Core Area Stormwater Quality Program

2023 Report

Capital Regional District | Parks, Recreation & Environmental Services, Environmental Protection

Including the jurisdictions of:

City of Colwood
Township of Esquimalt
City of Langford
District of Oak Bay
District of Saanich
City of Victoria
Town of View Royal
Esquimalt First Nation
Songhees First Nation
Department of National Defence

Prepared by
Stormwater Quality Program

Capital Regional District
625 Fisgard Street, Victoria, BC V8W 2S6
T: 250.360.3000 | F: 250.360.3079
www.crd.bc.ca

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CORE AREA STORMWATER QUALITY PROGRAM
2023 REPORT

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Terms & Abbreviations

Ag	silver
As	arsenic
$CaCO_3$	calcium carbonate
Cd	cadmium
CCME	Canadian Council of Ministers of the Environment
CFU	colony-forming unit
Cn	contaminant concentration
Cr	chromium
CRD	Capital Regional District
Cu	copper
d/s	downstream
DIS	dissolved state
DND	Department of National Defence
ENV	BC Ministry of Environment and Climate Change Strategy
EPT	Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies)
FC	fecal coliform
HBI	Hilsenhoff Biotic Index
Hg	mercury
HPAH	high molecular weight polycyclic aromatic hydrocarbons
ISQG	Interim Sediment Quality Guidelines
LPAH	low molecular weight polycyclic aromatic hydrocarbons
LWMP	Liquid Waste Management Program
MSQG	Marine Sediment Quality Guidelines
NH_3	ammonia
NO_2	nitrite
NO_3	nitrate
PAH	polycyclic aromatic hydrocarbon
Pb	lead
PEL	probable effects level
QA/QC	quality assurance/quality control
SPSO	sewage pump station overflow
SQG	sediment quality guidelines
TOC	total organic carbon
TOT	total state
TEU	toxic equivalent unit
u/s	upstream
WQG	water quality guidelines
Zn	zinc

CORE AREA STORMWATER QUALITY PROGRAM
2023 REPORT

1.0 INTRODUCTION

The Capital Regional District (CRD) Stormwater Quality Program (Program) works to identify and reduce contamination in stormwater, creeks and the ocean through monitoring, assessment, collaboration and education. In the core area, this work fulfills commitments in the Core Area Liquid Waste Management Plan (LWMP) and is done in partnership with participating municipalities and First Nations, with the goal of protecting human health and the environment. Program results are communicated to the participating partners and reports are available on the CRD website (www.crd.bc.ca).

The program assesses stormwater discharges in the core area and assigns priority ratings for mitigative action for municipalities to consider. CRD staff identify contamination and impacts from stormwater through bacterial and chemical sampling. Where contamination is found, CRD staff work with municipal staff to find and eliminate the source. The storm drain systems are owned and operated by the municipalities and the municipalities have the responsibility to carry out remedial measures where possible. In addition, CRD staff also conduct sampling in twelve major watercourses and the near-shore marine environment.

This report summarizes the results of work completed in 2023 (early 2024 data is considered when possible). Water and sediment quality data, including details about sampling locations and how discharges are rated for public health and environmental concern, are available in the Appendices.

2.0 RESULTS AND DISCUSSION

2.1 Stormwater Discharge Evaluations

The Program evaluates water and/or sediment quality in approximately 550 core area stormwater discharges from the coastline between the Colwood-Metchosin border in the west and the Saanich-Central Saanich border in the east, including Esquimalt Lagoon, Esquimalt and Victoria harbours, the Gorge, Portage Inlet and the City of Langford coastline along Saanich Inlet (see Appendix A for locations).

2.1.1 Public Health Ratings

Each year, CRD staff sample a selection of stormwater discharges for analysis of bacterial levels. *E.coli* is measured as an indicator of fecal contamination and possible presence of pathogens. Staff assign a “public health concern rating” to each discharge based on the level of *E.coli* contamination in the discharge flow and potential for the public to contact the flow. While the CRD does not actually evaluate public health risk, this method is used to prioritize the discharges. This service allows appropriate jurisdictions to prioritize remedial measures where they will have the most benefit. Appendix H describes the CRD public health concern rating system.

In 2023, CRD staff sampled 166 stormwater discharges twice for *E.coli* concentrations (in winter and summer). These discharges included those previously rated as high- and moderate-priority, with a subset of low-priority discharges (to monitor for change).

Forty-seven percent of the discharges had one or more *E.coli* counts greater than 400 colony forming units (CFU)/100 mL, a level that indicates sources of sewage or animal waste with potential to cause adverse effects for public members engaging in primary recreational activities (e.g., swimming, diving). However, many of these discharges have low flows or are located where there is little risk of public contact. Considering the likelihood for contact, staff assigned the following public health concern ratings to allow prioritization:

- 89 low ratings
- 52 moderate ratings
- 25 high ratings (Table A, Figure B)

The number of high-rated discharges for public health has decreased overtime (see Figure A). The decreasing trend highlights work done by CRD staff to identify contamination and the ongoing efforts by the municipalities to replace, repair and reline old conveyance infrastructure, and work with residents and property owners to repair cross-connections.

While the trend has decreased, the number of high-rated discharges increased from 22 to 25 in 2023 (Figure A and Table A). While sources of contamination are fixed or minimized, ongoing monitoring continues to identify new sources. The 2023 bacterial data indicates there are three newly-found sources of contamination. CRD staff will work to narrow the sources down in 2024.

In 2023, lower bacterial counts were measured in two of the high-rated discharges due to repairs, however, both remain on the high-rated list due to other bacterial sources being present. Continued decline is challenging with aging wastewater and stormwater conveyance infrastructure that includes private lateral pipes, building development and renovations that often create the potential for stormwater-sewage cross-connections.

Of the 25 high-rated discharges in the core area, 17 have remained high-rated for at least five years. The sources of contamination in these discharges are challenging or costly to repair or remediate, and some discharges have multiple sources of contamination in a single catchment, adding difficulty to finding the sources.

The public health concern ratings for each discharge and bacterial stormwater data, can be found in appendices B and C.

Figure A. Number of Discharges Assigned a High Public Health Concern Rating Over Time

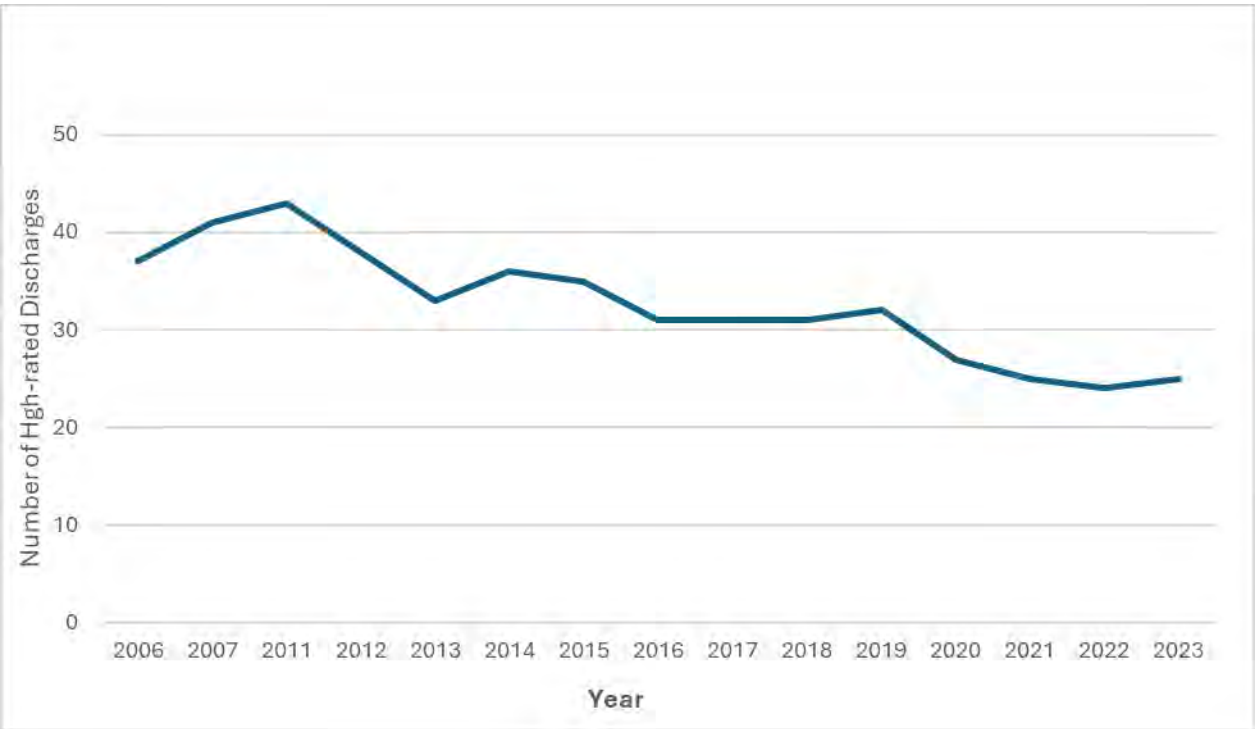


Table A. Number of Discharges with a High Public Health Concern Rating from 2011 to 2023

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Number of Discharges Assessed	(186)	(114)	(150)	(142)	(152)	(164)	(167)	(168)	(175)	(180)	(175)	(183)	(166)
	Number of Discharges Assigned a High Public Health Concern Rating												
Colwood	1	0	0	1	0	0	0	1	0	0	0	0	0
View Royal	1	1	0	0	0	0	0	0	1	0	0	0	0
Esquimalt	7	7	8	7	5	6	6	7	5	4	3	4	5
Esquimalt private[1]	*	*	0	0	1	0	2	1	1	0	0	0	0
DND	0	0	0	0	0	0	0	0	0	0	0	0	0
Saanich	2	3	4	5	5	6	4	1	3	4	4	2	1
Saanich private[1]	*	0	0	0	0	0	0	0	0	0	0	0	0
Victoria	20	17	13	12	14	11	11	15	14	13	12	13	15
Victoria private[1]	3	1	1	2	2	2	2	1	1	1	0	0	0
Oak Bay	9	9	7	9	8	6	6	5	6	5	6	3	4
Langford	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**43**	**38**	**33**	**36**	**35**	**31**	**31**	**31**	**31**	**27**	**25**	**22**	**25**

Notes:
[1] Discharges that are not part of the municipal infrastructure are not under municipal jurisdiction and are separated out from the municipal totals.
*Private discharges included in the municipal totals.

Table B. Stormwater Discharges Assigned a High Public Health Concern Rating in 2022 and 2023

Jurisdiction	Stormwater Discharges Rated High for Public Health Concern	
	2022	2023
City of Colwood	-	-
Township of Esquimalt	744B, 780, 805, 806	744B, 780, 805, 806, 812
Township of Esquimalt – private[1]	-	-
City of Langford	-	-
District of Oak Bay	245, 318, 322	245, 307, 318, 322
District of Saanich	503, 567	503
City of Victoria	209, 216, 222, 230, 603, 607, 611, 614, 636, 650, 758A, 775, 777A	209, 214, 216, 222, 230, 603, 607, 607A 611, 614, 636, 650, 758A, 775, 777A
City of Victoria – private[1]	-	-
Town of View Royal	-	-
Esquimalt First Nation	-	-
Songhees First Nation	-	-
DND	-	-

Notes:
[1] Discharges that are not part of the municipal infrastructure are not under municipal jurisdiction. Refer to Figure B and Figure C for stormwater discharge locations.

2.1.2 Environmental Concern

Through monitoring and ratings, CRD staff also prioritize stormwater discharges based on their potential for environmental impact. Data and priority listings are provided to local governments, who are responsible for addressing high-rated discharges based on their own priorities.

Environmental concern ratings are based on concentrations of metals and organic contaminants (polycyclic aromatic hydrocarbons [PAH]) relative to sediment quality guidelines (for the protection of marine aquatic life). Contaminants are measured in sediment within the stormwater collection system (e.g., manholes, ditches and creeks). Discharges are sampled for consecutive years until the rating and contaminant(s) are confirmed. Once confirmed, the discharge is targeted for corrective action starting with an investigation to locate the contaminant source(s). Appendix G contains detailed information about the CRD environmental concern rating system. Stormwater sediment data and ratings can be found in Appendix E.

In 2023, CRD staff collected 21 stormwater sediment samples in the Core Area. Based on the concentrations of metals and PAHs, this data resulted in environmental concern ratings for 16 discharges, as follows:

- Nine were assigned a low rating.
- Seven were assigned a moderate rating.
- None were assigned a high rating.

While none of the assessed discharges were assigned a high rating, several discharges are considered high-priority due to contamination found in previous years. These discharges are on the Corrective Action List as described below. Discharges 655 and 687 were rated in 2022 but received lower ratings in 2023 and will continue to be monitored.

CORRECTIVE ACTION LIST

CRD staff make recommendations for corrective action to find and eliminate sources of chemical contamination in a catchment when a rating remains high for two consecutive years and the specific parameter(s) of concern are confirmed. Based on data up to 2023, the CRD recommends 19 discharges for corrective action in the core area (shown in Table C). Locations of discharges identified for corrective action, are shown in Figure B.

The number of discharges recommended for action has fluctuated between 18 to 22 for the past seven years. Many discharges recommended for action have been a concern for more than ten years. Several of the discharges with elevated metals are in large catchments with industrial land use, and along shorelines where historical practices or contaminated fill may have resulted in contamination (e.g., discharges 614, 620, 627, 629, 634, 636). Spills are more common in these areas as well. In addition, sources of contaminants in stormwater sediment can be complex to find and eliminate for the following reasons:

- Sediment is not always present when sampling;
- Contaminant levels fluctuate over time;
- Sources of contamination can occur as non-point sources (e.g., from roadways, parking lots) and transient point sources (e.g., spills); and
- Sediment can reflect past practices that are no longer occurring.

In 2019, CRD staff started collecting water samples for contaminant analysis to complement the sediment data and to enable staff to detect more recent contamination events. Contaminants dissolved in water are often more likely to cause toxicity in aquatic organisms (more bioavailable).

CRD SOURCE CONTROL

The CRD Source Control education program increases awareness of products used on commercial and private sites that have the potential to leach into surrounding waterways. As well, the use and maintenance of stormwater rehabilitation units (that capture the sediments before they reach the environment) has

increased. The CRD and municipalities will continue to work together to identify and eliminate potential sources of contamination for these discharges.

2.1.3 Aqueous Contaminants in Stormwater Discharges

CRD staff measured contaminants in water to provide more information about contaminant concentrations, sources, bioavailability, loadings, and to determine if a source is ongoing or dependent on precipitation. Recent data collected from 2022 and 2023 are provided in Appendix E.

Data from 117 discharges indicated that approximately 24% of stormwater discharges sampled in the core area do not have elevated metals based on comparisons to BC water quality guidelines for protection of aquatic life. Copper was the metal of most concern in CRD discharges. 71% of stormwater discharges in the core area had total copper concentrations that were elevated above the BC marine guideline for protection of aquatic life (maximum of 3 µg/L). Other metals that exceeded BC approved freshwater and/or marine guidelines were iron (14% of samples), zinc (9%), arsenic (0.8%) and lead (0.8%). Stormwater discharges along Victoria Harbour had the highest concentrations of metals.

CRD staff measured aqueous PAHs in 47 stormwater discharges in the core area. 83% of the discharges did not have an exceedance of the BC guideline for protection of aquatic life. The majority of discharges that exceeded PAH guidelines were along Victoria Harbour. Pyrene and benzo(a)pyrene were the PAHs most often above guidelines.

While the impact of these storm drain discharges on the marine environment is unknown, CRD staff have measured elevated zinc and copper in three locations in the ocean adjacent to storm drains along Victoria Harbour (between Belleville Street and Jutland Road) that have some of the highest levels of contamination.

The highest concentrations occurred in stormwater discharge 629 along the Victoria shoreline at Rock Bay. An upstream copper measurement at this location was more than 10,000 times greater than the marine water quality guideline. Exceedances for aluminum, cadmium, chromium, iron, lead and zinc were 10 to 100 times greater than guidelines. CRD staff have narrowed down one source of contamination to inputs along Rock Bay Avenue and City of Victoria staff are investigating further.

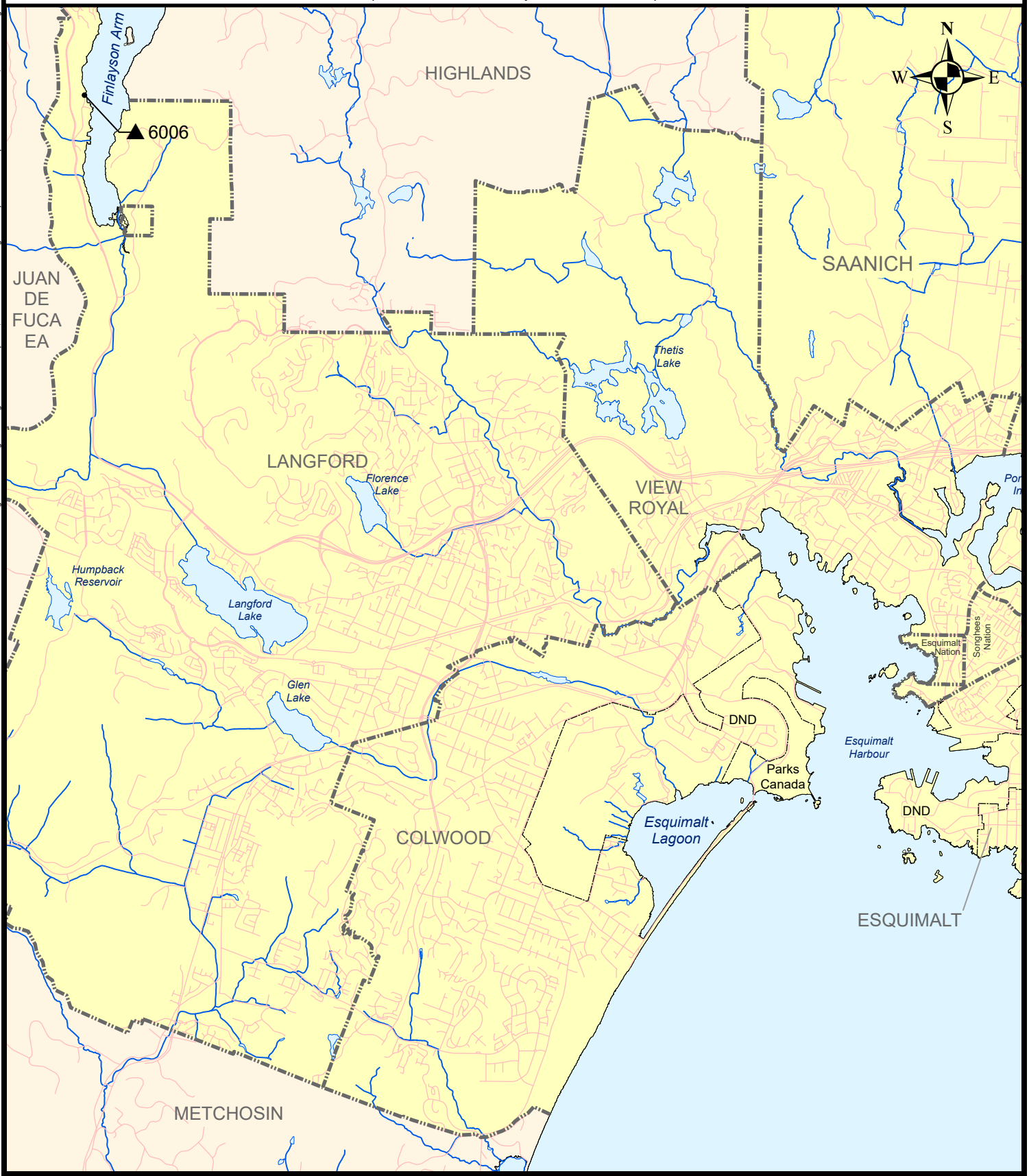
Table C. Discharges Recommended for Action Due to Elevated Sediment Chemical Contaminant Concentrations

Jurisdiction	Discharges Recommended for Corrective Action	Total
City of Colwood	-	0
Township of Esquimalt	737, 742, 749, 806	4
Township of Esquimalt – private[1]	-	0
City of Langford	6006	1
District of Oak Bay	250, 306, 307, 310	4
District of Saanich	505	1
District of Saanich – private[1]	-	-
City of Victoria	603, 614, 620, 627, 629, 633, 634, 636	8
City of Victoria – private[1]	649	1
Town of View Royal	-	0
DND	-	0
Total		**19**

Notes:
[1] Discharges that drain from private property do not fall under municipal jurisdiction.

Figure B - Core Area 2023

Stormwater Discharges Requiring Action for Public Health and Environmental Concerns
(Metchosin to Esquimalt Border)



Making a difference...together

Kilometres
0 0.5 1

Projection: UTM ZONE 10N NAD 83

Discharges Requiring Action

- ■ High Public Health Rating
- ▲ High Environmental Rating and/or Recommended for Action

- Municipal Boundaries
- DND Boundaries
- Streams and Rivers
- Roads
- Stormwater Monitoring Area

Figure C - Core Area 2023

Stormwater Discharges Requiring Action for Public Health and Environmental Concerns
(Esquimalt to Central Saanich Border)

Kilometres
0 1 2

Projection: UTM ZONE 10N NAD 83

Discharges Requiring Action

- ■ High Public Health Rating
- ▲ High Environmental Rating and/or Recommended for Action

- Municipal Boundaries
- DND Boundaries
- Streams and Rivers
- Roads
- Stormwater Monitoring Area

CRD - Facilities Management & Engineering Services - Apr 23, 2024 - Technologist: ssuljancich - Map Document: SWQCoreDischargeConcern2023.mxd

2.2 Contaminant Source Investigations

In 2023, CRD staff conducted bacterial source investigations in the catchment areas of thirteen stormwater discharges and investigated inputs into the ocean at Willows Beach. The results of these investigations are presented in Table D.

CRD completed investigations in three areas where some storm drains were eliminated as a major source of contamination in the marine environment (Cordova Bay and Cecelia Creek). Ten of the investigations are ongoing due to the presence of multiple contamination sources, lower bacteria counts or lack of flows available to sample in 2023.

A lot of effort was dedicated by Esquimalt and Victoria staff to eliminate sources of sewage entering Gorge Creek through discharge 744B and West Bay through discharge 777A. Esquimalt relined more stormwater and sewage infrastructure in the 744B catchment, while Victoria made repairs to old infrastructure in the 777A catchment. Both catchments are displaying reduced bacterial levels, but other sources still exist.

Table D. 2023 Summary of CRD Stormwater Bacterial Source Investigations in the Core Area

Discharge #	Municipality	# of Sampling Events	Investigation Status
216	Victoria (Ross Bay)	3	Ongoing; multiple sources.
250	Oak Bay (McNeil Bay)	1	Ongoing; multiple sources.
316	Oak Bay (Willows Beach)	1	Ongoing; multiple sources.
577	Saanich (Cordova Bay)	1	Complete; bacterial counts low and don't account for nearby odours.
578	Saanich (Cordova Bay)	1	Complete; bacterial counts low and don't account for nearby odours.
629	Victoria (Rock Bay)	1	Ongoing; one source narrowed, multiple sources.
641	Victoria/Saanich (Cecelia Creek)	2	Complete; BC Hydro spill monitoring.
650	Victoria (Gorge)	3	Narrowed.
744B	Esquimalt (Gorge Creek)	2	Ongoing; Esquimalt fixed a source, replaced and relined sections of pipe; another source exists.
777A	Victoria/Esquimalt (West Bay)	4	Ongoing; one source fixed another narrowed.
779	Esquimalt (West Bay)	2	Ongoing; counts lower.
780	Esquimalt (West Bay)	2	Ongoing; inconclusive.
805	Esquimalt (Fleming Beach)	1	Ongoing; surges.
Various draining to Willows Beach	Oak Bay (Willows Beach)	2	Narrowed; eliminated sources and will focus investigations on discharge 318.

Many of the discharges with elevated metals are in large catchments with commercial/industrial land use and along shorelines where historical practices or contaminated fill may have resulted in contamination (e.g., discharges 614, 620, 627, 629, 634, and 636). Spills are more common in these areas. These sources are challenging to narrow down and remediate.

Overall, CRD staff have narrowed down sources in 11 of the 20 stormwater catchments on the action list and continue to work with municipal staff on eliminating or lessening these sources (see previous reports for detail).

2.3 Major Watercourse Monitoring

CRD staff monitor watercourses to provide information about watershed health to internal CRD, provincial and municipal staff, community groups and the public. In 2023, CRD staff continued to monitor Bee, Bowker, Cecelia, Colquitz, Colwood, Craigflower, Douglas, Hospital, Noble, Selleck and Tod creeks, Goldstream River and Mill Stream. See Appendix F for the watercourse data.

Each year, staff collect water quality data twice at the discharge of each creek, providing a snapshot of creek health conditions in the wet and dry seasons. In addition, staff conduct more comprehensive watershed health assessments in two to three core area watercourses each year, with the goal to assess each watercourse in this manner every five years.

In 2023, CRD staff assessed the health of Cecelia Creek and Mill Stream watersheds more thoroughly through the following activities:

- measuring water quality at least 5 times in 30 days in both summer and fall at various locations in the watersheds;
- measuring additional water quality parameters, including metals; and
- collecting benthic invertebrate animals for assessment of biological community health.

CRD watercourse data are compared to the British Columbia Ministry of Environment and Climate Change Strategy (BC ENV) Water Quality Guidelines (WQG) for protection of freshwater aquatic life. These data were also compared to data from the previous 5-in-30 assessment. Benthic invertebrate data are submitted to the Canadian Aquatic Biomonitoring Network (CABIN).

2.3.1 Watershed Monitoring Data

CRD data indicate that the water quality parameters of most concern in core area creeks are bacteria, phosphorus, turbidity and metals. Some sites also experience low dissolved oxygen and elevated temperature in the summer. This is consistent with what is seen throughout the region wherever there is increased human presence. The BC ENV Vancouver Island phosphorus objective was exceeded in all CRD creeks, due to human and animal presence in these watersheds.

CECELIA CREEK WATERSHED

Water Quality and Benthic Invertebrate Data

Weekly data collected over the summer and fall in Cecelia Creek indicated that upstream land use activities and sewage continue to impact water quality. Data indicates that the parameters of concern were consistent with those measured in 2018 and 2013 (when the creek was also assessed in this manner).

In 2023, aluminum, copper, iron, nitrite, oxygen, phosphorus, suspended solids, temperature, turbidity, and zinc were at concentrations that could result in adverse effects on aquatic life. *E. coli* were also elevated, indicating sewage presence in the creek.

The 2023 benthic invertebrate community data collected at the mouth of Cecelia Creek had similar representation of species compared to previous data. The species present are more pollution tolerant groups such as chironomids and annelids (midges and worms). No sensitive species were present in 2023 compared to one sensitive group in 2018 and two in 2013. The Hilsenhoff Biotic Index (HBI) indicated that organic pollution or nutrients continue to be present in the creek at moderate to high levels likely from sewage inputs, spills and development in the catchment.

MILL STREAM WATERSHED

Water Quality and Benthic Invertebrate Data

In Mill Stream, water quality varied across the four stations in 2023, but continued to be the best at the station near the Langford-Colwood border and upstream in Hazlitt Creek. Poorest water quality was found where the creek crosses Treanor Road in Langford.

Hazlitt Creek which drains into Mill Stream was considered a reference site, but it has low flows and low dissolved oxygen. Water quality in Hazlitt Creek improved compared to 2018 when it had several exceedances of turbidity and iron. In 2023, turbidity was below guidelines and only 1 of 10 iron measurements were in exceedance of total iron guidelines compared to 9 of 10 in 2018. Hazlitt continues to have the lowest concentration of other metals except iron.

The parameters of concern in 2023 were similar to those in previous years and included copper, dissolved oxygen, *E. coli,* phosphorus, temperature and turbidity. However, aluminum was elevated above guidelines at two stations for the first time on the rainiest sampling days of the fall flush. However, there was also a change in the BC water quality guidelines for aluminum. Guidelines are now based on the water quality of each sample and in some cases were lower than in previous years.

Phosphorus concentrations exceeded the Vancouver Island Objectives as they do in all CRD creeks due to human and animal presence in these watersheds, however, the phosphorus concentrations were lower in Mill Stream relative to other CRD creeks.

The 2023 benthic invertebrate community data collected at the mouth of Mill Stream as well as Treanor Road did not exhibit apparent changes from 2013 and 2018. Data indicates that the creek health is very good for Mill Stream and good for Treanor Road. The number of all species (richness) including sensitive taxonomic groups were similar in all years, and the HBI, which indicates the amount of organic and nutrient pollution in the stream did not show changes based on species distribution and their tolerance to such pollution. The HBI indicated that the mouth of the creek had low organic pollution while Treanor had low to moderate organic pollution.

HYDROMETRIC DATA

Water quality is important in creeks, but hydrological changes and physical alteration are also important. Therefore, flow data are also collected continuously at fixed hydrometric stations in Cecelia, Colquitz (two sites), Colwood, Bowker and Douglas creeks. Hydrological data is stored in FlowWorks. For access to this data contact brudolph@crd.bc.ca.

In the spring of 2022, CRD staff hired SLR Consulting to conduct in-stream discharge measurements at the flow monitoring locations with the goal to refine or develop (where necessary) stage-discharge curves to ensure they are adequately predicting discharge. The consultants are aiming to collect in-stream discharge measurements in a variety of flow conditions and the project is set to be completed in the spring of 2025.

2.4 Nearshore Marine Surface Water Monitoring

Every five years CRD staff conduct marine surface water sampling in Esquimalt Lagoon, Esquimalt and Victoria harbours and the Gorge and Portage Inlet. Data is compared with the BC Ministry of Environment and Climate Change Strategy (ENV) draft water quality objectives for these waters and to assess if water quality has changed over time (the last sampling events were in 2011/2012 and 2018).

In 2023, CRD staff collected surface water samples weekly for five consecutive weeks in summer and fall for a total of 280 measurements (10 at each of the 28 sites) for bacteria, metals and physical parameters, including dissolved oxygen.

Based on data collected in 2011 and 2012, ENV proposed draft water quality objectives for fecal coliforms, enterococci, dissolved oxygen, cadmium, copper and zinc in all areas, and nitrate in Esquimalt Lagoon.

These water quality objectives may change, especially those that address fecal coliforms and enterococci, as ENV has changed the guidelines for those parameters with regards to recreational and cultural uses.

Data collected in 2023 were compared to these objectives, as well as the ENV WQGs (approved and working guidelines) for parameters without objectives. This report compares the data to updated guidelines for fecal coliforms and enterococci. The marine data and relevant objectives and guidelines can be found in Appendix G.

Results

CRD water quality results indicate that parameters for which water quality objectives were developed remain of concern in 2023, and that water quality in the harbours in 2023 is similar to that measured in 2018 and 2011/2012. However, some of the highest concentrations of metals and bacteria were observed on August 29, 2023, following a first flush event after more than 30 days without significant precipitation. This resulted in maximum and average exceedances of water quality objectives for several stations.

The highest bacterial counts on average were measured in Esquimalt Lagoon and were likely due to birds (based on past CRD investigations). However, the highest single bacterial counts were in Victoria Harbour and were up to threefold greater than recreational enterococci guidelines following the first flush event. The highest enterococci count was 82,000 CFU/100 mL in the middle of South Bay, with other high counts of 31,000 CFU/100 mL in the Inner Harbour and 52,000 CFU/100 mL in the middle of Rock Bay.

CRD data indicates that bacteria in Victoria Harbour is due mainly to sewage inputs from storm drains. While the public do not swim in these bays, the public swim and engage in other recreational activities in areas nearby. These data highlight the extent of bacterial contamination that can enter Victoria Harbour following a first flush event.

The following summarizes sampling stations that were outside the draft water quality objectives for Victoria Harbour, the Gorge, Portage Inlet, Esquimalt Harbour and Esquimalt Lagoon by parameter (these are also summarized in Table E):

- Dissolved oxygen
    - Victoria Harbour, the Gorge and Portage Inlet - dissolved oxygen was below the objective in most stations except at Fisherman's Wharf and all three stations in Portage Inlet. The lowest measurement of 4.33 mg/L was in Rock Bay on August 29 after the first flush event. At the same time, enterococci counts were 52,000 CFU/100 mL in the bay.
    - Esquimalt Harbour – dissolved oxygen was below the minimum objective at the mouth of Mill Stream under the Parson's Bridge and at Cole Island downstream of the input of Mill Stream. Both low measurements were on August 29. Average oxygen concentrations were above the objective at all stations.
    - Esquimalt Lagoon - two stations and the "reference site" just outside the lagoon were below the objectives for dissolved oxygen. The lowest measurement of 2.88 mg/L was on October 16, 2023, in the toe of the lagoon.
- Copper
    - Victoria Harbour, the Gorge and Portage Inlet – copper exceeded an objective (maximum of 3 µg/L; average of 2 µg/L) in five stations in Victoria Harbour (the highest measurement was in Rock Bay (19.1 µg/L), one station in the Gorge (downstream of Tillicum Bridge, 7.93 µg/L) and two of the three stations in Portage Inlet (marginal exceedances of the average guideline) in summer (2.2 µg/L).The lowest concentrations were in the Outer Harbour at VH-1.
    - Esquimalt Harbour - copper was above at least one of the objectives in four stations. Both fall and summer exceedances occurred, with the highest concentrations in Lang Cove and Plumper Bay in summer (53 and 27.4 µg/L, respectively).
    - Esquimalt Lagoon – The station at Portsmouth Drive had one elevated measurement out of ten (3.82 µg/L, in fall).

- Cadmium
    - Victoria Harbour, the Gorge and Portage Inlet - cadmium was elevated in one of ten measurements under the Johnson Street Bridge (0.64 µg/L in fall).
    - Esquimalt Harbour - Seven of the nine stations in Esquimalt Harbour had measurements above the water quality objective (including one measurement outside the harbour at the Dunze Head station). Exceedances in two of those stations were a result of the first flush event on August 29 but the others were not. Five stations had exceedances in summer and two stations had exceedances in the fall.
    - Esquimalt Lagoon - cadmium has been a concern in the past and was elevated at three stations including the station outside the lagoon in 2018. In 2023, only one station (at the toe of the lagoon) had a measurement (0.61 µg/L) that exceeded the maximum objective (0.12 µg/L). Due to this measurement the summer average also exceeded the objective.
- Zinc
    - Victoria Harbour, the Gorge and Portage Inlet – six stations had measurements above the objective (10 µg/L). The highest measurement of 92 µg/L was under the Johnson Street Bridge in the fall. There were no exceedances in the Gorge but one station in Portage Inlet (VH-10A) had the highest measurement of all harbour areas of 262 µg/L on August 29 and a high measurement in the fall after heavy rainfall (104 µg/L).
    - Esquimalt Harbour - three stations (Parson's Bridge, McCarthy Island and Constance Cove) had a single elevated measurement of zinc after the first flush event on August 29 but the remaining nine measurements were below the objective. The highest measurement was 12.3 µg/L at Constance Cove.
    - Esquimalt Lagoon - all five stations had exceedances of the zinc objective in fall and two had exceedances in summer. The highest measurement was at the station outside the lagoon (EL-REF) at 55.1 µg/L on August 30, two days after the first flush event.
- Fecal coliforms
    - Victoria Harbour, the Gorge and Portage Inlet - eleven of the fourteen stations were above at least one of the objectives protective of shellfish harvesting. Station VH-1(in the Outer Harbour) met the objectives, as did two stations in the Gorge. The highest counts were in James Bay, South Bay and Rock Bay (1,100,000, 610,000 and 480,000 CFU/100 mL, respectively) following the first flush event on August 29, 2023.
    - Esquimalt Harbour - four stations were in exceedance of a fecal coliform objective, the highest count was 330 CFU/100 mL in Lang Cove in fall.
    - Esquimalt Lagoon - all four stations in the lagoon but not the station just outside the lagoon, had at least one exceedance of the objectives protective of shellfish harvesting. The highest count was 1,400 CFU/100 mL on August 9, 2023 at the mouth of Colwood Creek.
- Enterococci
    - Victoria Harbour, the Gorge and Portage Inlet - enterococci exceeded the maximum objective (70 CFU/100 mL) at least once in four locations (James Bay, middle of the Upper Harbour, South Bay and Rock Bay) in all three locations in Portage Inlet, and one in the Gorge (Cecelia Creek). The average (geomean of 35 CFU/100 mL) was exceeded at one station in Portage Inlet, two in Victoria Harbour and at the mouth of Cecelia Creek. The highest counts were in South Bay and Rock Bay (82,000 and 52,000 CFU/100 mL, respectively) on August 29, 2023, following the first flush event.
    - Esquimalt Harbour – enterococci were elevated in three stations above the maximum objective, and none were elevated above the average (geomean) objective. The highest count was 220 CFU/100 mL at Lang Cove.

