257               |   | 0.029             |  | 56.2    |   | 0.79     |   | 0.225  |  | 7.21             |   | 80        |
|                                       | 2020-11-23 | 491              |   | 0.393    | 0.907   | 15.6   |   | 0.013     | < | 0.01    | 35                |   | 0.0122            |  | 25.8    |   | 1.05     |   | 0.205  |  | 6.98             |   | 60        |
| SW3005-1A                             | 2020-11-23 | 1090             |   | 0.417    | 0.997   | 19.7   |   | 0.02      | < | 0.01    | 45                |   | 0.0209            |  | 28.4    |   | 2.58     |   | 0.529  |  | 9.58             |   | 40        |
| SW3005-2A                             | 2019-12-06 | 106              |   | 0.242    | 0.53    | 12     | < | 0.01      | < | 0.01    | 35                |   | 0.0176            |  | 26.8    |   | 0.34     |   | 0.106  |  | 12.5             |   | 30        |
| SW3005-3                              | 2020-11-23 | 1240             |   | 0.411    | 1.05    | 20     |   | 0.02      | < | 0.01    | 32                |   | 0.0174            |  | 34.9    |   | 5.03     |   | 0.424  |  | 10.4             |   | 10        |
| SW3005-4                              | 2020-11-23 | 1760             |   | 0.37     | 1.12    | 17.8   |   | 0.028     | < | 0.01    | 87                |   | 0.0205            |  | 29.6    |   | 2.56     |   | 0.678  |  | 8.97             |   | 90        |
| SW3016                                | 2020-07-14 | 118              | < | 0.4      | 1.89    | 24.7   | < | 0.2       | < | 0.1     | 2140              | < | 0.1               |  | 198     | < | 2        |   | 0.17   |  | 8.4              |   | 18        |
| SW3021                                | 2019-10-28 | 25.5             |   | 0.099    | 0.39    | 18.9   | < | 0.01      | < | 0.01    | 333               | < | 0.005             |  | 61.4    |   | 0.12     |   | 0.148  |  | 3.59             |   | 10        |
|                                       | 2020-11-23 | 923              |   | 0.183    | 0.548   | 18.9   |   | 0.018     | < | 0.01    | 43                |   | 0.0107            |  | 22.3    |   | 1.24     |   | 0.305  |  | 6.24             |   | 13        |
| SW3077                                | 2020-07-16 | 5950             |   | 0.171    | 1.7     | 35.3   |   | 0.191     |   | 0.042   | 127               |   | 0.223             |  | 50      |   | 9.13     |   | 4.58   |  | 43.2             |   | 8         |
| SW3090                                | 2019-10-28 | 331              |   | 0.107    | 0.384   | 30.5   | < | 0.01      | < | 0.01    | 47                |   | 0.0062            |  | 43.8    |   | 0.56     |   | 0.228  |  | 5.03             |   | 6         |
| SW3095                                | 2019-10-28 | 78.2             |   | 0.095    | 0.736   | 21.7   | < | 0.01      | < | 0.01    | 52                |   | 0.018             |  | 53.8    |   | 0.33     |   | 0.231  |  | 1.66             |   | 40        |
| SW3104                                | 2019-12-03 | 23.8             |   | 0.092    | 0.674   | 13.7   | < | 0.01      | < | 0.005   | 35                |   | 0.0259            |  | 52      |   | 0.17     |   | 0.463  |  | 2.66             | > | 300       |
| SW3118                                | 2020-11-23 | 1310             |   | 0.113    | 0.729   | 14.6   |   | 0.026     | < | 0.01    | 30                |   | 0.0087            |  | 20.4    |   | 1.94     |   | 0.428  |  | 4.54             |   | 15        |
| SW3122                                | 2019-10-28 | 142              |   | 0.191    | 0.316   | 14.8   | < | 0.01      | < | 0.01    | 18                |   | 0.0089            |  | 34.3    |   | 0.24     |   | 0.095  |  | 2.32             | < | 1         |
| SW3135                                | 2020-11-26 | 11.7             |   | 0.128    | 0.197   | 15.9   | < | 0.01      | < | 0.005   | 35                |   | 0.0759            |  | 53.1    | < | 0.1      |   | 0.0547 |  | 2.28             |   | 3         |
| SW3136                                | 2020-11-26 | 293              |   | 0.137    | 0.558   | 10.6   | < | 0.01      | < | 0.01    | 31                |   | 0.0069            |  | 38.2    |   | 0.56     |   | 0.266  |  | 1.95             |   | 80        |
| SW3136A                               | 2020-11-26 | 589              |   | 0.198    | 0.41    | 17.8   | < | 0.01      | < | 0.01    | 24                |   | 0.0311            |  | 35.2    |   | 0.95     |   | 0.351  |  | 4.04             |   | 2         |
| SW3136B                               | 2020-11-26 | 606              |   | 0.269    | 0.522   | 17.1   |   | 0.014     | < | 0.01    | 38                |   | 0.0146            |  | 28.9    |   | 0.94     |   | 0.322  |  | 2.63             |   | 7         |
| SW3138                                | 2019-10-17 | 161              |   | 0.283    | 1.06    | 17.8   | < | 0.01      | < | 0.01    | 19                |   | 0.0281            |  | 119     |   | 0.64     |   | 0.206  |  | 3.86             |   | 10        |
|                                       | 2020-11-26 | 79               |   | 0.246    | 0.545   | 10.2   | < | 0.01      | < | 0.005   | 19                |   | 0.0255            |  | 77.6    |   | 0.19     |   | 0.0751 |  | 3.14             |   | 35        |
| SW3146                                | 2019-10-28 | 19.5             |   | 0.121    | 0.491   | 13.6   | < | 0.01      | < | 0.005   | 36                |   | 0.0184            |  | 57.3    |   | 0.13     |   | 0.441  |  | 3.7              |   | 140       |
| SW3154                                | 2020-12-16 | 146              |   | 0.073    | 0.366   | 6.54   | < | 0.01      | < | 0.01    | 26                |   | 0.0057            |  | 19.4    |   | 0.33     |   | 0.177  |  | 2.13             | > | 2000      |

Table 5, cont’d

| Benchmarks                            |            | Hardness<br>(as CaCO3) |   | Iron  |   | Lead   |   | Lithium | Magnesium | Manganese | Molybdenum | Nickel | Potassium |   | Selenium | Silicon |   | Silver |
|---------------------------------------|------------|------------------------|---|-------|---|--------|---|---------|-----------|-----------|------------|--------|-----------|---|----------|---------|---|--------|
| BC Marine Aquatic Life Guidelines     | max        |                        |   | -     |   | 140    |   |         |           |           |            |        |           |   | 2        |         |   | 3      |
|                                       | average    |                        |   | -     |   | 2      |   |         |           |           |            |        |           |   |          |         |   | 1.5    |
| BC Freshwater Aquatic Life Guidelines | max        |                        |   | 1000  |   | 47.2   |   |         |           | 1256      |            |        |           |   | 2        |         |   | 0.1    |
|                                       | average    |                        |   |       |   | 5.2    |   |         |           | 891       |            |        |           |   |          |         |   | 0.05   |
| Upper Craigflower Creek <sup>4</sup>  | average    | 68                     |   | 429   |   | 0.14   |   | 0.50    | 4.88      | 110       | 0.13       | 0.47   | 0.75      |   | 0.05     | 3016    |   | 0.01   |
| SW0441                                | 2020-12-07 | 117                    |   | 638   |   | 0.525  |   | 1.17    | 11.7      | 60.7      | 1.97       | 1.25   | 1.42      |   | 0.107    | 7130    | < | 0.01   |
|                                       | 2020-12-16 | 80.2                   |   | 957   |   | 0.387  |   | 1.04    | 7.43      | 45.5      | 1.45       | 1.91   | 1.97      |   | 0.135    | 6750    | < | 0.01   |
| SW0441-1                              | 2020-12-16 | 81.2                   |   | 1250  |   | 0.416  |   | 1.22    | 7.42      | 54.7      | 1.12       | 2.3    | 2.16      |   | 0.161    | 7510    | < | 0.01   |
| SW0441-1A                             | 2020-12-07 | 110                    |   | 453   |   | 0.45   |   | 1.09    | 11        | 60.2      | 2.04       | 1.05   | 1.42      |   | 0.096    | 5970    | < | 0.01   |
| SW0445                                | 2020-07-13 | 289                    |   | 328   |   | 0.175  |   | 3.18    | 36.3      | 9.42      | 5.56       | 1.74   | 2.59      |   | 0.321    | 8460    | < | 0.01   |
| SW0449-2D                             | 2020-07-13 | 393                    |   | 6100  |   | 5.39   |   | 8.81    | 43.9      | 312       | 8.16       | 8.07   | 10.7      |   | 0.275    | 14600   |   | 0.03   |
| SW0458                                | 2020-09-29 |                        | < | 20    | < | 0.1    |   | 165     | 1300      | 1.3       | 12.7       | 0.47   | 404       | < | 0.8      | 1770    | < | 0.1    |
| SW3005                                | 2019-10-22 | 438                    |   | 412   |   | 0.539  |   | 10.3    | 72.3      | 17.9      | 8.77       | 2.23   | 20        |   | 0.178    | 6450    | < | 0.02   |
|                                       | 2020-11-23 | 98                     |   | 415   |   | 0.477  |   | 1.38    | 8.1       | 26        | 2.7        | 1.46   | 1.96      |   | 0.103    | 5090    | < | 0.01   |
| SW3005-1A                             | 2020-11-23 | 126                    |   | 1720  |   | 1.07   |   | 2.36    | 13.4      | 33        | 3.03       | 3.68   | 2.29      |   | 0.104    | 7880    |   | 0.012  |
| SW3005-2A                             | 2019-12-06 | 117                    |   | 117   |   | 0.171  |   | 1.51    | 12.3      | 10.8      | 1.65       | 0.94   | 1.25      |   | 0.074    | 4620    | < | 0.01   |
| SW3005-3                              | 2020-11-23 | 123                    |   | 862   |   | 0.865  |   | 1.92    | 8.64      | 25.2      | 3.56       | 2.33   | 2.39      |   | 0.253    | 7600    |   | 0.011  |
| SW3005-4                              | 2020-11-23 | 173                    |   | 1890  |   | 0.781  |   | 4.49    | 24.2      | 30.1      | 2.27       | 3.15   | 6.39      |   | 0.15     | 7180    |   | 0.026  |
| SW3016                                | 2020-07-14 |                        |   | 271   |   | 0.71   |   | 79      | 558       | 61        | 5.5        | 1.47   | 172       | < | 0.8      | 4110    | < | 0.1    |
| SW3021                                | 2019-10-28 | 244                    |   | 284   |   | 0.043  |   | 1.07    | 22.1      | 104       | 2.94       | 1.2    | 3.46      |   | 0.083    | 8660    | < | 0.01   |
|                                       | 2020-11-23 | 90                     |   | 912   |   | 0.396  |   | 1.17    | 8.36      | 54.5      | 0.8        | 2.19   | 3.24      |   | 0.097    | 6650    |   | 0.011  |
| SW3077                                | 2020-07-16 | 207                    |   | 10100 |   | 4.83   |   | 8.47    | 19.8      | 256       | 2.31       | 10.1   | 7.67      |   | 0.162    | 14500   |   | 0.089  |
| SW3090                                | 2019-10-28 | 164                    |   | 367   |   | 0.204  |   | 0.58    | 13.3      | 8.34      | 1.46       | 1.38   | 5.36      |   | 0.086    | 5860    | < | 0.01   |
| SW3095                                | 2019-10-28 | 223                    |   | 166   |   | 0.043  |   | 1.67    | 21.4      | 75.6      | 1.3        | 1.34   | 7.65      |   | 0.106    | 9390    | < | 0.01   |
| SW3104                                | 2019-12-03 | 214                    |   | 324   |   | 0.0434 |   | 1.1     | 20.5      | 185       | 5.15       | 1.97   | 3.48      |   | 0.151    | 7040    | < | 0.005  |
| SW3118                                | 2020-11-23 | 79.5                   |   | 1220  |   | 0.337  |   | 1.39    | 6.92      | 18.4      | 0.316      | 1.68   | 1.57      |   | 0.066    | 9330    | < | 0.01   |
| SW3122                                | 2019-10-28 | 117                    |   | 134   |   | 0.106  | < | 0.5     | 7.7       | 3.37      | 0.201      | 0.55   | 0.63      |   | 0.078    | 7020    | < | 0.01   |
| SW3135                                | 2020-11-26 | 193                    |   | 12.6  |   | 0.0757 | < | 0.5     | 14.6      | 0.393     | 0.481      | 0.59   | 0.804     |   | 0.104    | 7700    | < | 0.005  |
| SW3136                                | 2020-11-26 | 138                    |   | 354   |   | 0.199  | < | 0.5     | 10.3      | 19.4      | 0.609      | 1.3    | 1.39      |   | 0.073    | 6990    | < | 0.01   |
| SW3136A                               | 2020-11-26 | 127                    |   | 684   |   | 0.761  | < | 0.5     | 9.46      | 17.3      | 0.195      | 2.27   | 0.82      |   | 0.062    | 8050    | < | 0.01   |
| SW3136B                               | 2020-11-26 | 102                    |   | 646   |   | 0.353  | < | 0.5     | 7.14      | 12.1      | 0.36       | 0.89   | 1.48      |   | 0.079    | 6150    | < | 0.01   |
| SW3138                                | 2019-10-17 | 377                    |   | 188   |   | 0.103  |   | 1.5     | 19.3      | 6.15      | 7.25       | 2.69   | 1.33      |   | 0.622    | 5550    | < | 0.01   |
|                                       | 2020-11-26 | 252                    |   | 50.5  |   | 0.0444 |   | 1.1     | 14.1      | 1.07      | 3.01       | 1.95   | 1.06      |   | 0.276    | 6720    | < | 0.005  |
| SW3146                                | 2019-10-28 | 219                    |   | 32.6  |   | 0.0309 |   | 0.81    | 18.5      | 1.72      | 2.85       | 1.64   | 5.98      |   | 0.06     | 8830    | < | 0.005  |
| SW3154                                | 2020-12-16 | 65                     |   | 316   |   | 0.214  | < | 0.5     | 3.98      | 21.5      | 0.278      | 0.79   | 1.03      |   | 0.076    | 4210    | < | 0.01   |