- Esquimalt Lagoon – all five stations had measurements above the objectives for enterococci with most exceedances at the mouth of Colwood Creek (exceedances occurred every week in the summer and the first two weeks in fall with a maximum count of 3,100 CFU/100 mL on August 16, 2023.

- Nitrate (only applicable to Esquimalt Lagoon)

  - Esquimalt Lagoon – one station (EL-1A) had exceedances of the draft objective (3.7 mg/L) in the fall. The measurements were 4.6 and 4.9 mg/L, the other three fall sampling events were below the objective.

In addition, some general observations were made:

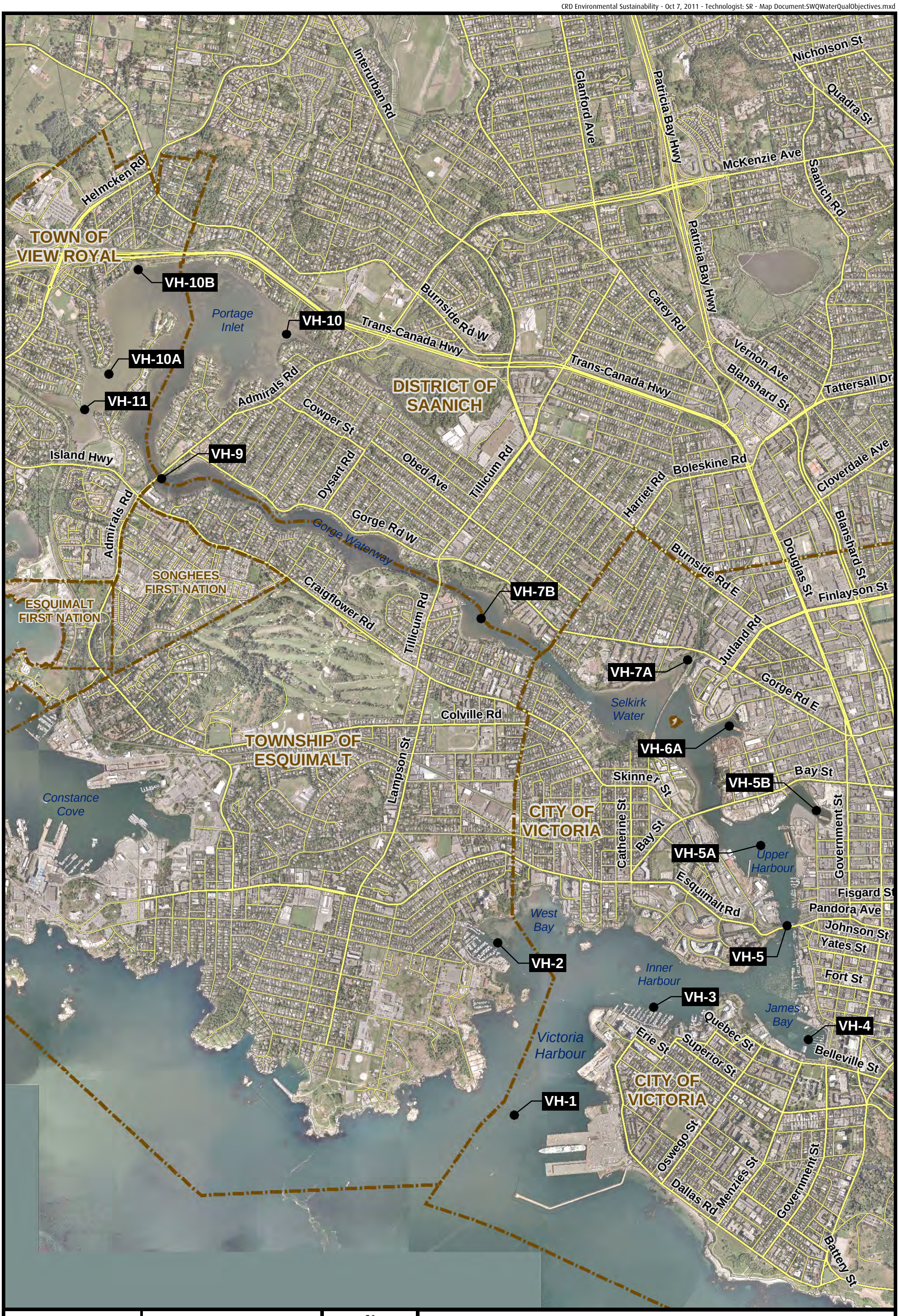
- Boron is naturally elevated in BC marine waters (ranges from 3,700 to 4,300 μg/L; Moss and Nagpal, 2003) relative to BC marine guidelines. The levels of boron in the 2011 and 2012 data were not a concern; however, marine boron concentrations appeared higher in some areas in 2018 and 2023. Concentrations above 5,000 μg/L were measured in many stations in Esquimalt and Victoria harbours, while the maximum measurement was 3,960 μg/L in 2011/2012.
- As in 2011/2012 and 2018, dissolved oxygen continued to be low in summer in many stations in Victoria Harbour in 2023, including the outer harbour station (VH-1). Hypoxia and declining oxygen levels are a concern in Juan de Fuca Straight (Johannessen et al., 2014), however it is not known how that may be impacting our harbours. Interestingly more stations met the objectives in 2023 than in 2018 in all areas.
- Less exceedances of cadmium and zinc were observed in 2018 compared to 2011 and 2023. This is likely due to different analysis methods (chelation metals method) that led to lower detection limits. The 2023 and 2011 data was analyzed with a higher detection limit and the threshold for acceptability (a detection limit not more than 10% of the guideline level) was either not met or just met.

2.4.1 Storm Drains as Sources

CRD data indicated that the source of elevated zinc and copper observed in the marine environment is at least partially due to storm drain inputs. Copper was elevated in VH-4 and VH-5B, which are near stormwater discharges with elevated copper and zinc. Storm drain discharges 613 and 614 flow into James Bay (VH-4), and 626, 627 and 629 flow into Rock Bay (VH-5B). Water quality data indicate that storm drains 613 and 629 had the highest concentrations of metals of the seven storm drains for which the CRD has aqueous metals data.

Many of the storm drains that enter Victoria Harbour are contaminated with sewage. These data highlight the extent of bacterial contamination that can enter Victoria Harbour from storm drains following a first flush event.

CRD Environmental Sustainability - Oct 7, 2011 - Technologist: SR - Map Document:SWQWaterQualObjectives.mxd



Making a difference...together

Metres
0 100 200 400 600 800

Projection: UTM ZONE 10N NAD 83

N
W E
S

VICTORIA HARBOUR/GORGE/PORTAGE INLET WATER QUALITY OBJECTIVES

SAMPLING STATIONS

CRD Environmental Sustainability - Oct 7, 2011 - Technologist: SR - Map Document:SWQWaterQualObjectives.mxd

Making a difference...together

0 100 200 400 Metres

Projection: UTM ZONE 10N NAD 83

N W E S

ESQUIMALT HARBOUR
WATER QUALITY OBJECTIVES
SAMPLING STATIONS

Service Rd
Virago Cres
Bruce Ave
Belmont Rd
Lascelles Cres
Forward Dr
Zealous Cres
Prevost Ave
Meade Ave
Baillie Ave
Galiano Cres
Thetis Cres
College Rd
Neptune Way
Serpentine Rd
Library Rd
Cottonwood Creek Rd
Esquimalt Lagoon
EL-7
Ilott Pl
Portsmouth Dr
Matilda Dr
Seafield Rd
EL-2A
Ocean Blvd
EL-1B
EL-REF1
Fitzgerald Lane
Selleck Way
Goldfinch Rd
Hockering Rd
Lagoon Rd
Aloha Ave
Milburn Dr
Anchorage Ave
EL-1A

Making a difference...together

Metres
0 50 100 200 300

Projection: UTM ZONE 10N NAD 83

N
W E
S

ESQUIMALT LAGOON
WATER QUALITY OBJECTIVES
SAMPLING STATIONS

Table E. Attainment of Draft Marine Water Quality Objectives for Esquimalt Harbour, Victoria Harbour, the Gorge, Portage Inlet and Esquimalt Lagoon

		Attainment (did stations meet objective: yes or no)					
Parameter	**Objective**	**Esquimalt Harbour (9 stations)**		**Victoria Harbour, the Gorge and Portage Inlet (14 stations)**		**Esquimalt Lagoon (5 stations)**	
		Summer 2023	**Fall 2023**	**Summer 2023**	**Fall 2023**	**Summer 2023**	**Fall 2023**
Fecal Coliform	≤ 14 CFU/100 mL (median or geomean)	**Yes**: all stations met objective	**Yes**: 7 stations **No**: EH-2A, EH-7	**Yes**: 6 stations **No**: VH-4, VH-5, VH-5A, VH-5B, VH-6A, VH-7A, VH-10, VH-10B	**Yes**: 2 stations **No**: VH-2, VH-3, VH-4, VH-5, VH-5A, VH-5B, VH-6A, VH-7A, VH-7B, VH-10, VH-10A, VH-10B	**Yes**: 3 stations **No**: EL-1A, EL-7	**No**: all stations except EL-REF
	≤ 43 CFU /100 mL (90th percentile)	**Yes**: 5 stations **No**: EH-2A, EH-3A, EH-6A, EH-7 90th percentile of summer & fall samples		**Yes**: 3 stations **No**: VH-2, VH-3, VH-4, VH-5, VH-5A, VH-5B, VH-6A, VH-7A VH-10, VH-10A, VH-10B 90th percentile of summer & fall samples		**No**: all stations 90th percentiles of all summer & fall samples	
Enterococci	≤ 35 CFU/100 mL (geometric mean)	**Yes**: all stations	**Yes**: all stations	**Yes**: 13 stations **No**: VH-6A	**Yes**: 9 stations **No**: VH-5B, VH-6A, VH-7A, VH-10, VH-10A	**Yes**: 3 stations **No**: EL-1A, EL-7	**Yes**: 3 stations **No**: EL-1A, EL-1B
	≤ 70 CFU/100 mL (instantaneous maximum)	**Yes**: 8 stations **No**: EH-2A	**Yes**: 6 stations **No**: EH-2A, EH-3A, EH-8	**Yes**: 7 stations **No**: VH-4, VH-5A, VH-5B, VH-6A, VH-7A, VH-10	**Yes**: 8 stations **No**: VH-5B, VH-6A, VH-7A, VH-10, VH-10A, VH-10B	**Yes**: 2 stations **No**: EL-1A, EL-2A, EL-7	**Yes**: 1 station **No**: EL-1A, EL-1B, EL-7, EL-REF
Dissolved oxygen	5 mg/L (min)	**Yes**: 7 stations **No**: EH-6A, EH-7	**Yes**: all stations	**Yes**: 12 stations **No**: VH-5B, VH-6A	**Yes**: all stations	**Yes**: all stations	**Yes**: 4 stations **No**: EL-1A
	8 mg/L (min average)	**Yes**: 8 stations **No**: EH-7	**Yes**: 8 stations **No**: EH-7	**Yes**: 6 stations **No**: VH-1, VH-4, VH-5, VH-5A, VH-5B, VH-6A, VH-7A, VH-7B	**Yes**: 11 stations **No**: VH-1, VH-2, VH-7A	**Yes**: 4 stations **No**: EL-1B	**Yes**: all stations
Cadmium	0.12 µg/L (max)	**Yes**: maybe 4 stations but detection limits above guideline: EH-1A, EH-6A, EH-7, EH-8 **No**: EH-1, EH-2A, EH-3A, EH-5, EH-8A	**Yes**: 7 stations **No**: EH-6A, EH-7	**Yes**: all stations but detection limits were not sufficient in many samples	**Yes**: all stations	**Yes**: 4 stations but detection limit was insufficient in some samples **No**: EL-1A	**Yes**: all stations

Table E continued

Parameter	Objective	Attainment (did stations meet objective: yes or no)					
		Esquimalt Harbour (9 stations)		Victoria Harbour, the Gorge and Portage Inlet (14 stations)		Esquimalt Lagoon (5 stations)	
		Summer 2023	Fall 2023	Summer 2023	Fall 2023	Summer 2023	Fall 2023
Copper	3 µg/L (max)	**Yes**: 7 stations **No**: EH-2A, EH-5, EH-6A	**Yes**: 6 stations **No**: EH-2A, EH-3A	**Yes**: 9 stations **No**: VH-4, VH-5B, VH-6A, VH-7A, VH-10, VH-10B	**Yes**: 9 stations **No**: VH-2, VH-4, VH-5B	**Yes**: all stations	**Yes**: 4 stations **No**: EL-1B
	2 µg/L (average)	**Yes**: All stations **No**: EH-2A, EH-5	**Yes**: 8 stations **No**: EH-3A	**Yes**: 12 stations **No**: VH-4, VH-5B, VH-6A, VH-7A, VH-10A, VH-10B	**Yes**: 12 stations **No**: VH-2, VH-4, VH-5B	**Yes**: all stations	**Yes**: all stations
Zinc	10 µg/L (max)	**Yes**: 6 stations **No:** EH-3A, EH-6A, EH-7	**Yes**: all stations	**Yes**: 8 stations **No**: VH-3, VH-4, VH-5A, VH-5B, VH-6A, VH-10A	**Yes**: 11 stations **No**: VH-5, VH-5B, VH-10A	**Yes**: 2 stations No: EL-1A, EL-2A, EL-REF	**No**: all stations
Nitrate	3.7 mg/L (average; Esquimalt Lagoon only)	Na	Na	Na	Na	**Yes**: all stations	**Yes**: 4 stations **No**: El-1A

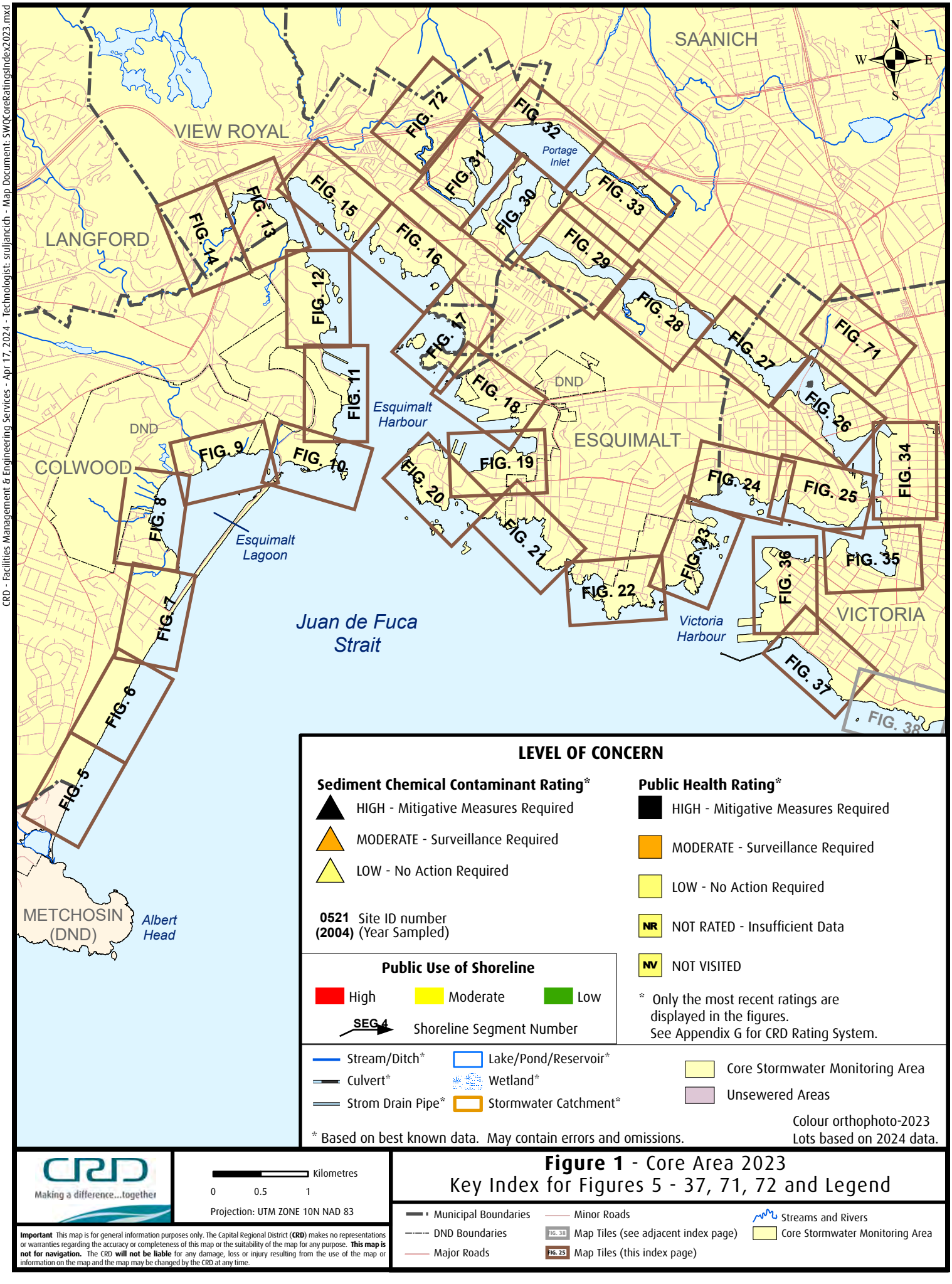
Notes: Average values are based on a minimum five weekly samples collected over a 30-day period.

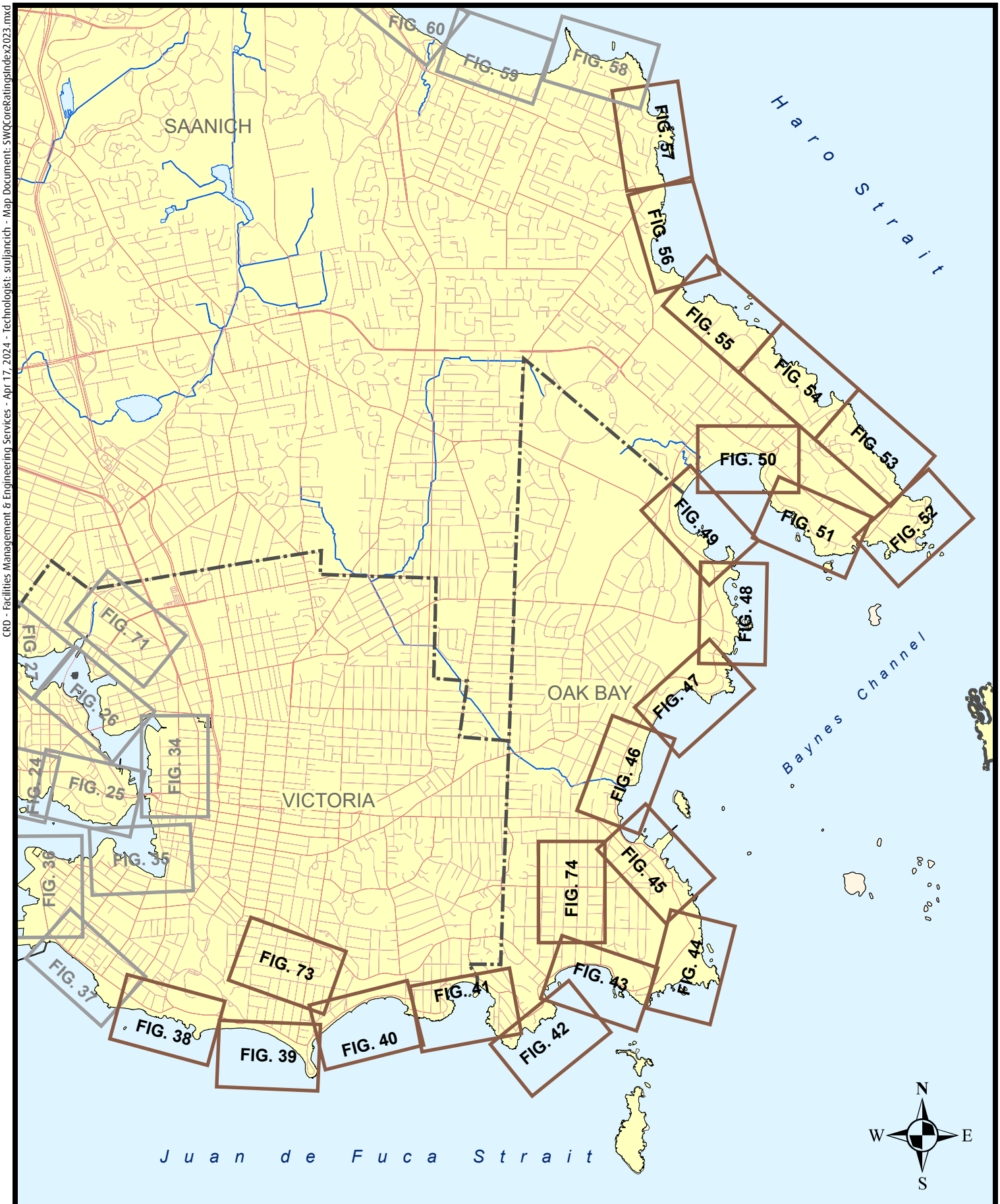
3.0 2025 PROGRAM

The Program will continue to work with municipal partners, First Nations and the community to achieve LWMP goals to identify stormwater discharges of public health and environmental concern and investigate the sources of contamination. CRD staff will continue to work with our partners to reduce bacteria and contaminant concentrations in stormwater discharges, creeks and the marine receiving environment. Focused water quality and benthic invertebrate sampling will be undertaken in Bowker, Bee and Selleck creeks in 2024.

APPENDIX A

LOCATION OF STORMWATER DISCHARGES


CRD - Facilities Management & Engineering Services - Apr 17, 2024 - Technologist: srulianich - Map Document: SWQCoreRatingsIndex2023.mxd
SAANICH
VIEW ROYAL
LANGFORD
COLWOOD
DND
ESQUIMALT
VICTORIA
METCHOSIN (DND)
Portage Inlet
Esquimalt Harbour
Esquimalt Lagoon
Juan de Fuca Strait
Victoria Harbour
Albert Head
N
W
E
S
FIG. 1
FIG. 2
FIG. 3
FIG. 4
FIG. 5
FIG. 6
FIG. 7
FIG. 8
FIG. 9
FIG. 10
FIG. 11
FIG. 12
FIG. 13
FIG. 14
FIG. 15
FIG. 16
FIG. 17
FIG. 18
FIG. 19
FIG. 20
FIG. 21
FIG. 22
FIG. 23
FIG. 24
FIG. 25
FIG. 26
FIG. 27
FIG. 28
FIG. 29
FIG. 30
FIG. 31
FIG. 32
FIG. 33
FIG. 34
FIG. 35
FIG. 36
FIG. 37
FIG. 38
FIG. 71
FIG. 72
LEVEL OF CONCERN
Sediment Chemical Contaminant Rating*
HIGH - Mitigative Measures Required
MODERATE - Surveillance Required
LOW - No Action Required
0521 Site ID number
(2004) (Year Sampled)
Public Health Rating*
HIGH - Mitigative Measures Required
MODERATE - Surveillance Required
LOW - No Action Required
NR NOT RATED - Insufficient Data
NV NOT VISITED
* Only the most recent ratings are displayed in the figures.
See Appendix G for CRD Rating System.
Public Use of Shoreline
High
Moderate
Low
SEG-4 Shoreline Segment Number
Stream/Ditch*
Culvert*
Strom Drain Pipe*
Lake/Pond/Reservoir*
Wetland*
Stormwater Catchment*
Core Stormwater Monitoring Area
Unsewered Areas
* Based on best known data. May contain errors and omissions.
Colour orthophoto-2023
Lots based on 2024 data.
Making a difference...together
Kilometres
0 0.5 1
Projection: UTM ZONE 10N NAD 83
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 changed by the CRD at any time.
Figure 1 - Core Area 2023
Key Index for Figures 5 - 37, 71, 72 and Legend
Municipal Boundaries
DND Boundaries
Major Roads
Minor Roads
FIG. 38 Map Tiles (see adjacent index page)
FIG. 25 Map Tiles (this index page)
Streams and Rivers
Core Stormwater Monitoring Area



CRD - Facilities Management & Engineering Services - Apr 17, 2024 - Technologist: srulianich - Map Document: SWQCoreRatingsIndex2023.mxd

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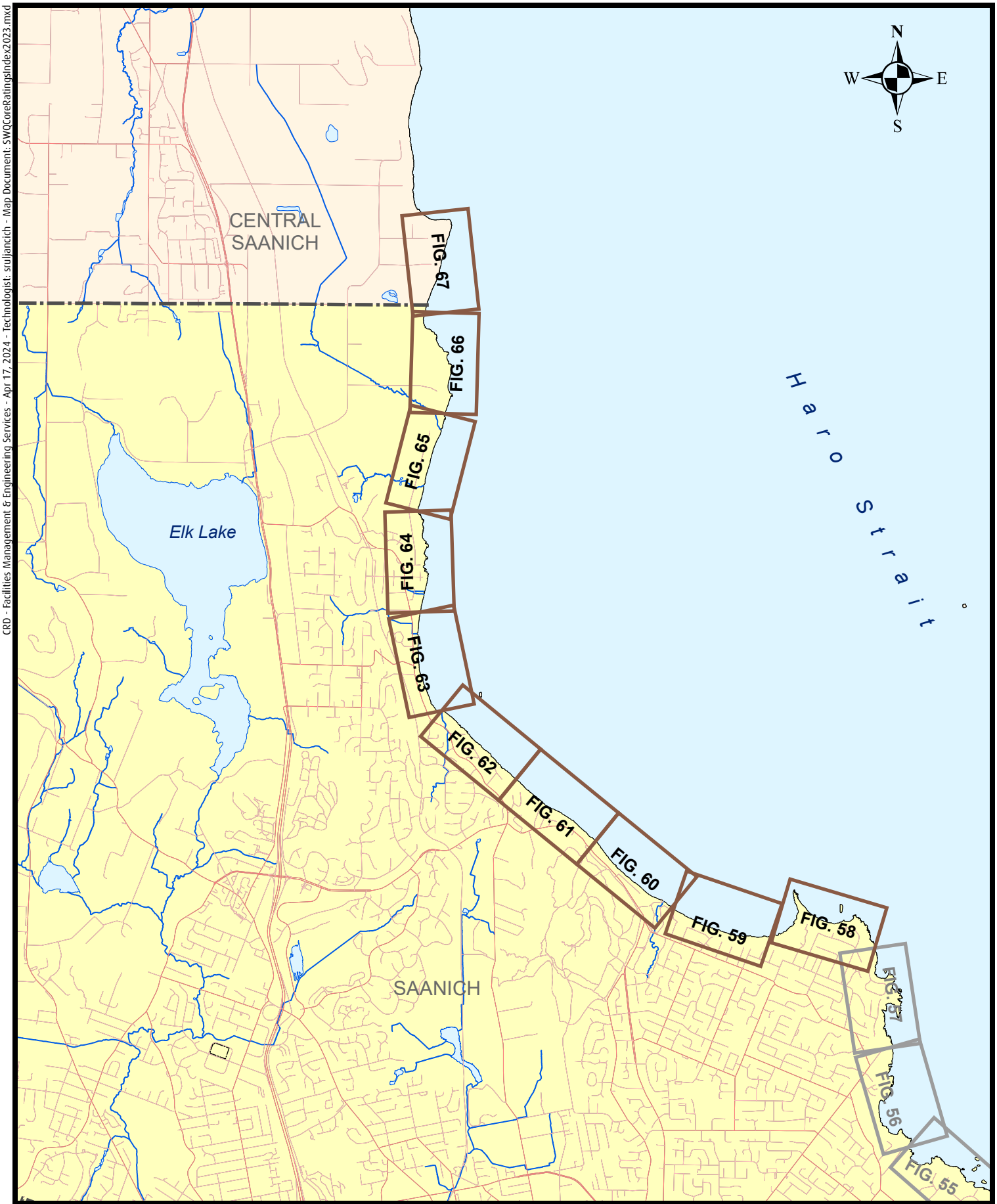
Kilometres
0 0.5 1
Projection: UTM ZONE 10N NAD 83

Figure 2 - Core Area 2023
Key Index for Figures 38 - 57, 73, 74

- Municipal Boundaries
- DND Boundaries
- Major Roads
- Minor Roads
- FIG. 25 Map Tiles (see adjacent index page)
- FIG. 45 Map Tiles (this index page)
- Streams and Rivers
- Core Stormwater Monitoring Area



CRD - Facilities Management & Engineering Services - Apr 17, 2024 - Technologist: srulianich - Map Document: SWQCoreRatingsIndex2023.mxd

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Kilometres
0 0.5 1
Projection: UTM ZONE 10N NAD 83

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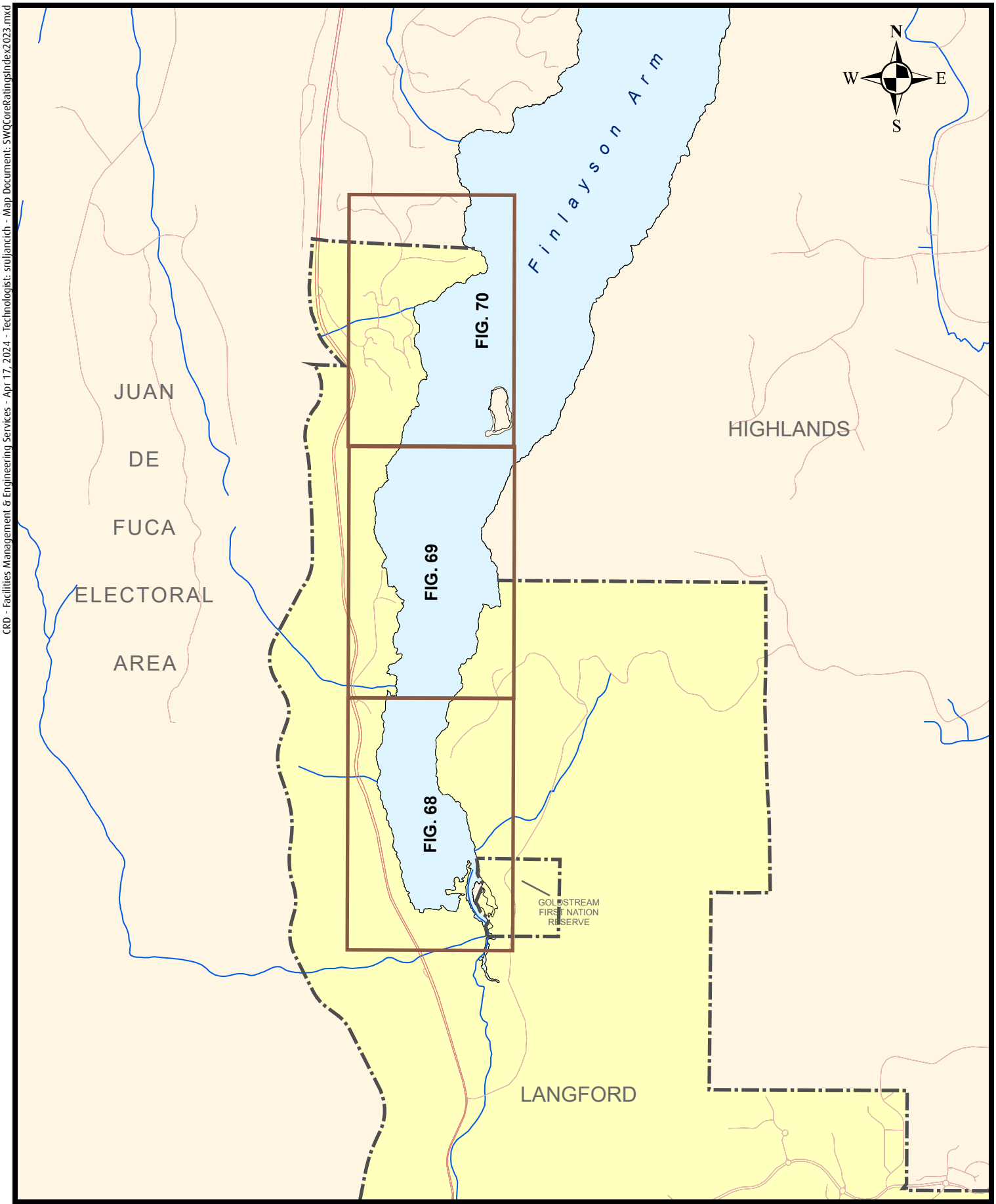
Figure 3 - Core Area 2023
Key Index for Figures 58 - 67

Municipal Boundaries
DND Boundaries
Major Roads
Minor Roads
FIG. 56 Map Tiles (see adjacent index page)
FIG. 60 Map Tiles (this index page)
Streams and Rivers
Core Stormwater Monitoring Area



CRD - Facilities Management & Engineering Services - Apr 17, 2024 - Technologist: srulianich - Map Document: SWQCoreRatingsIndex2023.mxd

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Kilometres
0 0.25 0.5
Projection: UTM ZONE 10N NAD 83

Figure 4 - Core Area 2023
Key Index for Figures 68 - 70

Municipal Boundaries
Major Roads
Minor Roads
FIG. 68 Map Tiles (this index page)
Streams and Rivers
Core Stormwater Monitoring Area

Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 1

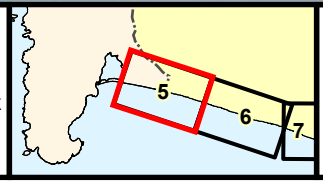
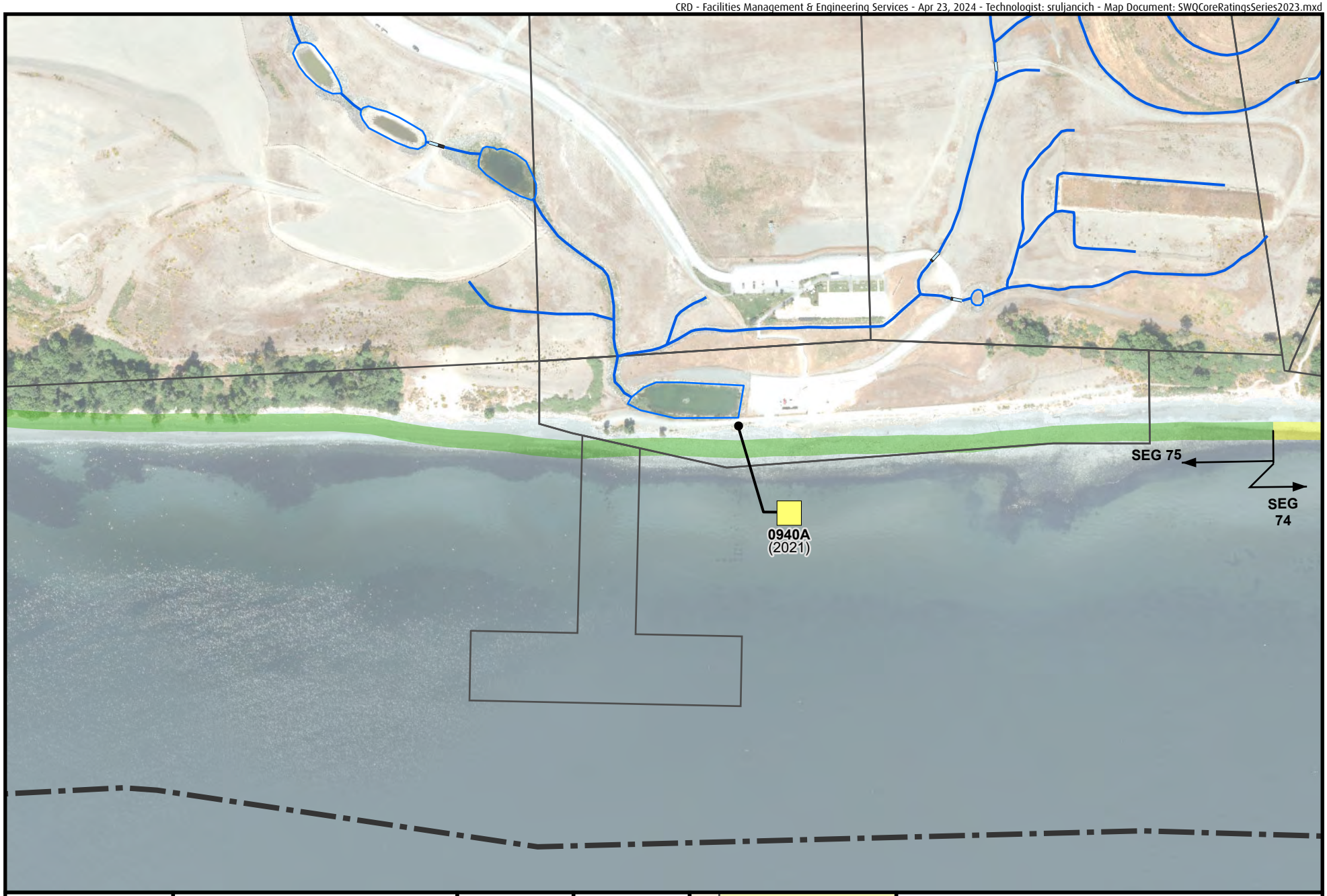