Table 5, cont'd

| Benchmarks                            |            | Sodium |  | Strontium |   | Thallium |   | Tin  |   | Titanium |  | Uranium |   | Vanadium |   | Zinc |   | Zirconium | Comments                                    |
|---------------------------------------|------------|--------|--|-----------|---|----------|---|------|---|----------|--|---------|---|----------|---|------|---|-----------|---------------------------------------------|
| BC Marine Aquatic Life Guidelines     | max        |        |  |           |   |          |   |      |   |          |  |         |   |          |   | 10   |   |           |                                             |
|                                       | average    |        |  |           |   |          |   |      |   |          |  |         |   |          |   | -    |   |           |                                             |
| BC Freshwater Aquatic Life Guidelines | max        |        |  |           |   |          |   |      |   |          |  |         |   |          |   | 33   |   |           |                                             |
|                                       | average    |        |  |           |   |          |   |      |   |          |  |         |   |          |   | 7.5  |   |           |                                             |
| Upper Craigflower Creek <sup>4</sup>  | average    | 8.58   |  | 55        |   | 0.0030   | < | 0.2  |   | 7.1      |  | 0.02    |   | 0.75     |   | 2.1  |   | 0.13      |                                             |
| SW0441                                | 2020-12-07 | 25.5   |  | 130       |   | 0.0029   | < | 0.2  |   | 17.1     |  | 0.423   |   | 1.65     |   | 15.9 |   | 0.2       | no odour, clear, back flooded               |
|                                       | 2020-12-16 | 16.7   |  | 89.7      |   | 0.0043   | < | 0.2  |   | 43.3     |  | 0.15    |   | 2.82     |   | 11.4 |   | 0.63      | no odour, slight amber                      |
| SW0441-1                              | 2020-12-16 | 16.5   |  | 87.2      |   | 0.0055   | < | 0.2  |   | 52.5     |  | 0.157   |   | 3.64     |   | 13.3 |   | 0.54      | no odour, slight amber                      |
| SW0441-1A                             | 2020-12-07 | 52.6   |  | 122       |   | 0.0031   | < | 0.2  |   | 12.9     |  | 0.401   |   | 1.37     |   | 20.7 |   | 0.19      | no odour, clear                             |
| SW0445                                | 2020-07-13 | 66.6   |  | 261       |   | 0.0042   | < | 0.2  |   | 20.4     |  | 1.55    |   | 2.94     |   | 10.8 |   | 0.28      | no odour, clear                             |
| SW0449-2D                             | 2020-07-13 | 352    |  | 499       |   | 0.0152   |   | 0.66 |   | 183      |  | 1.1     |   | 13.6     |   | 95.2 |   | 1.08      | no odour, clear, pooled, unknown flow       |
| SW0458                                | 2020-09-29 | 10900  |  | 9030      | < | 0.04     | < | 4    | < | 10       |  | 3.28    | < | 4        | < | 2    | < | 2         | no odour, clear, tidal                      |
| SW3005                                | 2019-10-22 | 527    |  | 579       | < | 0.004    | < | 0.4  |   | 15.3     |  | 0.722   |   | 2.28     |   | 20.6 |   | 0.32      | no odour, clear, likely marine influence    |
|                                       | 2020-11-23 | 16.6   |  | 125       |   | 0.0034   | < | 0.2  |   | 23.8     |  | 0.368   |   | 2.26     |   | 14.5 |   | 0.25      | no odour, murky                             |
| SW3005-1A                             | 2020-11-23 | 26.1   |  | 136       |   | 0.0056   | < | 0.2  |   | 48.8     |  | 0.368   |   | 3.72     |   | 12.5 |   | 0.78      | no odour, murky                             |
| SW3005-2A                             | 2019-12-06 | 23.6   |  | 112       |   | 0.0033   | < | 0.2  |   | 4.7      |  | 0.245   |   | 1.09     |   | 23.8 | < | 0.1       | no odour, clear, potential marine influence |
| SW3005-3                              | 2020-11-23 | 18.5   |  | 192       |   | 0.006    | < | 0.2  |   | 38.4     |  | 0.34    |   | 6.5      |   | 13.5 |   | 0.38      | no odour, murky                             |
| SW3005-4                              | 2020-11-23 | 147    |  | 204       |   | 0.0059   | < | 0.2  |   | 53.8     |  | 0.267   |   | 4.81     |   | 17.1 |   | 0.31      | no odour, murky                             |
| SW3016                                | 2020-07-14 | 4690   |  | 4080      | < | 0.04     | < | 4    | < | 10       |  | 1.32    | < | 4        |   | 17.6 | < | 2         | no odour, clear, potential marine influence |
| SW3021                                | 2019-10-28 | 24.2   |  | 258       | < | 0.002    | < | 0.2  | < | 2        |  | 1.18    |   | 0.34     |   | 3.4  | < | 0.1       | no odour, clear                             |
|                                       | 2020-11-23 | 15.5   |  | 106       |   | 0.0048   | < | 0.2  |   | 38.7     |  | 0.128   |   | 2.4      |   | 5    |   | 0.61      | no odour, clear                             |
| SW3077                                | 2020-07-16 | 28.8   |  | 356       |   | 0.0134   |   | 0.21 |   | 121      |  | 0.288   |   | 18.7     |   | 52.3 |   | 0.52      | no odour, clear, construction occurring     |
| SW3090                                | 2019-10-28 | 23.5   |  | 220       |   | 0.0031   | < | 0.2  |   | 16.4     |  | 0.0609  |   | 1.71     |   | 10.9 |   | 0.12      | no odour, clear                             |
| SW3095                                | 2019-10-28 | 33.3   |  | 263       | < | 0.002    | < | 0.2  |   | 3.6      |  | 0.719   |   | 1.06     |   | 3    | < | 0.1       | no odour, clear                             |
| SW3104                                | 2019-12-03 | 41.4   |  | 228       | < | 0.002    | < | 0.2  |   | 0.91     |  | 1       |   | 0.43     |   | 8.23 | < | 0.1       | no odour, clear                             |
| SW3118                                | 2020-11-23 | 11.6   |  | 87.1      |   | 0.0047   | < | 0.2  |   | 61.9     |  | 0.0952  |   | 4.11     |   | 12.9 |   | 0.43      | no odour, clear                             |
| SW3122                                | 2019-10-28 | 14.8   |  | 125       | < | 0.002    | < | 0.2  |   | 6.4      |  | 0.0734  |   | 0.95     |   | 2.6  | < | 0.1       | no odour, clear                             |
| SW3135                                | 2020-11-26 | 12.8   |  | 215       | < | 0.002    | < | 0.2  | < | 0.5      |  | 0.0306  |   | 0.46     |   | 31.6 | < | 0.1       | no odour, clear                             |
| SW3136                                | 2020-11-26 | 12.5   |  | 133       | < | 0.002    | < | 0.2  |   | 10.2     |  | 0.121   |   | 1.28     |   | 2    | < | 0.1       | no odour, clear                             |
| SW3136A                               | 2020-11-26 | 11.1   |  | 147       |   | 0.0021   | < | 0.2  |   | 25.3     |  | 0.0338  |   | 2.2      |   | 15.4 | < | 0.1       | no odour, murky brown                       |
| SW3136B                               | 2020-11-26 | 9.86   |  | 119       | < | 0.002    | < | 0.2  |   | 26.1     |  | 0.0645  |   | 2.24     |   | 4.4  |   | 0.13      | no odour, clear                             |
| SW3138                                | 2019-10-17 | 16.5   |  | 275       |   | 0.0049   | < | 0.2  |   | 7.5      |  | 1.54    |   | 1.46     |   | 2.3  | < | 0.1       | no odour, clear                             |
|                                       | 2020-11-26 | 14.8   |  | 197       |   | 0.0041   | < | 0.2  |   | 2.26     |  | 0.419   |   | 0.29     |   | 1.53 | < | 0.1       | no odour, slightly murky                    |
| SW3146                                | 2019-10-28 | 22.9   |  | 224       | < | 0.002    | < | 0.2  |   | 0.8      |  | 0.2     |   | 0.95     |   | 21.1 | < | 0.1       | no odour, clear                             |
| SW3154                                | 2020-12-16 | 7.4    |  | 62.7      | < | 0.002    | < | 0.2  |   | 6.8      |  | 0.0317  |   | 0.85     |   | 3.4  |   | 0.11      | no odour, clear                             |

Table notes on next page

Table 5, cont'd

|        |                                                                                                                                                                                           |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Notes: |                                                                                                                                                                                           |
|        | All measurements are total concentrations                                                                                                                                                 |
|        | All data and guidelines are in µg/L                                                                                                                                                       |
|        | Water quality guidelines for protection of aquatic life are from British Columbia's Ministry of Environment and Climate Change Strategy (BC ENV)                                          |
|        | Although aquatic life guidelines would not apply to storm drains, as they are not viable habitat for aquatic life, these comparisons indicate potential impacts to the marine environment |
|        | a hardness of 65 mg/L CaCO3 was used to calculate hardness dependant water quality guidelines                                                                                             |
| 1      | Southern Vancouver Island background marine concentrations for boron average about 4,000 µg/L; concentrations in stormwater above the guideline may be due to tidal influence.            |
| 2      | Aluminum guidelines are for dissolved aluminum                                                                                                                                            |
| 3      | Freshwater copper guidelines calculated using BC Biotic Ligand Model with pH of 7.6, dissolved organic carbon of 4 mg/L and hardness of 70 CaCO3 mg/L                                     |
| 4      | Background concentrations from upper Craigflower Creek were added for comparison                                                                                                          |
| xx     | value exceeds the provincial guideline for protection of marine aquatic life                                                                                                              |
| xx     | value exceeds the provincial guideline for protection of freshwater aquatic life                                                                                                          |
| xx     | value exceeds the provincial guidelines for both freshwater and marine protection of aquatic life                                                                                         |
| xx     | Italicized values exceed a guideline that is only partially applicable; more investigation is needed                                                                                      |



Table 6. 2020 Stormwater Aqueous Polycyclic Aromatic Hydrocarbon Data from Saanich Peninsula

|               |             | 1-Methyl-naphthalene | 2-Methyl-naphthalene | Acenaph-thene | Acenaph-thylene | Acridine | Anthracene | Benzo(A)Anthracene | Benzo(A)Pyrene | Benzo(B)Fluoranthene + Benzo(J) | Benzo(G,H,I)Perylene | Benzo(K)Fluoranthene | Chrysene | Dibenzo(A,H)Anthracene | Fluoranthene | Fluorene | Indeno (1,2,3-C,D)Pyrene | Naphthalene | Phenanthrene | Pyrene                    | Quinoline | Total HMW-PAH | Total LWM-PAH | Total PAH |
|---------------|-------------|----------------------|----------------------|---------------|-----------------|----------|------------|--------------------|----------------|---------------------------------|----------------------|----------------------|----------|------------------------|--------------|----------|--------------------------|-------------|--------------|---------------------------|-----------|---------------|---------------|-----------|
| BC Guidelines | Freshwater  |                      |                      | 6             |                 |          |            | 0.1                | 0.01           |                                 |                      |                      |          |                        | 4            | 12       |                          | 1           | 0.3          | 0.02<br><i>Phototoxic</i> |           |               |               |           |
|               | Marine      | 1                    | 1                    | 6             |                 |          |            |                    | 0.01           |                                 |                      |                      | 0.1      |                        |              | 12       |                          | 1           |              |                           |           |               |               |           |
| Discharge #   | Sample Date |                      |                      |               |                 |          |            |                    |                |                                 |                      |                      |          |                        |              |          |                          |             |              |                           |           |               |               |           |
| SW0441        | 2020-12-16  | < 0.05               | < 0.1                | < 0.05        | < 0.05          | < 0.05   | < 0.01     | < 0.01             | < 0.005        | < 0.03                          | < 0.05               | < 0.05               | < 0.02   | < 0.003                | < 0.02       | < 0.05   | < 0.05                   | < 0.1       | < 0.05       | < 0.02                    | < 0.02    | < 0.05        | < 0.1         | < 0.1     |
| SW0441-1      | 2020-12-16  | < 0.05               | < 0.1                | < 0.05        | < 0.05          | < 0.05   | < 0.01     | < 0.01             | < 0.005        | < 0.03                          | < 0.05               | < 0.05               | < 0.02   | < 0.003                | < 0.02       | < 0.05   | < 0.05                   | < 0.1       | < 0.05       | < 0.02                    | < 0.02    | < 0.05        | < 0.1         | < 0.1     |
| SW0445        | 2020-07-13  | < 0.05               | < 0.1                | < 0.05        | < 0.05          | < 0.05   | < 0.01     | < 0.01             | < 0.005        | < 0.03                          | < 0.05               | < 0.05               | < 0.02   | < 0.003                | < 0.02       | < 0.05   | < 0.05                   | < 0.1       | < 0.05       | < 0.02                    | < 0.02    | < 0.05        | < 0.1         | < 0.1     |
| SW0449-2D     | 2020-07-13  | < 0.05               | < 0.1                | < 0.05        | < 0.05          | < 0.05   | < 0.01     | < 0.01             | < 0.005        | < 0.03                          | < 0.05               | < 0.05               | < 0.02   | < 0.003                | < 0.02       | < 0.05   | < 0.05                   | < 0.1       | < 0.05       | < 0.02                    | 0.043     | < 0.05        | < 0.1         | < 0.1     |
| SW0458        | 2020-09-29  | < 0.05               | < 0.1                | < 0.05        | < 0.05          | < 0.05   | < 0.01     | < 0.01             | < 0.005        | < 0.03                          | < 0.05               | < 0.05               | < 0.02   | < 0.003                | < 0.02       | < 0.05   | < 0.05                   | < 0.1       | < 0.05       | < 0.02                    | < 0.02    | < 0.05        | < 0.1         | < 0.1     |
| SW3016        | 2020-07-14  | < 0.05               | < 0.1                | < 0.05        | < 0.05          | < 0.05   | < 0.01     | < 0.01             | < 0.005        | < 0.03                          | < 0.05               | < 0.05               | < 0.02   | < 0.003                | < 0.02       | < 0.05   | < 0.05                   | < 0.1       | < 0.05       | < 0.02                    | < 0.02    | < 0.05        | < 0.1         | < 0.1     |
| SW3077        | 2020-07-16  | < 0.05               | < 0.1                | < 0.05        | < 0.05          | < 0.05   | < 0.01     | < 0.01             | < 0.005        | < 0.03                          | < 0.05               | < 0.05               | < 0.02   | < 0.003                | < 0.02       | < 0.05   | < 0.05                   | < 0.1       | < 0.05       | < 0.02                    | < 0.02    | < 0.05        | < 0.1         | < 0.1     |
| SW3133        | 2020-07-17  | < 0.05               | < 0.1                | < 0.05        | < 0.05          | < 0.05   | < 0.01     | < 0.01             | < 0.005        | < 0.03                          | < 0.05               | < 0.05               | < 0.02   | < 0.003                | < 0.02       | < 0.05   | < 0.05                   | < 0.1       | < 0.05       | < 0.02                    | < 0.02    | < 0.05        | < 0.1         | < 0.1     |
| SW3005        | 2020-11-23  | < 0.05               | < 0.1                | < 0.05        | < 0.05          | < 0.05   | < 0.01     | < 0.01             | < 0.005        | < 0.03                          | < 0.05               | < 0.05               | < 0.02   | < 0.003                | < 0.02       | < 0.05   | < 0.05                   | < 0.1       | < 0.05       | < 0.02                    | < 0.02    | < 0.05        | < 0.1         | < 0.1     |
| SW3005-4      | 2020-11-23  | < 0.05               | < 0.1                | < 0.05        | < 0.05          | < 0.05   | < 0.01     | < 0.01             | < 0.005        | < 0.03                          | < 0.05               | < 0.05               | < 0.02   | < 0.003                | < 0.02       | < 0.05   | < 0.05                   | < 0.1       | < 0.05       | < 0.02                    | < 0.02    | < 0.05        | < 0.1         | < 0.1     |
| SW3005-1A     | 2020-11-23  | < 0.05               | < 0.1                | < 0.05        | < 0.05          | < 0.05   | < 0.01     | < 0.01             | < 0.005        | < 0.03                          | < 0.05               | < 0.05               | < 0.02   | < 0.003                | < 0.02       | < 0.05   | < 0.05                   | < 0.1       | < 0.05       | < 0.02                    | < 0.02    | < 0.05        | < 0.1         | < 0.1     |
| SW3138        | 2020-11-26  | < 0.05               | < 0.1                | < 0.05        | < 0.05          | < 0.05   | < 0.01     | < 0.01             | < 0.005        | < 0.03                          | < 0.05               | < 0.05               | < 0.02   | < 0.003                | < 0.02       | < 0.05   | < 0.05                   | < 0.1       | < 0.05       | < 0.02                    | < 0.02    | < 0.05        | < 0.1         | < 0.1     |

Notes:

All units are µg/L  
PAH = polycyclic aromatic hydrocarbons  
HMW = High Molecular Weight, LMW = Low Molecular Weight  
Guidelines are from BC Environmental and Climate Change Strategy (ENV) for protection of aquatic life.  
Marine guidelines are maximum guidelines and the freshwater guidelines are chronic guidelines.  
The BC ENV guideline for methylated naphthalene was used for 1-methylnaphthalene and 2-methylnaphthalene.  
The guideline for pyrene is based on a phototoxic exposure.