Figure 5

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 1

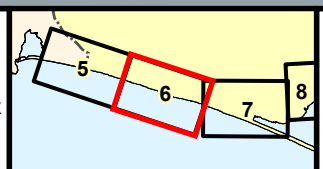


Figure 6

Stormwater Discharge Location and Level of Concern

Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

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For Legend See Figure 1

For Area Key Index See Figure 1

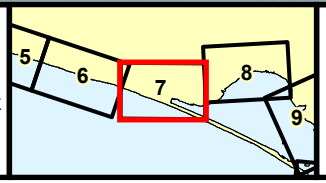
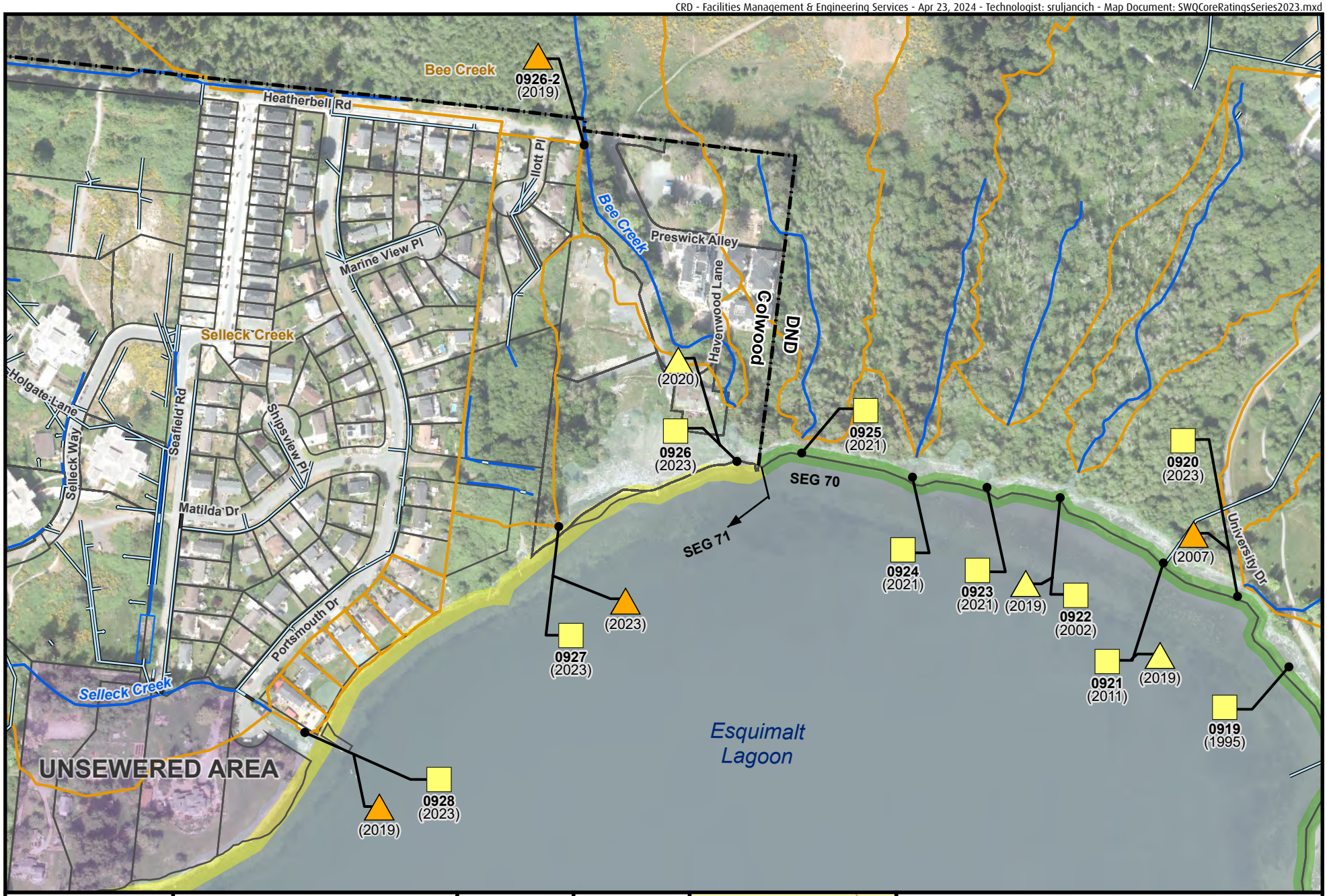


Figure 7

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

W S E N

For Legend See Figure 1

For Area Key Index See Figure 1

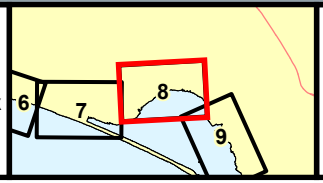
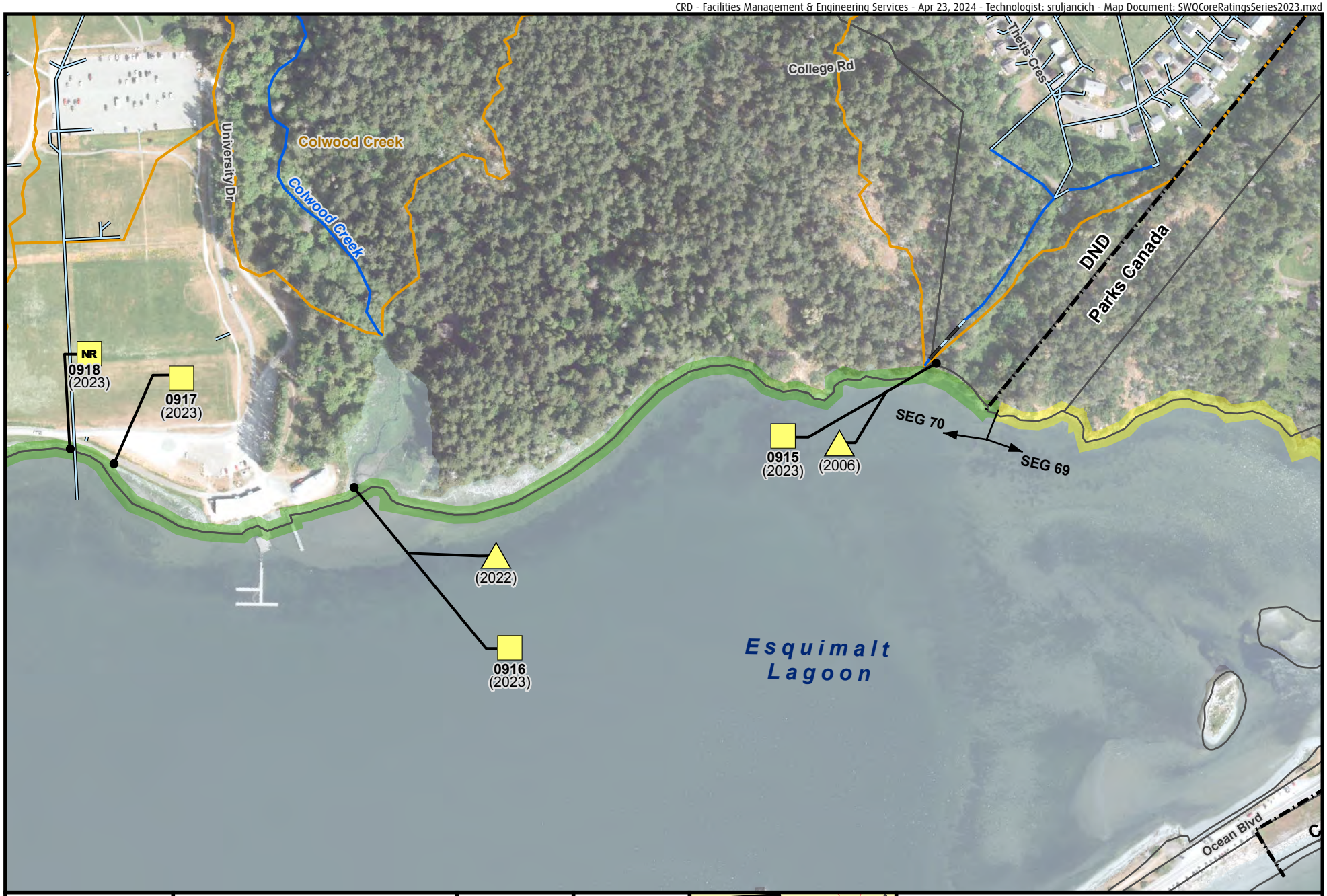


Figure 8

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N W E S

For Legend See Figure 1

For Area Key Index See Figure 1

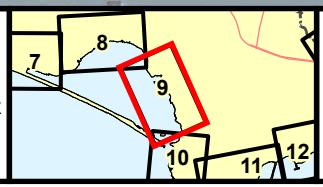
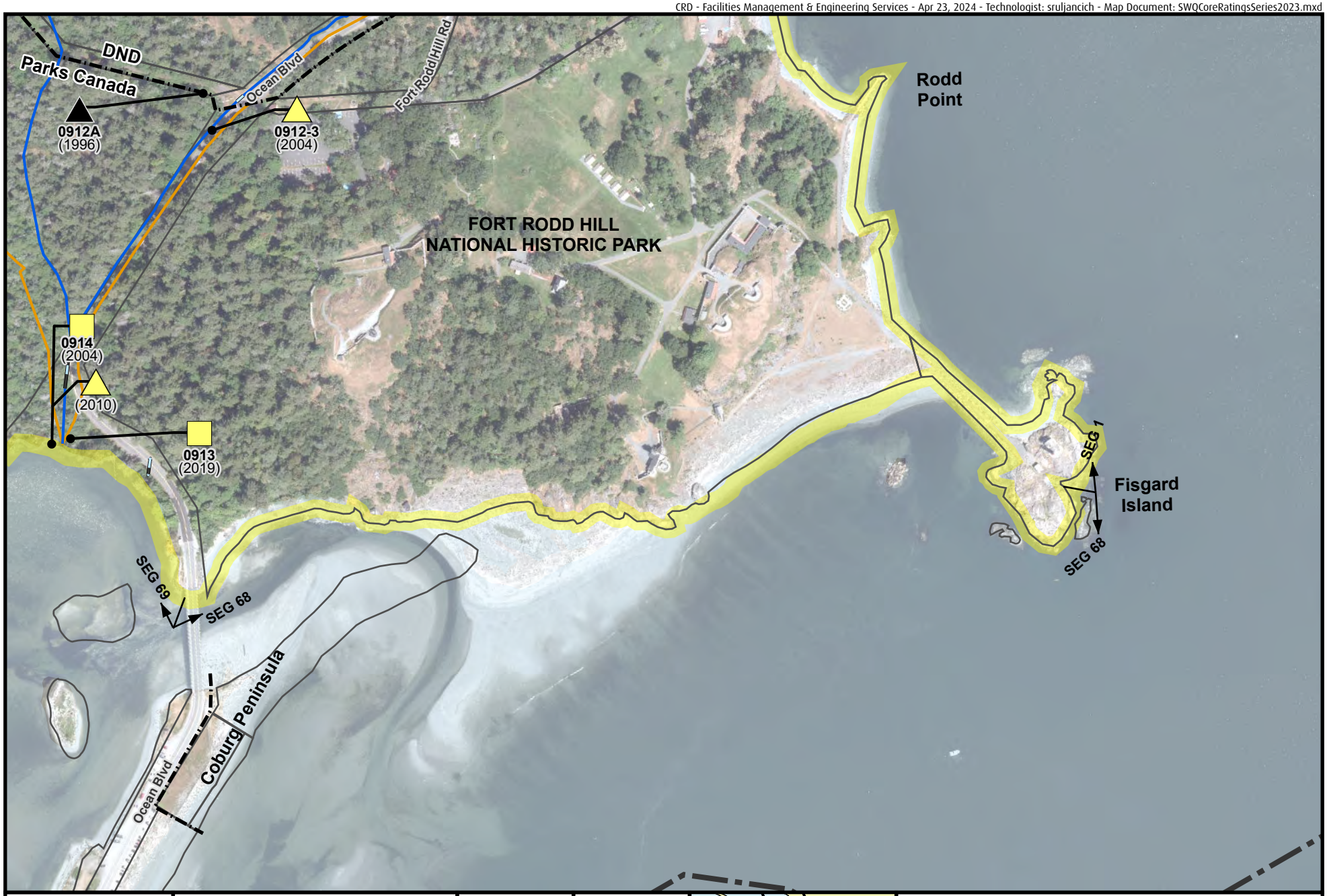


Figure 9

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N W E S

For Legend See Figure 1

For Area Key Index See Figure 1

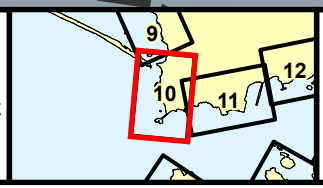
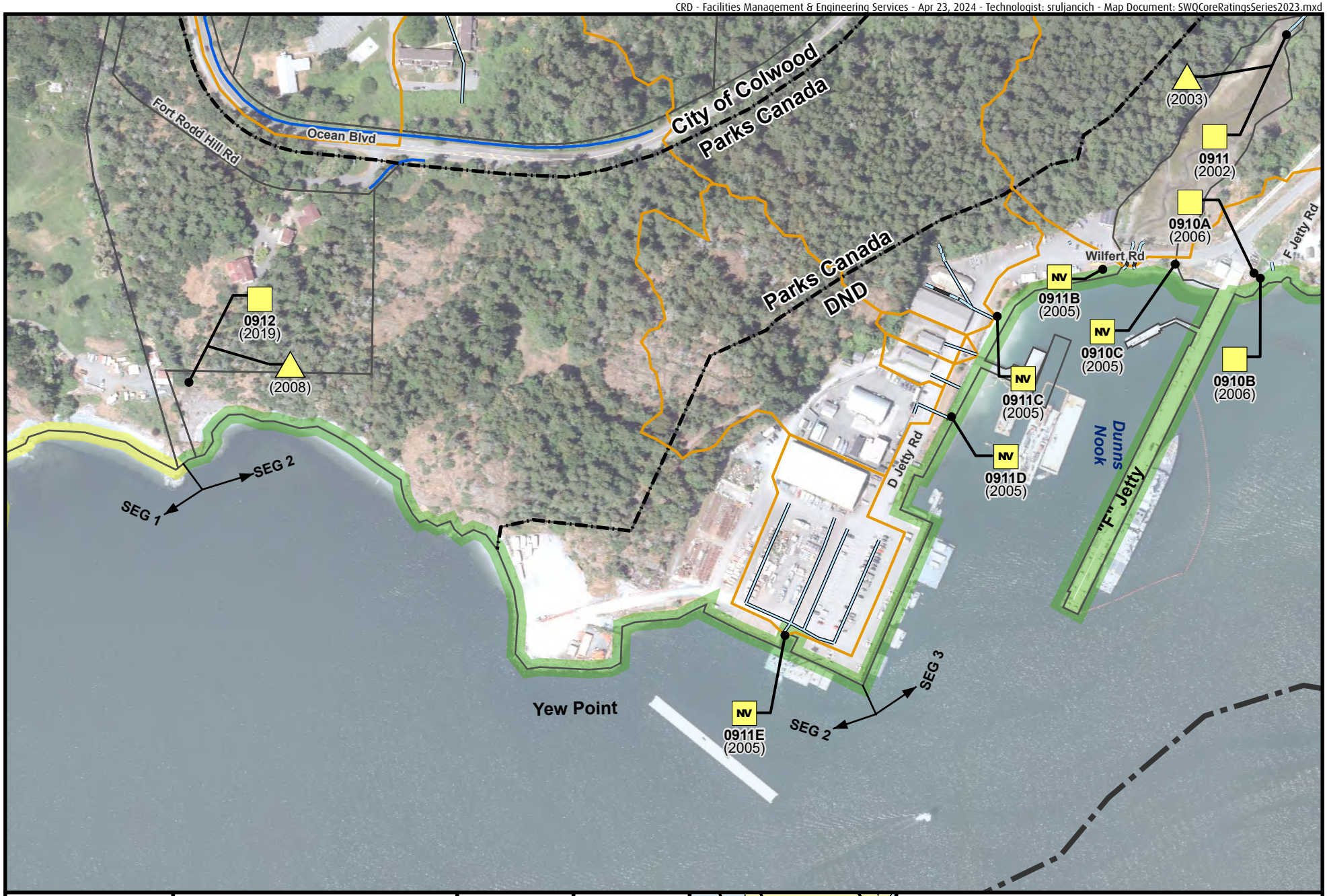


Figure 10

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

W S E N

For Legend See Figure 1

For Area Key Index See Figure 1

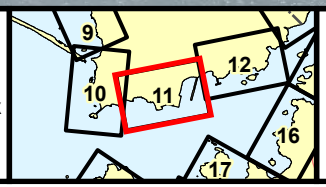
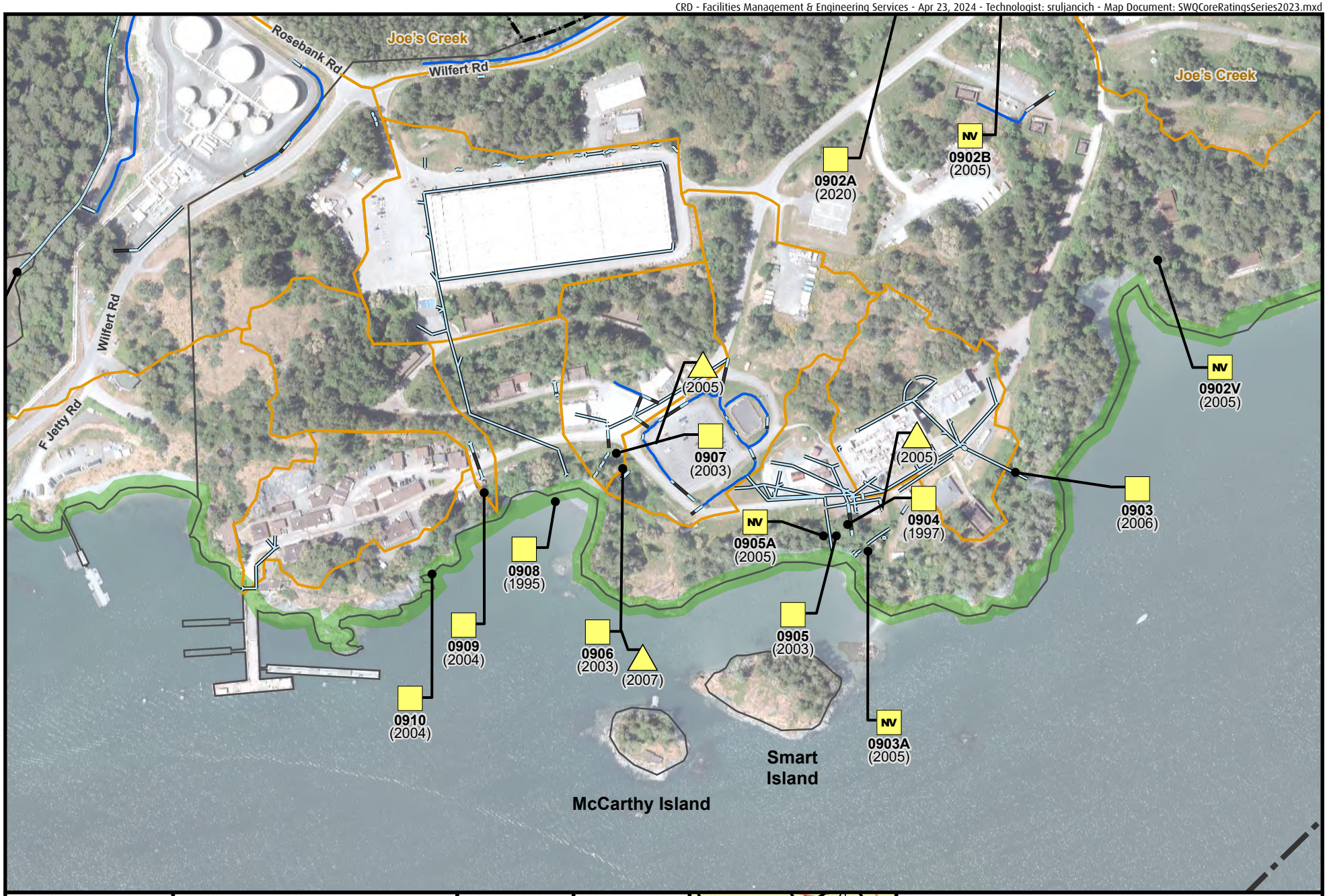


Figure 11

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

W S E N

For Legend See Figure 1

For Area Key Index See Figure 1

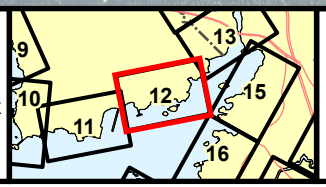
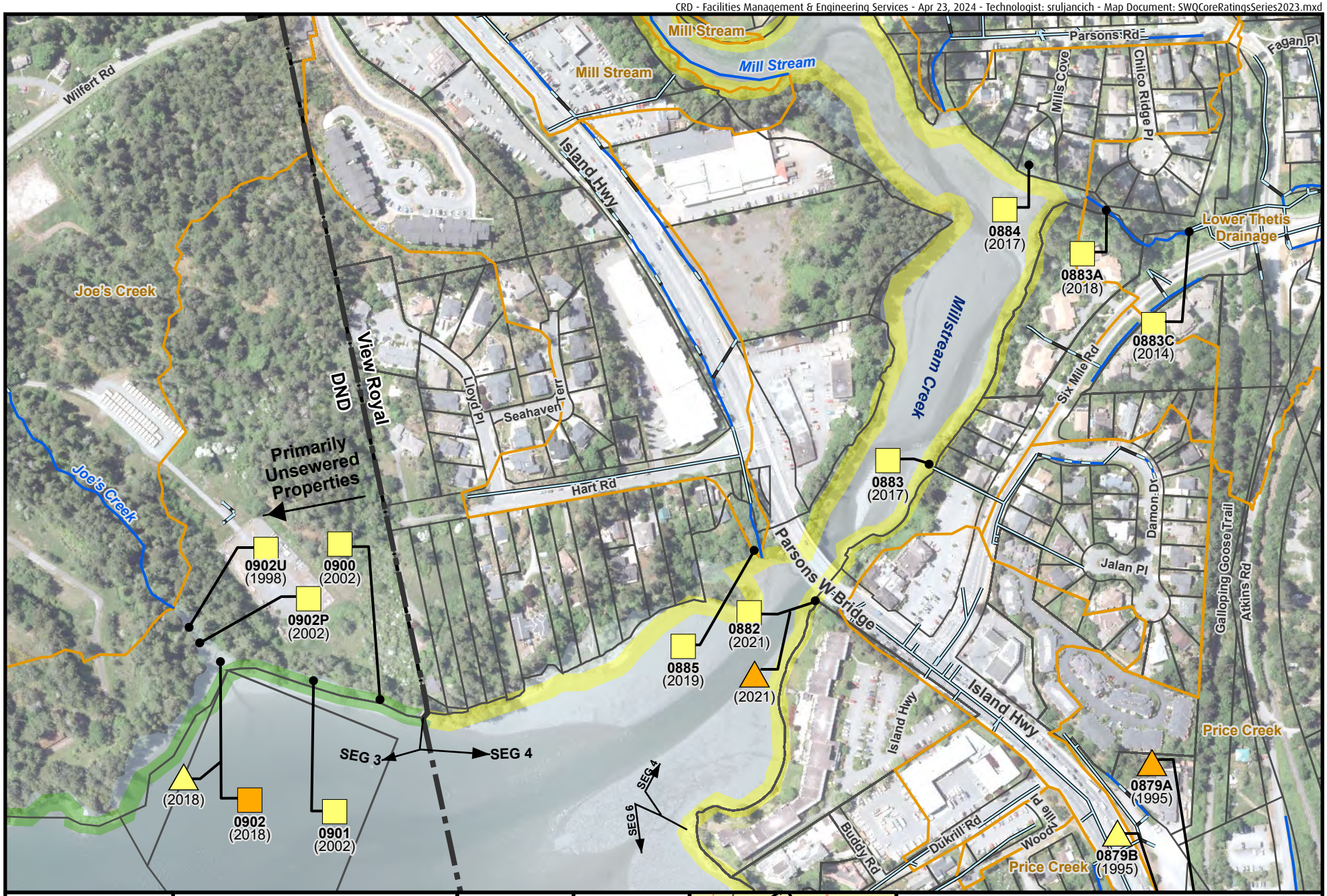


Figure 12

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 1

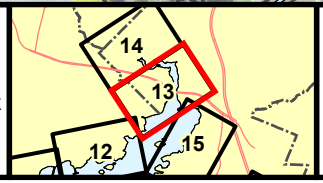


Figure 13

Stormwater Discharge Location and Level of Concern

CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 1

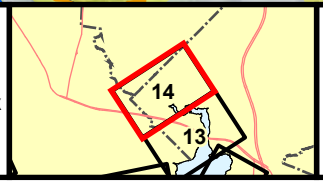
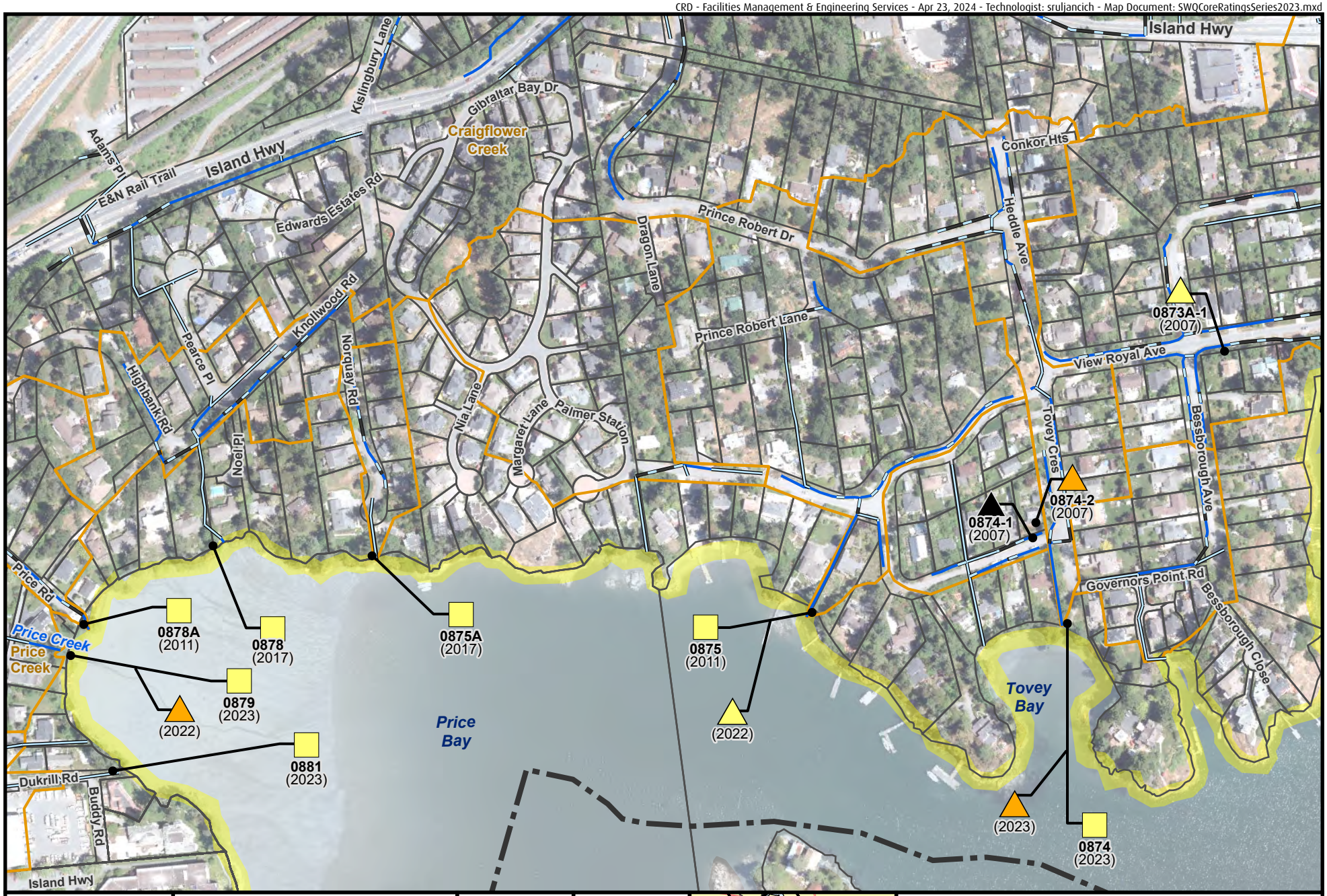


Figure 14

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

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For Legend See Figure 1

For Area Key Index See Figure 1

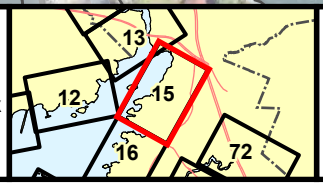


Figure 15

Stormwater Discharge Location and Level of Concern

Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N W E S

For Legend See Figure 1

For Area Key Index See Figure 1

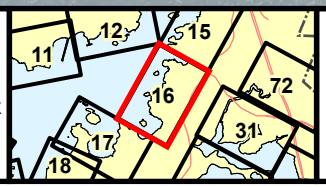


Figure 16

Stormwater Discharge Location and Level of Concern

Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend
See Figure 1

For Area Key Index
See
Figure 1

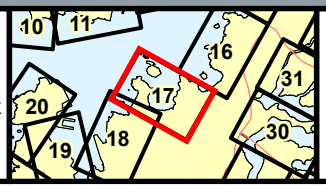
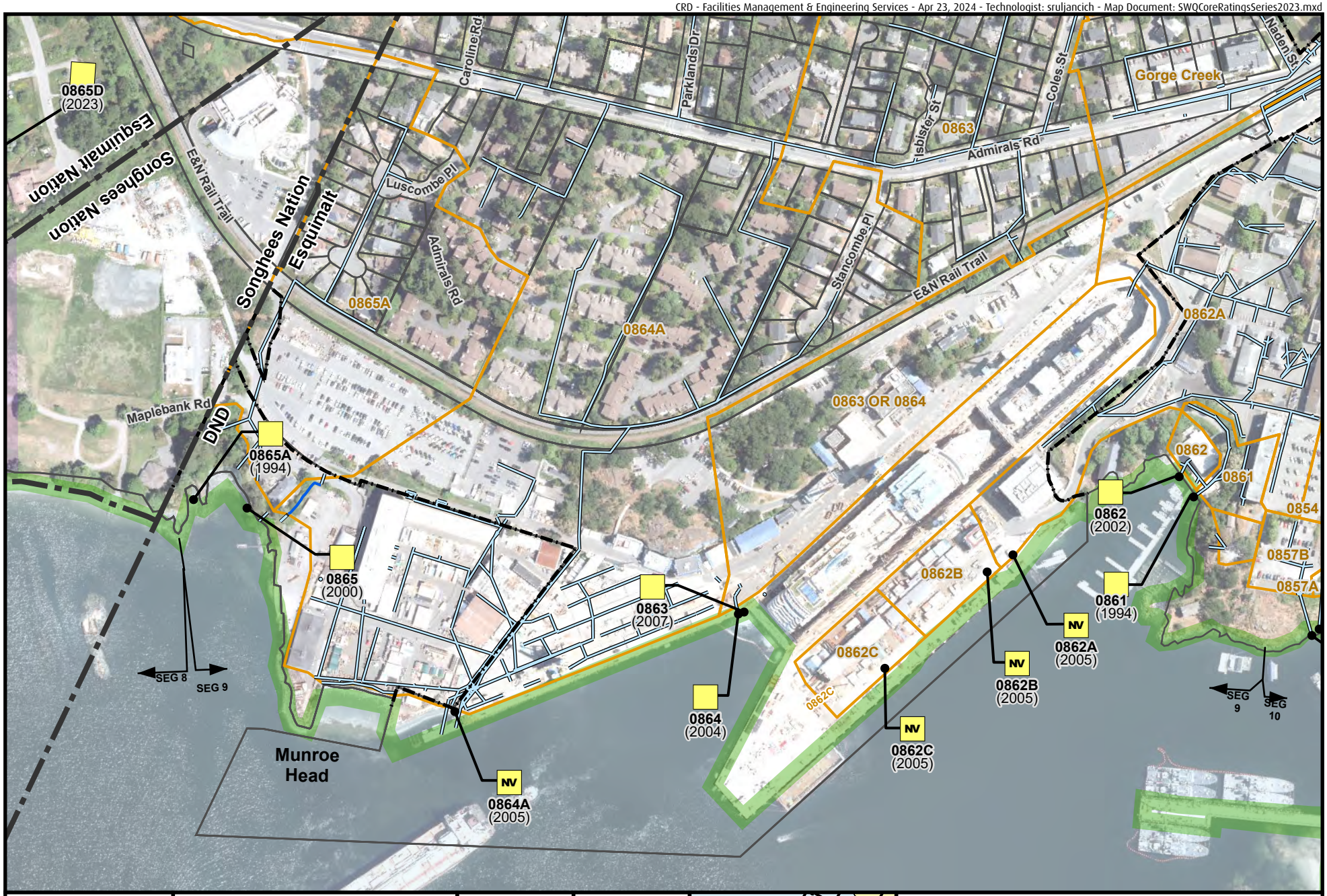


Figure 17

Stormwater Discharge Location and Level of Concern



CRD
Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N E S W

For Legend
See Figure 1

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Figure 1

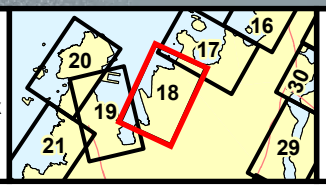
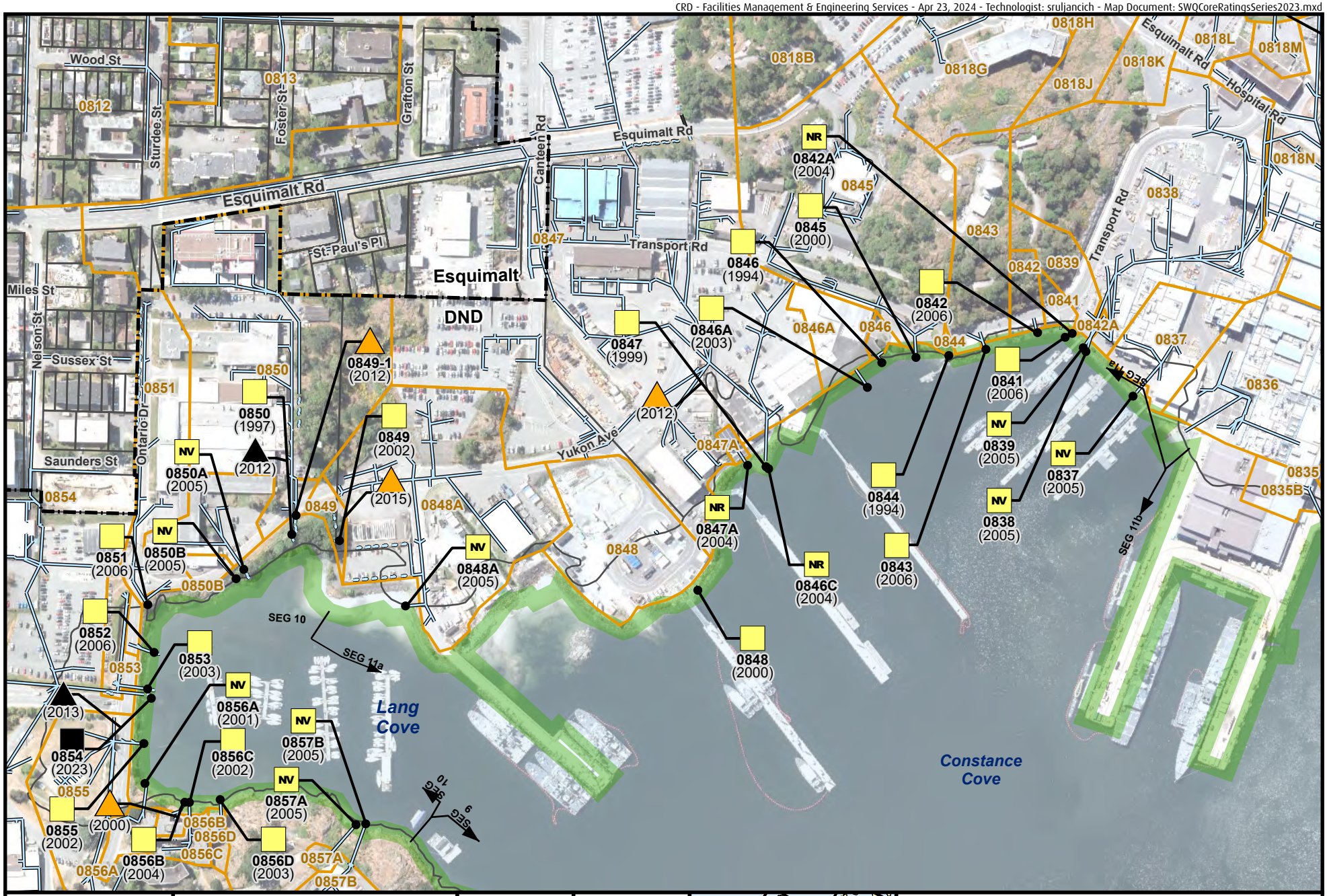