XX indicates an exceedance of a guideline

## **APPENDIX F**

### **2020 WATERCOURSE MONITORING DATA**





Watercourse Monitoring Data

Table 1. 2020 Hagan Creek Water Quality Data

|                  |            | Aluminum | Aluminum | Antimony | Antimony        | Arsenic | Arsenic | Barium | Barium             | Beryllium | Beryllium         | Bismuth | Bismuth | Boron | Boron |
|------------------|------------|----------|----------|----------|-----------------|---------|---------|--------|--------------------|-----------|-------------------|---------|---------|-------|-------|
|                  |            | DIS      | TOT      | DIS      | TOT             | DIS     | TOT     | DIS    | TOT                | DIS       | TOT               | DIS     | TOT     | DIS   | TOT   |
|                  |            | µg/L     | µg/L     | µg/L     | µg/L            | µg/L    | µg/L    | µg/L   | µg/L               | µg/L      | µg/L              | µg/L    | µg/L    | µg/L  | µg/L  |
|                  | max        | 100      |          |          | 20 <sup>1</sup> |         | 5       |        | 5,000 <sup>1</sup> |           | 0.13 <sup>1</sup> |         |         |       | 1,200 |
|                  | average    | 50       |          |          |                 |         |         |        | 1,000 <sup>1</sup> |           |                   |         |         |       |       |
| SW3133           |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| single sample    | 2020-07-17 |          | 47.8     |          | 0.058           |         | 0.593   |        | 5.53               |           | < 0.01            |         | < 0.01  |       | 24    |
|                  |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| summer           | n          | 5        | 5        | 5        | 5               | 5       | 5       | 5      | 5                  | 5         | 5                 | 5       | 5       | 5     | 5     |
|                  | %nd        | 0%       | 0%       | 20%      | 20%             | 0%      | 0%      | 0%     | 0%                 | 100%      | 100%              | 100%    | 100%    | 0%    | 0%    |
|                  | min        | 1.39     | 12.9     | 0.02     | 0.02            | 0.379   | 0.424   | 4.79   | 5.05               | 0.01      | 0.01              | 0.005   | 0.005   | 16    | 15    |
|                  | max        | 55       | 22.7     | 0.055    | 0.053           | 0.818   | 0.714   | 6.92   | 5.71               | 0.01      | 0.01              | 0.005   | 0.01    | 21    | 21    |
|                  | mean       | 13       | 19.18    | 0.037    | 0.043           | 0.548   | 0.536   | 5.44   | 5.26               | 0.01      | 0.01              | 0.005   | 0.01    | 18.4  | 18.4  |
|                  | sd         | 21       | 3.44     | 0.01     | 0.01            | 0.15    | 0.10    | 0.76   | 0.24               | 0.00      | 0.00              | 0.00    | 0.00    | 2     | 2     |
|                  |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| single sample    | 2020-09-24 | 10.6     | 289      | 0.283    | 0.245           | 0.57    | 0.652   | 6.32   | 8                  | < 0.01    | < 0.01            | < 0.005 | < 0.01  | 23    | 24    |
|                  |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| fall             | n          | 5        | 5        | 5        | 5               | 5       | 5       | 5      | 5                  | 5         | 5                 | 5       | 5       | 5     | 5     |
|                  | %nd        | 0%       | 0%       | 0%       | 0%              | 0%      | 0%      | 0%     | 0%                 | 100%      | 60%               | 100%    | 100%    | 0%    | 0%    |
|                  | min        | 8.41     | 64.6     | 0.094    | 0.085           | 0.333   | 0.356   | 6.83   | 8.99               | 0.01      | 0.01              | 0.005   | 0.01    | 21    | 20    |
|                  | max        | 26.5     | 673      | 0.191    | 0.21            | 0.532   | 0.678   | 10     | 12.6               | 0.01      | 0.017             | 0.005   | 0.01    | 25    | 26    |
|                  | mean       | 16.5     | 286.8    | 0.135    | 0.141           | 0.438   | 0.495   | 8.822  | 10.6               | 0.01      | 0.0116            | 0.005   | 0.01    | 24.2  | 23.6  |
|                  | sd         | 7.9      | 264.21   | 0.04     | 0.04            | 0.07    | 0.13    | 1.11   | 1.16               | 0.00      | 0.00              | 0.00    | 0.00    | 2     | 2     |
|                  |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| SW3133-1B        | n          | 5        | 5        | 5        | 5               | 5       | 5       | 5      | 5                  | 5         | 5                 | 5       | 5       | 5     | 5     |
| summer           | %nd        | 0%       | 0%       | 60%      | 40%             | 0%      | 0%      | 0%     | 0%                 | 100%      | 100%              | 100%    | 100%    | 0%    | 0%    |
|                  | min        | 3.11     | 23.1     | 0.02     | 0.02            | 0.226   | 0.262   | 7.51   | 7.5                | 0.01      | 0.01              | 0.005   | 0.005   | 15    | 13    |
|                  | max        | 27.6     | 174      | 0.026    | 0.035           | 0.391   | 0.365   | 8.74   | 9.26               | 0.01      | 0.01              | 0.005   | 0.01    | 20    | 18    |
|                  | mean       | 8.2      | 63.9     | 0.022    | 0.026           | 0.279   | 0.296   | 7.942  | 8.204              | 0.01      | 0.01              | 0.005   | 0.01    | 18    | 16.8  |
|                  | sd         | 9.7      | 55.97    | 0.00     | 0.01            | 0.06    | 0.04    | 0.47   | 0.67               | 0.00      | 0.00              | 0.00    | 0.00    | 2     | 2     |
|                  |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| single sample    | 2020-09-24 | 13.8     | 973      | 0.314    | 0.31            | 0.586   | 0.91    | 7.86   | 14.2               | < 0.01    | 0.019             | < 0.005 | < 0.01  | 22    | 22    |
|                  |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| fall             | n          | 5        | 5        | 5        | 5               | 5       | 5       | 5      | 5                  | 5         | 5                 | 5       | 5       | 5     | 5     |
|                  | %nd        | 0%       | 0%       | 0%       | 0%              | 0%      | 0%      | 0%     | 0%                 | 100%      | 60%               | 100%    | 100%    | 0%    | 0%    |
|                  | min        | 13.4     | 46.1     | 0.115    | 0.117           | 0.392   | 0.406   | 8.36   | 12.4               | 0.01      | 0.01              | 0.005   | 0.01    | 20    | 20    |
|                  | max        | 38.3     | 900      | 0.238    | 0.277           | 0.649   | 0.937   | 13.6   | 16.4               | 0.01      | 0.021             | 0.005   | 0.01    | 31    | 33    |
|                  | mean       | 23.7     | 350.62   | 0.176    | 0.183           | 0.524   | 0.617   | 12.07  | 14.38              | 0.01      | 0.0126            | 0.005   | 0.01    | 28.6  | 28.6  |
|                  | sd         | 9.4      | 358.52   | 0.05     | 0.07            | 0.09    | 0.19    | 1.90   | 1.31               | 0.00      | 0.00              | 0.00    | 0.00    | 4     | 4     |
|                  |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| SW3133-2         | n          |          | 4        |          | 4               |         | 4       |        | 4                  |           | 4                 |         | 4       |       | 4     |
| July to December | %nd        |          | 0%       |          | 0%              |         | 0%      |        | 0%                 |           | 50%               |         | 50%     |       | 0%    |
|                  | min        |          | 53.5     |          | 0.231           |         | 0.531   |        | 13.2               |           | 0.01              |         | 0.01    |       | 14    |
|                  | max        |          | 5060     |          | 0.976           |         | 3.11    |        | 44.3               |           | 0.078             |         | 0.096   |       | 47    |
|                  | mean       |          | 1693.75  |          | 0.506           |         | 1.494   |        | 22.08              |           | 0.03175           |         | 0.04    |       | 30    |
|                  | sd         |          | 2043     |          | 0               |         | 1       |        | 13                 |           | 0                 |         | 0.0     |       | 16    |



Watercourse Monitoring Data

Table 1, cont'd

|               |            | Aluminum | Aluminum | Antimony | Antimony        | Arsenic | Arsenic | Barium | Barium             | Beryllium | Beryllium         | Bismuth | Bismuth | Boron | Boron |
|---------------|------------|----------|----------|----------|-----------------|---------|---------|--------|--------------------|-----------|-------------------|---------|---------|-------|-------|
|               |            | DIS      | TOT      | DIS      | TOT             | DIS     | TOT     | DIS    | TOT                | DIS       | TOT               | DIS     | TOT     | DIS   | TOT   |
|               |            | µg/L     | µg/L     | µg/L     | µg/L            | µg/L    | µg/L    | µg/L   | µg/L               | µg/L      | µg/L              | µg/L    | µg/L    | µg/L  | µg/L  |
|               | max        | 100      |          |          | 20 <sup>1</sup> |         | 5       |        | 5,000 <sup>1</sup> |           | 0.13 <sup>1</sup> |         |         |       | 1,200 |
|               | average    | 50       |          |          |                 |         |         |        | 1,000 <sup>1</sup> |           |                   |         |         |       |       |
|               |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| SW3133-3B     | 2020-12-08 |          | 6050     |          | 1.9             |         | 5.16    |        | 55.1               |           | 0.08              |         | 0.181   |       | 56    |
|               |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| SW3133-4      | n          | 5        | 5        | 5        | 5               | 5       | 5       | 5      | 5                  | 5         | 5                 | 5       | 5       | 5     | 5     |
| summer        | %nd        | 0%       | 0%       | 0%       | 0%              | 0%      | 0%      | 0%     | 0%                 | 100%      | 100%              | 80%     | 100%    | 0%    | 0%    |
|               | min        | 4.99     | 72.1     | 0.078    | 0.077           | 0.41    | 0.436   | 8.66   | 8.91               | 0.01      | 0.01              | 0.005   | 0.005   | 17    | 18    |
|               | max        | 161      | 196      | 0.147    | 0.134           | 0.758   | 0.714   | 13.8   | 11.9               | 0.01      | 0.01              | 0.0423  | 0.01    | 40    | 33    |
|               | mean       | 37       | 100.4    | 0.104    | 0.103           | 0.521   | 0.544   | 10.68  | 10.66              | 0.01      | 0.01              | 0.01246 | 0.01    | 25.8  | 25.4  |
|               | sd         | 62       | 47.89    | 0.02     | 0.02            | 0.13    | 0.09    | 1.75   | 1.17               | 0.00      | 0.00              | 0.01    | 0.00    | 8     | 5     |
|               |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
|               | 2020-09-24 | 22.8     | 1140     | 0.475    | 0.545           | 0.821   | 1.21    | 7.12   | 14.2               | < 0.01    | 0.023             | < 0.005 | 0.018   | 24    | 24    |
|               |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| fall          | n          | 5        | 5        | 5        | 5               | 5       | 5       | 5      | 5                  | 5         | 5                 | 5       | 5       | 5     | 5     |
|               | %nd        | 0%       | 0%       | 0%       | 0%              | 0%      | 0%      | 0%     | 0%                 | 100%      | 80%               | 100%    | 80%     | 0%    | 0%    |
|               | min        | 37       | 111      | 0.147    | 0.152           | 0.51    | 0.565   | 14.2   | 17.8               | 0.01      | 0.01              | 0.005   | 0.01    | 34    | 34    |
|               | max        | 123      | 1370     | 0.527    | 0.773           | 0.904   | 1.52    | 24.2   | 25.5               | 0.01      | 0.02              | 0.005   | 0.039   | 55    | 57    |
|               | mean       | 73       | 400      | 0.278    | 0.329           | 0.68    | 0.837   | 19.34  | 22.08              | 0.01      | 0.012             | 0.005   | 0.016   | 44.6  | 44    |
|               | sd         | 28       | 487.80   | 0.14     | 0.23            | 0.13    | 0.35    | 3.81   | 3.48               | 0.00      | 0.00              | 0.00    | 0.01    | 8     | 8     |
|               |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| SW3133-5      | n          | 5        | 5        | 5        | 5               | 5       | 5       | 5      | 5                  | 5         | 5                 | 5       | 5       | 5     | 5     |
| summer        | %nd        | 0%       | 0%       | 0%       | 0%              | 0%      | 0%      | 0%     | 0%                 | 100%      | 80%               | 100%    | 100%    | 40%   | 40%   |
|               | min        | 4.33     | 151      | 0.06     | 0.066           | 0.485   | 0.594   | 5.47   | 6.56               | 0.01      | 0.01              | 0.005   | 0.01    | 10    | 10    |
|               | max        | 144      | 459      | 0.093    | 0.093           | 0.946   | 0.899   | 8.13   | 9.64               | 0.01      | 0.012             | 0.005   | 0.01    | 12    | 15    |
|               | mean       | 33       | 239.4    | 0.077    | 0.084           | 0.648   | 0.736   | 6.044  | 7.602              | 0.01      | 0.0104            | 0.005   | 0.01    | 11.2  | 11.8  |
|               | sd         | 56       | 112.06   | 0.01     | 0.01            | 0.17    | 0.11    | 1.04   | 1.07               | 0.00      | 0.00              | 0.00    | 0.00    | 1     | 2     |
|               |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| single sample | 2020-09-24 | 21.1     | 653      | 0.335    | 0.358           | 0.721   | 0.894   | 10.8   | 14.7               | < 0.01    | 0.014             | < 0.005 | < 0.01  | 22    | 23    |
|               |            |          |          |          |                 |         |         |        |                    |           |                   |         |         |       |       |
| fall          | n          | 5        | 5        | 5        | 5               | 5       | 5       | 5      | 5                  | 5         | 5                 | 5       | 5       | 5     | 5     |
|               | %nd        | 0%       | 0%       | 0%       | 0%              | 0%      | 0%      | 0%     | 0%                 | 100%      | 60%               | 100%    | 100%    | 0%    | 0%    |
|               | min        | 9.18     | 104      | 0.103    | 0.11            | 0.341   | 0.376   | 9.89   | 10.7               | 0.01      | 0.01              | 0.005   | 0.01    | 19    | 18    |
|               | max        | 44.1     | 808      | 0.254    | 0.287           | 0.663   | 0.846   | 13     | 18.2               | 0.01      | 0.018             | 0.005   | 0.01    | 25    | 23    |
|               | mean       | 26       | 324      | 0.157    | 0.17            | 0.464   | 0.526   | 11.32  | 13.34              | 0.01      | 0.0118            | 0.005   | 0.01    | 21.4  | 20.8  |
|               | sd         | 15       | 275.50   | 0.05     | 0.06            | 0.12    | 0.17    | 1.06   | 2.80               | 0.00      | 0.00              | 0.00    | 0.00    | 3     | 2     |