Figure 18

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

S E W N

For Legend See Figure 1

For Area Key Index See Figure 1

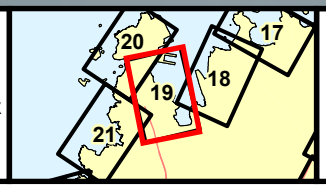
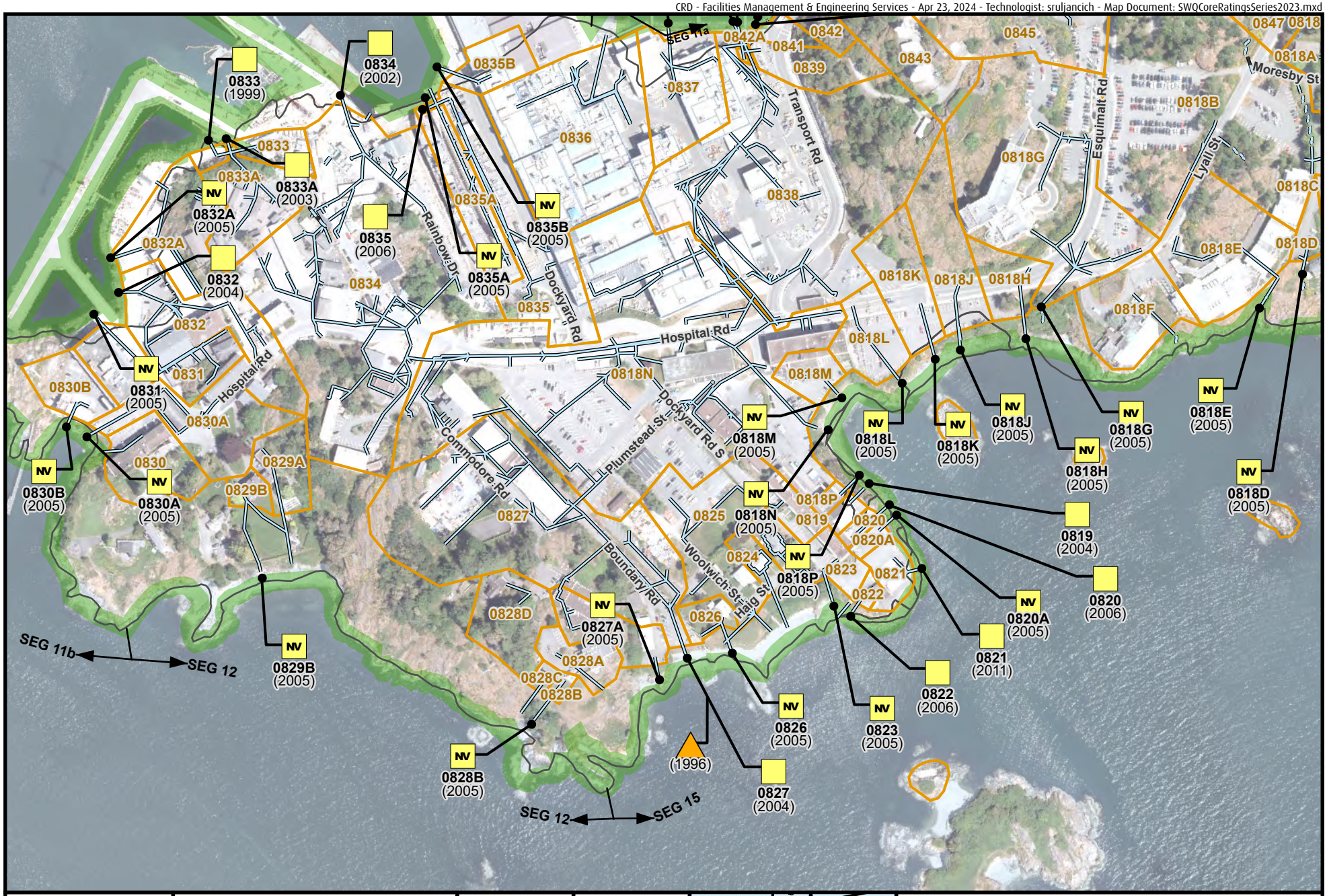


Figure 19

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N E S W

For Legend See Figure 1

For Area Key Index See Figure 1

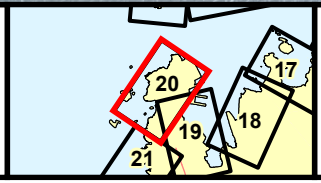
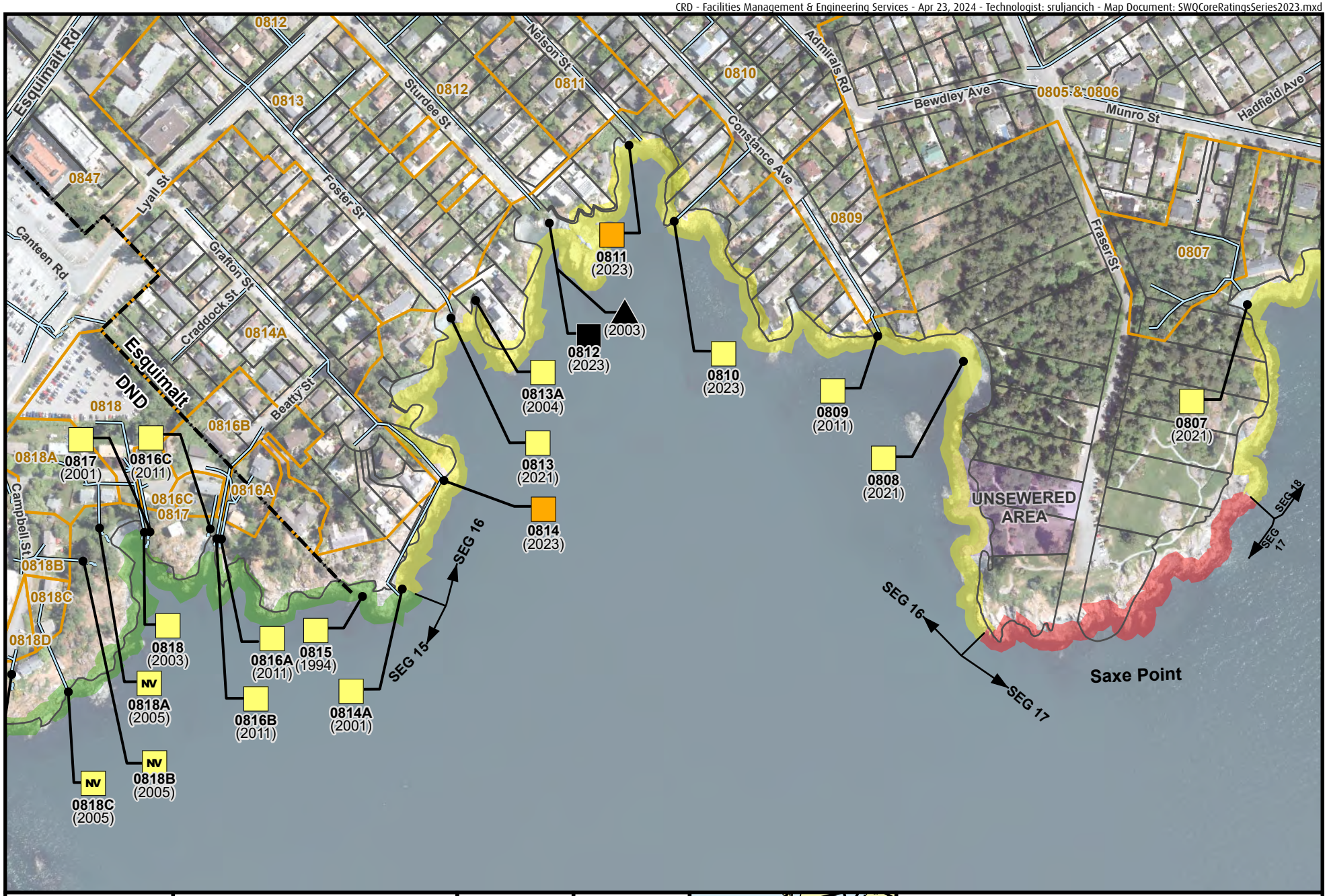


Figure 20

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N E S W

For Legend See Figure 1

For Area Key Index See Figure 1

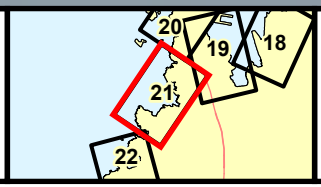
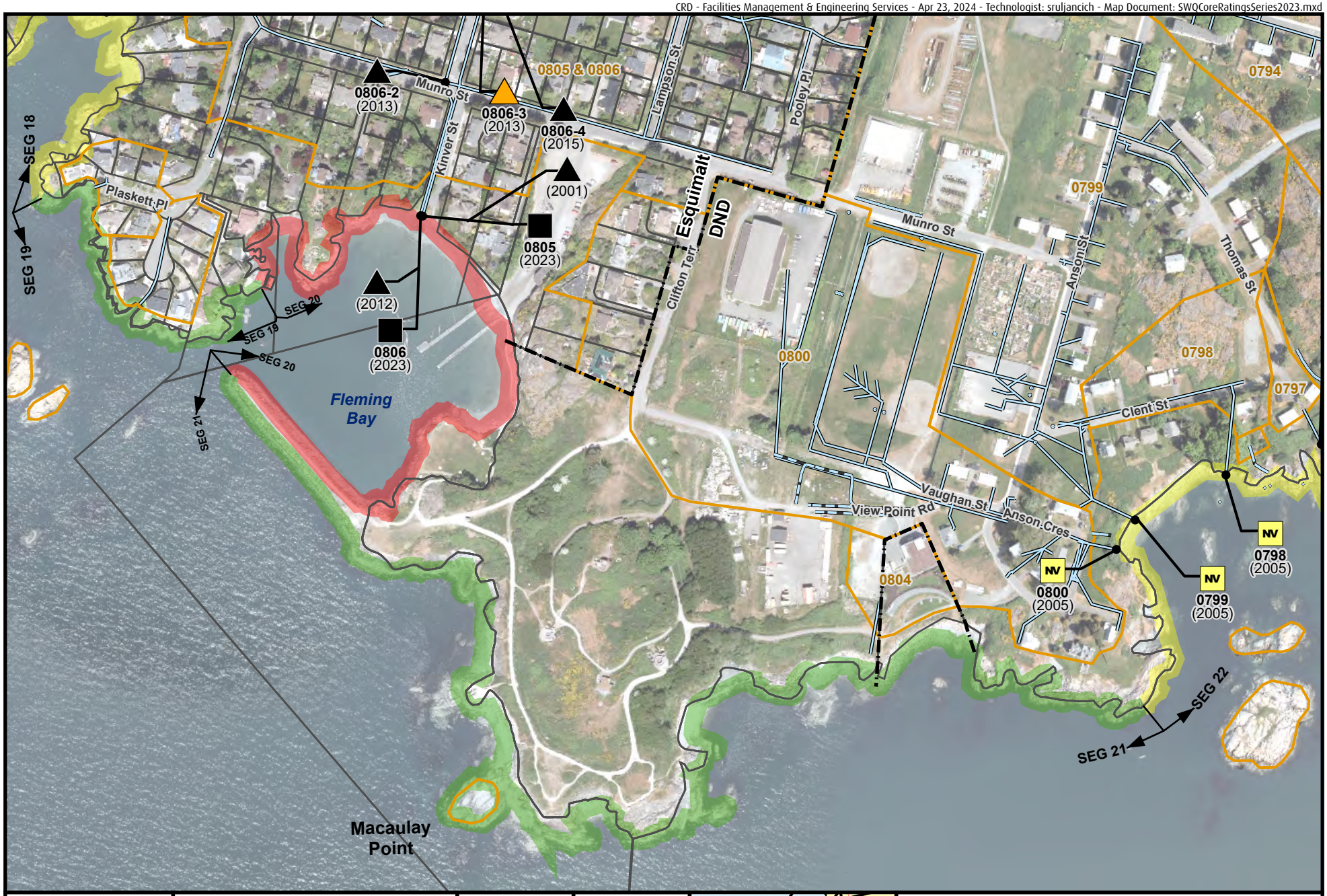


Figure 21

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N W E S

For Legend
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Figure 1

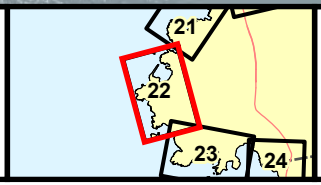
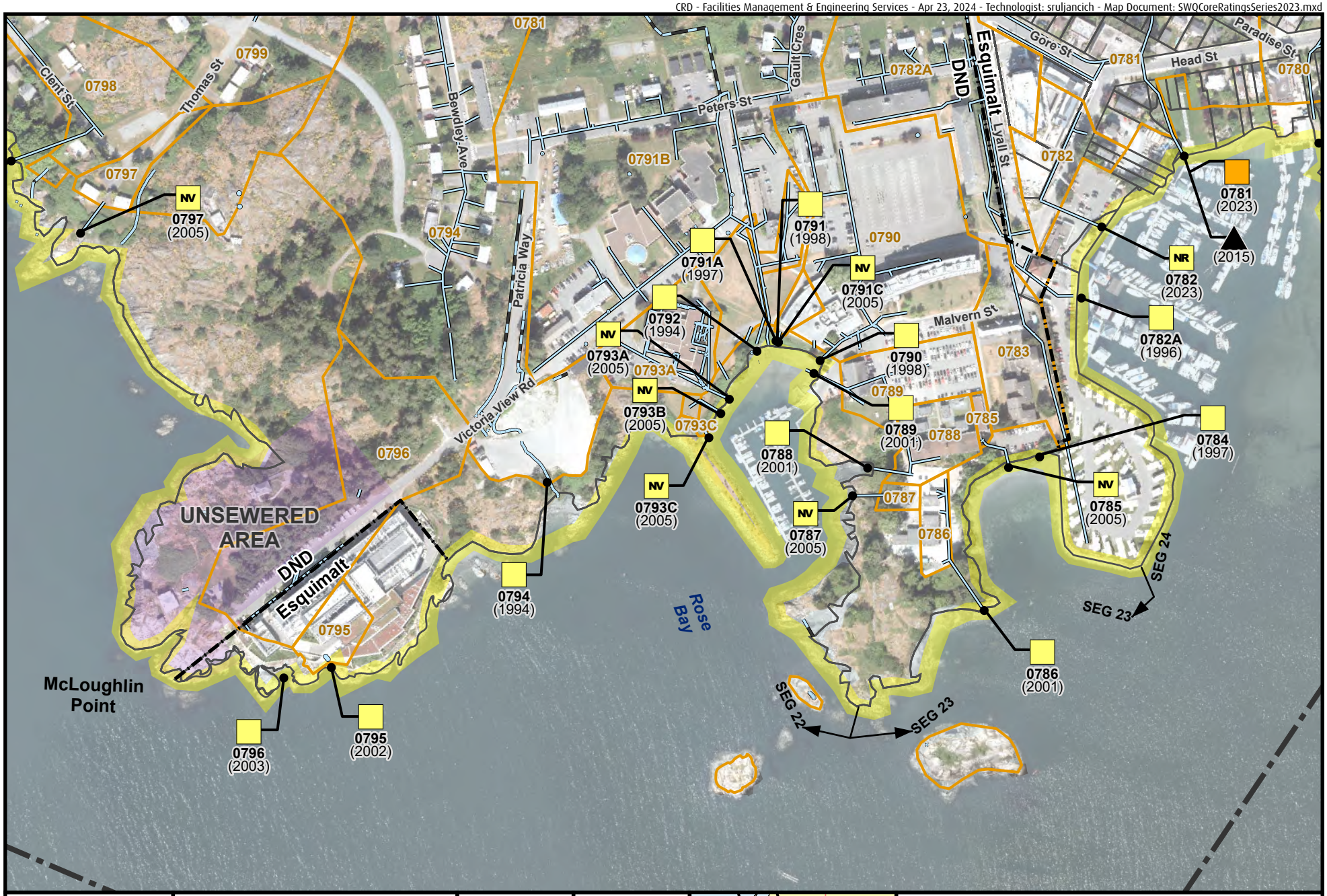


Figure 22

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend
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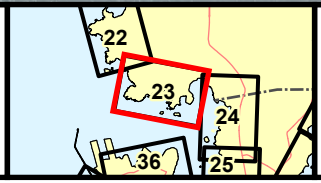
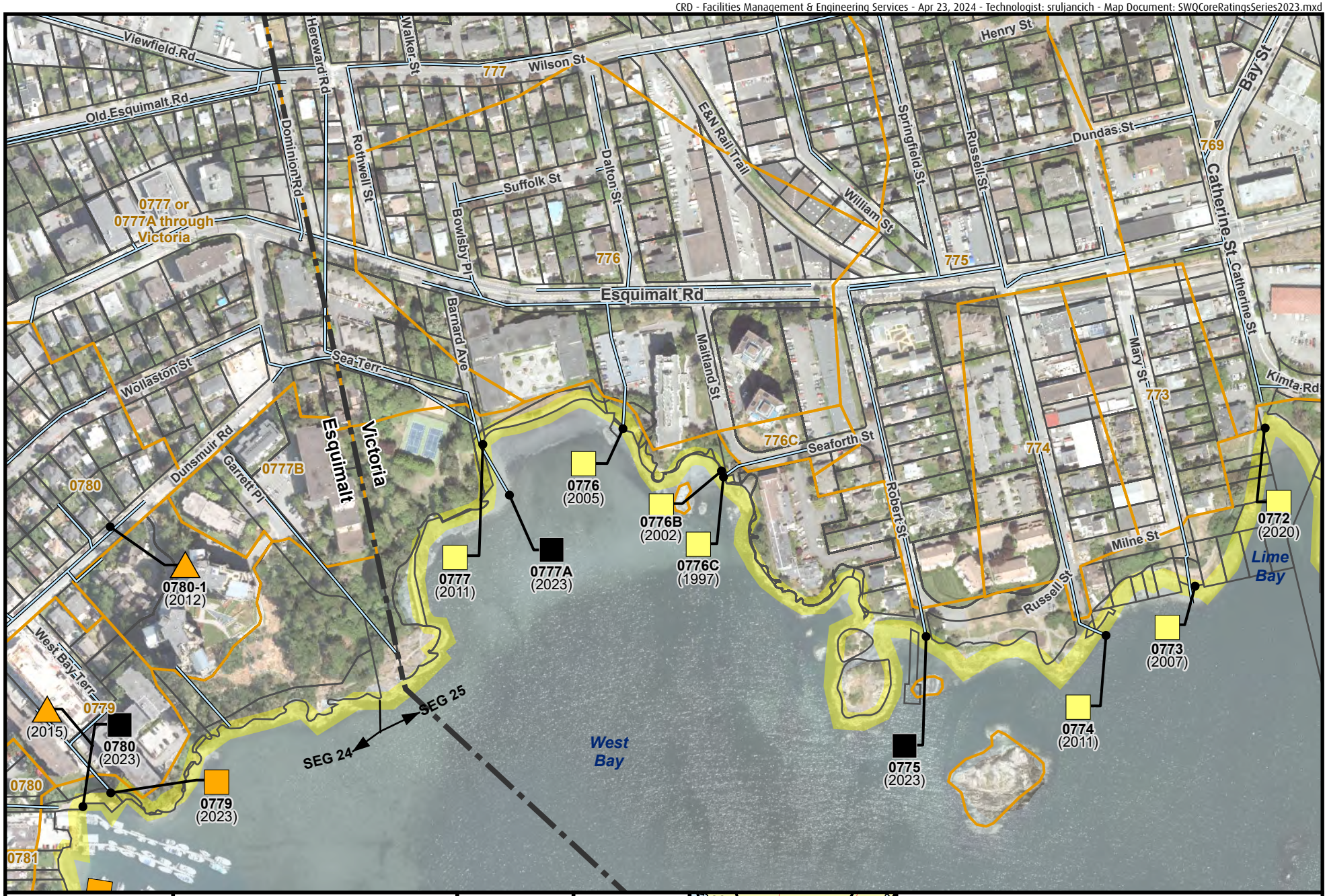


Figure 23

Stormwater Discharge Location and Level of Concern



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0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

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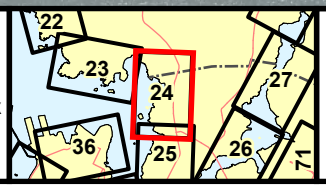
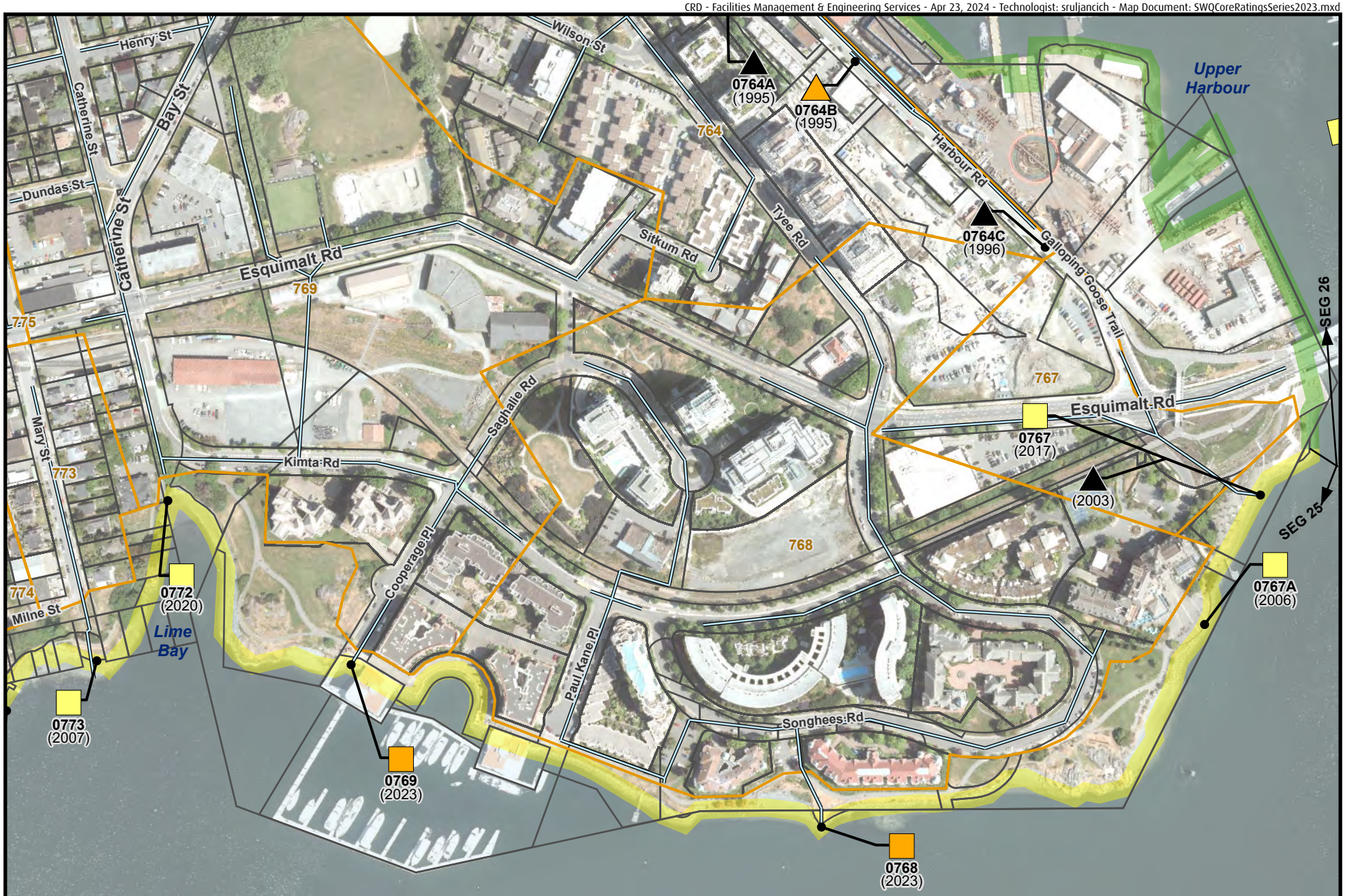


Figure 24

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N E S W

For Legend See Figure 1

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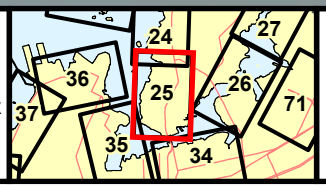
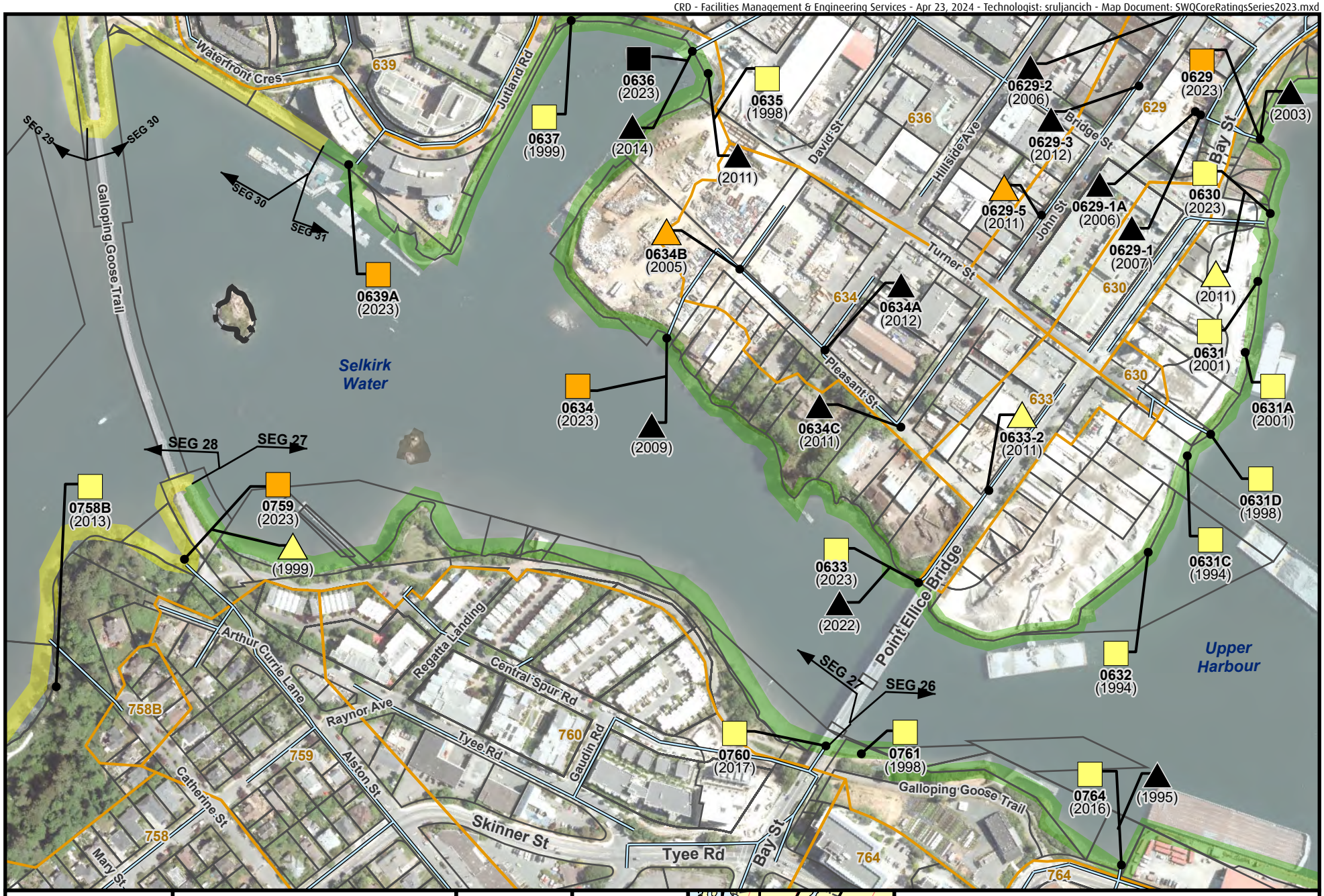


Figure 25

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N W E S

For Legend See Figure 1

For Area Key Index See Figure 1

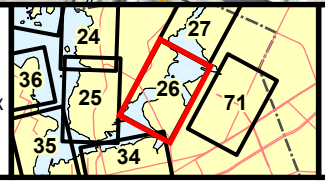
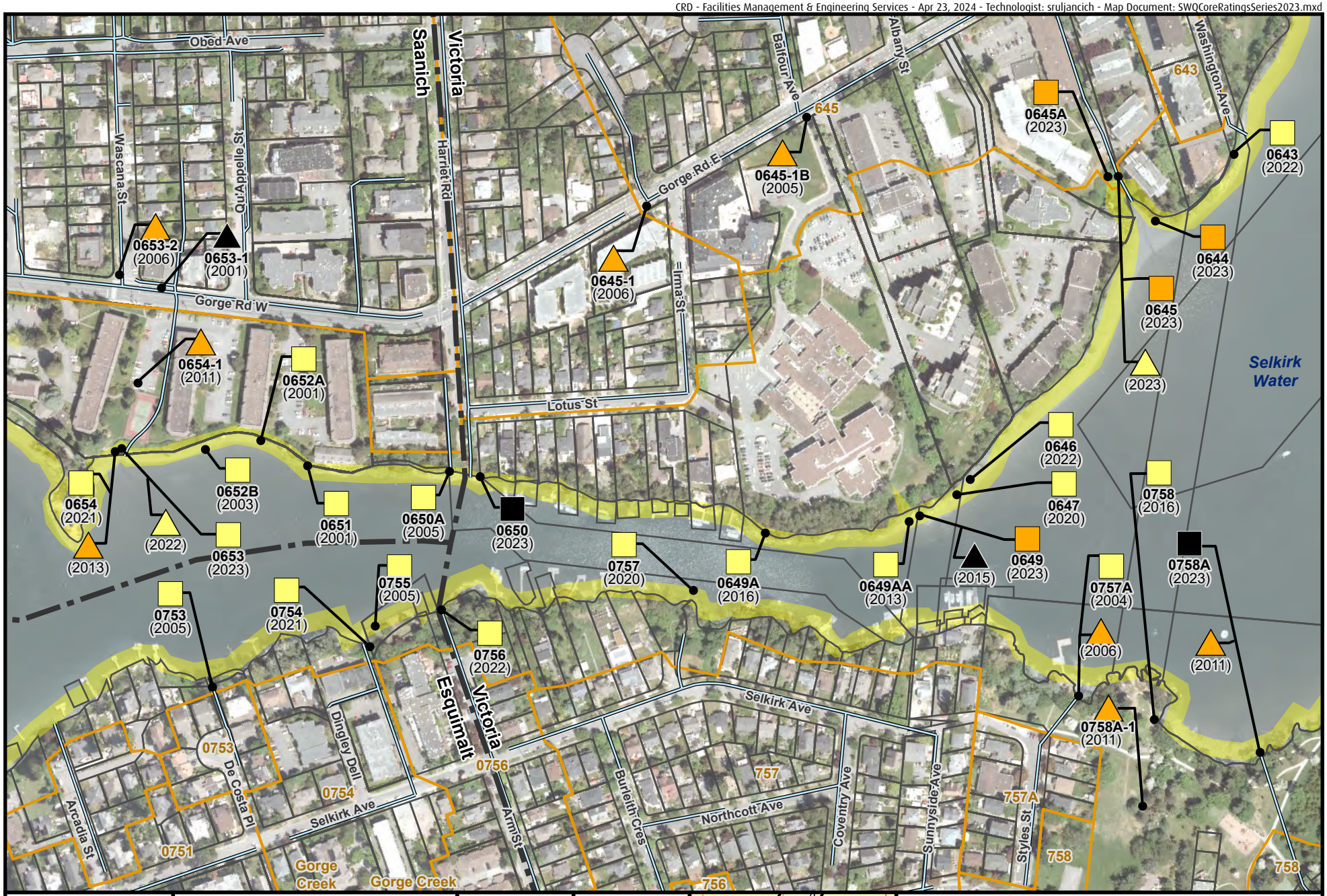


Figure 26

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N E S W

For Legend See Figure 1

For Area Key Index See Figure 1

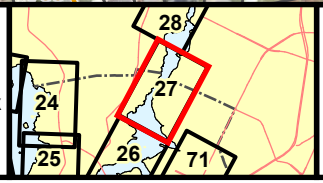
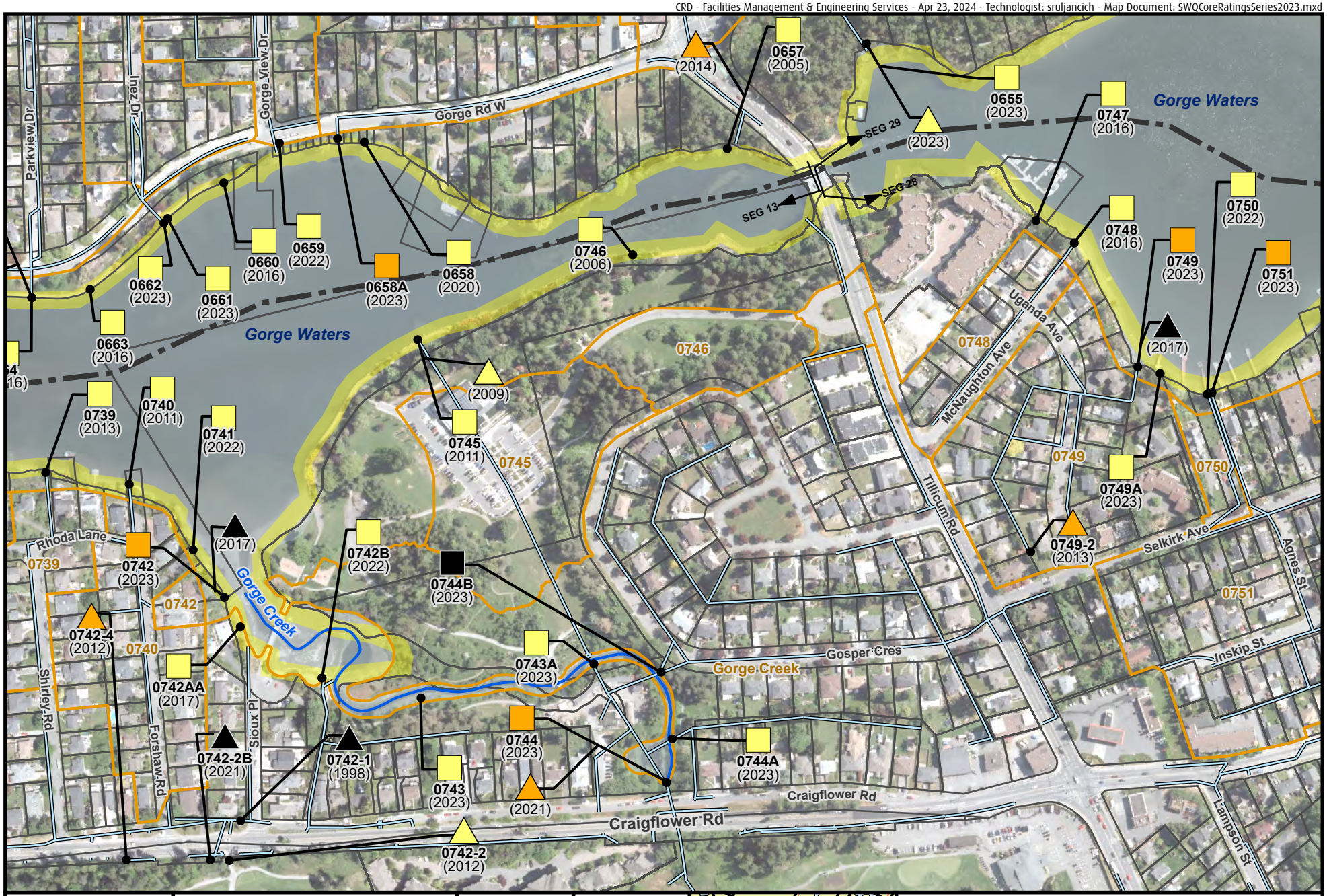


Figure 27

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N E S W

For Legend See Figure 1

For Area Key Index See Figure 1

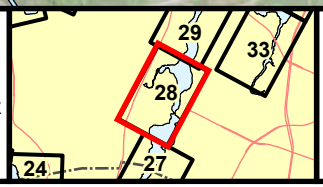
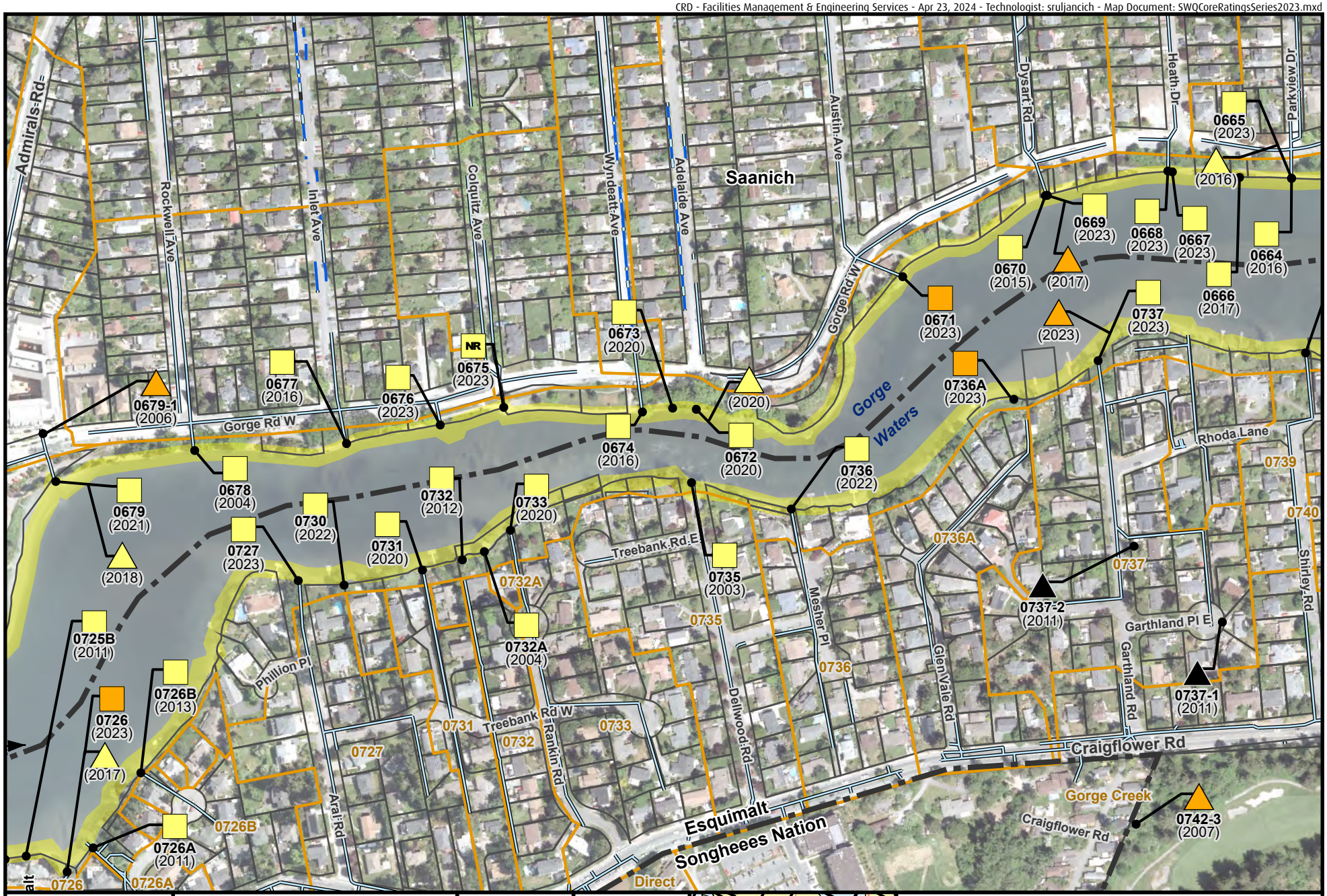


Figure 28

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 1

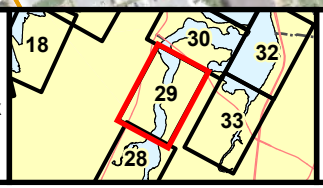
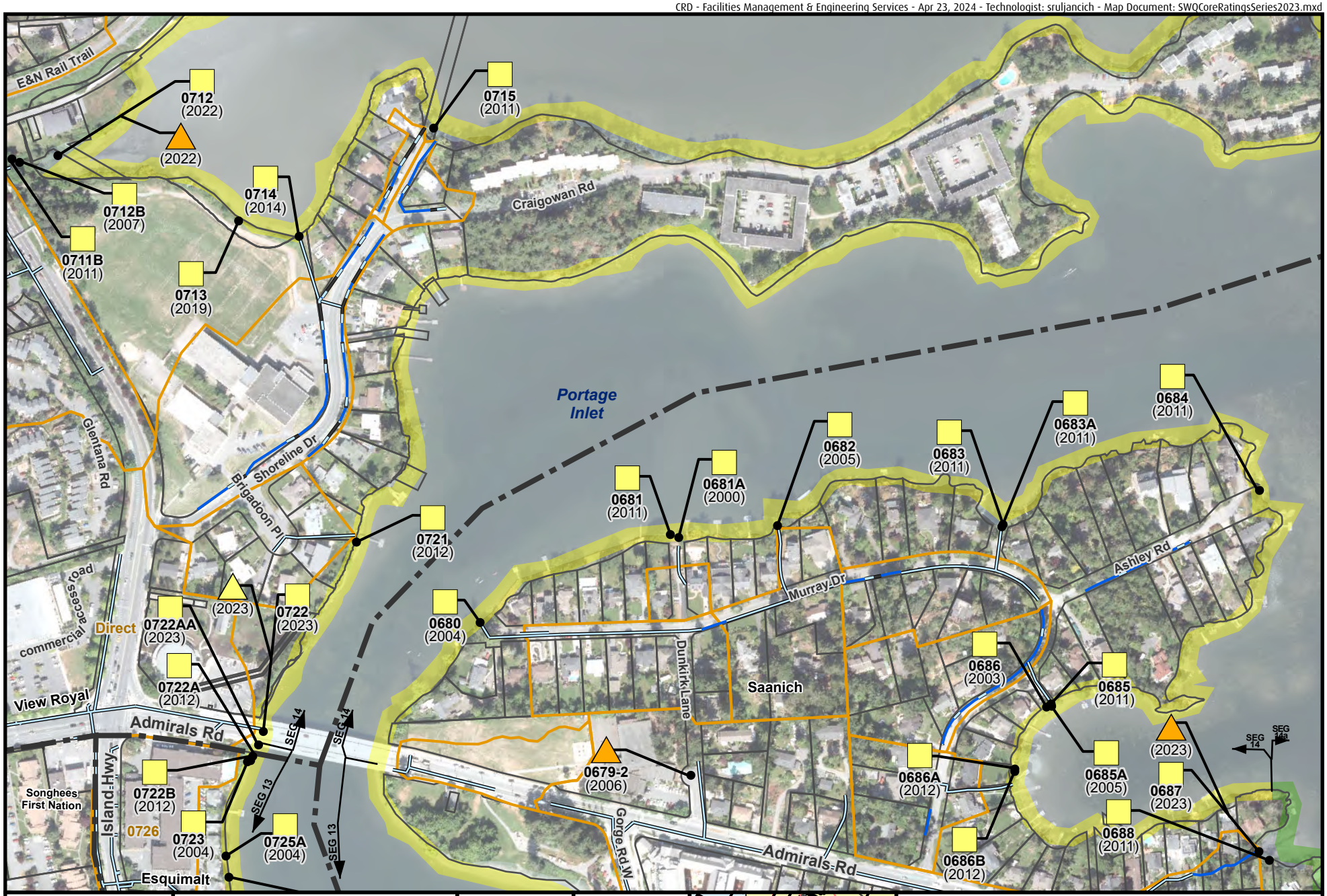


Figure 29

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 1

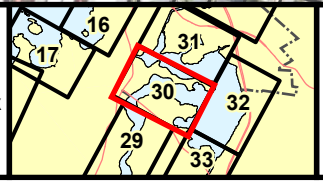
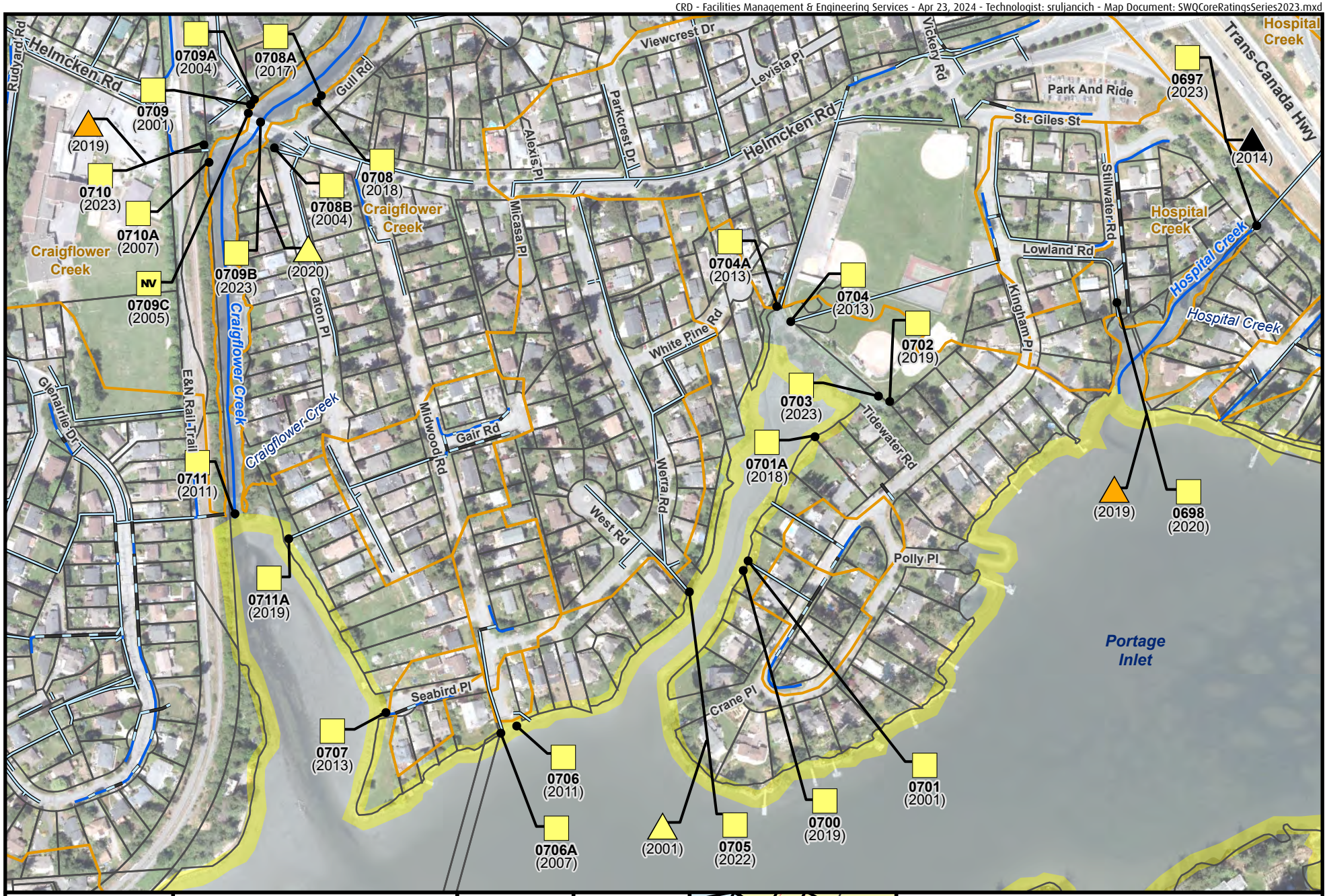


Figure 30

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

W N S E

For Legend See Figure 1

For Area Key Index See Figure 1

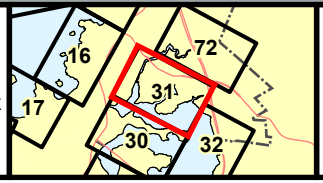


Figure 31

Stormwater Discharge Location and Level of Concern

Making a difference...together

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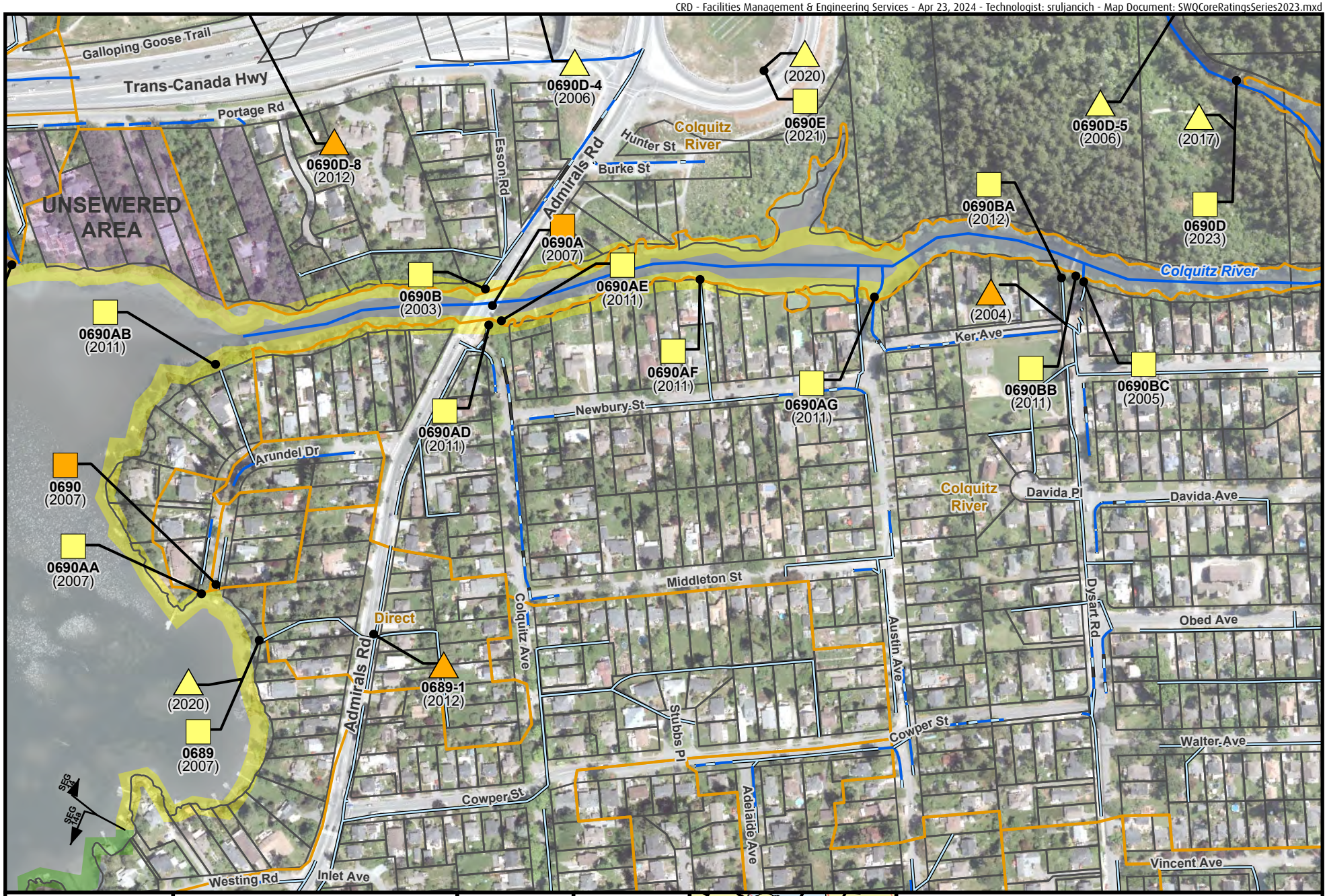
Figure 32

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 1

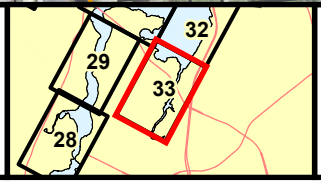
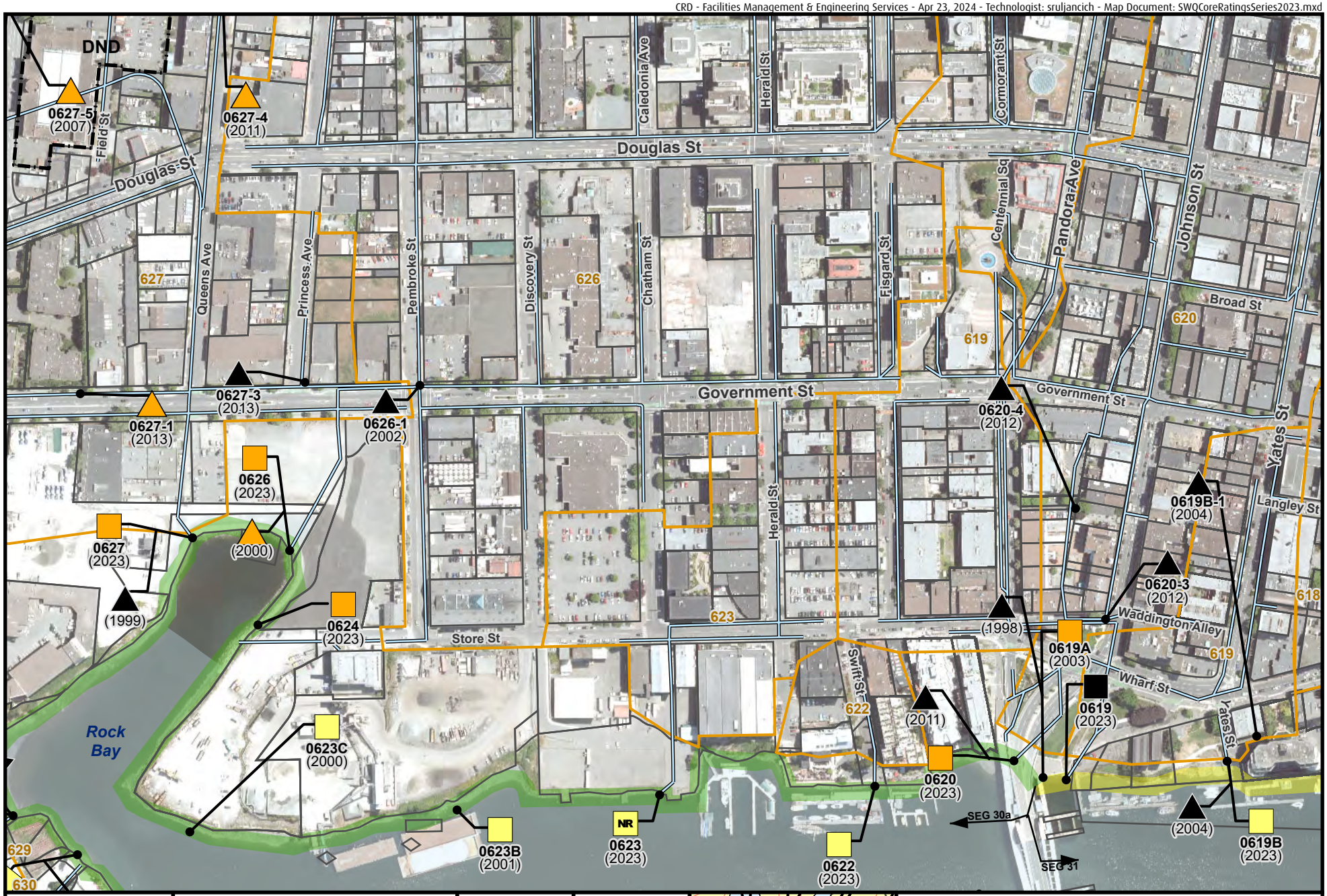


Figure 33

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N E S W

For Legend See Figure 1

For Area Key Index See Figure 1

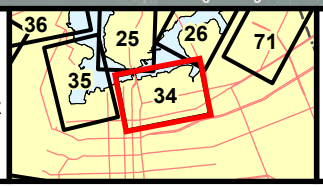
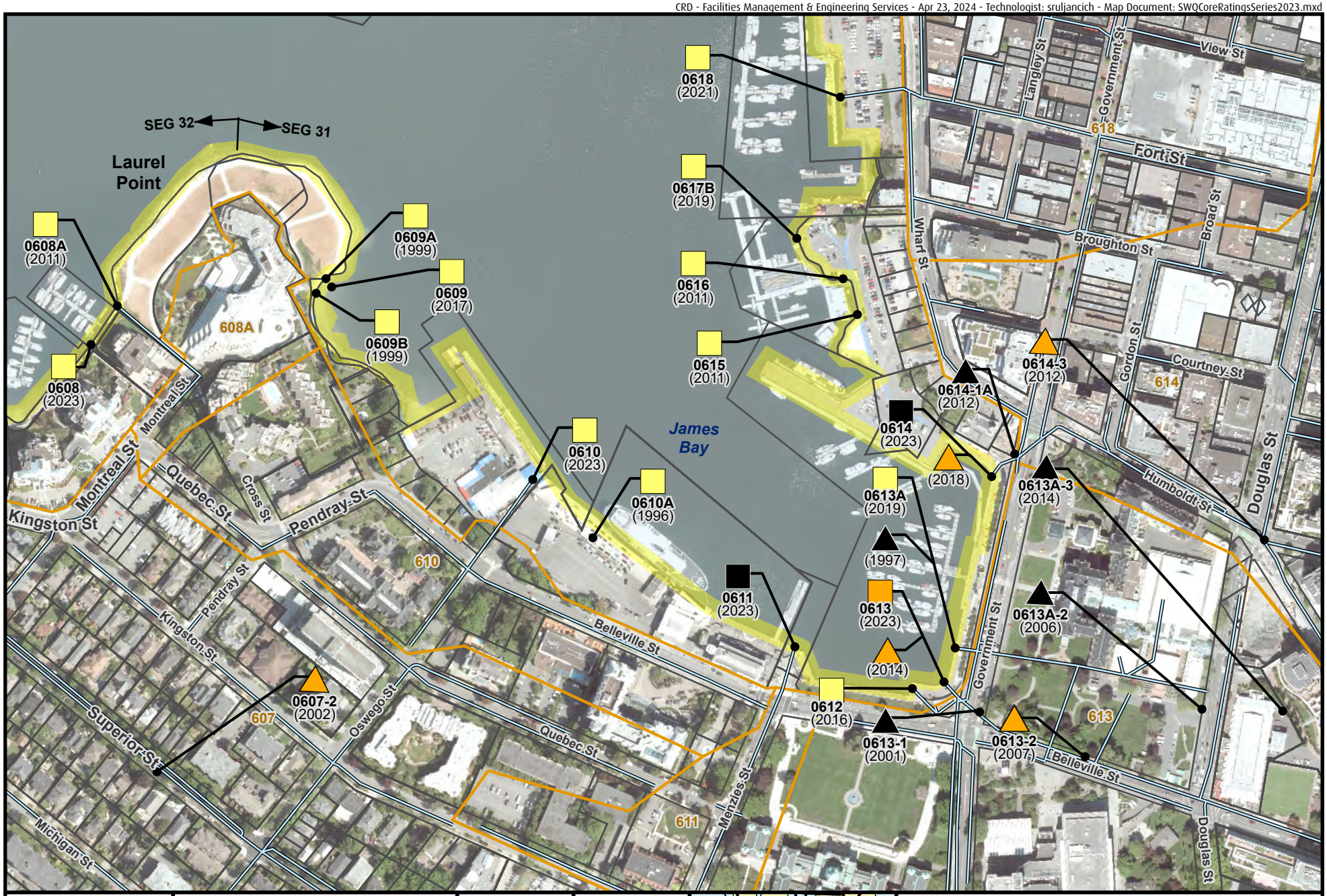


Figure 34

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N W E S

For Legend See Figure 1

For Area Key Index See Figure 1

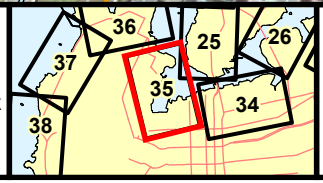


Figure 35

Stormwater Discharge Location and Level of Concern

Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N E S W

For Legend See Figure 1

For Area Key Index See Figure 1

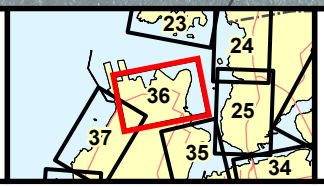
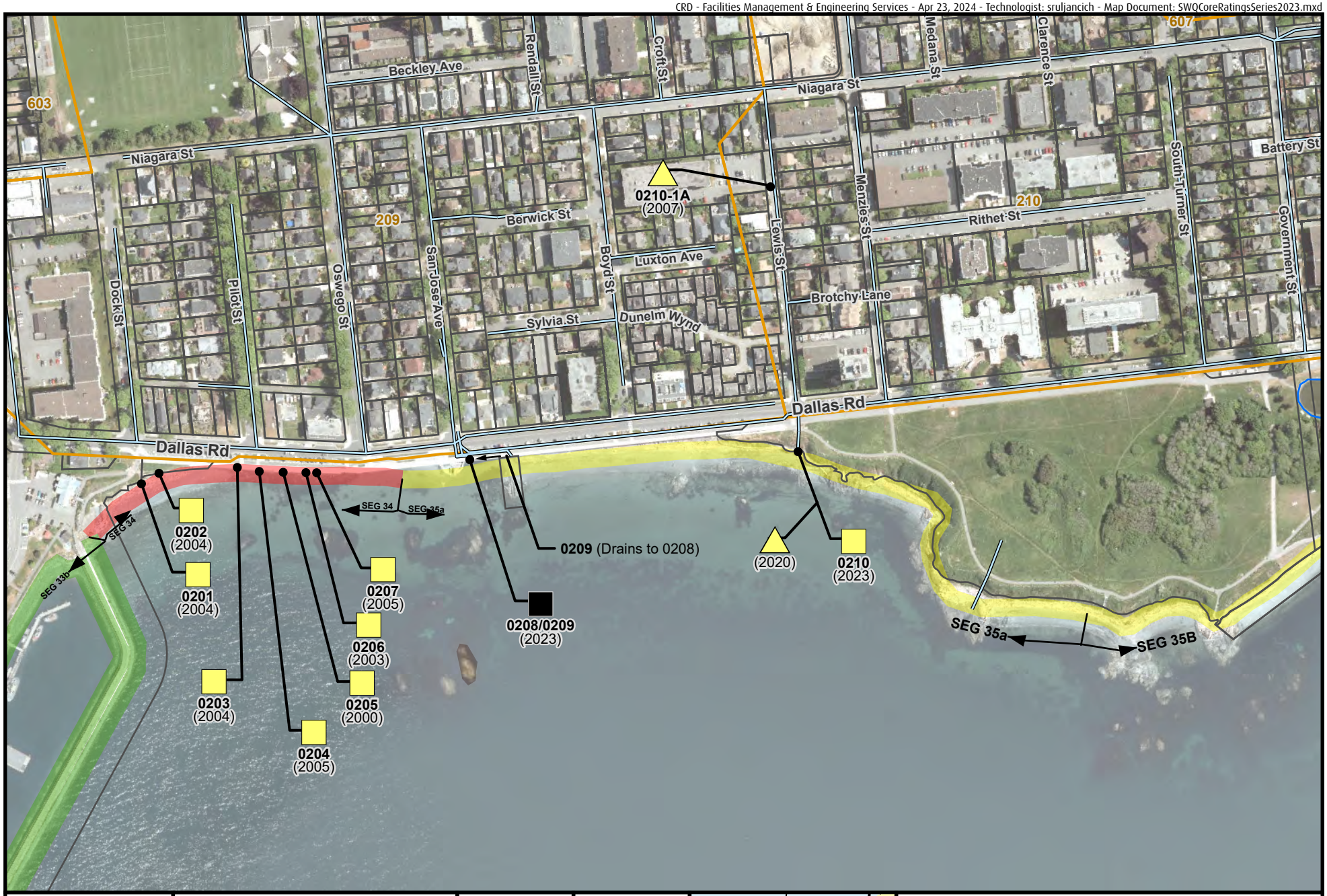


Figure 36

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 1

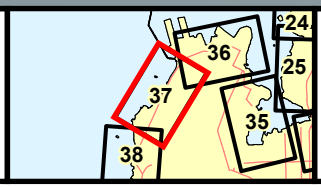


Figure 37

Stormwater Discharge Location and Level of Concern

Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N E S W

For Legend See Figure 1

For Area Key Index See Figure 2

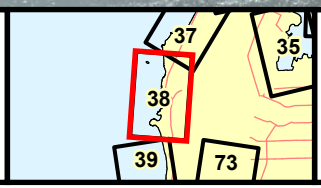
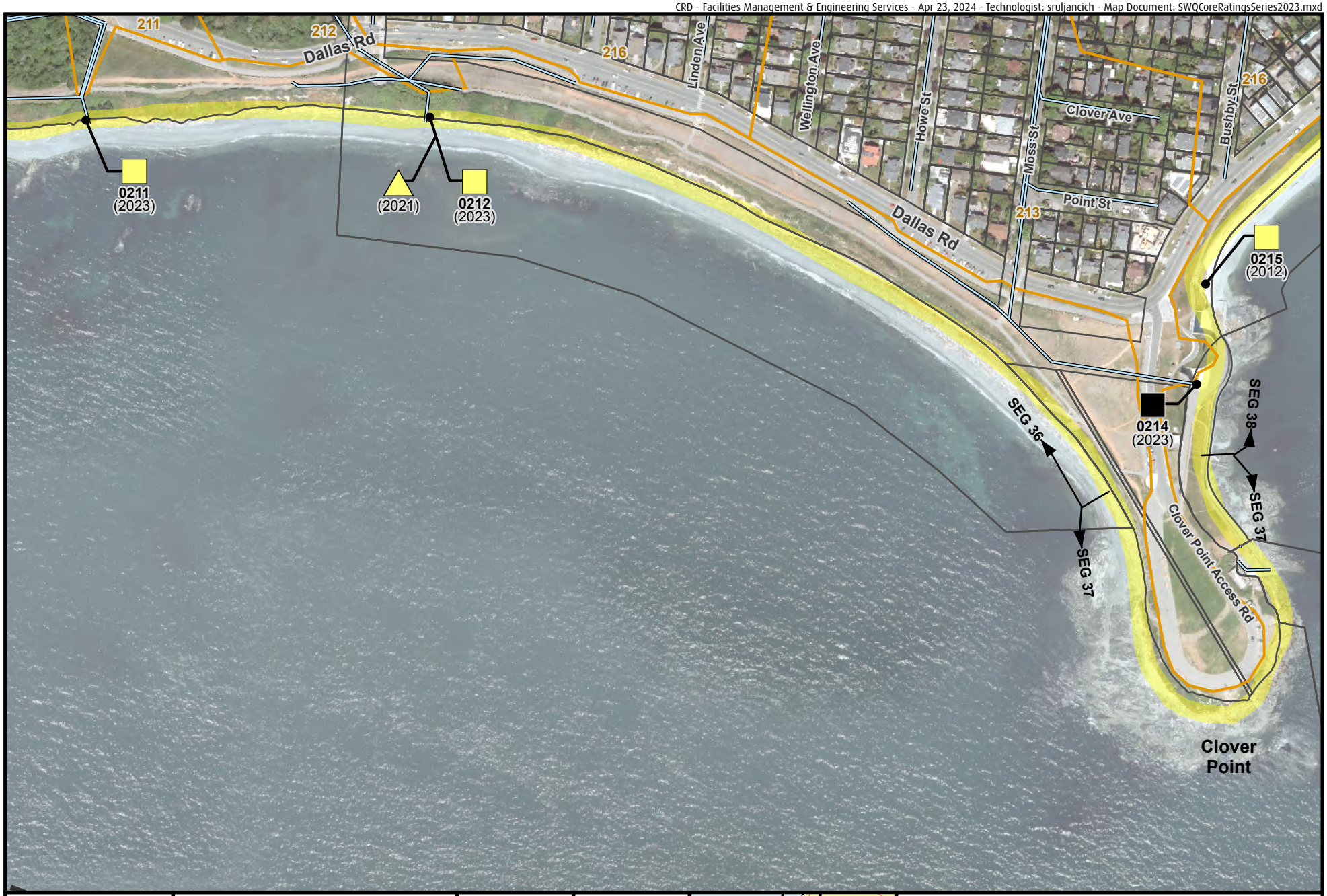


Figure 38

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N W E S

For Legend See Figure 1

For Area Key Index See Figure 2

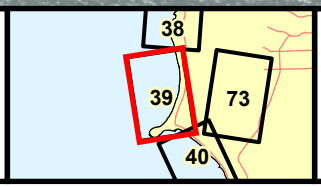
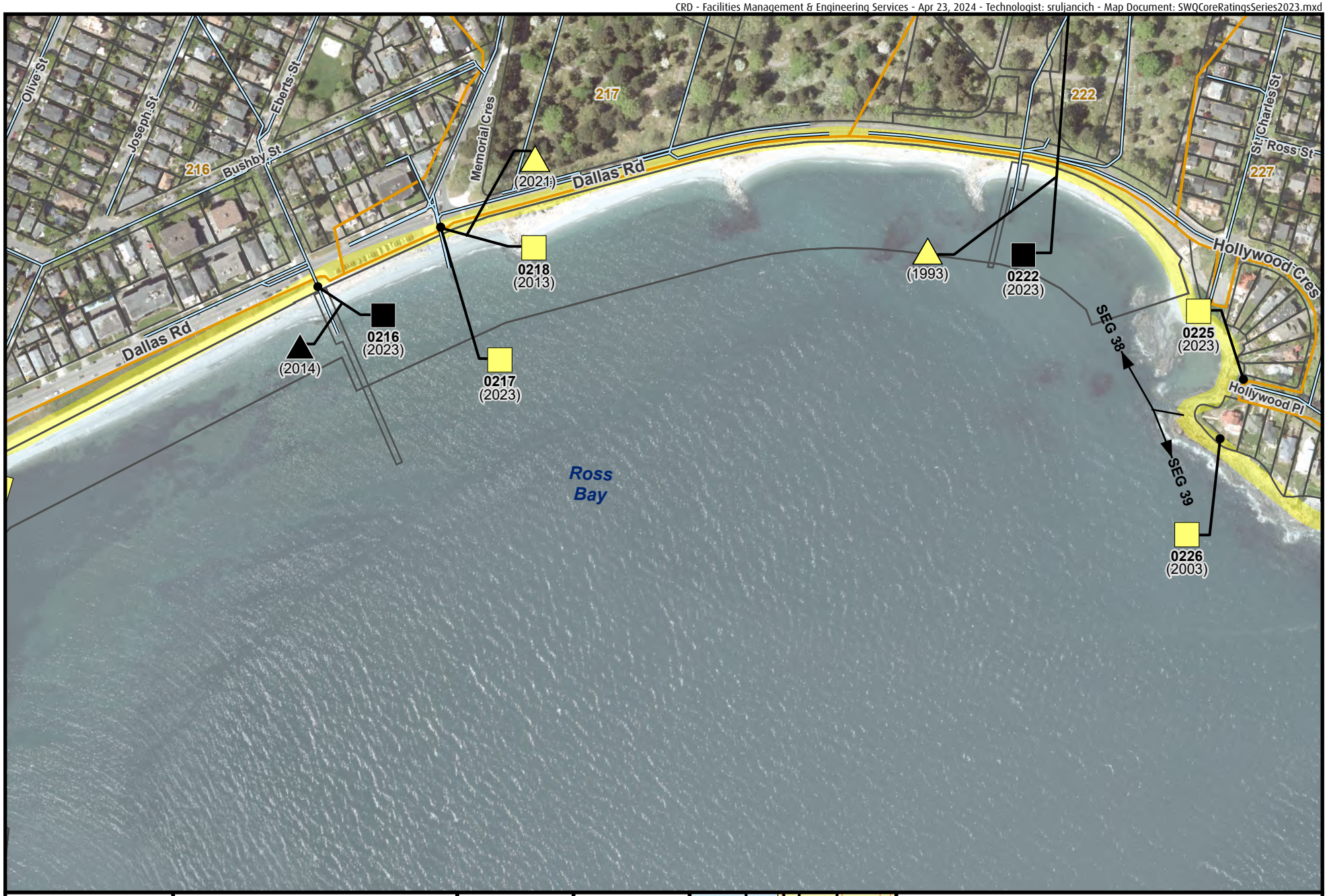