Watercourse Monitoring Data

Table 1, cont'd

|                  |            | Cadmium                | Cadmium | Calcium | Calcium | Chloride | Chromium | Chromium             | Cobalt | Cobalt | Copper            | Copper | Oxygen         | O. Carbon | E.Coli           |
|------------------|------------|------------------------|---------|---------|---------|----------|----------|----------------------|--------|--------|-------------------|--------|----------------|-----------|------------------|
|                  |            | DIS                    | TOT     | DIS     | TOT     | DIS      | DIS      | TOT                  | DIS    | TOT    | DIS               | TOT    | DIS            | DIS       | NA               |
|                  |            | µg/L                   | µg/L    | mg/L    | mg/L    | mg/L     | µg/L     | µg/L                 | µg/L   | µg/L   | µg/L              | µg/L   | mg/L           | mg/L      | CFU/100 mL       |
|                  | max        | 0.46-0.65 <sup>2</sup> |         |         |         |          |          | 1 / 9 <sup>1,3</sup> |        | 110    | 11.7 <sup>4</sup> |        | 5 <sup>5</sup> |           | 400 <sup>6</sup> |
|                  | average    | 0.18-0.23 <sup>2</sup> |         |         |         |          |          |                      |        | 4      | 2 <sup>4</sup>    |        | 8 <sup>5</sup> |           | 200 <sup>6</sup> |
| SW3133           |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
| single sample    | 2020-07-17 |                        | 0.006   |         | 28.4    |          |          | 0.28                 |        | 0.085  |                   | 0.97   | 6.07           |           | 66               |
|                  |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
| summer           | n          | 5                      | 5       | 5       | 5       | 5        | 5        | 5                    | 5      | 5      | 5                 | 5      | 5              | 5         | 5                |
|                  | %nd        | 60%                    | 80%     | 0%      | 0%      | 0%       | 80%      | 40%                  | 0%     | 0%     | 0%                | 0%     | 0%             | 0%        | 0                |
|                  | min        | 0.005                  | 0.005   | 27.9    | 27.6    | 19       | 0.1      | 0.1                  | 0.033  | 0.051  | 0.442             | 0.481  | 4.38           | 2.4       | 2                |
|                  | max        | 0.0205                 | 0.0118  | 29.7    | 28.8    | 23       | 0.24     | 0.12                 | 0.103  | 0.063  | 0.871             | 0.707  | 6.77           | 3.3       | 31               |
|                  | mean       | 0.00824                | 0.006   | 28.74   | 28.14   | 20.6     | 0.1      | 0.1                  | 0.05   | 0.058  | 0.653             | 0.638  | 5.3            | 2.7       | 11               |
|                  | sd         | 0.01                   | 0.003   | 1       | 0       | 1        | 0.1      | 0.01                 | 0.03   | 0.004  | 0.160             | 0.1    | 0.8            | 0.4       | 11               |
|                  |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
| single sample    | 2020-09-24 | < 0.005                | 0.0074  | 15.2    | 15.1    | 14       | 0.24     | 0.69                 | 0.051  | 0.218  | 2.7               | 3.71   | 4.68           | 6         | 1500             |
|                  |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
| fall             | n          | 5                      | 5       | 5       | 5       | 5        | 5        | 5                    | 5      | 5      | 5                 | 5      | 5              | 5         | 5                |
|                  | %nd        | 100%                   | 40%     | 0%      | 0%      | 0%       | 0%       | 0%                   | 0%     | 0%     | 0%                | 0%     | 0%             | 0%        | 0                |
|                  | min        | 0.005                  | 0.005   | 16.5    | 17.3    | 15       | 0.21     | 0.28                 | 0.058  | 0.08   | 1.84              | 1.91   | 6.52           | 6.7       | 8                |
|                  | max        | 0.005                  | 0.0082  | 30.7    | 31      | 22       | 0.33     | 1.1                  | 0.072  | 0.318  | 3.45              | 4.73   | 8.56           | 9.3       | 1300             |
|                  | mean       | 0.005                  | 0.006   | 25.36   | 25.02   | 19       | 0.26     | 0.6                  | 0.066  | 0.171  | 2.47              | 3.176  | 7.93           | 7.9       | 104              |
|                  | sd         | 0.00                   | 0.001   | 6       | 5       | 3        | 0.04     | 0.4                  | 0.005  | 0.10   | 0.59              | 1      | 0.73           | 1.0       | 559              |
|                  |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
| SW3133-1B        | n          | 5                      | 5       | 5       | 5       | 5        | 5        | 5                    | 5      | 5      | 5                 | 5      | 5              | 5         | 5                |
| summer           | %nd        | 100%                   | 80%     | 0%      | 0%      | 0%       | 0%       | 0%                   | 0%     | 0%     | 0%                | 0%     | 0%             | 0%        | 0                |
|                  | min        | 0.005                  | 0.005   | 27.4    | 27.2    | 20       | 0.25     | 0.23                 | 0.021  | 0.045  | 0.245             | 0.384  | 10.68          | 0.73      | 29               |
|                  | max        | 0.005                  | 0.0059  | 29.4    | 28.8    | 21       | 0.28     | 0.59                 | 0.058  | 0.19   | 0.551             | 0.96   | 11.21          | 1.3       | 160              |
|                  | mean       | 0.005                  | 0.005   | 28.44   | 28      | 20       | 0.27     | 0.35                 | 0.033  | 0.08   | 0.350             | 1      | 10.91          | 0.9       | 90               |
|                  | sd         | 0.00                   | 0.0004  | 1       | 1       | 0        | 0.0      | 0.13                 | 0.01   | 0.05   | 0.109             | 0.2    | 0.24           | 0.2       | 46               |
|                  |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
| single sample    | 2020-09-24 | 0.0055                 | 0.0242  | 16.9    | 17      | 16       | 0.25     | 1.76                 | 0.046  | 0.841  | 3.7               | 7.61   | 10.07          | 6         | 2200             |
|                  |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
| fall             | n          | 5                      | 5       | 5       | 5       | 5        | 5        | 5                    | 5      | 5      | 5                 | 5      | 5              | 5         | 5                |
|                  | %nd        | 80%                    | 40%     | 0%      | 0%      | 0%       | 0%       | 0%                   | 0%     | 0%     | 0%                | 0%     | 0%             | 0%        | 0%               |
|                  | min        | 0.005                  | 0.005   | 15.6    | 16.8    | 15       | 0.28     | 0.32                 | 0.063  | 0.082  | 2.25              | 2.57   | 10.64          | 7.8       | 26               |
|                  | max        | 0.0063                 | 0.0131  | 38.6    | 38.2    | 28       | 0.43     | 1.67                 | 0.077  | 0.528  | 4.48              | 7.34   | 11.57          | 9.4       | 5500             |
|                  | mean       | 0.00526                | 0.008   | 31.44   | 31      | 22       | 0.34     | 0.79                 | 0.072  | 0.237  | 3.35              | 4.42   | 11.08          | 8         | 185              |
|                  | sd         | 0.00                   | 0.004   | 9       | 8       | 5        | 0.05     | 0.54                 | 0.01   | 0.17   | 0.90              | 2.0    | 0.4            | 1         | 2120             |
|                  |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
| SW3133-2         | n          |                        | 4       |         | 4       |          |          | 4                    |        | 4      |                   | 4      |                |           | 4                |
| July to December | %nd        |                        | 0%      |         | 0%      |          |          | 0%                   |        | 0%     |                   | 0%     |                |           | 0%               |
|                  | min        |                        | 0.0601  |         | 6.95    |          |          | 0.51                 |        | 0.437  |                   | 6.74   |                |           | 1900             |
|                  | max        |                        | 0.157   |         | 51.8    |          |          | 10.4                 |        | 3.33   |                   | 51.3   |                |           | 81000            |
|                  | mean       |                        | 0.112   |         | 28.44   |          |          | 3.7                  |        | 1.317  |                   | 27.4   |                |           | 7522             |
|                  | sd         |                        | 0.04    |         | 19      |          |          | 4                    |        | 1      |                   | 16     |                |           | 33353            |
|                  |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |



Watercourse Monitoring Data

Table 1, cont'd

|               |            | Cadmium                | Cadmium | Calcium | Calcium | Chloride | Chromium | Chromium             | Cobalt | Cobalt | Copper            | Copper | Oxygen         | O. Carbon | E.Coli           |
|---------------|------------|------------------------|---------|---------|---------|----------|----------|----------------------|--------|--------|-------------------|--------|----------------|-----------|------------------|
|               |            | DIS                    | TOT     | DIS     | TOT     | DIS      | DIS      | TOT                  | DIS    | TOT    | DIS               | TOT    | DIS            | DIS       | NA               |
|               |            | µg/L                   | µg/L    | mg/L    | mg/L    | mg/L     | µg/L     | µg/L                 | µg/L   | µg/L   | µg/L              | µg/L   | mg/L           | mg/L      | CFU/100 mL       |
|               | max        | 0.46-0.65 <sup>2</sup> |         |         |         |          |          | 1 / 9 <sup>1,3</sup> |        | 110    | 11.7 <sup>4</sup> |        | 5 <sup>5</sup> |           | 400 <sup>6</sup> |
|               | average    | 0.18-0.23 <sup>2</sup> |         |         |         |          |          |                      |        | 4      | 2 <sup>4</sup>    |        | 8 <sup>5</sup> |           | 200 <sup>6</sup> |
| SW3133-3B     | 2020-12-08 |                        | 0.356   |         | 55      |          |          | 15.2                 |        | 4.15   |                   | 134    |                |           | 22000            |
|               |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
| SW3133-4      | n          | 5                      | 5       | 5       | 5       | 5        | 5        | 5                    | 5      | 5      | 5                 | 5      | 5              | 5         | 5                |
| summer        | %nd        | 80%                    | 0%      | 0%      | 0%      | 0%       | 0%       | 0%                   | 0%     | 0%     | 0%                | 0%     | 0%             | 0%        | 0%               |
|               | min        | 0.005                  | 0.0052  | 37.3    | 35.9    | 36       | 0.13     | 0.26                 | 0.069  | 0.144  | 0.704             | 1.39   | 3.3            | 1.9       | 85               |
|               | max        | 0.0269                 | 0.0143  | 47.4    | 45      | 46       | 0.54     | 0.9                  | 0.324  | 0.261  | 5.32              | 3.77   | 5.26           | 3.2       | 670              |
|               | mean       | 0.00938                | 0.008   | 42.42   | 41.02   | 41       | 0.23     | 0.4                  | 0.144  | 0.19   | 1.9               | 2.10   | 4.4            | 3         | 187              |
|               | sd         | 0.01                   | 0.004   | 4       | 3       | 4        | 0.2      | 0.25                 | 0.09   | 0.04   | 1.74              | 0.87   | 0.7            | 0.5       | 222              |
|               |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
|               | 2020-09-24 | 0.0187                 | 0.0597  | 11.6    | 12      | 11       | 0.66     | 2.89                 | 0.033  | 0.844  | 7.94              | 16.9   | 7.96           | 4.6       | 15000            |
|               |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
| fall          | n          | 5                      | 5       | 5       | 5       | 5        | 5        | 5                    | 5      | 5      | 5                 | 5      | 5              | 5         | 5                |
|               | %nd        | 0%                     | 0%      | 0%      | 0%      | 0%       | 0%       | 0%                   | 0%     | 0%     | 0%                | 0%     | 0%             | 0%        | 0%               |
|               | min        | 0.0071                 | 0.0143  | 20.2    | 20.5    | 29       | 0.33     | 0.46                 | 0.241  | 0.866  | 2.07              | 2.9    | 7.05           | 7.7       | 100              |
|               | max        | 0.0403                 | 0.0811  | 53.7    | 50.8    | 37       | 0.67     | 3.44                 | 0.918  | 1.12   | 16.9              | 32.3   | 8.34           | 17        | 9000             |
|               | mean       | 0.01986                | 0.0334  | 42.8    | 41.76   | 33       | 0.52     | 1.22                 | 0.695  | 1.01   | 6.2               | 10.3   | 7.65           | 11        | 1351             |
|               | sd         | 0.01                   | 0.02    | 12      | 11      | 3        | 0.12     | 1.12                 | 0.24   | 0.09   | 5.5               | 11     | 0.47           | 3         | 3150             |
|               |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
| SW3133-5      | n          | 5                      | 5       | 5       | 5       | 5        | 5        | 5                    | 5      | 5      | 5                 | 5      | 5              | 5         | 5                |
| summer        | %nd        | 100%                   | 80%     | 0%      | 0%      | 0%       | 80%      | 0%                   | 0%     | 0%     | 0%                | 0%     | 0%             | 0%        | 0%               |
|               | min        | 0.005                  | 0.005   | 17.1    | 16.8    | 11       | 0.1      | 0.26                 | 0.023  | 0.117  | 1.2               | 1.58   | 8.1            | 2.9       | 42               |
|               | max        | 0.005                  | 0.0081  | 20.1    | 18.6    | 12       | 0.21     | 0.9                  | 0.129  | 0.329  | 1.94              | 2.69   | 9.02           | 5.2       | 540              |
|               | mean       | 0.005                  | 0.006   | 17.9    | 17.48   | 12       | 0.12     | 0.47                 | 0.051  | 0.178  | 1.4               | 2.01   | 8.5            | 3.8       | 167              |
|               | sd         | 0.00                   | 0.001   | 1       | 1       | 0.5      | 0.04     | 0.23                 | 0.04   | 0.08   | 0.3               | 0.37   | 0.3            | 0.8       | 170              |
|               |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
| single sample | 2020-09-24 | < 0.005                | 0.0112  | 16.5    | 16.9    | 20       | 0.81     | 1.8                  | 0.064  | 0.422  | 4.95              | 7.17   | 8.53           | 6.9       | 7700             |
|               |            |                        |         |         |         |          |          |                      |        |        |                   |        |                |           |                  |
| fall          | n          | 5                      | 5       | 5       | 5       | 5        | 5        | 5                    | 5      | 5      | 5                 | 5      | 5              | 5         | 5                |
|               | %nd        | 100%                   | 40%     | 0%      | 0%      | 0%       | 0%       | 0%                   | 0%     | 0%     | 0%                | 0%     | 0%             | 0%        | 0%               |
|               | min        | 0.005                  | 0.005   | 23.3    | 23.8    | 21       | 0.17     | 0.3                  | 0.077  | 0.132  | 1.93              | 2.4    | 9.47           | 5.6       | 90               |
|               | max        | 0.005                  | 0.0071  | 28.2    | 27.7    | 24       | 0.52     | 1.51                 | 0.108  | 0.471  | 4.97              | 7.49   | 11.64          | 9         | 6800             |
|               | mean       | 0.005                  | 0.006   | 26.46   | 26.06   | 23       | 0.28     | 0.67                 | 0.09   | 0.225  | 3.1               | 4.2    | 10.3           | 7         | 624              |
|               | sd         | 0.00                   | 0.001   | 2       | 1.51    | 1        | 0.12     | 0.46                 | 0.01   | 0.13   | 1.1               | 1.9    | 0.8            | 1         | 2549             |

Watercourse Monitoring Data

Table 1, cont'd

|                  |            | Fecal Coliforms | Flow Rate | Hardness               | Hardness               | Iron | Iron  | Lead  | Lead                   | Lithium          | Lithium | Magnesium | Magnesium | Manganese | Manganese              |
|------------------|------------|-----------------|-----------|------------------------|------------------------|------|-------|-------|------------------------|------------------|---------|-----------|-----------|-----------|------------------------|
|                  |            | NA              | NA        | TOT                    | DIS                    | DIS  | TOT   | DIS   | TOT                    | DIS              | TOT     | DIS       | TOT       | DIS       | TOT                    |
|                  |            | CFU/100 mL      | L/min     | mg/L CaCO <sub>3</sub> | mg/L CaCO <sub>3</sub> | µg/L | µg/L  | µg/L  | µg/L                   | µg/L             | µg/L    | mg/L      | mg/L      | µg/L      | µg/L                   |
|                  | max        |                 |           |                        |                        | 350  | 1,000 |       | 59.7-92.2 <sup>7</sup> | 870 <sup>1</sup> |         |           |           |           | 1401-1752 <sup>8</sup> |
|                  | average    |                 |           |                        |                        |      |       |       | 5.6 - 6.9 <sup>7</sup> |                  |         |           |           |           | 949-1089 <sup>8</sup>  |
| SW3133           |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
| single sample    | 2020-07-17 |                 | > 400     | 112                    |                        |      | 130   |       | 0.048                  |                  | 0.63    |           | 10.1      |           | 52.2                   |
|                  |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
| summer           | n          | 5               | 5         | 5                      | 5                      | 5    | 5     | 5     | 5                      | 5                | 5       | 5         | 5         | 5         | 5                      |
|                  | %nd        | 0%              | 100%      | 0%                     | 0%                     | 0%   | 0%    | 60%   | 0%                     | 0%               | 0%      | 0%        | 0%        | 0%        | 0%                     |
|                  | min        | 7               | 2000      | 114                    | 117                    | 12.9 | 43.3  | 0.005 | 0.007                  | 0.59             | 0.53    | 10.5      | 10.5      | 14.2      | 29.3                   |
|                  | max        | 50              | 2000      | 119                    | 120                    | 131  | 59.8  | 0.069 | 0.022                  | 0.71             | 0.61    | 11.6      | 11.6      | 48        | 43.4                   |
|                  | mean       | 26              | 2000      | 116                    | 118                    | 38   | 53.6  | 0.018 | 0.018                  | 0.63             | 0.58    | 11.3      | 11        | 25        | 33                     |
|                  | sd         | 16              | 0         | 2                      | 1.1                    | 47   | 5.6   | 0.026 | 0.006                  | 0.05             | 0.03    | 0.4       | 0.4       | 12        | 5                      |
|                  |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
| single sample    | 2020-09-24 | 2500            | > 2500    | 56.7                   | 57                     | 77.1 | 521   | 0.033 | 0.258                  | < 0.5            | 0.52    | 4.64      | 4.63      | 0.599     | 60.4                   |
|                  |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
| fall             | n          | 5               | 5         | 5                      | 5                      | 5    | 5     | 5     | 5                      | 5                | 5       | 5         | 5         | 5         | 5                      |
|                  | %nd        | 0%              | 100%      | 0%                     | 0%                     | 0%   | 0%    | 0%    | 0%                     | 60%              | 20%     | 0%        | 0%        | 0%        | 0%                     |
|                  | min        | 12              | 2000      | 63.5                   | 61.2                   | 48.8 | 129   | 0.007 | 0.035                  | 0.5              | 0.5     | 4.83      | 4.96      | 1.22      | 10.7                   |
|                  | max        | 1700            | 2000      | 117                    | 116                    | 143  | 796   | 0.042 | 0.323                  | 0.61             | 0.71    | 9.72      | 9.52      | 14.1      | 66                     |
|                  | mean       | 707             | 2000      | 95                     | 95                     | 88   | 394   | 0.021 | 0.147                  | 0.53             | 0.6     | 7.81      | 7.7       | 7.19      | 25                     |
|                  | sd         | 811             | 0         | 20                     | 21                     | 34   | 296   | 0.014 | 0.125                  | 0.04             | 0.1     | 1.86      | 1.73      | 4.17      | 21                     |
|                  |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
| SW3133-1B        | n          | 5               | 5         | 5                      | 5                      | 5    | 5     | 5     | 5                      | 5                | 5       | 5         | 5         | 5         | 5                      |
| summer           | %nd        | 0%              | 100%      | 0%                     | 0%                     | 0%   | 0%    | 80%   | 0%                     | 0%               | 0%      | 0%        | 0%        | 0%        | 0%                     |
|                  | min        | 71              | 200       | 118                    | 121                    | 6.5  | 46.2  | 0.005 | 0.023                  | 0.78             | 0.8     | 11.9      | 11.7      | 4         | 9.5                    |
|                  | max        | 200             | 200       | 124                    | 124                    | 54.4 | 303   | 0.022 | 0.123                  | 1.01             | 1.06    | 13        | 12.7      | 11.5      | 33.9                   |
|                  | mean       | 154             | 200       | 121                    | 122                    | 18.2 | 112   | 0.008 | 0.048                  | 0.89             | 0.9     | 12        | 12        | 6         | 15.6                   |
|                  | sd         | 44              | 0         | 3                      | 1                      | 18.2 | 96    | 0.007 | 0.038                  | 0.08             | 0.1     | 0.4       | 0.4       | 3         | 9.3                    |
|                  |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
| single sample    | 2020-09-24 | 3700            | > 1000    | 62                     | 61.2                   | 65.8 | 1420  | 0.051 | 0.859                  | < 0.5            | 0.99    | 4.64      | 4.76      | 0.381     | 130                    |
|                  |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
| fall             | n          | 5               | 5         | 5                      | 5                      | 5    | 5     | 5     | 5                      | 5                | 5       | 5         | 5         | 5         | 5                      |
|                  | %nd        | 0%              | 20%       | 0%                     | 0%                     | 0%   | 0%    | 0%    | 0%                     | 20%              | 0%      | 0%        | 0%        | 0%        | 0%                     |
|                  | min        | 69              | 700       | 61.3                   | 56.8                   | 91.9 | 154   | 0.016 | 0.044                  | 0.5              | 0.64    | 4.32      | 4.67      | 0.579     | 6.98                   |
|                  | max        | 10000           | 1000      | 146                    | 149                    | 153  | 1060  | 0.061 | 0.618                  | 0.78             | 0.88    | 13        | 12.3      | 4.31      | 54.9                   |
|                  | mean       | 2380            | 860       | 119                    | 120                    | 115  | 487   | 0.036 | 0.237                  | 0.7              | 0.7     | 10        | 10.0      | 2.41      | 20.1                   |
|                  | sd         | 3836            | 120       | 32                     | 36                     | 21   | 359   | 0.017 | 0.226                  | 0.1              | 0.1     | 3         | 3.0       | 1.53      | 18.3                   |
|                  |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
| SW3133-2         | n          | 3               | 4         | 4                      |                        |      | 4     |       | 4                      |                  | 4       |           | 4         |           | 4                      |
| July to December | %nd        | 0%              | 25%       | 0%                     |                        |      | 0%    |       | 0%                     |                  | 0%      |           | 0%        |           | 0%                     |
|                  | min        | 4200            | 35        | 22.7                   |                        |      | 274   |       | 0.291                  |                  | 1.3     |           | 1.3       |           | 50.7                   |
|                  | max        | 160000          | 300       | 172                    |                        |      | 6610  |       | 5.96                   |                  | 3.08    |           | 10.5      |           | 170                    |
|                  | mean       | 59733           | 118       | 95                     |                        |      | 2255  |       | 2.166                  |                  | 2.045   |           | 5.8       |           | 82                     |
|                  | sd         | 71036           | 108       | 63                     |                        |      | 2594  |       | 2                      |                  | 1       |           | 4         |           | 51                     |
|                  |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |



Watercourse Monitoring Data

Table 1, cont'd

|               |            | Fecal Coliforms | Flow Rate | Hardness               | Hardness               | Iron | Iron  | Lead  | Lead                   | Lithium          | Lithium | Magnesium | Magnesium | Manganese | Manganese              |
|---------------|------------|-----------------|-----------|------------------------|------------------------|------|-------|-------|------------------------|------------------|---------|-----------|-----------|-----------|------------------------|
|               |            | NA              | NA        | TOT                    | DIS                    | DIS  | TOT   | DIS   | TOT                    | DIS              | TOT     | DIS       | TOT       | DIS       | TOT                    |
|               |            | CFU/100 mL      | L/min     | mg/L CaCO <sub>3</sub> | mg/L CaCO <sub>3</sub> | µg/L | µg/L  | µg/L  | µg/L                   | µg/L             | µg/L    | mg/L      | mg/L      | µg/L      | µg/L                   |
|               | max        |                 |           |                        |                        | 350  | 1,000 |       | 59.7-92.2 <sup>7</sup> | 870 <sup>1</sup> |         |           |           |           | 1401-1752 <sup>8</sup> |
|               | average    |                 |           |                        |                        |      |       |       | 5.6 - 6.9 <sup>7</sup> |                  |         |           |           |           | 949-1089 <sup>8</sup>  |
| SW3133-3B     | 2020-12-08 | 27000           | 30        | 156                    |                        |      | 9410  |       | 15.3                   |                  | 5.84    |           | 4.44      |           | 237                    |
|               |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
| SW3133-4      | n          | 5               | 5         | 5                      | 5                      | 5    | 5     | 5     | 5                      | 5                | 5       | 5         | 5         | 5         | 5                      |
| summer        | %nd        | 0%              | 0%        | 0%                     | 0%                     | 0%   | 0%    | 0%    | 0%                     | 0%               | 0%      | 0%        | 0%        | 0%        | 0%                     |
|               | min        | 130             | 30        | 133                    | 138                    | 59.6 | 209   | 0.02  | 0.094                  | 0.8              | 0.8     | 9.88      | 9.99      | 14.4      | 30.4                   |
|               | max        | 1000            | 80        | 156                    | 167                    | 443  | 380   | 0.666 | 0.397                  | 1.09             | 1.06    | 11.7      | 11.6      | 106       | 65.8                   |
|               | mean       | 404             | 56        | 147                    | 151                    | 144  | 282   | 0.15  | 0.18                   | 0.9              | 0.9     | 11.0      | 10.7      | 41        | 51.2                   |
|               | sd         | 319             | 19        | 9                      | 11                     | 150  | 68    | 0.26  | 0.11                   | 0.1              | 0.1     | 0.6       | 0.6       | 33        | 13.3                   |
|               |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
|               | 2020-09-24 | 19000           | 200       | 39.5                   | 36.6                   | 32.1 | 1570  | 0.054 | 1.72                   | 0.86             | 1.25    | 1.82      | 2.3       | 1.4       | 55.5                   |
|               |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
| fall          | n          | 5               | 5         | 5                      | 5                      | 5    | 5     | 5     | 5                      | 5                | 5       | 5         | 5         | 5         | 5                      |
|               | %nd        | 0%              | 20%       | 0%                     | 0%                     | 0%   | 0%    | 0%    | 0%                     | 0%               | 0%      | 0%        | 0%        | 0%        | 0%                     |
|               | min        | 580             | 160       | 69.5                   | 67                     | 62.2 | 575   | 0.057 | 0.108                  | 0.82             | 0.77    | 4.01      | 4.47      | 33.2      | 78.8                   |
|               | max        | 12000           | 250       | 184                    | 191                    | 568  | 1960  | 0.125 | 2.49                   | 0.92             | 1.38    | 13.8      | 14        | 117       | 128                    |
|               | mean       | 4296            | 198       | 149                    | 152                    | 410  | 921   | 0.09  | 0.65                   | 0.85             | 0.92    | 11        | 11        | 89        | 110                    |
|               | sd         | 4089            | 30        | 41                     | 44                     | 178  | 523   | 0.03  | 0.92                   | 0.03             | 0.23    | 4         | 3         | 31        | 18                     |
|               |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
| SW3133-5      | n          | 5               | 5         | 5                      | 5                      | 5    | 5     | 5     | 5                      | 5                | 5       | 5         | 5         | 5         | 5                      |
| summer        | %nd        | 0%              | 0%        | 0%                     | 0%                     | 0%   | 0%    | 0%    | 0%                     | 100%             | 40%     | 0%        | 0%        | 0%        | 0%                     |
|               | min        | 62              | 26        | 61.4                   | 62.9                   | 54.2 | 327   | 0.014 | 0.091                  | 0.5              | 0.5     | 4.82      | 4.71      | 0.65      | 25.9                   |
|               | max        | 610             | 40        | 70.5                   | 72.7                   | 446  | 851   | 0.146 | 0.355                  | 0.5              | 0.72    | 5.52      | 5.82      | 42.5      | 124                    |
|               | mean       | 246.4           | 30        | 65.1                   | 65.9                   | 153  | 504   | 0.04  | 0.17                   | 0.5              | 0.5     | 5.16      | 5.21      | 15.0      | 54                     |
|               | sd         | 192.03          | 5         | 3.1                    | 3.6                    | 147  | 181   | 0.05  | 0.09                   | 0.0              | 0.1     | 0.29      | 0.40      | 15.4      | 35                     |
|               |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
| single sample | 2020-09-24 | 8000            | 80        | 59.8                   | 58.6                   | 73.5 | 837   | 0.067 | 0.626                  | < 0.5            | < 0.5   | 4.19      | 4.28      | 0.572     | 59.7                   |
|               |            |                 |           |                        |                        |      |       |       |                        |                  |         |           |           |           |                        |
| fall          | n          | 5               | 5         | 5                      | 5                      | 5    | 5     | 5     | 5                      | 5                | 5       | 5         | 5         | 5         | 5                      |
|               | %nd        | 0%              | 20%       | 0%                     | 0%                     | 0%   | 0%    | 0%    | 0%                     | 100%             | 60%     | 0%        | 0%        | 0%        | 0%                     |
|               | min        | 100             | 200       | 83.1                   | 81.3                   | 74.2 | 211   | 0.018 | 0.079                  | 0.5              | 0.5     | 5.62      | 5.71      | 1.34      | 26                     |
|               | max        | 12000           | 250       | 102                    | 101                    | 177  | 1020  | 0.092 | 0.682                  | 0.5              | 0.66    | 7.61      | 7.88      | 25.7      | 69                     |
|               | mean       | 3052            | 230       | 94                     | 95                     | 115  | 442   | 0.05  | 0.24                   | 0.5              | 0.5     | 7.0       | 7.01      | 15.0      | 38                     |
|               | sd         | 4543            | 24        | 7                      | 8                      | 43   | 310   | 0.03  | 0.23                   | 0.0              | 0.1     | 0.7       | 0.76      | 10.7      | 16                     |

Watercourse Monitoring Data

Table 1, cont'd

|                  |            | Mercury | Molybdenum | Molybdenum | Nitrite as N | Nitrate as N | Nickel | Nickel                 | Phosphorus       | Phosphorus          | pH                  | Potassium | Potassium | Selenium | Selenium |
|------------------|------------|---------|------------|------------|--------------|--------------|--------|------------------------|------------------|---------------------|---------------------|-----------|-----------|----------|----------|
|                  |            | TOT     | DIS        | TOT        | DIS          | DIS          | DIS    | TOT                    | TOT              | TOT                 | NA                  | DIS       | TOT       | DIS      | TOT      |
|                  |            | µg/L    | µg/L       | µg/L       | mg/l         | mg/L         | µg/L   | µg/L                   | ug/L             | mg/L                | pH                  | mg/L      | mg/L      | µg/L     | µg/L     |
|                  | max        |         |            | 2,000      | 0.06         | 32.8         |        | 25 -110 <sup>1.9</sup> | 10 <sup>10</sup> | 0.01 <sup>10</sup>  | 6.5-9 <sup>11</sup> |           | 373 -432  |          | 2        |
|                  | average    |         |            | 1,000      | 0.02         | 3            |        |                        | 5 <sup>10</sup>  | 0.005 <sup>10</sup> |                     |           |           |          |          |
| SW3133           |            |         |            |            |              |              |        |                        |                  |                     |                     |           |           |          |          |
| single sample    | 2020-07-17 |         |            | 0.42       |              | 0.7          |        | 0.45                   | 60.7             |                     | 7.46                |           | 1         |          | 0.049    |
|                  |            |         |            |            |              |              |        |                        |                  |                     |                     |           |           |          |          |
| summer           | n          | 4       | 5          | 5          | 5            | 5            | 5      | 5                      | 5                | 5                   | 5                   | 5         | 5         | 5        | 5        |
|                  | %nd        | 100%    | 0%         | 0%         | 100%         | 0%           | 0%     | 0%                     | 0%               | 0%                  | 0%                  | 0%        | 0%        | 60%      | 80%      |
|                  | min        | 0.002   | 0.29       | 0.291      | 0.002        | 0.256        | 0.263  | 0.288                  | 36.2             | 0.021               | 7.21                | 0.843     | 0.8       | 0.04     | 0.04     |
|                  | max        | 0.002   | 0.423      | 0.427      | 0.005        | 0.524        | 0.446  | 0.381                  | 52.5             | 0.036               | 7.61                | 1.32      | 1.23      | 0.051    | 0.041    |
|                  | mean       | 0.002   | 0.356      | 0.349      | 0.004        | 0.362        | 0.335  | 0.344                  | 45.5             | 0.0304              | 7.48                | 1.07      | 1.1       | 0.04     | 0.04     |
|                  | sd         | 0.00    | 0.04       | 0.049      | 0.00         | 0.09         | 0.062  | 0.031                  | 5.9              | 0.0                 | 0.15                | 0.16      | 0.14      | 0.004    | 0.00     |
|                  |            |         |            |            |              |              |        |                        |                  |                     |                     |           |           |          |          |
| single sample    | 2020-09-24 | < 0.002 | 0.564      | 0.578      | 0.006        | 0.365        | 0.489  | 0.75                   | 107              | 0.057               | 7.34                | 2.71      | 2.65      | 0.049    | 0.045    |
|                  |            |         |            |            |              |              |        |                        |                  |                     |                     |           |           |          |          |
| fall             | n          |         | 5          | 5          | 5            | 5            | 5      | 5                      | 5                | 5                   | 5                   | 5         | 5         | 5        | 5        |
|                  | %nd        |         | 0%         | 0%         | 80%          | 0%           | 0%     | 0%                     | 0%               | 0%                  | 0%                  | 0%        | 0%        | 0%       | 0%       |
|                  | min        |         | 0.463      | 0.448      | 0.005        | 0.81         | 0.569  | 0.69                   | 34.2             | 0.014               | 7.51                | 2         | 1.95      | 0.055    | 0.057    |
|                  | max        |         | 0.615      | 0.664      | 0.007        | 1.29         | 0.767  | 1.26                   | 101              | 0.065               | 7.88                | 2.64      | 2.56      | 0.112    | 0.101    |
|                  | mean       |         | 0.56       | 0.56       | 0.005        | 1.07         | 0.66   | 0.906                  | 62               | 0.04                | 7.61                | 2.3       | 2.29      | 0.075    | 0.074    |
|                  | sd         |         | 0.06       | 0.08       | 0.001        | 0.16         | 0.065  | 0.22                   | 28.2             | 0.02                | 0.13                | 0.22      | 0.24      | 0.020    | 0.016    |
|                  |            |         |            |            |              |              |        |                        |                  |                     |                     |           |           |          |          |
| SW3133-1B        | n          | 4       | 5          | 5          | 5            | 5            | 5      | 5                      | 5                | 5                   | 5                   | 5         | 5         | 5        | 5        |
| summer           | %nd        | 100%    | 0%         | 0%         | 100%         | 0%           | 0%     | 0%                     | 0%               | 0%                  | 0%                  | 0%        | 0%        | 0%       | 0%       |
|                  | min        | 0.002   | 0.193      | 0.212      | 0.002        | 2.85         | 0.162  | 0.21                   | 26.1             | 0.014               | 7.33                | 1.08      | 1.09      | 0.059    | 0.065    |
|                  | max        | 0.002   | 0.264      | 0.246      | 0.005        | 3.45         | 0.265  | 0.48                   | 45.7             | 0.022               | 7.78                | 1.25      | 1.17      | 0.079    | 0.077    |
|                  | mean       | 0.002   | 0.223      | 0.233      | 0.00         | 3.17         | 0.199  | 0.29                   | 33.0             | 0.02                | 7.53                | 1.16      | 1.13      | 0.068    | 0.069    |
|                  | sd         | 0.00    | 0.03       | 0.011      | 0.00         | 0.20         | 0.039  | 0.10                   | 7.4              | 0.00                | 0.15                | 0.06      | 0.03      | 0.007    | 0.004    |
|                  |            |         |            |            |              |              |        |                        |                  |                     |                     |           |           |          |          |
| single sample    | 2020-09-24 | < 0.002 | 0.588      | 0.673      | 0.015        | 0.717        | 0.542  | 1.76                   | 126              | 0.088               | 7.52                | 3.23      | 3.05      | 0.05     | 0.081    |
|                  |            |         |            |            |              |              |        |                        |                  |                     |                     |           |           |          |          |
| fall             | n          |         | 5          | 5          | 5            | 5            | 5      | 5                      | 5                | 5                   | 5                   | 5         | 5         | 5        | 5        |
|                  | %nd        |         | 0%         | 0%         | 20%          | 0%           | 0%     | 0%                     | 0%               | 0%                  | 0%                  | 0%        | 0%        | 0%       | 0%       |
|                  | min        |         | 0.539      | 0.534      | 0.005        | 1.19         | 0.653  | 0.89                   | 30               | 0.0083              | 7.53                | 2.34      | 2.18      | 0.077    | 0.075    |
|                  | max        |         | 0.722      | 0.752      | 0.019        | 1.65         | 1.13   | 1.65                   | 106              | 0.057               | 8.01                | 3.2       | 3.46      | 0.111    | 0.128    |
|                  | mean       |         | 0.662      | 0.670      | 0.012        | 1.50         | 0.92   | 1.27                   | 58               | 0.03                | 7.75                | 2.81      | 2.78      | 0.090    | 0.097    |
|                  | sd         |         | 0.068      | 0.074      | 0.005        | 0.16         | 0.16   | 0.30                   | 29               | 0.02                | 0.19                | 0.35      | 0.46      | 0.013    | 0.017    |
|                  |            |         |            |            |              |              |        |                        |                  |                     |                     |           |           |          |          |
| SW3133-2         | n          |         |            | 4          |              |              |        | 4                      | 4                |                     |                     |           | 4         |          | 4        |
| July to December | %nd        |         |            | 0%         |              |              |        | 0%                     | 0%               |                     |                     |           | 0%        |          | 0%       |
|                  | min        |         |            | 1.31       |              |              |        | 1.8                    | 123              |                     |                     |           | 0.99      |          | 0.058    |
|                  | max        |         |            | 2.02       |              |              |        | 7.43                   | 266              |                     |                     |           | 2.95      |          | 0.091    |
|                  | mean       |         |            | 1.595      |              |              |        | 3.8                    | 192.75           |                     |                     |           | 2.1       |          | 0.070    |
|                  | sd         |         |            | 0          |              |              |        | 2                      | 65               |                     |                     |           | 0.9       |          | 0.013    |