Figure 39

Stormwater Discharge Location and Level of Concern



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0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

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For Legend See Figure 1

For Area Key Index See Figure 2

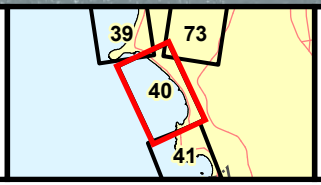


Figure 40

Stormwater Discharge Location and Level of Concern

Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N W E S

For Legend See Figure 1

For Area Key Index See Figure 2

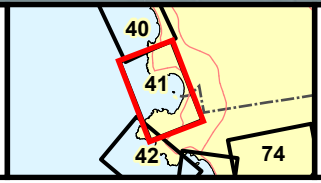
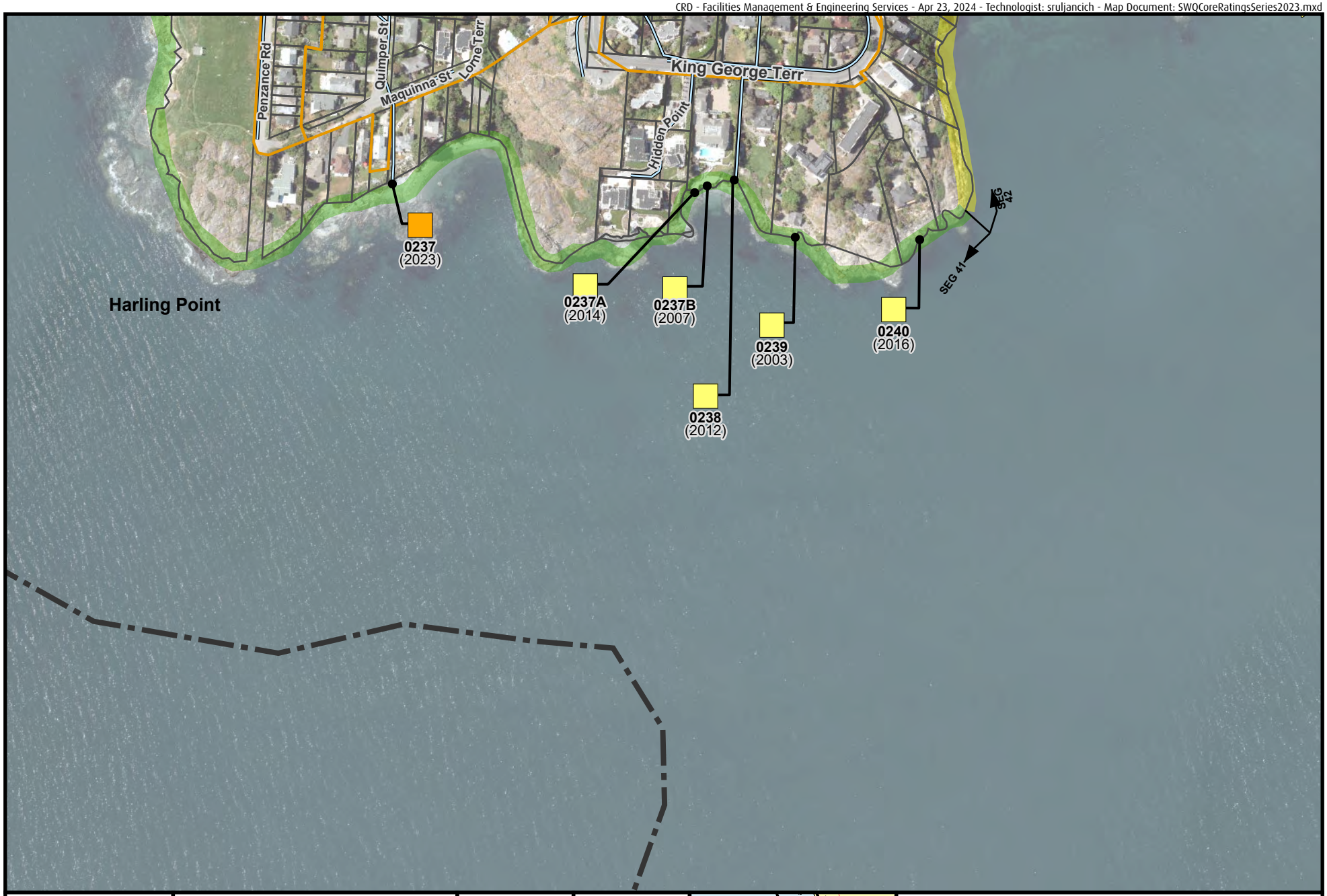


Figure 41

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 2

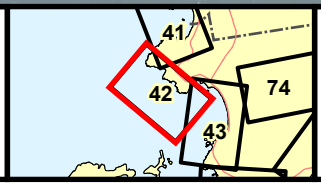
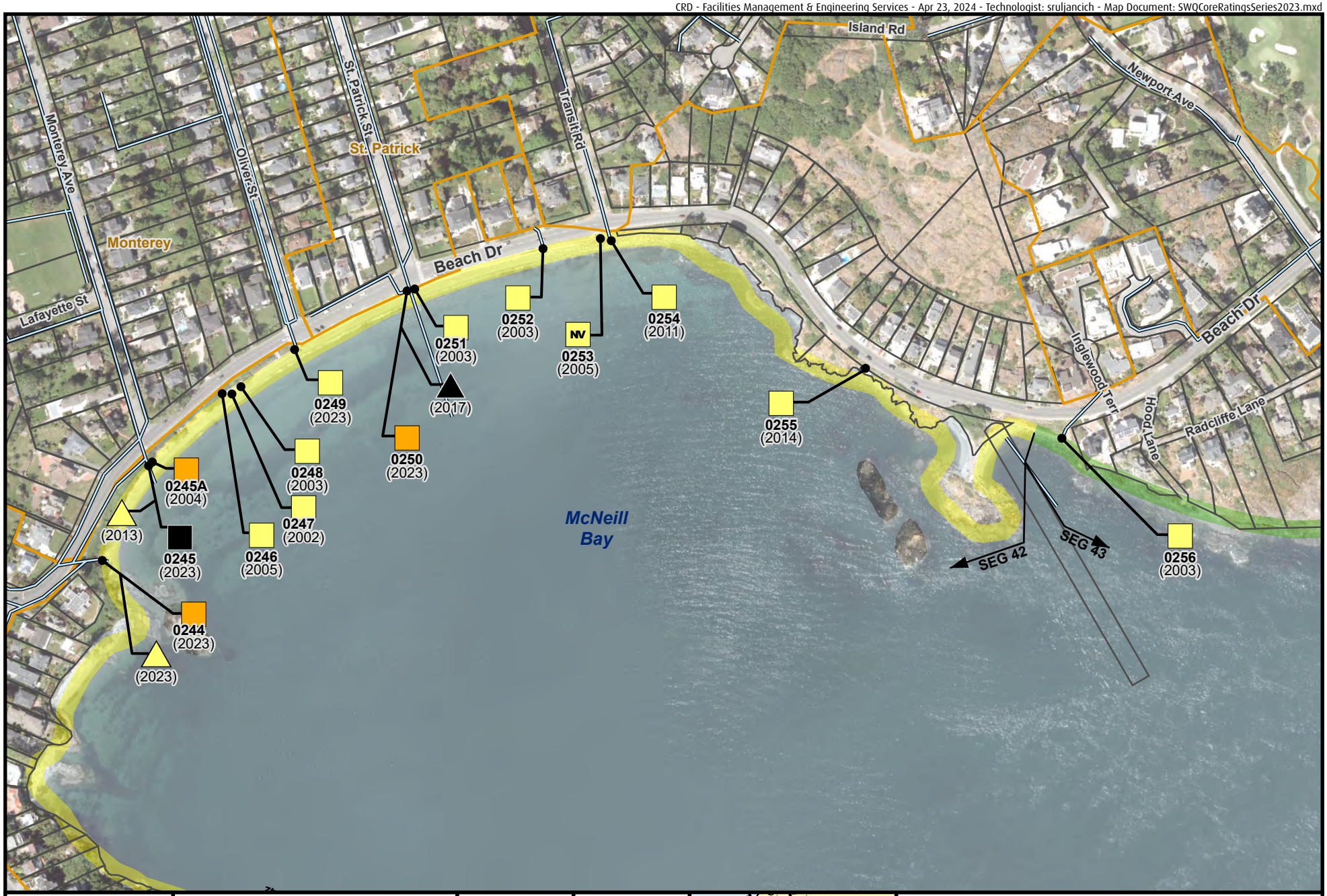


Figure 42

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N E S W

For Legend See Figure 1

For Area Key Index See Figure 2

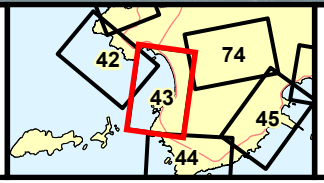


Figure 43

Stormwater Discharge Location and Level of Concern

Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend
See Figure 1

For Area Key Index
See
Figure 2

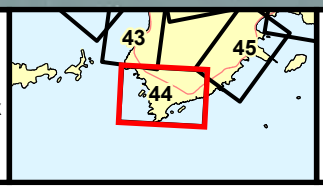


Figure 44

Stormwater Discharge Location and Level of Concern

CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 2

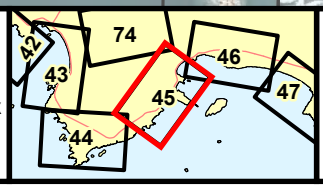
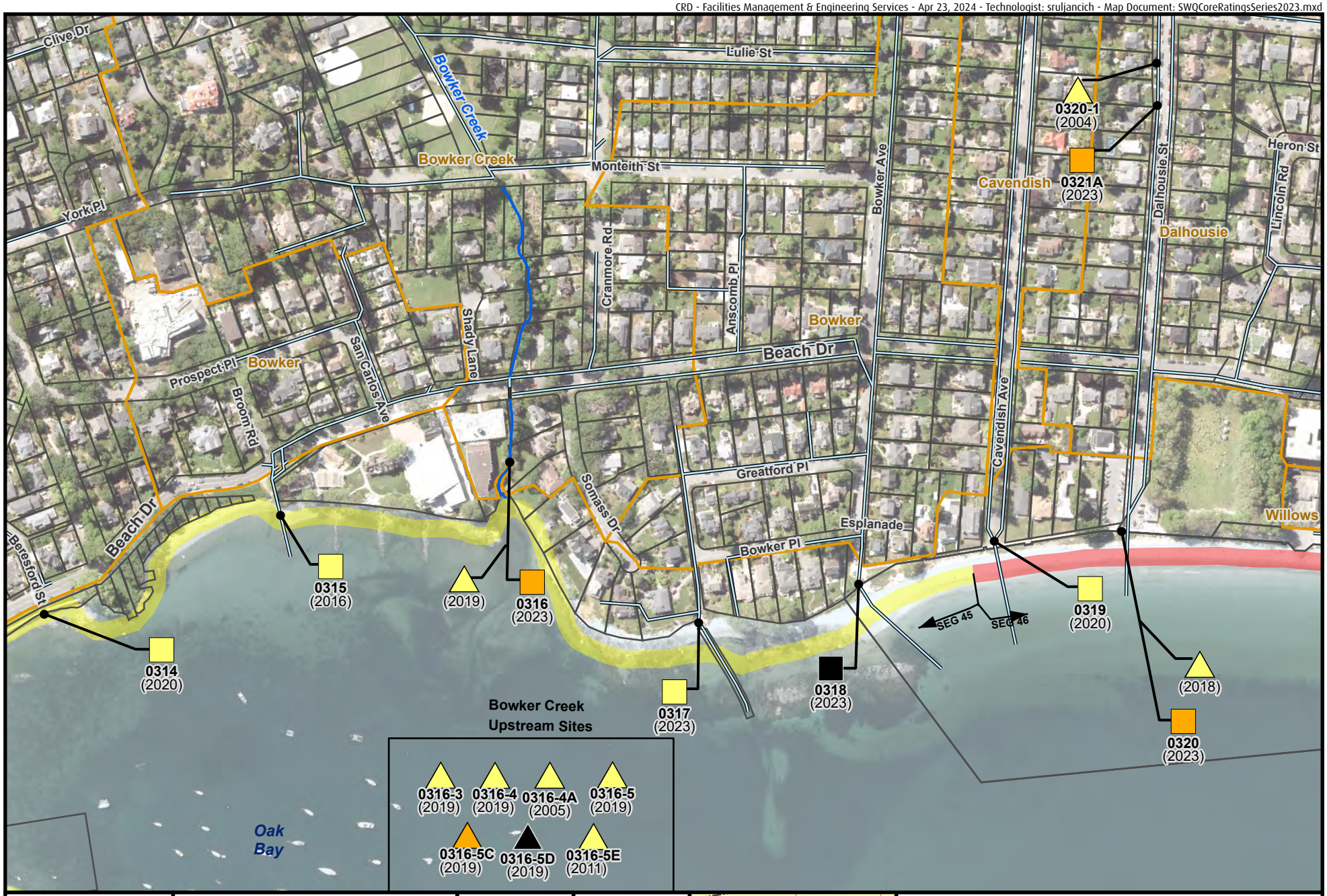


Figure 45

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 2

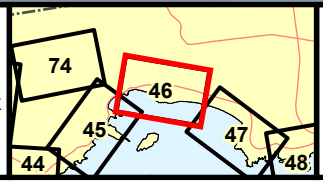
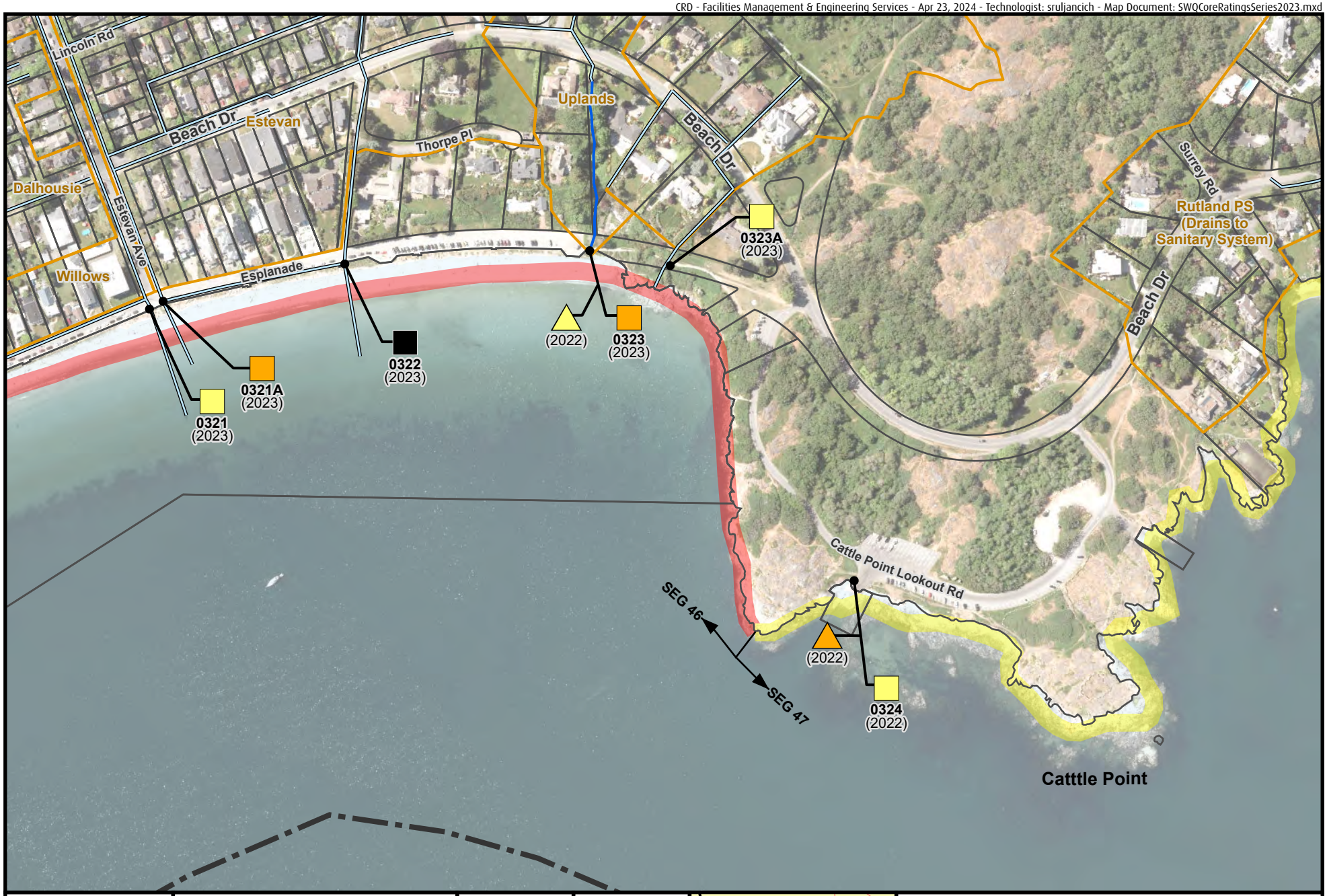


Figure 46

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

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

For Legend
See Figure 1

For Area Key Index
See
Figure 2

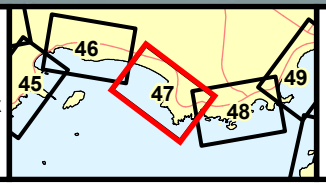


Figure 47
Stormwater Discharge Location and Level of Concern

CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

W S E N

For Legend See Figure 1

For Area Key Index See Figure 2

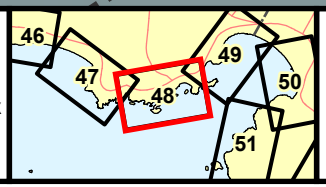
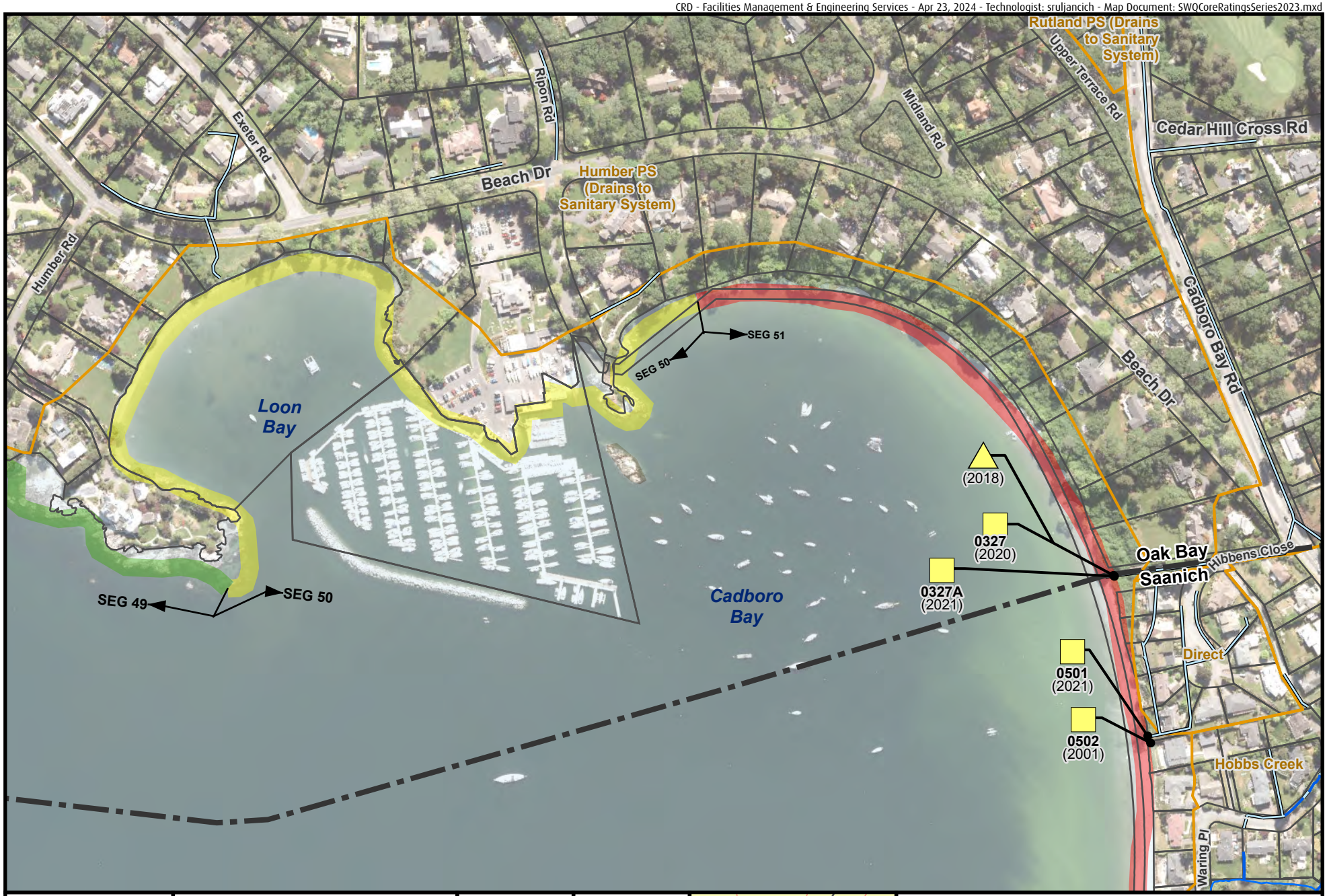


Figure 48

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 2

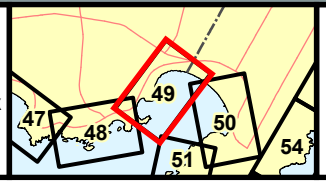
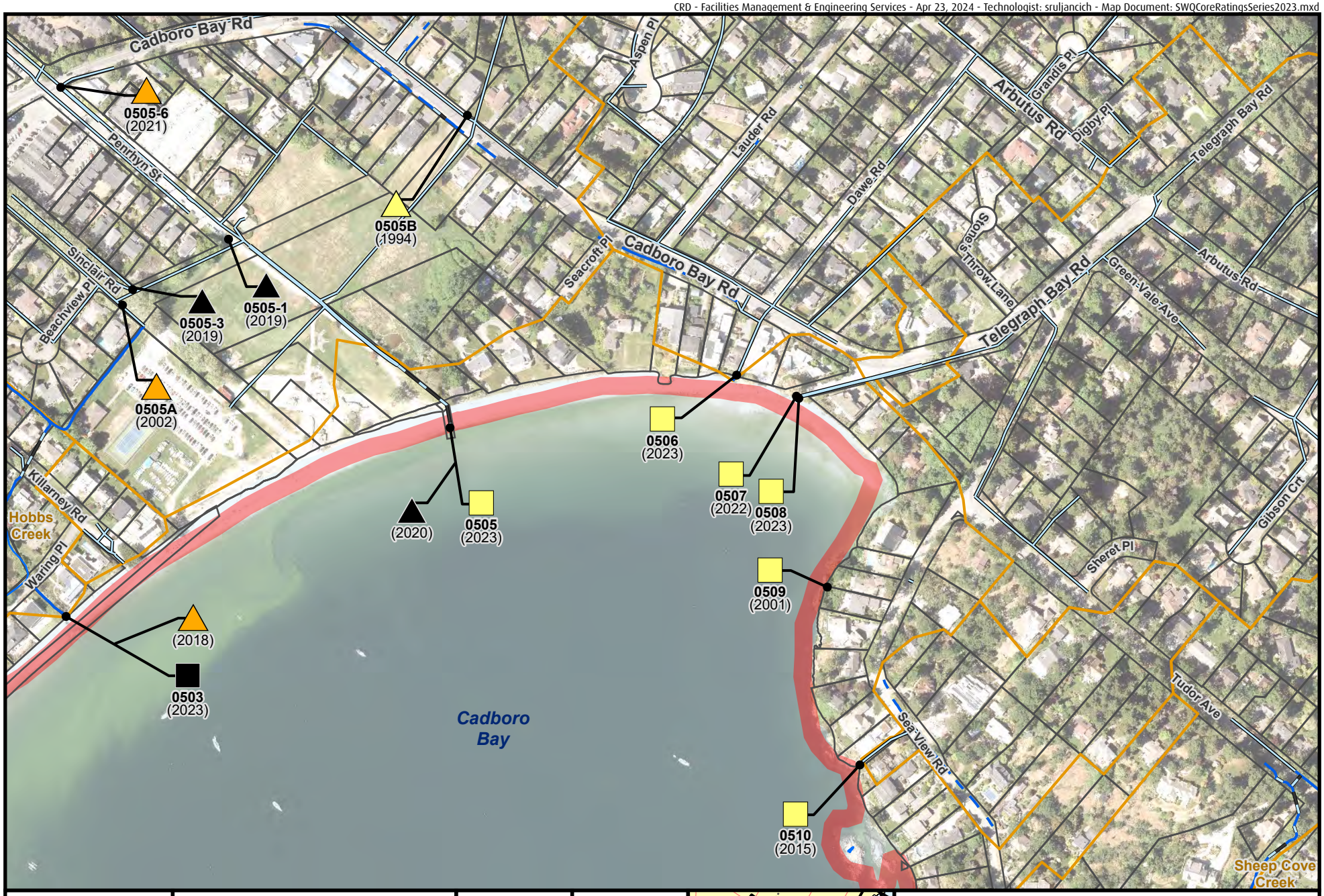


Figure 49

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N W E S

For Legend See Figure 1

For Area Key Index See Figure 2

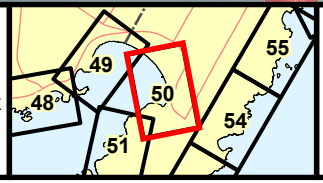


Figure 50

Stormwater Discharge Location and Level of Concern

Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N E S W

For Legend See Figure 1

For Area Key Index See Figure 2

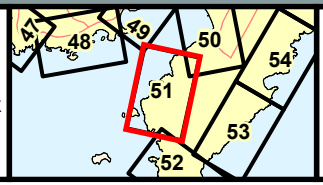


Figure 51

Stormwater Discharge Location and Level of Concern

CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend
See Figure 1

For Area Key Index
See
Figure 2

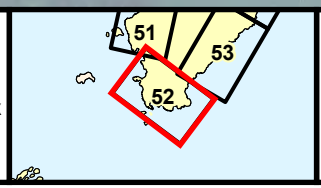
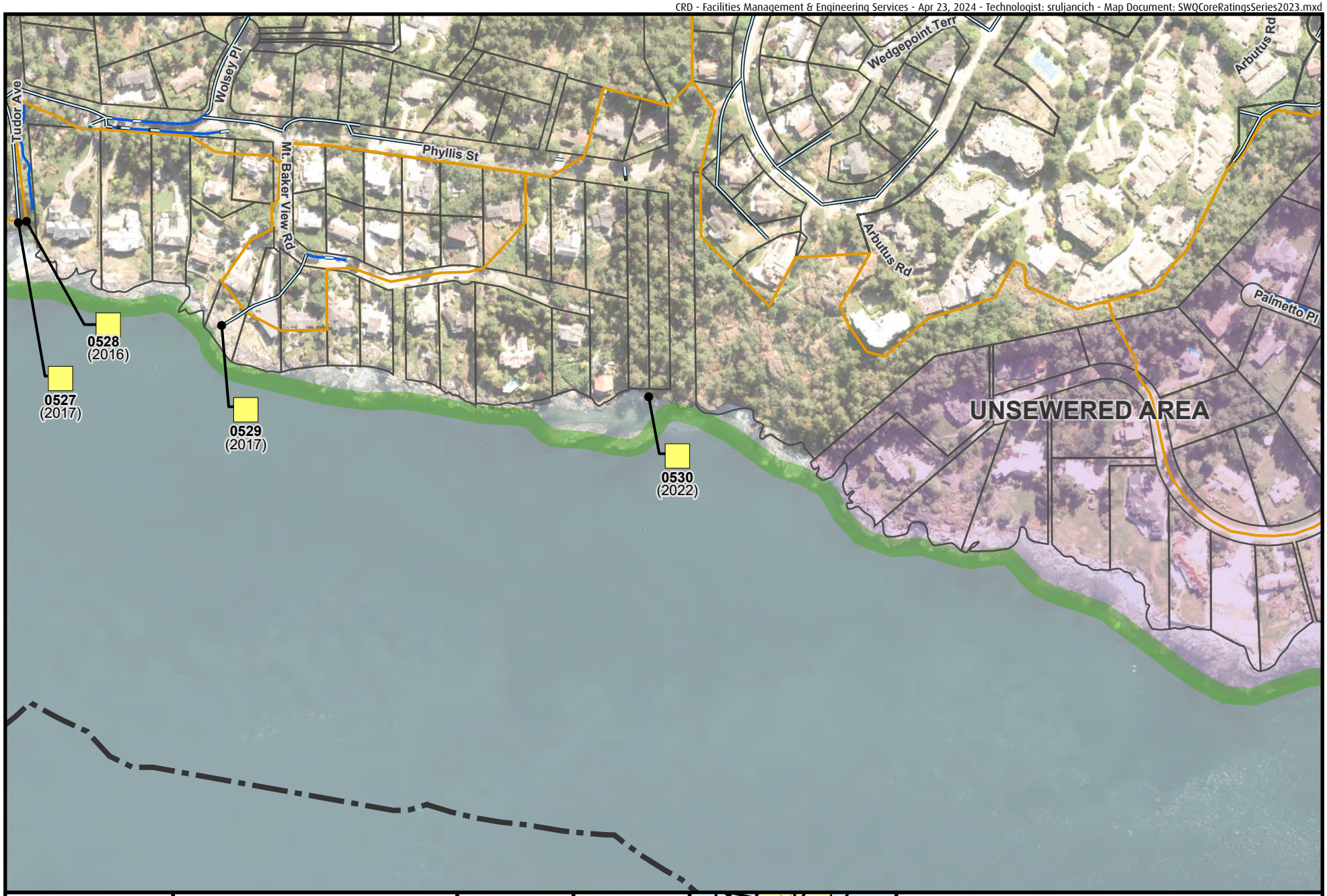


Figure 52

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 2

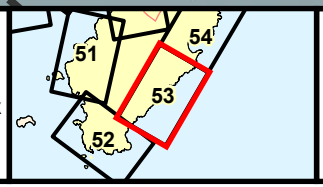
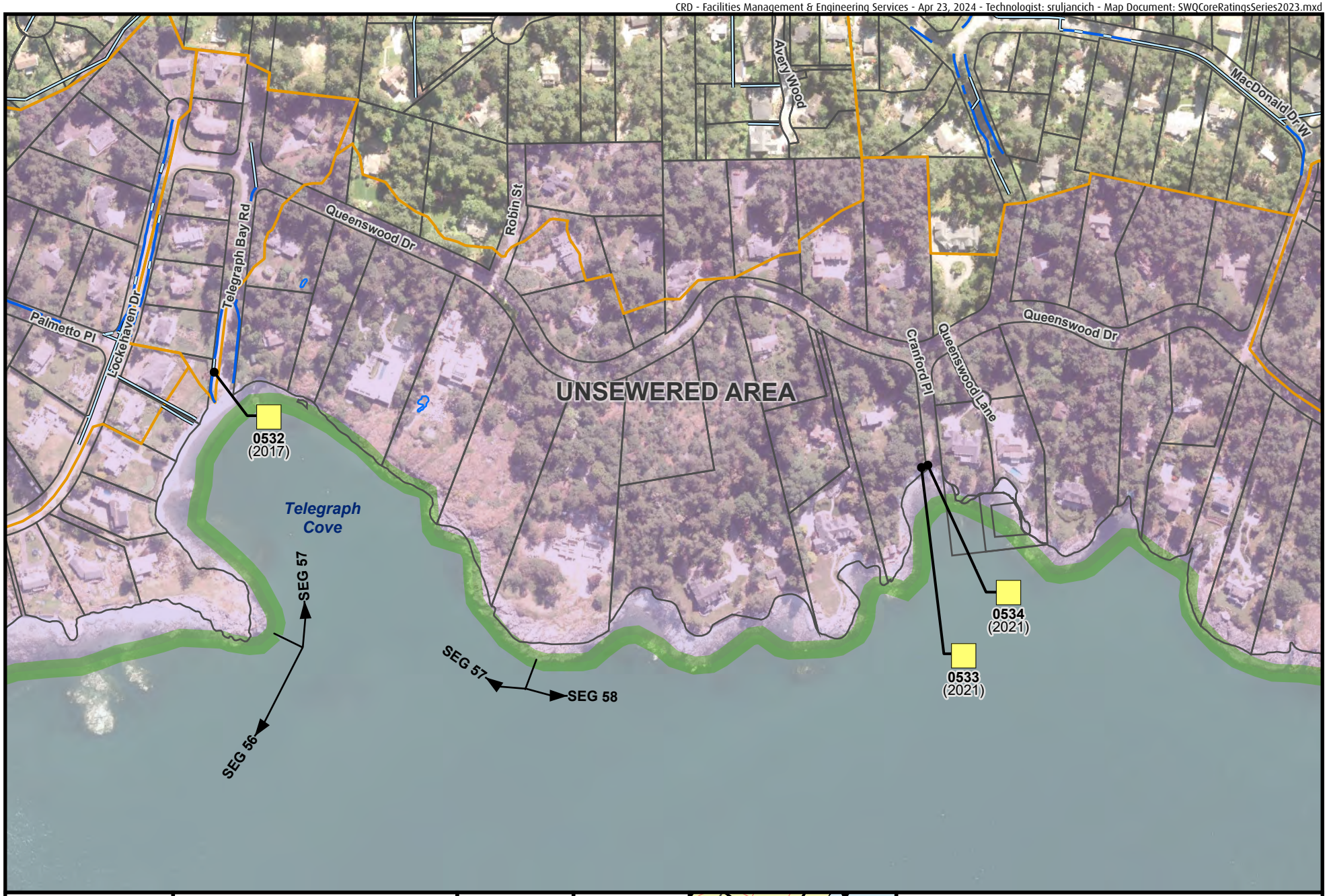