Watercourse Monitoring Data

Table 1, cont'd

|               |            | Mercury | Molybdenum | Molybdenum | Nitrite as N | Nitrate as N | Nickel | Nickel                 | Phosphorus       | Phosphorus          | pH                      | Potassium | Potassium    | Selenium | Selenium |
|---------------|------------|---------|------------|------------|--------------|--------------|--------|------------------------|------------------|---------------------|-------------------------|-----------|--------------|----------|----------|
|               |            | TOT     | DIS        | TOT        | DIS          | DIS          | DIS    | TOT                    | TOT              | TOT                 | NA                      | DIS       | TOT          | DIS      | TOT      |
|               |            | µg/L    | µg/L       | µg/L       | mg/l         | mg/L         | µg/L   | µg/L                   | ug/L             | mg/L                | pH                      | mg/L      | mg/L         | µg/L     | µg/L     |
|               | max        |         |            | 2,000      | 0.06         | 32.8         |        | 25 -110 <sup>1.9</sup> | 10 <sup>10</sup> | 0.01 <sup>10</sup>  | 6.5-<br>9 <sup>11</sup> |           | 373 -<br>432 |          | 2        |
|               | average    |         |            | 1,000      | 0.02         | 3            |        |                        | 5 <sup>10</sup>  | 0.005 <sup>10</sup> |                         |           |              |          |          |
|               |            |         |            |            |              |              |        |                        |                  |                     |                         |           |              |          |          |
| SW3133-3B     | 2020-12-08 |         |            | 3.29       |              |              |        | 11.5                   | 388              |                     |                         |           | 5.1          |          | 0.124    |
|               |            |         |            |            |              |              |        |                        |                  |                     |                         |           |              |          |          |
| SW3133-4      | n          | 4       | 5          | 5          | 5            | 5            | 5      | 5                      | 5                | 5                   | 5                       | 5         | 5            | 5        | 5        |
| summer        | %nd        | 100%    | 0%         | 0%         | 0%           | 0%           | 0%     | 0%                     | 0%               | 0%                  | 0%                      | 0%        | 0%           | 0%       | 0%       |
|               | min        | 0.002   | 0.41       | 0.398      | 0.038        | 0.702        | 0.556  | 0.61                   | 60.7             | 0.038               | 7.23                    | 1.35      | 1.31         | 0.065    | 0.072    |
|               | max        | 0.002   | 0.592      | 0.645      | 0.063        | 1.08         | 2.03   | 2.15                   | 85.2             | 0.065               | 7.49                    | 2.35      | 2.25         | 0.097    | 0.088    |
|               | mean       | 0.002   | 0.50       | 0.51       | 0.05         | 0.79         | 1.05   | 1.11                   | 71.0             | 0.052               | 7.40                    | 1.78      | 1.7          | 0.079    | 0.080    |
|               | sd         | 0.00    | 0.08       | 0.09       | 0.01         | 0.14         | 0.61   | 0.62                   | 8.2              | 0.011               | 0.10                    | 0.34      | 0.3          | 0.011    | 0.005    |
|               |            |         |            |            |              |              |        |                        |                  |                     |                         |           |              |          |          |
|               | 2020-09-24 | < 0.002 | 0.776      | 0.823      | 0.021        | 0.247        | 0.716  | 2.12                   | 92.3             | 0.074               | 7.64                    | 1.39      | 1.43         | < 0.04   | 0.057    |
|               |            |         |            |            |              |              |        |                        |                  |                     |                         |           |              |          |          |
| fall          | n          |         | 5          | 5          | 5            | 5            | 5      | 5                      | 5                | 5                   | 5                       | 5         | 5            | 5        | 5        |
|               | %nd        |         | 0%         | 0%         | 0%           | 0%           | 0%     | 0%                     | 0%               | 0%                  | 0%                      | 0%        | 0%           | 0%       | 0%       |
|               | min        |         | 0.698      | 0.755      | 0.009        | 0.472        | 1.22   | 1.61                   | 35.1             | 0.012               | 7.38                    | 3.39      | 3.38         | 0.057    | 0.087    |
|               | max        |         | 0.971      | 1.06       | 0.013        | 0.806        | 2.3    | 3.01                   | 111              | 0.098               | 7.84                    | 6.42      | 6.14         | 0.131    | 0.131    |
|               | mean       |         | 0.843      | 0.915      | 0.01         | 0.652        | 1.87   | 2.32                   | 60               | 0.040               | 7.57                    | 4.42      | 4.3          | 0.099    | 0.104    |
|               | sd         |         | 0.102      | 0.11       | 0.00         | 0.128        | 0.41   | 0.47                   | 26               | 0                   | 0.20                    | 1.21      | 1.1          | 0.02     | 0.015    |
|               |            |         |            |            |              |              |        |                        |                  |                     |                         |           |              |          |          |
| SW3133-5      | n          | 4       | 5          | 5          | 5            | 5            | 5      | 5                      | 5                | 5                   | 5                       | 5         | 5            | 5        | 5        |
| summer        | %nd        | 100%    | 0%         | 0%         | 80%          | 20%          | 0%     | 0%                     | 0%               | 0%                  | 0%                      | 0%        | 0%           | 0%       | 0%       |
|               | min        | 0.002   | 0.335      | 0.318      | 0.004        | 0.02         | 0.255  | 0.48                   | 47.7             | 0.012               | 7.5                     | 0.67      | 0.68         | 0.082    | 0.096    |
|               | max        | 0.002   | 0.47       | 0.446      | 0.005        | 0.08         | 0.484  | 0.86                   | 75.3             | 0.084               | 7.82                    | 0.782     | 0.8          | 0.118    | 0.119    |
|               | mean       | 0.002   | 0.38       | 0.382      | 0.005        | 0.05         | 0.330  | 0.60                   | 65.5             | 0.051               | 7.63                    | 0.71      | 0.7          | 0.1      | 0.105    |
|               | sd         | 0.00    | 0.05       | 0.050      | 0.000        | 0.02         | 0.079  | 0.13                   | 11               | 0.024               | 0.12                    | 0.04      | 0.04         | 0.01     | 0.008    |
|               |            |         |            |            |              |              |        |                        |                  |                     |                         |           |              |          |          |
| single sample | 2020-09-24 | < 0.002 | 0.761      | 0.811      | 0.033        | 1.07         | 0.62   | 1.33                   | 120              | 0.069               | 7.39                    | 6.33      | 6.16         | 0.074    | 0.105    |
|               |            |         |            |            |              |              |        |                        |                  |                     |                         |           |              |          |          |
| fall          | n          |         | 5          | 5          | 5            | 5            | 5      | 5                      | 5                | 5                   | 5                       | 5         | 5            | 5        | 5        |
|               | %nd        |         | 0%         | 0%         | 0%           | 0%           | 0%     | 0%                     | 0%               | 0%                  | 0%                      | 0%        | 0%           | 0%       | 0%       |
|               | min        |         | 0.462      | 0.454      | 0.008        | 0.588        | 0.465  | 0.6                    | 25.9             | 0.0084              | 7.42                    | 2.24      | 2.29         | 0.078    | 0.083    |
|               | max        |         | 0.826      | 0.876      | 0.027        | 1.48         | 0.705  | 1.52                   | 107              | 0.063               | 7.99                    | 4.55      | 4.48         | 0.107    | 0.119    |
|               | mean       |         | 0.624      | 0.651      | 0.019        | 0.95         | 0.562  | 0.89                   | 50.6             | 0.03                | 7.75                    | 2.95      | 2.9          | 0.09     | 0.103    |
|               | sd         |         | 0.130      | 0.144      | 0.006        | 0.39         | 0.088  | 0.3                    | 30.6             | 0.02                | 0.19                    | 0.86      | 0.8          | 0.01     | 0.014    |

Watercourse Monitoring Data

Table 1, cont'd

|                  |                | Silicon     | Silicon     | Silver      | Silver                                          | Sodium      | Sodium     | Specific<br>Conductivity - 25°C. | Strontium   | Strontium   | Sulphate   | Temperature      | Thallium    | Thallium    | Tin         | Tin         |
|------------------|----------------|-------------|-------------|-------------|-------------------------------------------------|-------------|------------|----------------------------------|-------------|-------------|------------|------------------|-------------|-------------|-------------|-------------|
|                  |                | DIS<br>µg/L | TOT<br>µg/L | DIS<br>µg/L | TOT<br>µg/L                                     | DIS<br>mg/L | NA<br>mg/L | TOT<br>µS/cm                     | DIS<br>µg/L | TOT<br>µg/L | NA<br>mg/L | TOT<br>°C        | DIS<br>µg/L | TOT<br>µg/L | DIS<br>µg/L | TOT<br>µg/L |
|                  | max<br>average |             |             |             | 0.1-3.0 <sup>12</sup><br>0.05-1.5 <sup>12</sup> |             |            |                                  |             |             |            | 17 <sup>13</sup> |             | 0.3<br>0.8  |             |             |
| SW3133           |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| single sample    | 2020-07-17     |             | 9860        |             | < 0.01                                          |             | 11.6       | 293.1                            |             | 119         |            | 16.8             |             | < 0.002     |             | < 0.2       |
|                  |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| summer           | n              | 5           | 5           | 5           | 5                                               | 5           | 5          | 5                                | 5           | 5           | 5          | 5                | 5           | 5           | 5           | 5           |
|                  | %nd            | 0%          | 0%          | 100%        | 100%                                            | 0%          | 0%         | 0%                               | 0%          | 0%          | 0%         | 0%               | 100%        | 100%        | 100%        | 100%        |
|                  | min            | 9190        | 9350        | 0.005       | 0.005                                           | 11.8        | 11.8       | 195.5                            | 108         | 106         | 12         | 13.5             | 0.002       | 0.002       | 0.2         | 0.2         |
|                  | max            | 11200       | 11400       | 0.005       | 0.01                                            | 13.2        | 12.9       | 295.3                            | 122         | 122         | 13         | 16.7             | 0.002       | 0.002       | 0.2         | 0.2         |
|                  | mean           | 10598       | 10338       | 0.005       | 0.006                                           | 12.4        | 12.4       | 250.6                            | 113         | 114         | 13         | 15               | 0.002       | 0.002       | 0.2         | 0.2         |
|                  | sd             | 728         | 787         | 0.000       | 0.002                                           | 0.5         | 0.5        | 39.7                             | 5           | 6           | 1          | 1                | 0.000       | 0.000       | 0.0         | 0.0         |
|                  |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| single sample    | 2020-09-24     | 3890        | 4420        | < 0.005     | < 0.01                                          | 8.01        | 7.83       | 183.5                            | 58.5        | 60          | 13         | 14.5             | 0.0026      | 0.0021      | < 0.2       | < 0.2       |
|                  |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| fall             | n              | 5           | 5           | 5           | 5                                               | 5           | 5          | 5                                | 5           | 5           | 5          | 5                | 5           | 5           | 5           | 5           |
|                  | %nd            | 0%          | 0%          | 80%         | 100%                                            | 0%          | 0%         | 0%                               | 0%          | 0%          | 0%         | 0%               | 80%         | 80%         | 100%        | 100%        |
|                  | min            | 4400        | 5610        | 0.005       | 0.01                                            | 8.3         | 8.3        | 187.6                            | 67.1        | 70.5        | 17         | 6.4              | 0.002       | 0.002       | 0.2         | 0.2         |
|                  | max            | 8170        | 8090        | 0.01        | 0.01                                            | 13.2        | 13         | 305.7                            | 138         | 136         | 33         | 12               | 0.0023      | 0.0038      | 0.2         | 0.2         |
|                  | mean           | 6556        | 7032        | 0.006       | 0.01                                            | 11.2        | 11         | 257.2                            | 112         | 108         | 26         | 9                | 0.00206     | 0.002       | 0.2         | 0.2         |
|                  | sd             | 1328        | 866         | 0.00        | 0.00                                            | 1.9         | 2          | 46.69                            | 26          | 22          | 6          | 2                | 0.000       | 0.001       | 0.00        | 0.00        |
|                  |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| SW3133-1B        | n              | 5           | 5           | 5           | 5                                               | 5           | 5          | 5                                | 5           | 5           | 5          | 5                | 5           | 5           | 5           | 5           |
| summer           | %nd            | 0%          | 0%          | 100%        | 100%                                            | 0%          | 0%         | 0%                               | 0%          | 0%          | 0%         | 0%               | 100%        | 80%         | 100%        | 100%        |
|                  | min            | 11400       | 11800       | 0.005       | 0.005                                           | 11.7        | 11.6       | 213.9                            | 99.6        | 98.4        | 15         | 11.8             | 0.002       | 0.002       | 0.2         | 0.2         |
|                  | max            | 13000       | 13600       | 0.005       | 0.01                                            | 12.6        | 12.5       | 308.9                            | 116         | 115         | 17         | 13               | 0.002       | 0.0027      | 0.2         | 0.2         |
|                  | mean           | 12400       | 12740       | 0.005       | 0.01                                            | 12.1        | 12.0       | 274.8                            | 108         | 108         | 16         | 12               | 0.002       | 0.002       | 0.2         | 0.2         |
|                  | sd             | 589         | 745         | 0.00        | 0.00                                            | 0.3         | 0.33       | 35.77                            | 6           | 6           | 1          | 0                | 0.000       | 0.000       | 0.00        | 0.00        |
|                  |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| single sample    | 2020-09-24     | 3710        | 5270        | < 0.005     | < 0.01                                          | 8.15        | 7.94       | 189.9                            | 59.4        | 61.5        | 19         | 14               | 0.0029      | 0.0042      | < 0.2       | < 0.2       |
|                  |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| fall             | n              | 5           | 5           | 5           | 5                                               | 5           | 5          | 5                                | 5           | 5           | 5          | 5                | 5           | 5           | 5           | 5           |
|                  | %nd            | 0%          | 0%          | 80%         | 100%                                            | 0%          | 0%         | 0%                               | 0%          | 0%          | 0%         | 0%               | 80%         | 80%         | 100%        | 100%        |
|                  | min            | 3530        | 5090        | 0.005       | 0.01                                            | 8.5         | 8.65       | 180.3                            | 60.7        | 67          | 19         | 7.4              | 0.002       | 0.002       | 0.2         | 0.2         |
|                  | max            | 9050        | 9110        | 0.007       | 0.01                                            | 16.7        | 15.7       | 378.2                            | 161         | 156         | 52         | 11.9             | 0.0025      | 0.0039      | 0.2         | 0.2         |
|                  | mean           | 7050        | 7564        | 0.005       | 0.01                                            | 13          | 12.8       | 274.8                            | 128         | 125         | 40         | 10               | 0.0021      | 0.002       | 0.2         | 0.2         |
|                  | sd             | 2184        | 1520        | 0.00        | 0.00                                            | 3           | 2.7        | 83.7                             | 37          | 32          | 11         | 2                | 0.000       | 0.001       | 0.00        | 0.00        |
|                  |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| SW3133-2         | n              |             | 4           |             | 4                                               |             | 4          |                                  |             | 4           |            |                  |             | 4           |             | 4           |
| July to December | %nd            |             | 0%          |             | 50%                                             |             | 0%         |                                  |             | 0%          |            |                  |             | 25%         |             | 50%         |
|                  | min            |             | 2670        |             | 0.01                                            |             | 3.17       |                                  |             | 25.6        |            |                  |             | 0.002       |             | 0.2         |
|                  | max            |             | 7890        |             | 0.039                                           |             | 16.7       |                                  |             | 214         |            |                  |             | 0.0163      |             | 0.71        |
|                  | mean           |             | 5743        |             | 0.019                                           |             | 9.9        |                                  |             | 118         |            |                  |             | 0.007       |             | 0.38        |
|                  | sd             |             | 1931        |             | 0                                               |             | 5.3        |                                  |             | 82          |            |                  |             | 0.006       |             | 0           |