Figure 53

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend
See Figure 1

For Area Key Index
See
Figure 2

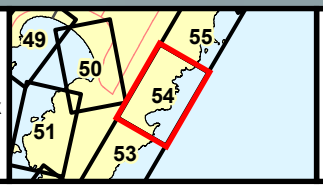
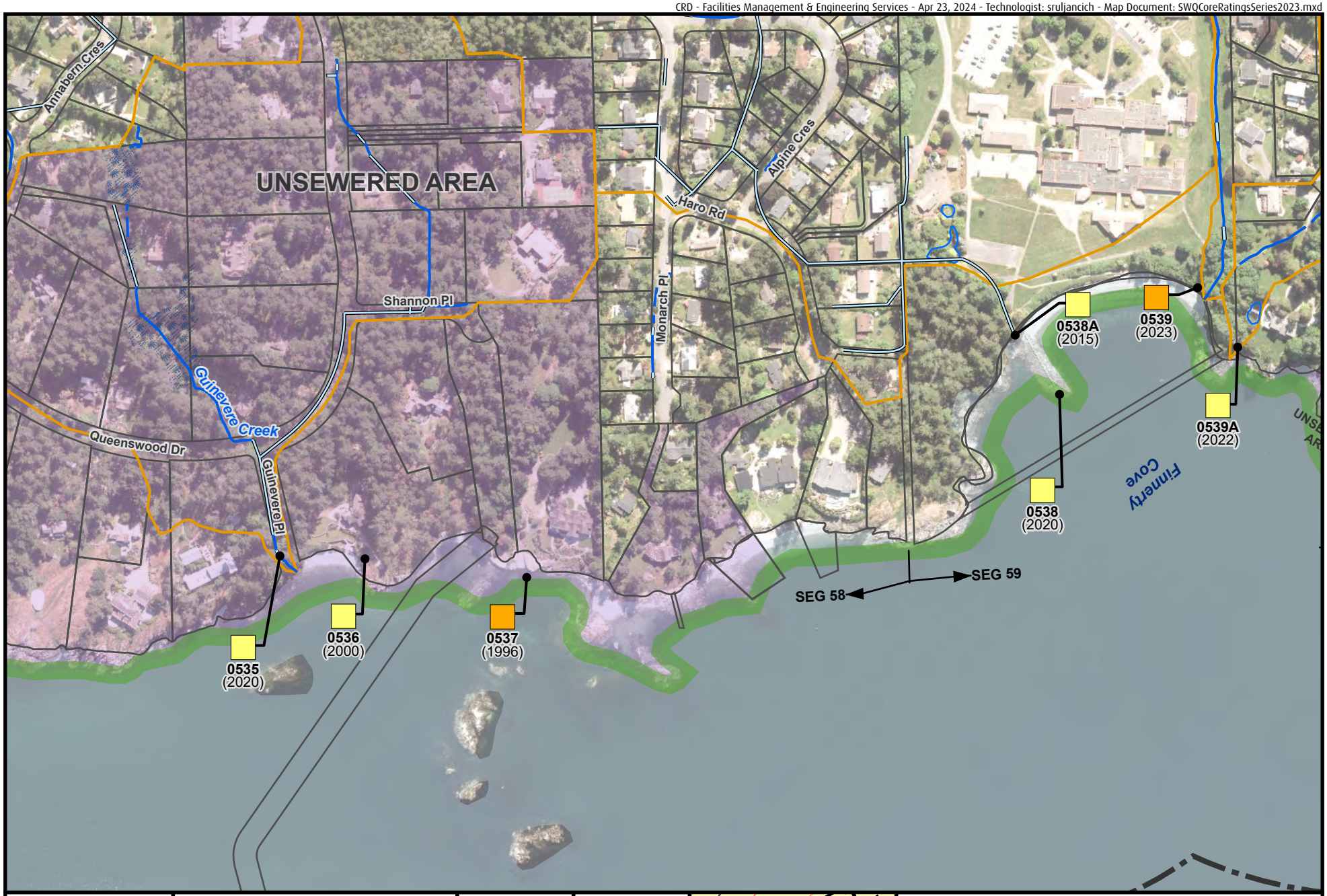


Figure 54

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 2

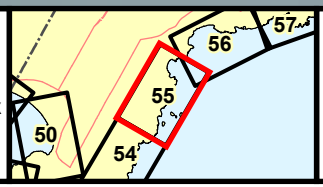
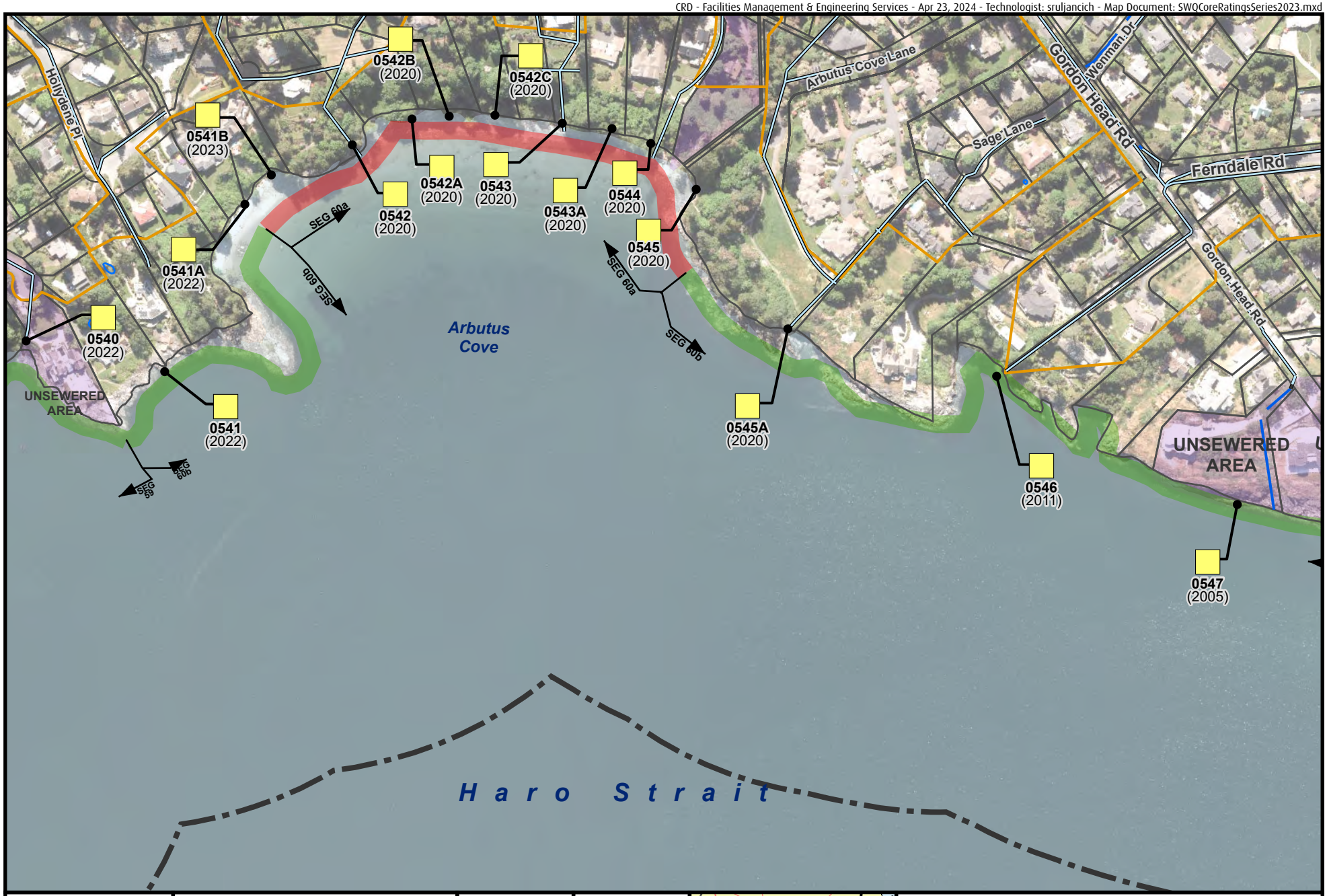


Figure 55

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 2

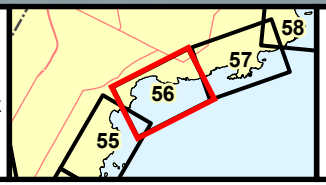


Figure 56

Stormwater Discharge Location and Level of Concern

Making a difference...together

Metres

0 25 50 100 150

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 2

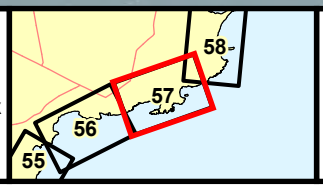
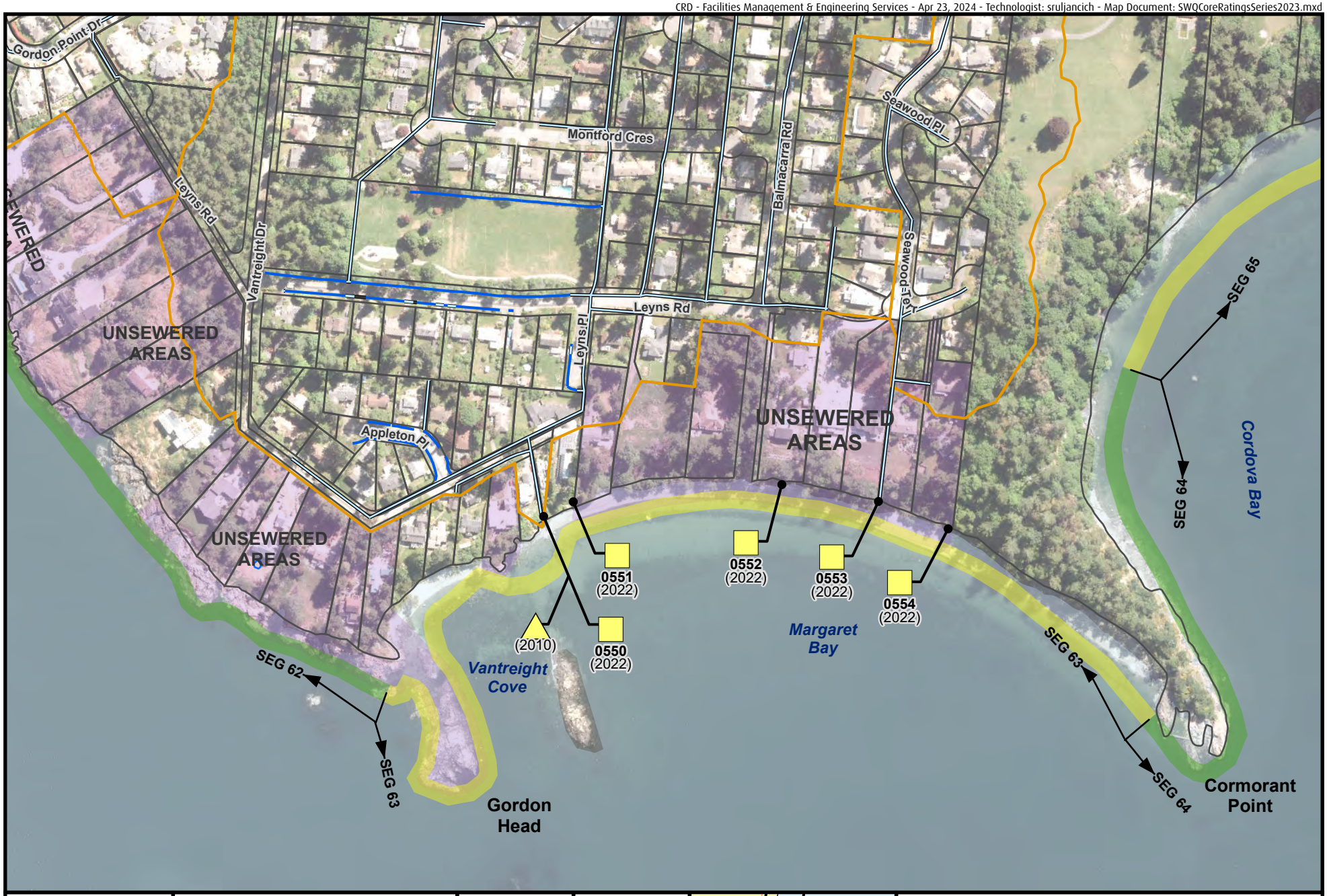


Figure 57

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 3

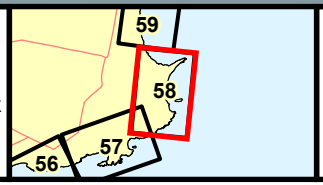


Figure 58

Stormwater Discharge Location and Level of Concern

Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

S E W N

For Legend
See Figure 1

For Area Key Index
See
Figure 3

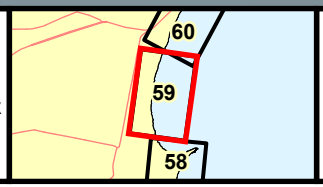
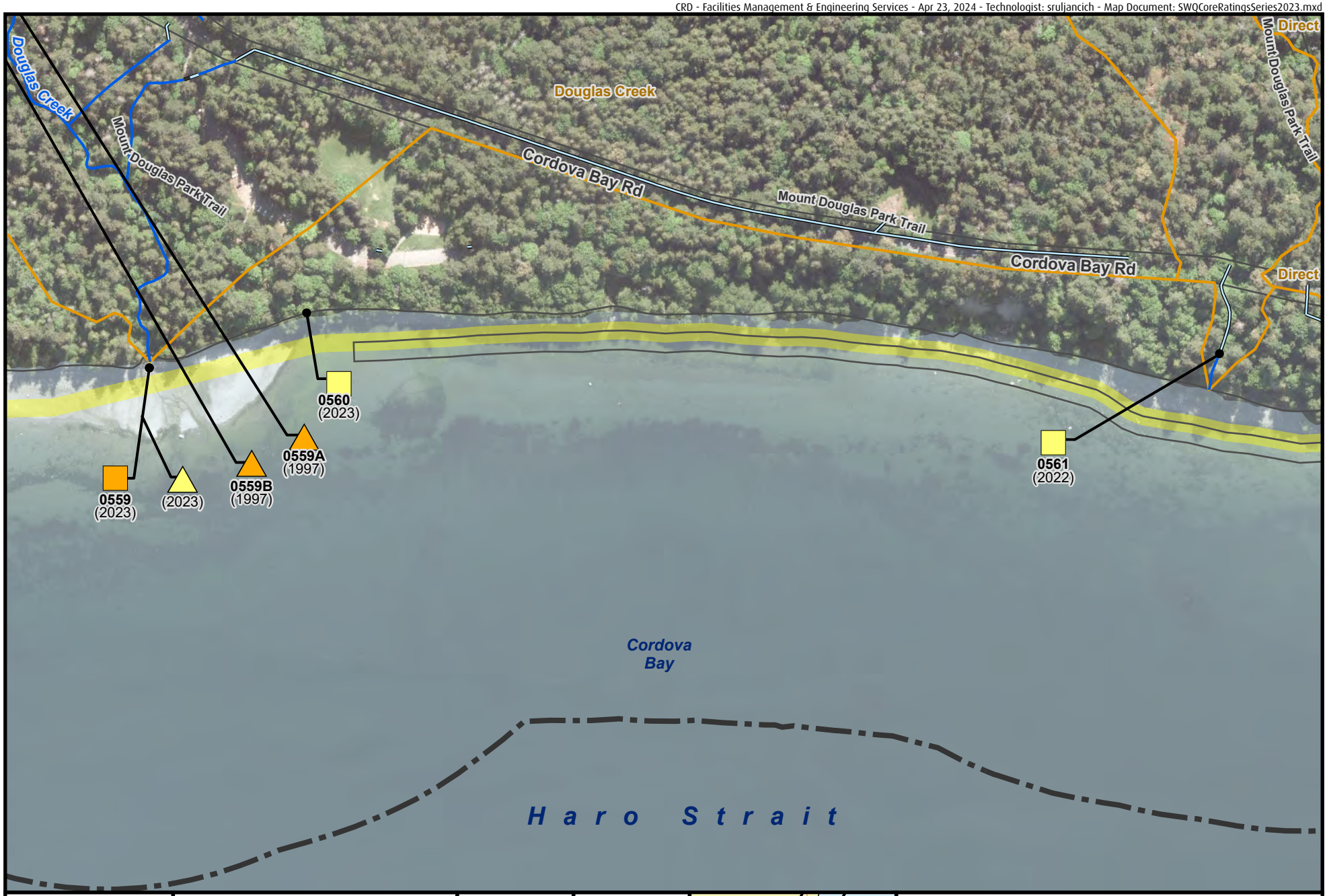


Figure 59

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 3

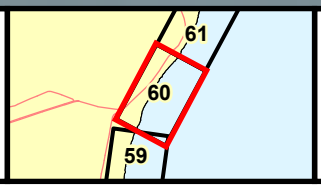
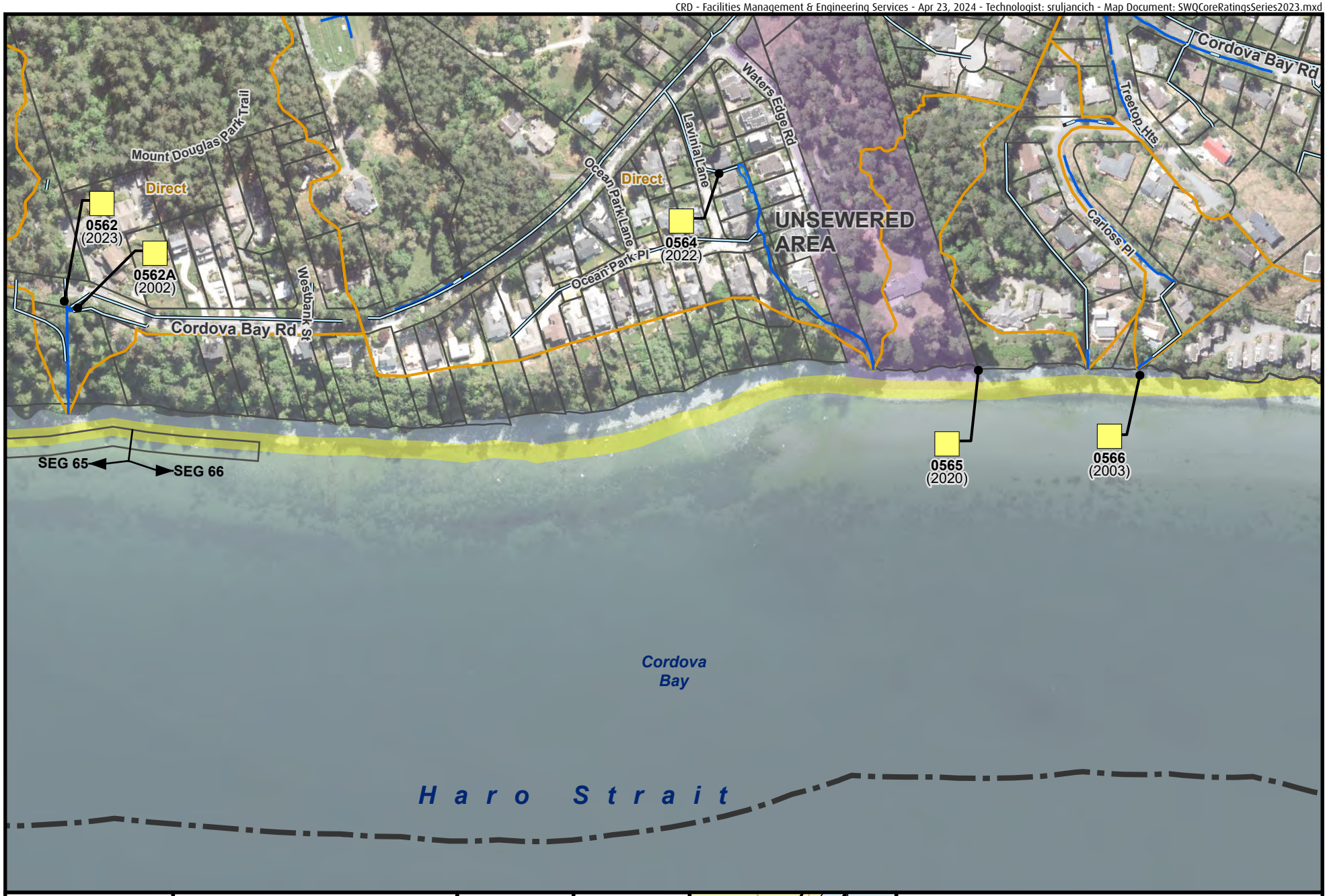


Figure 60

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 3

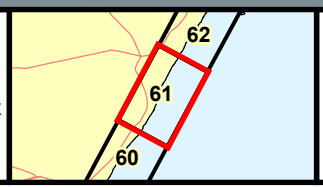


Figure 61

Stormwater Discharge Location and Level of Concern

Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend
See Figure 1

For Area Key Index
See
Figure 3

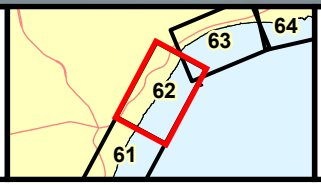


Figure 62

Stormwater Discharge Location and Level of Concern

Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 3

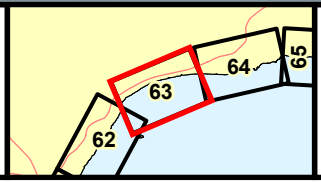
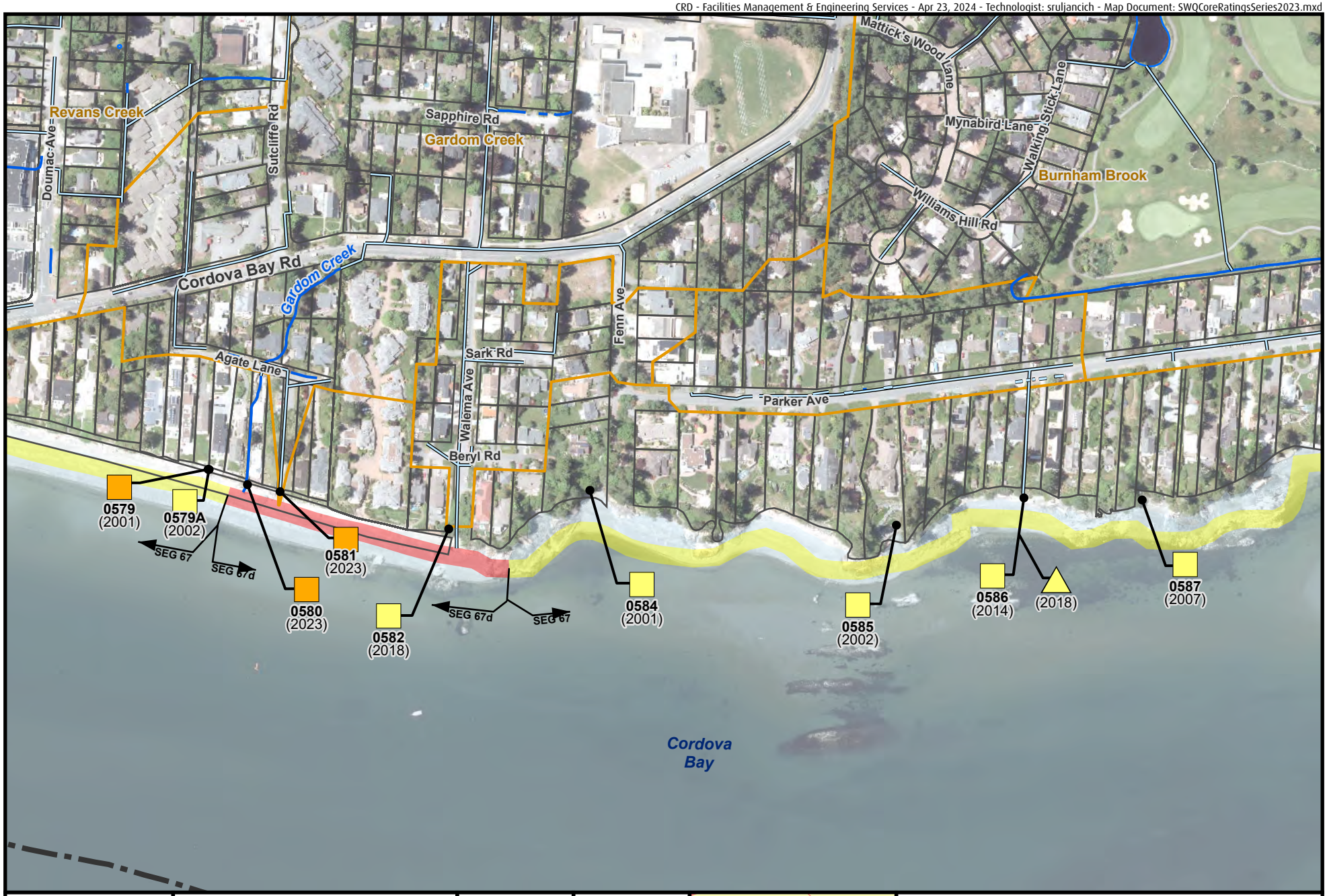


Figure 63

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

W S N E

For Legend See Figure 1

For Area Key Index See Figure 3

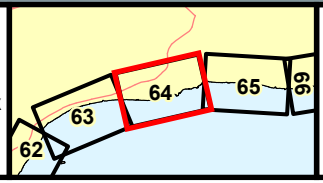
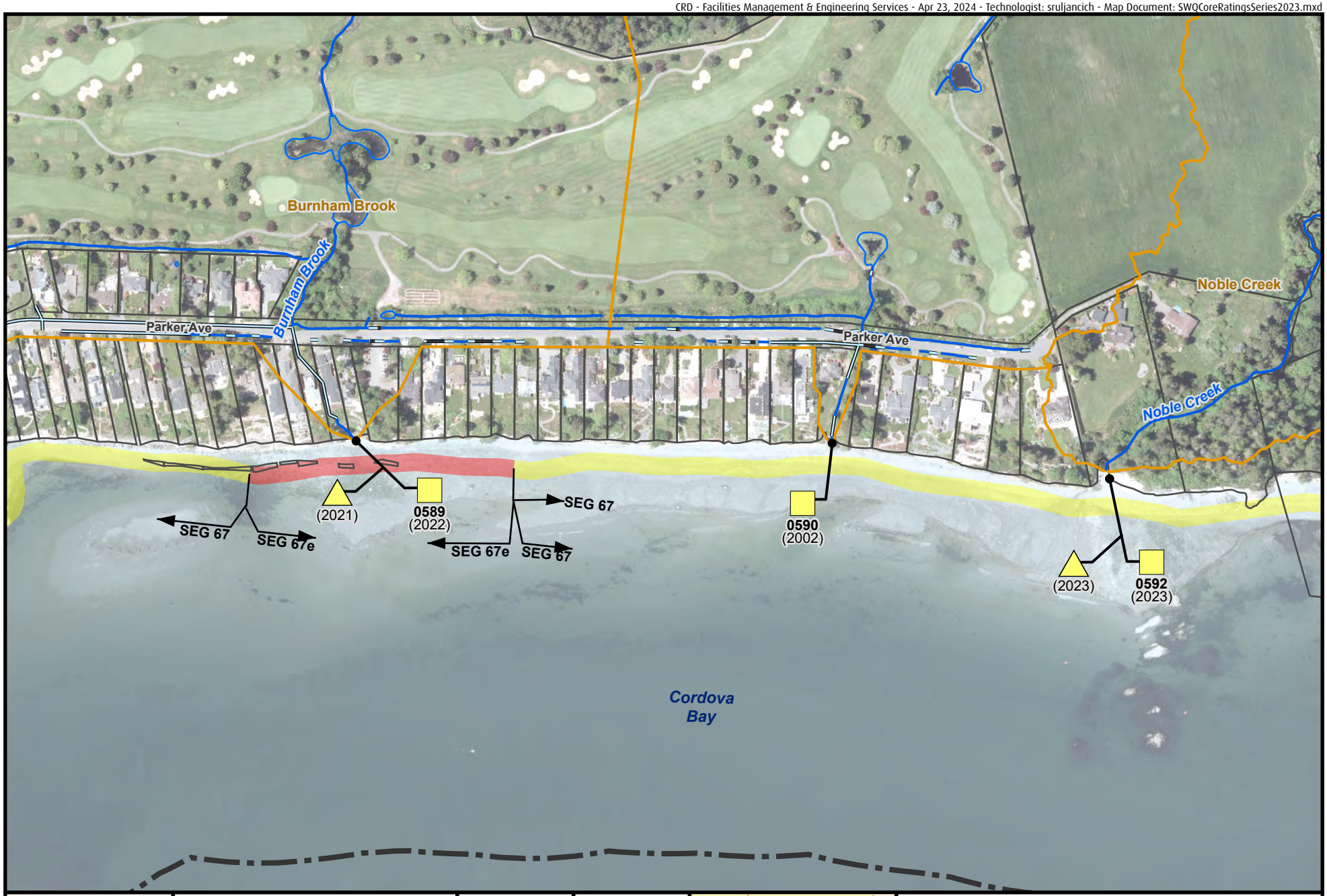


Figure 64

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 3

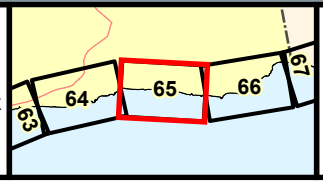
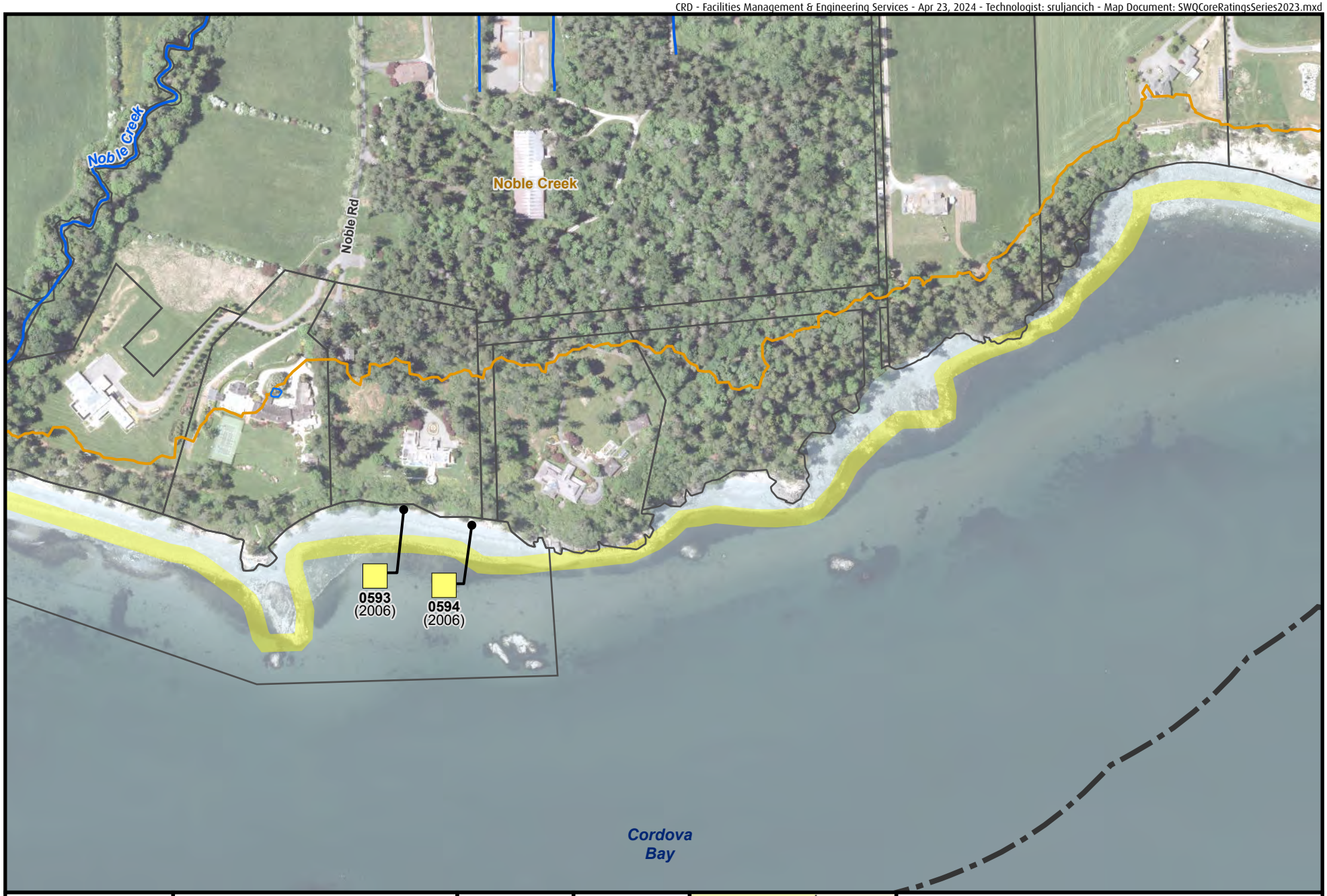


Figure 65

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

W S N E

For Legend
See Figure 1

For Area Key Index
See
Figure 3

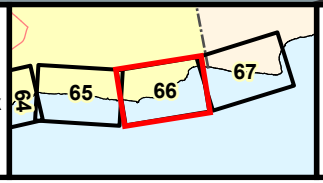


Figure 66

Stormwater Discharge Location and Level of Concern

Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

W S N E

For Legend See Figure 1

For Area Key Index See Figure 3

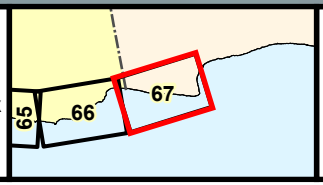
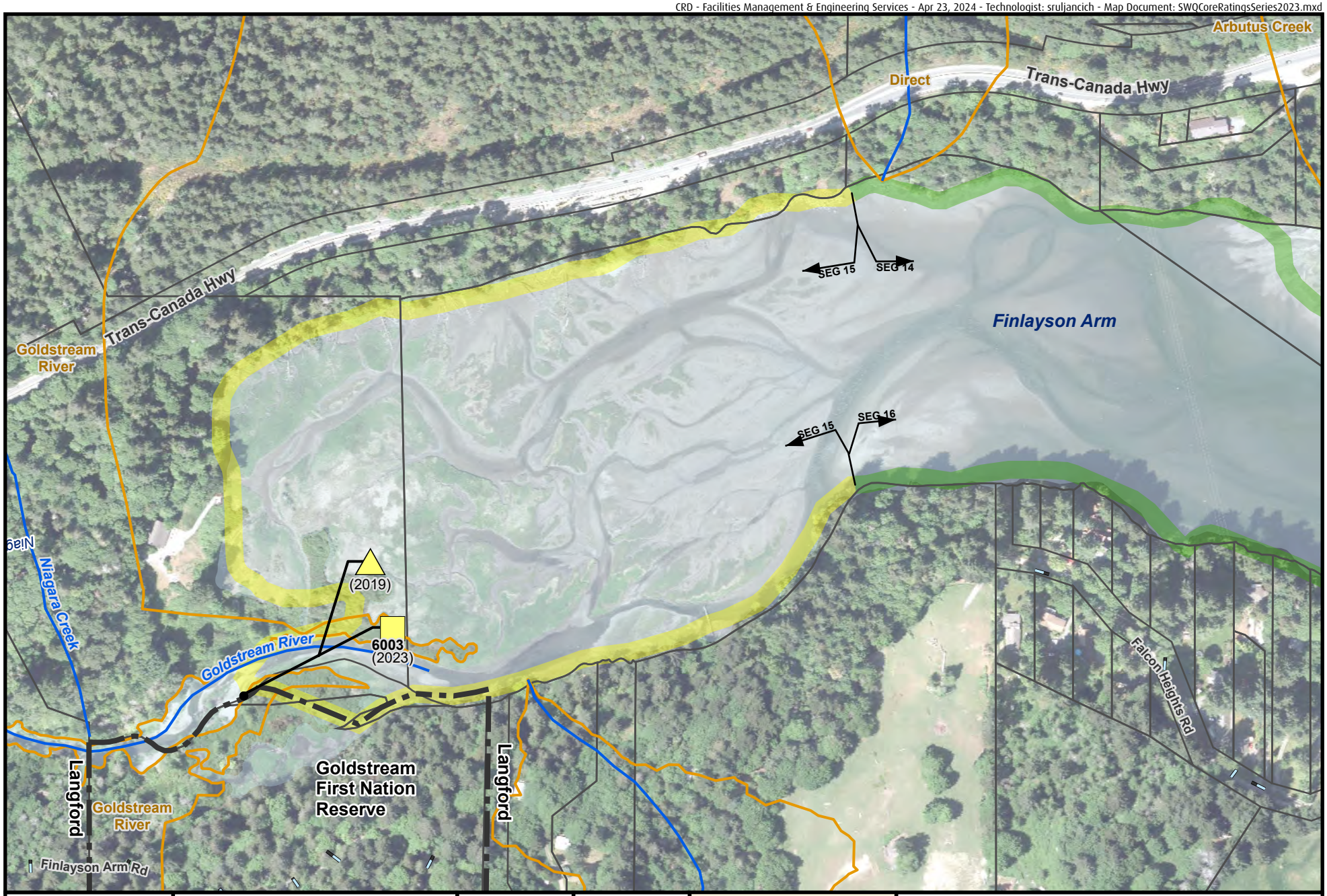