Watercourse Monitoring Data

Table 1, cont'd

|               |                | Silicon     | Silicon     | Silver      | Silver                                          | Sodium      | Sodium     | Specific<br>Conductivity - 25°C. | Strontium   | Strontium   | Sulphate   | Temperature      | Thallium    | Thallium    | Tin         | Tin         |
|---------------|----------------|-------------|-------------|-------------|-------------------------------------------------|-------------|------------|----------------------------------|-------------|-------------|------------|------------------|-------------|-------------|-------------|-------------|
|               |                | DIS<br>µg/L | TOT<br>µg/L | DIS<br>µg/L | TOT<br>µg/L                                     | DIS<br>mg/L | NA<br>mg/L | TOT<br>µS/cm                     | DIS<br>µg/L | TOT<br>µg/L | NA<br>mg/L | TOT<br>°C        | DIS<br>µg/L | TOT<br>µg/L | DIS<br>µg/L | TOT<br>µg/L |
|               | max<br>average |             |             |             | 0.1-3.0 <sup>12</sup><br>0.05-1.5 <sup>12</sup> |             |            |                                  |             |             |            | 17 <sup>13</sup> |             | 0.3<br>0.8  |             |             |
|               |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| SW3133-3B     | 2020-12-08     |             | 9960        |             | 0.09                                            |             | 7.04       |                                  |             | 217         |            |                  |             | 0.0234      |             | 0.92        |
|               |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| SW3133-4      | n              | 5           | 5           | 5           | 5                                               | 5           | 5          | 5                                | 5           | 5           | 5          | 5                | 5           | 5           | 5           | 5           |
| summer        | %nd            | 0%          | 0%          | 100%        | 100%                                            | 0%          | 0%         | 0%                               | 0%          | 0%          | 0%         | 0%               | 100%        | 100%        | 100%        | 100%        |
|               | min            | 7870        | 8070        | 0.005       | 0.005                                           | 14.6        | 14.5       | 246.7                            | 118         | 117         | 41         | 11.8             | 0.002       | 0.002       | 0.2         | 0.2         |
|               | max            | 10800       | 9830        | 0.005       | 0.01                                            | 16.5        | 16.4       | 418.4                            | 169         | 151         | 50         | 15.6             | 0.002       | 0.002       | 0.2         | 0.2         |
|               | mean           | 9208        | 8976        | 0.005       | 0.01                                            | 16          | 15.5       | 351.5                            | 138         | 135         | 45         | 13               | 0.002       | 0.002       | 0.2         | 0.2         |
|               | sd             | 1020        | 737         | 0.00        | 0.00                                            | 1           | 0.7        | 57.20                            | 17          | 13          | 3          | 1                | 0.000       | 0.000       | 0.00        | 0.00        |
|               |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
|               | 2020-09-24     | 1550        | 3430        | < 0.005     | < 0.01                                          | 5.39        | 5.3        | 157.8                            | 36.9        | 40.1        | 12         | 15.3             | 0.0023      | 0.0042      | < 0.2       | 0.21        |
|               |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| fall          | n              | 5           | 5           | 5           | 5                                               | 5           | 5          | 5                                | 5           | 5           | 5          | 5                | 5           | 5           | 5           | 5           |
|               | %nd            | 0%          | 0%          | 100%        | 60%                                             | 0%          | 0%         | 0%                               | 0%          | 0%          | 0%         | 0%               | 20%         | 40%         | 100%        | 80%         |
|               | min            | 2580        | 4630        | 0.005       | 0.01                                            | 13.3        | 13.9       | 230.9                            | 79.1        | 82.9        | 24         | 8.2              | 0.002       | 0.002       | 0.2         | 0.2         |
|               | max            | 9320        | 9310        | 0.005       | 0.013                                           | 19.7        | 18.5       | 473.1                            | 212         | 199         | 76         | 13.8             | 0.0045      | 0.0048      | 0.2         | 0.3         |
|               | mean           | 7604        | 8082        | 0.005       | 0.01                                            | 16          | 15.9       | 398.5                            | 167         | 164         | 58         | 11               | 0.00288     | 0.003       | 0.2         | 0.22        |
|               | sd             | 2528        | 1776        | 0.00        | 0.00                                            | 2.17        | 1.8        | 87.87                            | 46          | 41          | 18         | 2                | 0.001       | 0.001       | 0.00        | 0.04        |
|               |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| SW3133-5      | n              | 5           | 5           | 5           | 5                                               | 5           | 5          | 5                                | 5           | 5           | 5          | 5                | 5           | 5           | 5           | 5           |
| summer        | %nd            | 0%          | 0%          | 80%         | 100%                                            | 0%          | 0%         | 0%                               | 0%          | 0%          | 0%         | 0%               | 80%         | 80%         | 100%        | 100%        |
|               | min            | 4730        | 5300        | 0.005       | 0.01                                            | 6.97        | 6.48       | 104.3                            | 60.9        | 58.7        | 4          | 15.7             | 0.002       | 0.002       | 0.2         | 0.2         |
|               | max            | 6180        | 6140        | 0.006       | 0.01                                            | 7.66        | 8.2        | 177.4                            | 77.2        | 70.1        | 4.7        | 19.4             | 0.0024      | 0.0031      | 0.2         | 0.2         |
|               | mean           | 5236        | 5576        | 0.005       | 0.01                                            | 7.2         | 7.3        | 154.3                            | 66          | 65          | 4          | 17               | 0.00208     | 0.002       | 0.2         | 0.2         |
|               | sd             | 493         | 306         | 0.00        | 0.00                                            | 0.3         | 0.5        | 26.43                            | 6           | 4           | 0          | 1                | 0.00        | 0.000       | 0.00        | 0.00        |
|               |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| single sample | 2020-09-24     | 3040        | 4120        | < 0.005     | < 0.01                                          | 10.4        | 10.3       | 199.1                            | 60.6        | 61.5        | 18         | 15.5             | 0.0025      | 0.0042      | < 0.2       | < 0.2       |
|               |                |             |             |             |                                                 |             |            |                                  |             |             |            |                  |             |             |             |             |
| fall          | n              | 5           | 5           | 5           | 5                                               | 5           | 5          | 5                                | 5           | 5           | 5          | 5                | 5           | 5           | 5           | 5           |
|               | %nd            | 0%          | 0%          | 100%        | 100%                                            | 0%          | 0%         | 0%                               | 0%          | 0%          | 0%         | 0%               | 80%         | 80%         | 100%        | 100%        |
|               | min            | 5120        | 6430        | 0.005       | 0.01                                            | 12.6        | 12         | 259.4                            | 93.6        | 97.9        | 18         | 7.6              | 0.002       | 0.002       | 0.2         | 0.2         |
|               | max            | 6880        | 7050        | 0.005       | 0.01                                            | 13.8        | 15.4       | 284.1                            | 110         | 110         | 30         | 13               | 0.0022      | 0.0026      | 0.2         | 0.2         |
|               | mean           | 6422        | 6846        | 0.005       | 0.01                                            | 13.4        | 13         | 271.8                            | 104         | 104         | 23         | 10               | 0.0021      | 0.002       | 0.2         | 0.2         |
|               | sd             | 670         | 219         | 0.000       | 0.00                                            | 0.5         | 1          | 9.7                              | 6           | 4           | 4          | 2                | 0.000       | 0.000       | 0.00        | 0.00        |

Watercourse Monitoring Data

Table 1, cont'd

|                  |            | Titanium | Titanium           | TOC   | Sus. Solids      | Turbidity       | Uranium | Uranium          | Vanadium | Vanadium | Zinc | Zinc                 | Zirconium | Zirconium |
|------------------|------------|----------|--------------------|-------|------------------|-----------------|---------|------------------|----------|----------|------|----------------------|-----------|-----------|
|                  |            | DIS      | TOT                | TOT   | TOT              | NA              | DIS     | TOT              | DIS      | TOT      | DIS  | TOT                  | DIS       | TOT       |
|                  |            | µg/L     | µg/L               | mg/L  | mg/L             | NTU             | µg/L    | µg/L             | µg/L     | µg/L     | µg/L | µg/L                 | µg/L      | µg/L      |
|                  | max        |          | 2,000 <sup>1</sup> |       | 26 <sup>14</sup> | 9 <sup>15</sup> |         | 8.5 <sup>1</sup> |          |          |      | 24-48 <sup>16</sup>  |           |           |
|                  | average    |          | 4,600              |       | 6 <sup>14</sup>  | 3 <sup>15</sup> |         |                  |          |          |      | 7.5-22 <sup>16</sup> |           |           |
| SW3133           |            |          |                    |       |                  |                 |         |                  |          |          |      |                      |           |           |
| single sample    | 2020-07-17 |          | < 2                |       |                  | 2.47            |         | 0.144            |          | 1.18     |      | 1.2                  |           | < 0.1     |
|                  |            |          |                    |       |                  |                 |         |                  |          |          |      |                      |           |           |
| summer           | n          | 5        | 5                  | 5     | 5                | 5               | 5       | 5                | 5        | 5        | 5    | 5                    | 5         | 5         |
|                  | %nd        | 80%      | 40%                | 0%    | 60%              | 0%              | 0%      | 0%               | 0%       | 0%       | 0%   | 20%                  | 100%      | 100%      |
|                  | min        | 0.5      | 0.5                | 2.5   | 1                | 1.53            | 0.121   | 0.122            | 0.79     | 0.82     | 0.2  | 0.2                  | 0.1       | 0.1       |
|                  | max        | 0.66     | 2                  | 3.7   | 2.4              | 2.44            | 0.143   | 0.138            | 1.3      | 1.51     | 1.01 | 1                    | 0.1       | 0.1       |
|                  | mean       | 0.5      | 1.1                | 3.0   | 1                | 1.89            | 0.1304  | 0.1298           | 1.0      | 1.03     | 0.59 | 0.58                 | 0.1       | 0.1       |
|                  | sd         | 0.06     | 0.50               | 0.4   | 1                | 0.3             | 0.01    | 0.01             | 0.2      | 0.25     | 0.35 | 0.29                 | 0.0       | 0.0       |
|                  |            |          |                    |       |                  |                 |         |                  |          |          |      |                      |           |           |
| single sample    | 2020-09-24 | 0.91     | 12.4               | 6.1   | 7.2              | 11.1            | 0.0182  | 0.0276           | 1.58     | 2.19     | 1.13 | 3.6                  | < 0.1     | 0.26      |
|                  |            |          |                    |       |                  |                 |         |                  |          |          |      |                      |           |           |
| fall             | n          | 5        | 5                  |       | 5                | 5               | 5       | 5                | 5        | 5        | 5    | 5                    | 5         | 5         |
|                  | %nd        | 20%      | 0%                 |       | 20%              | 0%              | 0%      | 0%               | 0%       | 0%       | 0%   | 0%                   | 20%       | 20%       |
|                  | min        | 0.5      | 2.6                |       | 1                | 3.7             | 0.0345  | 0.0592           | 0.69     | 0.77     | 0.85 | 1.2                  | 0.1       | 0.1       |
|                  | max        | 2.66     | 28.2               |       | 27               | 21.9            | 0.118   | 0.119            | 1.55     | 2.54     | 1.39 | 4.7                  | 0.17      | 0.25      |
|                  | mean       | 1.36     | 12.28              |       | 8                | 10              | 0.07676 | 0.08932          | 1.0      | 1.57     | 1    | 2.8                  | 0.13      | 0.17      |
|                  | sd         | 0.91     | 11.37              |       | 10               | 8               | 0.03    | 0.02             | 0.3      | 0.78     | 0.2  | 1.4                  | 0.02      | 0.06      |
|                  |            |          |                    |       |                  |                 |         |                  |          |          |      |                      |           |           |
| SW3133-1B        | n          | 5        | 5                  | 5     | 5                | 5               | 5       | 5                | 5        | 5        | 5    | 5                    | 5         | 5         |
| summer           | %nd        | 80%      | 40%                | 20%   | 20%              | 0%              | 0%      | 0%               | 0%       | 0%       | 0%   | 0%                   | 100%      | 100%      |
|                  | min        | 0.5      | 0.5                | 0.66  | 1                | 2.04            | 0.0911  | 0.0866           | 1.49     | 1.58     | 0.54 | 0.92                 | 0.1       | 0.1       |
|                  | max        | 1.35     | 12.3               | 10    | 2.8              | 2.87            | 0.0996  | 0.102            | 1.89     | 2.19     | 1.37 | 3.1                  | 0.1       | 0.1       |
|                  | mean       | 0.67     | 3.608              | 2.714 | 2                | 2.51            | 0.1     | 0.0934           | 1.62     | 1.8      | 0.78 | 1.5                  | 0.1       | 0.1       |
|                  | sd         | 0.34     | 4.40               | 4     | 0.6              | 0.3             | 0.0     | 0.0              | 0.14     | 0.23     | 0.30 | 0.8                  | 0.0       | 0.00      |
|                  |            |          |                    |       |                  |                 |         |                  |          |          |      |                      |           |           |
| single sample    | 2020-09-24 | 0.86     | 35.3               | 5     | 30               | 32.2            | 0.0211  | 0.0631           | 1.48     | 4.13     | 2.24 | 13.9                 | < 0.1     | 0.24      |
|                  |            |          |                    |       |                  |                 |         |                  |          |          |      |                      |           |           |
| fall             | n          | 5        | 5                  |       | 5                | 5               | 5       | 5                | 5        | 5        | 5    | 5                    | 5         | 5         |
|                  | %nd        | 40%      | 0%                 |       | 0%               | 0%              | 0%      | 0%               | 0%       | 0%       | 0%   | 0%                   | 0%        | 0%        |
|                  | min        | 0.5      | 2.4                |       | 1.2              | 2.44            | 0.0359  | 0.0715           | 1.01     | 1.04     | 2.47 | 3.6                  | 0.13      | 0.14      |
|                  | max        | 3.25     | 38.4               |       | 18               | 26.3            | 0.128   | 0.13             | 1.52     | 3.39     | 5.11 | 14.8                 | 0.19      | 0.44      |
|                  | mean       | 1.414    | 14.92              |       | 6.08             | 12.0            | 0.09352 | 0.11             | 1.20     | 1.9      | 3.70 | 7.4                  | 0.15      | 0.26      |
|                  | sd         | 1.03     | 15.19              |       | 6.4              | 10.6            | 0.04    | 0.02             | 0.19     | 0.9      | 1.01 | 4.5                  | 0.02      | 0.12      |
|                  |            |          |                    |       |                  |                 |         |                  |          |          |      |                      |           |           |
| SW3133-2         | n          |          | 4                  |       |                  |                 |         | 4                |          | 4        |      | 4                    |           | 4         |
| July to December | %nd        |          | 25%                |       |                  |                 |         | 0%               |          | 0%       |      | 0%                   |           | 25%       |
|                  | min        |          | 2                  |       |                  |                 |         | 0.07             |          | 0.92     |      | 21.6                 |           | 0.1       |
|                  | max        |          | 192                |       |                  |                 |         | 0.312            |          | 14       |      | 182                  |           | 1.14      |
|                  | mean       |          | 67                 |       |                  |                 |         | 0.19             |          | 5        |      | 85                   |           | 0.5       |
|                  | sd         |          | 76                 |       |                  |                 |         | 0.09             |          | 5        |      | 61                   |           | 0.4       |
|                  |            |          |                    |       |                  |                 |         |                  |          |          |      |                      |           |           |



Watercourse Monitoring Data

Table 1, cont'd

|               |            | Titanium | Titanium           | TOC  | Sus. Solids      | Turbidity       | Uranium | Uranium          | Vanadium | Vanadium | Zinc  | Zinc                 | Zirconium | Zirconium |
|---------------|------------|----------|--------------------|------|------------------|-----------------|---------|------------------|----------|----------|-------|----------------------|-----------|-----------|
|               |            | DIS      | TOT                | TOT  | TOT              | NA              | DIS     | TOT              | DIS      | TOT      | DIS   | TOT                  | DIS       | TOT       |
|               |            | µg/L     | µg/L               | mg/L | mg/L             | NTU             | µg/L    | µg/L             | µg/L     | µg/L     | µg/L  | µg/L                 | µg/L      | µg/L      |
|               | max        |          | 2,000 <sup>1</sup> |      | 26 <sup>14</sup> | 9 <sup>15</sup> |         | 8.5 <sup>1</sup> |          |          |       | 24-48 <sup>16</sup>  |           |           |
|               | average    |          | 4,600              |      | 6 <sup>14</sup>  | 3 <sup>15</sup> |         |                  |          |          |       | 7.5-22 <sup>16</sup> |           |           |
| SW3133-3B     | 2020-12-08 |          | 227                |      | 190              |                 |         | 0.201            |          | 17.1     |       | 159                  |           | 1.11      |
|               |            |          |                    |      |                  |                 |         |                  |          |          |       |                      |           |           |
| SW3133-4      | n          | 5        | 5                  | 5    | 5                | 5               | 5       | 5                | 5        | 5        | 5     | 5                    | 5         | 5         |
| summer        | %nd        | 80%      | 0%                 | 0%   | 0%               | 0%              | 0%      | 0%               | 0%       | 0%       | 0%    | 0%                   | 100%      | 100%      |
|               | min        | 0.5      | 2.21               | 2.6  | 2                | 3.25            | 0.0816  | 0.0895           | 1.14     | 1.24     | 1.86  | 3.8                  | 0.1       | 0.1       |
|               | max        | 4.92     | 7.7                | 3.7  | 4.4              | 5.62            | 0.14    | 0.133            | 2.08     | 1.76     | 17.5  | 12.5                 | 0.1       | 0.1       |
|               | mean       | 1.4      | 4                  | 3.0  | 3                | 4.5             | 0.11    | 0.11             | 1.36     | 1.49     | 6.66  | 7                    | 0.1       | 0.1       |
|               | sd         | 1.8      | 2                  | 0.4  | 1                | 0.9             | 0.02    | 0.02             | 0.36     | 0.2      | 5.62  | 3                    | 0.0       | 0.00      |
|               |            |          |                    |      |                  |                 |         |                  |          |          |       |                      |           |           |
|               | 2020-09-24 | 1.22     | 39.6               | 4.4  | 12               | 56.2            | 0.0184  | 0.0513           | 1.26     | 4.18     | 25    | 57.7                 | < 0.1     | 0.38      |
|               |            |          |                    |      |                  |                 |         |                  |          |          |       |                      |           |           |
| fall          | n          | 5        | 5                  |      | 5                | 5               | 5       | 5                | 5        | 5        | 5     | 5                    | 5         | 5         |
|               | %nd        | 0%       | 0%                 |      | 0%               | 0%              | 0%      | 0%               | 0%       | 0%       | 0%    | 0%                   | 20%       | 0%        |
|               | min        | 1.33     | 3.2                |      | 2                | 3.67            | 0.0386  | 0.0789           | 1.37     | 2.38     | 7.37  | 9.3                  | 0.1       | 0.21      |
|               | max        | 3.02     | 51.9               |      | 26               | 60.7            | 0.177   | 0.192            | 3.15     | 4.86     | 79.5  | 140                  | 0.43      | 0.82      |
|               | mean       | 1.788    | 14.3               |      | 7                | 16.2            | 0.12872 | 0.14078          | 2.36     | 3.30     | 24.5  | 38                   | 0.2       | 0.38      |
|               | sd         | 0.62     | 18.9               |      | 9                | 22.3            | 0.049   | 0.038            | 0.64     | 0.91     | 27.77 | 51                   | 0.1       | 0.23      |
|               |            |          |                    |      |                  |                 |         |                  |          |          |       |                      |           |           |
| SW3133-5      | n          | 5        | 5                  | 5    | 5                | 5               | 5       | 5                | 5        | 5        | 5     | 5                    | 5         | 5         |
| summer        | %nd        | 80%      | 0%                 | 20%  | 0%               | 0%              | 0%      | 0%               | 0%       | 0%       | 0%    | 0%                   | 80%       | 100%      |
|               | min        | 0.5      | 5.4                | 3    | 3.6              | 6.29            | 0.0281  | 0.0326           | 0.67     | 1.28     | 0.41  | 1.5                  | 0.1       | 0.1       |
|               | max        | 6.99     | 16.1               | 10   | 43               | 8.05            | 0.0544  | 0.0546           | 1.54     | 2.02     | 2.34  | 5.5                  | 0.1       | 0.1       |
|               | mean       | 1.80     | 9.32               | 5    | 13               | 7.2             | 0.03662 | 0.04208          | 1.0      | 1.6      | 0.84  | 3                    | 0.1       | 0.1       |
|               | sd         | 2.60     | 3.78               | 3    | 15               | 0.7             | 0.009   | 0.007            | 0.29     | 0.24     | 0.75  | 1                    | 0.0       | 0.00      |
|               |            |          |                    |      |                  |                 |         |                  |          |          |       |                      |           |           |
| single sample | 2020-09-24 | 1.64     | 29.9               | 6.2  | 9.6              | 23.1            | 0.0346  | 0.0544           | 1.33     | 2.76     | 3.28  | 10.1                 | 0.1       | 0.82      |
|               |            |          |                    |      |                  |                 |         |                  |          |          |       |                      |           |           |
| fall          | n          | 5        | 5                  |      | 5                | 5               | 5       | 5                | 5        | 5        | 5     | 5                    | 5         | 5         |
|               | %nd        | 20%      | 0%                 |      | 20%              | 0%              | 0%      | 0%               | 0%       | 0%       | 0%    | 0%                   | 40%       | 40%       |
|               | min        | 0.5      | 4.1                |      | 1                | 3.97            | 0.0708  | 0.094            | 0.56     | 0.76     | 1.85  | 2.8                  | 0.1       | 0.1       |
|               | max        | 3.35     | 32.5               |      | 14               | 27.6            | 0.115   | 0.128            | 1.54     | 3.1      | 5.66  | 15.2                 | 0.17      | 0.33      |
|               | mean       | 1.5      | 13.3               |      | 6                | 11              | 0.09246 | 0.10244          | 1        | 1.53     | 3.1   | 6                    | 0.1       | 0.2       |
|               | sd         | 1.0      | 11.4               |      | 5                | 8.8             | 0.014   | 0.013            | 0.3      | 0.88     | 1.3   | 5                    | 0.0       | 0.1       |

Table Notes on next page

Table 1, cont’d

Notes:

- Statistics calculated with the detection limit, where values were not detected.  
BC ENV approved water quality guidelines for protection of freshwater aquatic life applied unless otherwise stated  
Minimum hardness average of the creek (78.2 mg/L) was used to calculate lowest level of hardness-dependant water quality guidelines for screening purposes.  
samples that exceeded the minimum guideline were highlighted to be assessed based on the guideline associated with their sample hardness  
DIS = dissolved state, TOT = total state
- <sup>1</sup> BC ENV working water quality guideline  
<sup>2</sup> hardness-dependant; max (e[1.03 \* ln(Hss) - 5.274]) ranges from 0.19 to 0.65 µg/L Cd; average (e[0.736 \* ln(Hss) - 4.943]) ranges from 0.11 to 0.30 µg/L Cd  
<sup>3</sup> Cr(IV) / Cr (III)  
<sup>4</sup> site-specific BC Biotic Ligand Model guidelines for dissolved copper  
<sup>5</sup> minimum values for dissolved oxygen  
<sup>6</sup> average guideline is a geomean of 400 CFU/100 mL for E.coli; E.coli values in the average row are geomeans.  
<sup>7</sup> if hardness > 8 mg/L : e(1.273 ln (hardness) - 1.460); if hardness < 8 mg/L : 3 ug/L total lead; if mean hardness > 8 mg/L CaCO3 then, 3.31 + e(1.273 ln (mean hardness) - 4.704) ug/L total lead  
<sup>8</sup> 0.01102 hardness + 0.54 maximum mg/L total Mn; 0.0044 hardness + 0.605 average mg/L total Mn  
<sup>9</sup> 25 ug/L total Ni if hardness is < or = 60 mg/L CaCO3, 110 ug/L Ni at hardness > 60 to 180 mg/L as CaCO3, 150 ug/L Ni at hardness of 120 to 180 mg/L as CaCO3  
<sup>10</sup> draft Vancouver Island Objective, applies to monthly samples collected June to September; our data was collected 4 times in 30 days in November  
<sup>11</sup> optimum pH range  
<sup>12</sup> 0.1 ug/L Ag max, 0.05 ug/L Ag ave if hardness is <=100 mg/L; otherwise 3 mg/L Ag max, 1.5 mg/L Ag ave  
<sup>13</sup> draft objective proposed to protect juvenile Coho (the most sensitive species); average weekly temperature at any location in the creeks  
<sup>14</sup> 25 and 5 mg/L over ambient levels of 2 mg/L in the upper Sooke River watersheds  
<sup>15</sup> max: 9 NTU (8NTU above ambient levels in the upper Sooke River watershed) at any time during clear flow periods, and average 3 NTU (2NTU above ambient levels during clear flow periods  
<sup>16</sup> if H is >90 mg/L then 33 +0.75 (hardness-90); if H is less < or = 90 mg/L then 33 ug/L or 0.033 mg/L; if H is >90 then 75+0.75(hardness-90); if less < or = 90 then 7.5 ug/L or 0.0075 mg/L

|    |
|----|
| xx |
| xx |

Value exceeds the provincial guideline protective for aquatic life  
Italicized value exceeds a guideline/objective, which is only partially applicable. Further investigation is needed.

Sampling Locations

- SW3133 mouth of Hagan Creek; below West Saanich Road  
SW3133-1B Graham Creek above confluence with Hagan Creek and downstream of Centennial Park  
SW3133-2 Stevens Creek, downstream of pipe that drains Keating Industrial Park off Kirkpatrick Cres.  
SW3133-3B Manhole (MH23-49) west side of Kirkpatrick Cres/Oldfield Road intersection  
SW3133-4 Stevens Creek, ditch on Willow Way at Hydro poles, upstream of confluence with Graham Creek  
SW3133-5 Graham Creek above confluence with Stevens Creek





## **APPENDIX G**

### **CRD Public Health and Environmental Concern Rating System**





## STORMWATER DISCHARGE RATING SYSTEM

The CRD evaluates stormwater discharges for public health and environmental concerns using a rating system for stormwater discharges developed by the CRD titled *Stormwater Discharge Rating System for the Capital Regional District* (Drinnan, 1997). As part of the rating system, the following study was used to determine levels of public use, coastline habitat sensitivity and flushing characteristics of the marine receiving waters:

- *An Evaluation of the Coastline Sensitivity Associated with Stormwater Discharges on the Saanich Peninsula* (Drinnan, 1997)

Public shoreline use ratings indicate the potential for public contact with stormwater. These ratings were updated in 2010.

The rating of discharges allows the jurisdictions involved to better manage limited funds and undertake remedial measures where necessary. A copy of the rating system and the coastline sensitivity evaluations are available upon request from the CRD. A brief explanation of the stormwater discharge rating system follows.

### 1.1 Public Health Concern

IWMP staff rate each discharge as a high, moderate or low level of concern for public health based on the level of bacterial contamination in the stormwater and the potential for human contact. The parameters used to assess the level of concern for public health are:

- *Escherichia coli* (*E.coli*) concentrations in the stormwater discharge
- discharge flow rate
- location of the discharge (e.g., below high-water line)
- public use of the shoreline (uses such as swimming, fishing, or kayaking)

The level of contamination is used to assign a bacterial rating. Public shoreline use ratings are used to indicate the potential for public contact with stormwater and depends on the type of activities carried out on the shoreline. Table 1 shows criteria for the bacterial and public shoreline use ratings.

**Table 1 Fecal Coliform and Public Shoreline Use Rating Criteria**

| Rating | Bacterial Rating Criteria                                                 | Rating | Public Shoreline Use Rating Criteria            |
|--------|---------------------------------------------------------------------------|--------|-------------------------------------------------|
| 1      | No flow measured or <i>E.coli</i> count consistently under 200 CFU/100 mL | 1      | Low contact (e.g., inaccessible, beach walking) |
| 2      | <i>E.coli</i> count between 200 and 5,000 CFU/100 mL                      | 2      | Secondary contact (e.g., kayaking)              |
| 3      | <i>E.coli</i> count greater than 5,000 CFU/100 mL                         | 3      | Primary contact (e.g., swimming, scuba diving)  |

**Note:** *E.coli* counts above 200 CFU/100 mL (on average) indicate the potential to cause adverse public health effects from primary recreational activities such as swimming or diving.

### 1.2 Environmental Concern

Environmental concerns are based on a contaminant rating of discharge sediments. The contaminant rating is determined by comparing the sediment concentration of each of 8 metals and 2 groups of organic contaminants (Cn) with the CRD MSQG to obtain a ratio (Cn/MSQG). To account for potential additive effects, these ratios are summed to calculate the toxic equivalent unit (TEU). Table 2 provides the criteria for determining the contaminant rating.



**Table 2 Criteria for Determining the Contaminant Rating**

| Contaminant Rating | Criteria for Determining the Contaminant Rating                                                                                                     |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Low                | Sum of the individual ratios of Cn/MSQG (TEU) is less than 1.0                                                                                      |
| Moderate           | Sum of the individual ratios of Cn/MSQG (TEU) is greater than or equal to 1.0, but no individual parameter exceeds, or is equal to, a value of 0.75 |
| High               | The ratio Cn/MSQG is greater than, or equal to, 0.75 for any single parameter                                                                       |

Discharges evaluated are located near environmentally sensitive areas, in creeks or near heavily settled areas where there is an increased probability of pollution. All discharges sampled for environmental concern are sampled for at least 2 years to confirm the contaminant concentrations and contaminant(s) of concern. Only a small number of discharges can be sampled each year due to budgetary constraints; therefore, each discharge selected for sampling can only be sampled once per year.

Discharges with a confirmed high contaminant rating are investigated to determine the source(s) of contamination. The priority in which high-rated discharges are investigated and problems mitigated is determined by calculating a habitat rating (high, moderate or low). The habitat rating is based on the habitat sensitivity, discharge flow and marine flushing characteristics. The following briefly describes the rating criteria for the habitat rating.

**Table 3 Criteria for Determining Ratings for Habitat Sensitivity, Discharge Flow and Marine Flushing**

| Habitat Sensitivity Rating |                                                       | Discharge Flow Rating |                            | Marine Flushing Ratings |                                            |
|----------------------------|-------------------------------------------------------|-----------------------|----------------------------|-------------------------|--------------------------------------------|
| Rating                     | Criteria                                              | Rating                | Criteria                   | Rating                  | Criteria                                   |
| 1                          | Low productivity; less diverse habitats               | 0.5                   | Less than 50 L/minute      | 0.5                     | Open shoreline; high flushing              |
| 2                          | Moderate productivity; diverse habitats               | 1                     | Between 50 to 500 L/minute | 1                       | Partially enclosed area; moderate flushing |
| 3                          | High productivity or endangered or protected habitats | 1.5                   | Greater than 500 L/minute  | 1.5                     | Enclosed area; poor flushing               |

These 3 ratings (habitat sensitivity, discharge flow and marine flushing) are summed to determine a habitat rating as shown in Table 4. The habitat rating assigned to each discharge will allow limited resources to be spent in a prioritized manner.

**Table 4 Criteria for Establishing the Habitat Rating**

| Habitat Rating and Mitigative Priority | Sum of Criteria (Habitat + Flow + Flushing) |
|----------------------------------------|---------------------------------------------|
| Low                                    | 2.0-3.0                                     |
| Moderate                               | 3.5-4.5                                     |
| High                                   | 5.0-6.0                                     |

#### **OTHER CONCERNS**

There are a number of other concerns that have been jointly reviewed and discussed by staff from IWMP and the other jurisdictions involved. This review and discussion assists in setting priorities for remediation of discharges with a high level of concern for public health and the environment. These include:

- the cost of remediation
- the likelihood that remediation will be successful
- compatibility with the priorities of the jurisdictions
- public interest