Figure 67

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

W S N E

For Legend See Figure 1

For Area Key Index See Figure 4

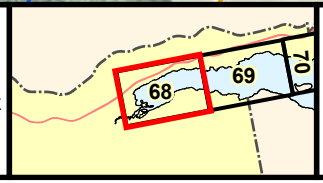
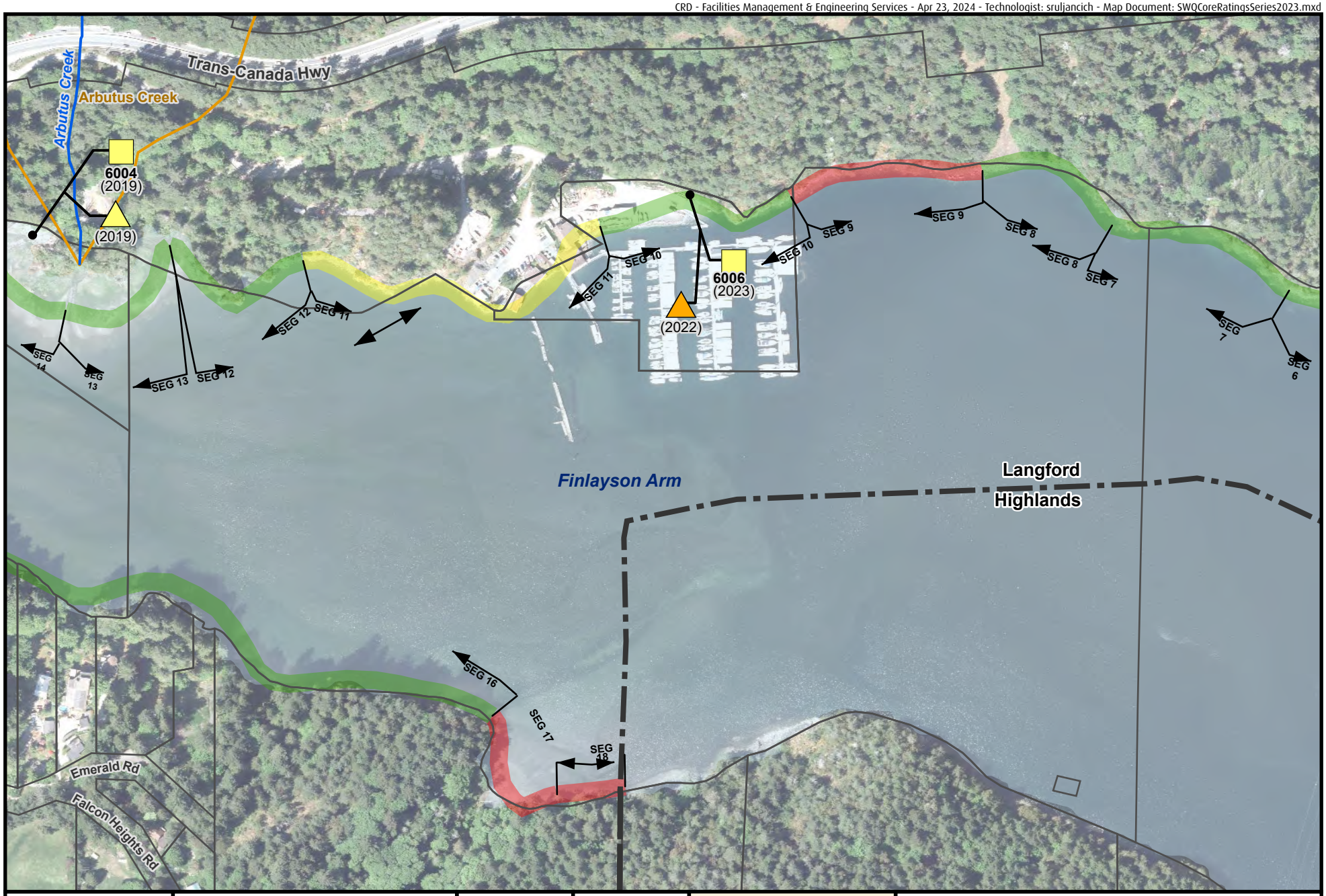


Figure 68

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

W S N E

For Legend See Figure 1

For Area Key Index See Figure 4

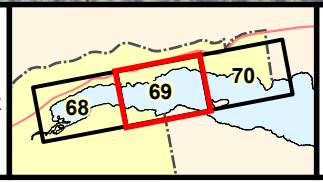
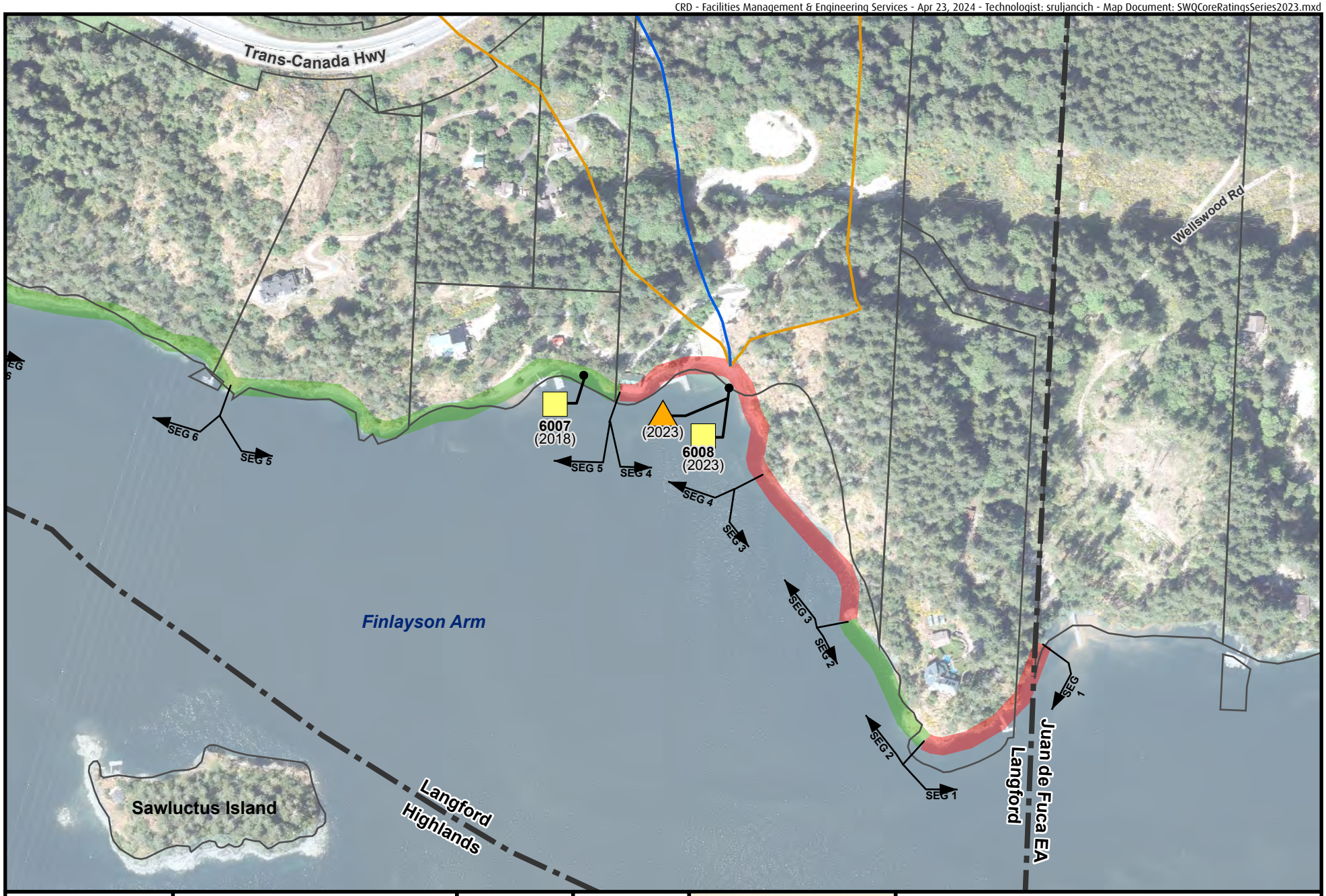


Figure 69

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

W S N E

For Legend See Figure 1

For Area Key Index See Figure 4

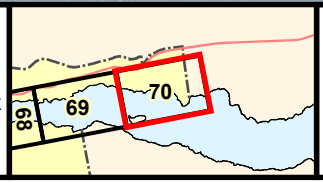
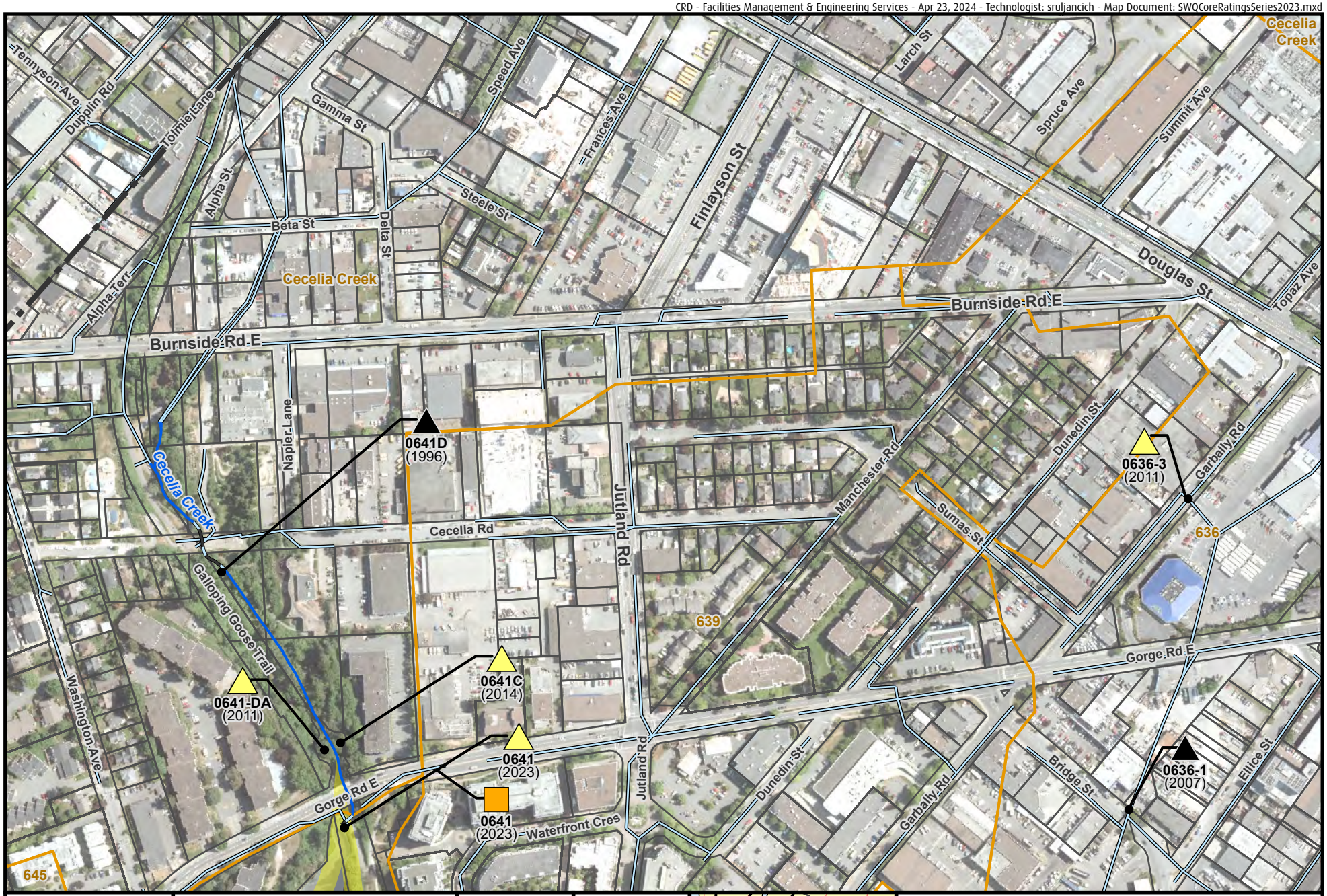


Figure 70

Stormwater Discharge Location and Level of Concern



Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

N E S W

For Legend See Figure 1

For Area Key Index See Figure 1

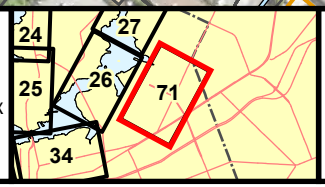
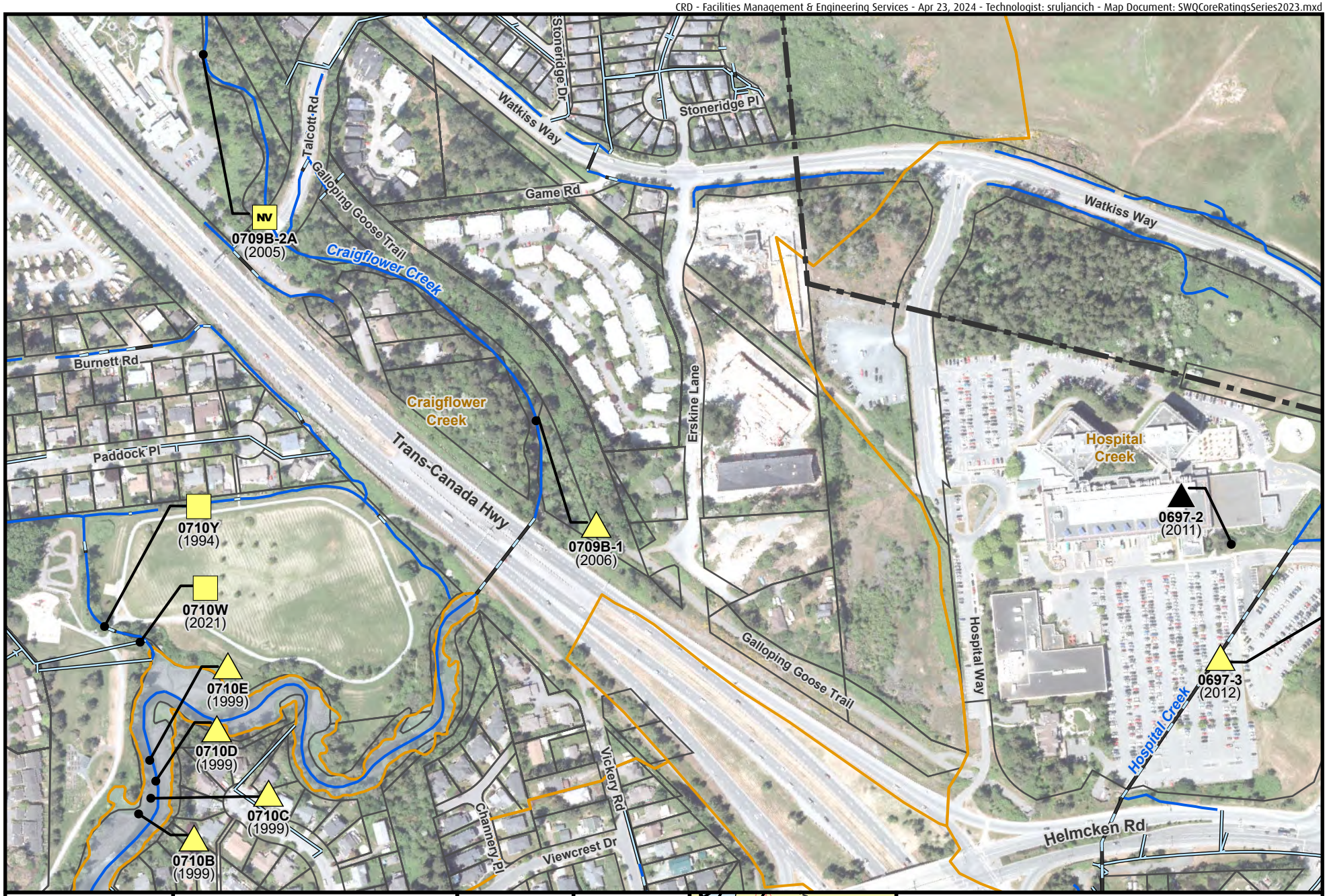


Figure 71

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

For Legend See Figure 1

For Area Key Index See Figure 1

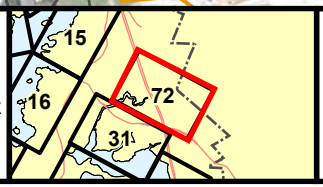
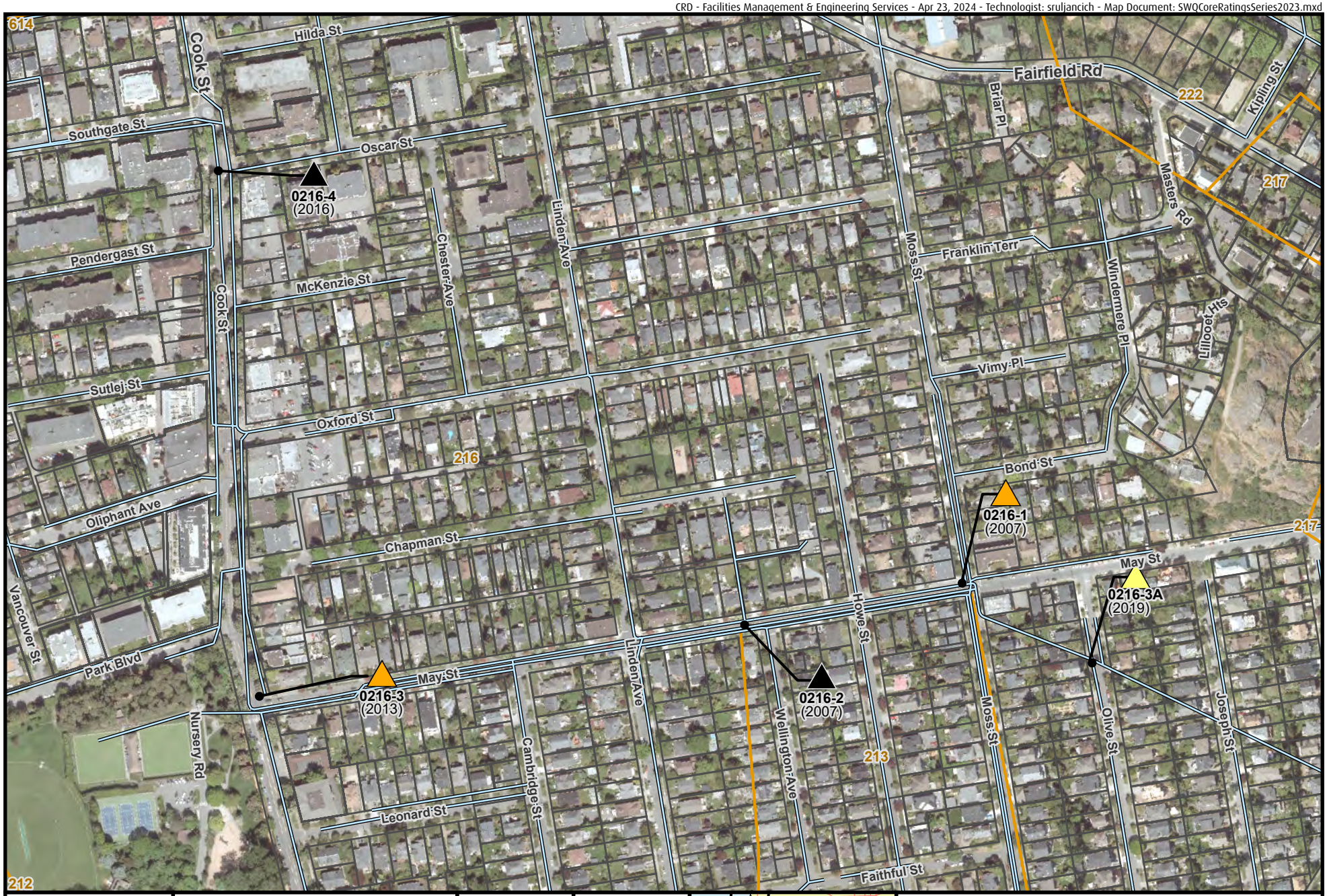


Figure 72

Stormwater Discharge Location and Level of Concern



CRD
Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

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N E S W

For Legend See Figure 1

For Area Key Index See Figure 2

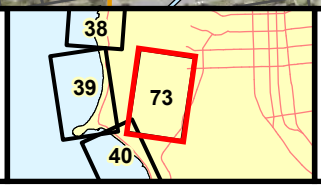
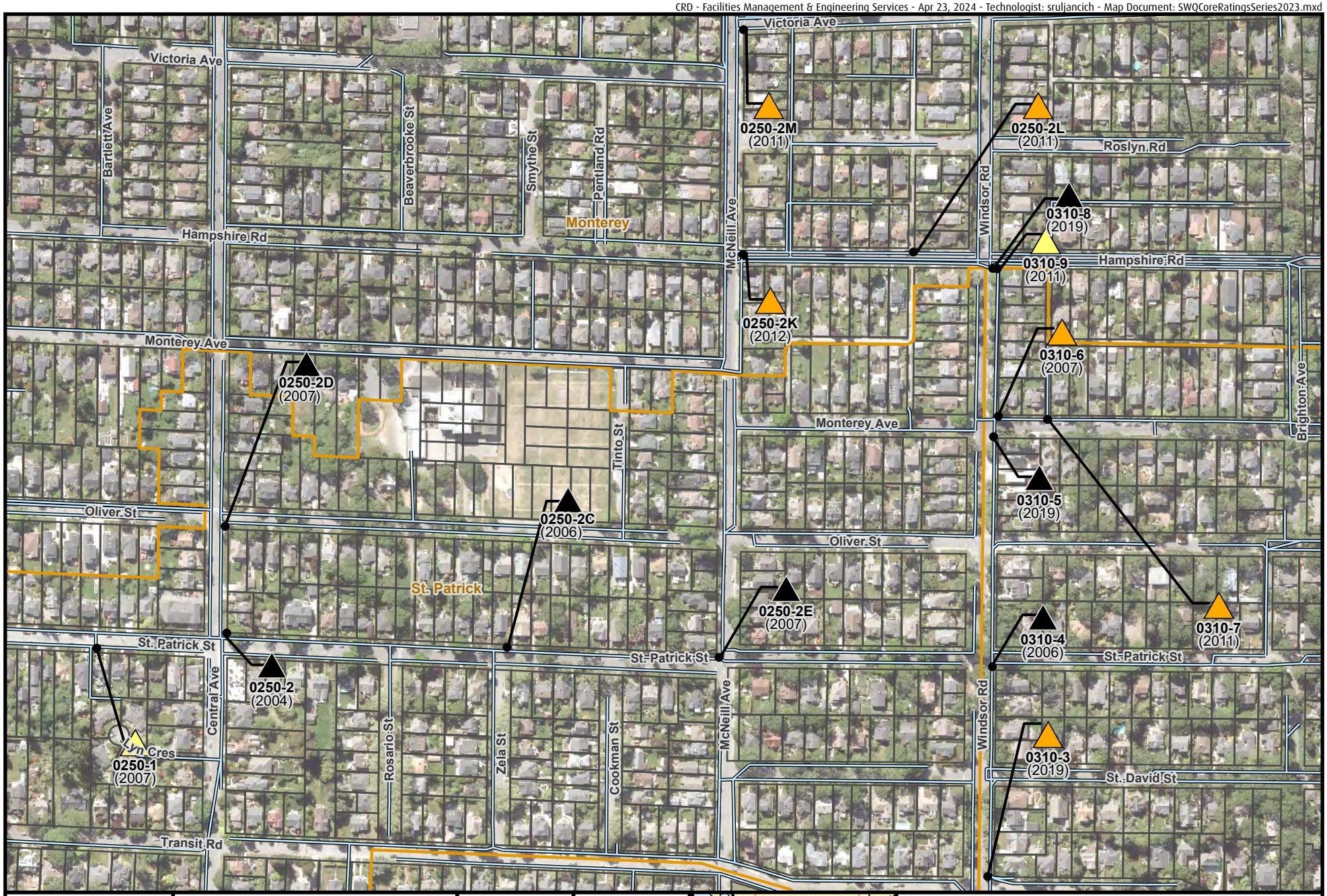


Figure 73

Stormwater Discharge Location and Level of Concern



CRD Making a difference...together

0 25 50 100 150 Metres

Projection: UTM ZONE 10N NAD 83

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W S N E

For Legend See Figure 1

For Area Key Index See Figure 2

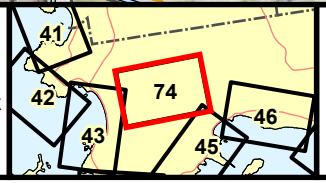

Figure 74

Stormwater Discharge Location and Level of Concern

APPENDIX B

CORE AREA STORMWATER PUBLIC HEALTH CONCERN RATINGS

Table 1 Core Area Public Health Concern Ratings

Discharge	Jurisdiction at Discharge	Fig. No.	Bacterial Rating	Public Shoreline Use Rating	Sum of Ratings	Level of Concern			Comments	Recommendations
						2021	2022	2023		
0915	Colwood/DND	9	1	1	2	NR	Low	Low	Creek	Continue monitoring
0916	Colwood/DND	9	2	1	3	Low	Moderate	Low	Colwood Creek; impacts seen in 2022	Continue monitoring and investigations
0917	Colwood/DND	9	2	1	3	NR	Low	Low	Low flow in winter; dry in summer	Resample in 2028
0918	Colwood/DND	9	2	1	3	NR	Low	NR	Pipe underwater	Confirm rating
0920	Colwood/DND	8	2	1	3	NR	NR	Low		Confirm rating
0926	Colwood	8	1	2	3	Moderate	Low	Low	Bee Creek; only one measurement in 2022	Confirm rating
0927	Colwood	8	1	2	3	NR	Low	Low	Only sampled once	Confirm rating
0928	Colwood	8	1	2	3	Low	Moderate	Low	Selleck Creek; discharges into Esquimalt Lagoon	Continue monitoring creek
0929	Colwood	7	2	2	4	NA	Moderate	Moderate	Counts lower	Confirm rating
0930	Colwood	7	2	2	4	Low	Low	Low	Discharges into Esquimalt Lagoon	Resample in 2028
0931	Colwood	7	1	2	3	Low	Moderate	Low	Lagoona Brook; discharges into Esquimalt Lagoon	Continue monitoring
0932	Colwood	7	1	2	3	Low	Low	Low	Discharges into Esquimalt Lagoon	Continue monitoring
0933	Colwood	7	1	2	3	Low	Moderate	Low	Discharges into Esquimalt Lagoon	Continue monitoring
0935	Colwood	7	1	2	3	Low	Low	Low		Confirm rating
0935A	Colwood	7	1	2	3	Low	Low	Low	Public beach	Continue monitoring
0936	Colwood	7	1	2	3	NR	NR	Low		Resample in 2028
0940	Colwood	7	1	2	3	NR	NR	Low		Confirm rating
0722AA	Esquimalt	30	1	2	3	Low	Low	Low	Lower counts confirmed	Resample in 2028
0726	Esquimalt/Songhees F.N.	29	2	2	4	Low	Low	Moderate		Confirm rating
0727	Esquimalt	29	1	2	3	Low	Low	Low	Elevated count in 2021	Resample in 2028
0736A	Esquimalt private	29	2	2	4	Low	Moderate	Moderate	Cross-connection fixed	Confirm rating and do investigations
0737	Esquimalt	29	1	2	3	Low	Low	Low		Resample in 2028
0742	Esquimalt	28	2	2	4	Low	Moderate	Moderate		Confirm rating
0742b	Esquimalt	28	1	2	3	Moderate	Low	Low		Confirm rating
0743	Esquimalt	28	1	2	3	NR	NR	Low		Confirm rating
0743A	Esquimalt	28	1	2	3	Moderate	Moderate	Low	May be influenced by creek flows	Continue monitoring

Table 1 Core Area Public Health Concern Ratings

Discharge	Jurisdiction at Discharge	Fig. No.	Bacterial Rating	Public Shoreline Use Rating	Sum of Ratings	Level of Concern			Comments	Recommendations
						2021	2022	2023		
0744	Esquimalt	28	2	2	4	Moderate	Moderate	Moderate	Gorge Creek	Continue monitoring
0744A	Esquimalt	28	1	2	3	Moderate	Low	Low	Low flow	Continue monitoring
0744B	Esquimalt	28	3	2	5	**High**	**High**	**High**	One cross-connection fixed; relining done	Continue source investigations
0749	Esquimalt	28	2	2	4	Moderate	Moderate	Moderate		Continue monitoring
0749A	Esquimalt private	28	1	2	3	Low	Moderate	Low	Private pipe	Confirm rating
0751	Esquimalt	28	3	2	5	Moderate	Moderate	Moderate	High count	Continue monitoring
0779	Esquimalt	24	2	2	4	Low	Moderate	Moderate		Confirm rating
0780	Esquimalt	24	3	2	5	Moderate	**High**	**High**	Sewer odour	Continue monitoring
0781	Esquimalt	23	2	2	4	Moderate	Moderate	Moderate	Sewer odour	Continue monitoring
0782	Esquimalt	23	2	2	4	NR	NR	Low	Dry	Resample in 2028
0805	Esquimalt	22	3	3	6	**High**	**High**	**High**	SPSO	Continue monitoring and source investigations
0806	Esquimalt	22	2	3	5	**High**	**High**	**High**		Continue monitoring and source investigations
0810	Esquimalt	21	2	1	3	NR	NR	Low		Confirm rating
0811	Esquimalt	21	2	2	4	NR	NR	Moderate		Confirm rating
0812	Esquimalt	21	3	2	5	NR	NR	**High**		Confirm rating
0814	Esquimalt	21	2	2	4	Moderate	Moderate	Moderate	SPSO	Continue monitoring
0865D	Esquimalt F.N.	17	1	2	3	Moderate	Low	Low	Iron bacteria present; odour	Continue monitoring
0865DA	Esquimalt F.N.	17	1	2	3	NR	NR	Low		Confirm rating
0865F	Esquimalt F.N.	17	1	2	3	Low	Moderate	Moderate		Confirm rating
0854	Esquimalt/DND	19	3	1	4	Moderate	Moderate	Moderate	SPSO; toilet paper present	Continue monitoring and investigate
6003	Langford	68	1	2	3	Low	Low	Low	Goldstream River SPSO	Continue monitoring
6006	Langford	68	1	1	2	Low	Low	Low		Continue monitoring
6008	Langford	70	1	3	4	Low	Low	Low		Continue monitoring
0231	Oak Bay	41	1	2	3	Moderate	Low	Low		Confirm rating
0236	Oak Bay	41	3	1	4	NA	Moderate	Moderate		Confirm rating
0237	Oak Bay	42	2	2	4	Low	Low	Moderate		Confirm rating
0244	Oak Bay	43	2	2	4	Moderate	Low	Moderate		Confirm rating
0245	Oak Bay	43	2	3	5	**High**	**High**	**High**	White foam observed occasionally	Continue monitoring and source investigations

Table 1 Core Area Public Health Concern Ratings

Discharge	Jurisdiction at Discharge	Fig. No.	Bacterial Rating	Public Shoreline Use Rating	Sum of Ratings	Level of Concern			Comments	Recommendations
						2021	2022	2023		
0249	Oak Bay	43	1	2	3	**High**	Moderate	Low	EC elevated in summer, but low flow	Confirm rating
0250	Oak Bay	43	3	2	5	Moderate	Moderate	Moderate	Outfall, sampled manhole, water pooled	Continue monitoring
0306	Oak Bay	45	2	2	4	Moderate	Low	Moderate	Dry	Confirm rating
0307	Oak Bay	45	3	2	5	Moderate	Moderate	**High**		Continue monitoring and start investigations
0310	Oak Bay	45	2	2	4	Low	Moderate	Moderate		Continue monitoring
0310A	Oak Bay	45	2	2	4	Moderate	Low	Moderate	New source?	Confirm rating
0316	Oak Bay	46	2	2	4	Moderate	Moderate	Moderate	Bowker Creek; high flows, SPSO	Continue monitoring creek
0317	Oak Bay	46	1	2	3	Low	Low	Low	SPSO; manhole; suds observed	Continue monitoring
0318	Oak Bay	46	2	3	5	**High**	**High**	**High**	Counts lower	Continue monitoring
0320	Oak Bay	46	1	3	4	**High**	Moderate	Moderate	Counts lower	Continue monitoring
0321	Oak Bay	47	1	3	4	Low	Low	Low	Outfall	Continue monitoring
0321A	Oak Bay	47	2	3	5	Moderate	Moderate	Moderate	Outfall	Continue monitoring; get marine sample
0322	Oak Bay	47	2	3	5	**High**	**High**	**High**	Outfall	Continue monitoring; confirm higher count
0323	Oak Bay	47	2	3	5	**High**	Moderate	Moderate	Stream; lots of birds	Continue monitoring
0323A	Oak Bay	47	1	1	2	Low	Low	Low		Resample in 2028
0503	Saanich	50	2	3	5	**High**	**High**	**High**	Cadboro Bay; duck pond upstream; counts lower	Continue monitoring or not…caffeine?
0505	Saanich	50	1	3	4	**High**	Moderate	Low		Confirm rating
0506	Saanich	50	1	3	4	Moderate	Low	Low		Confirm rating
0508	Saanich	50	1	3	4	Moderate	Low	Low	One source repaired	Continue sampling
0518	Saanich	52	2	1	3	Moderate	Low	Low		Confirm rating
0522	Saanich	52	1	2	3	Moderate	Low	Low		Resample in 2028
0524A	Saanich	52	1	2	3	NR	NR	Low		Confirm rating
0539	Saanich	55	2	2	4	NR	NR	Moderate		Confirm rating
0541B	Saanich	56	1	3	4	Moderate	Low	Low	Arbutus Cove	Resample in 2028
0558	Saanich	59	1	2	3	Low	Low	Low	Elevated count; near Mt. Douglas Park access	Continue monitoring
0559	Saanich	60	1	3	4	Moderate	Moderate	Moderate	Mt. Douglas Creek high flows, SPSO	Continue monitoring

Table 1 Core Area Public Health Concern Ratings

Discharge	Jurisdiction at Discharge	Fig. No.	Bacterial Rating	Public Shoreline Use Rating	Sum of Ratings	Level of Concern			Comments	Recommendations
						2021	2022	2023		
0560	Saanich	60	1	3	4	NR	NR	Low		Resample in 2028
0562	Saanich	61	1	3	4	NR	NR	Low		Confirm rating
0567	Saanich	62	2	2	4	Moderate	**High**	Moderate	Beach access, waterfall; suds previously	Continue monitoring and investigations
0571	Saanich	62	1	2	3	NR	NR	Low		Confirm
0573	Saanich	62	1	2	3	NR	NR	Low		Confirm
0574	Saanich	62	2	2	4	Moderate	Low	Moderate	Galey Brook; laundry soap	Confirm rating
0576A	Saanich	63	1	3	4	Low	Low	Low	High use beach	Continue monitoring
0577	Saanich	63	1	3	4	NR	NR	Low	Only sampled once as part of investigation	Confirm rating
0578	Saanich	63	1	3	4	Low	Low	Low		Resample in 2028
0580	Saanich	64	2	3	5	**High**	Moderate	Moderate	Gardom Creek	Confirm rating
0581	Saanich	64	1	3	4	**High**	Moderate	Moderate		Confirm rating
0592	Saanich	65	1	1	2	Low	Low	Low	Noble Creek; high flow	Continue monitoring creek
0653	Saanich	27	1	2	3	Moderate	Low	Low	One sample; counts lower	Confirm rating
0655	Saanich	28	1	2	3	NR	NR	Low		
0658A	Saanich	28	2	2	4	Low	Moderate	Moderate	One high count	Confirm rating
0661	Saanich	28	1	2	3	NR	NR	Low		Resample in 2028
0662	Saanich	28	1	2	3	NR	NR	Low	Dry	Resample in 2028
0665	Saanich	29	1	2	3	NR	NR	Low		Resample in 2028
0667	Saanich	29	1	2	3	NR	NR	Low	Dry	Resample in 2028
0668	Saanich	29	1	2	3	NR	NR	Low	Dry	Resample in 2028
0669	Saanich	29	1	2	3	NR	NR	Low	Dry	Resample in 2028
0671	Saanich	29	2	2	4	Moderate	Low	Moderate		Confirm rating
0675	Saanich	29	1	2	3	NR	NR	NR	Dry; only visited once	Confirm rating
0676	Saanich	29	1	2	3	Low	Low	Low	SPSO; brown foam, sulfur odour	Continue monitoring
0687	Saanich	30	1	1	2	NR	NR	Low		Resample in 2028
0690D	Saanich	33	1	2	3	Low	Low	Low	Colquitz Creek; high flow	Continue monitoring
0691A	Saanich	32	1	2	3	Moderate	Moderate	Low		Continue monitoring
0865AB	Songhees F.N.	17	1	2	3	Low	Low	Low	No flow; only sampled once	Continue monitoring
0865B	Songhees F.N.	17	1	2	3	Low	Low	Low	No flow; only sampled once	Continue monitoring
0865C	Songhees F.N.	17	1	2	3	Low	Low	Low	Low flow; only sampled once	Continue monitoring

Table 1 Core Area Public Health Concern Ratings

Discharge	Jurisdiction at Discharge	Fig. No.	Bacterial Rating	Public Shoreline Use Rating	Sum of Ratings	Level of Concern			Comments	Recommendations
						2021	2022	2023		
0209	Victoria	37	3	2	5	Moderate	**High**	**High**	208 is an overflow for 209; infrastructure upgrades; very high count in 2023	Confirm rating
0210	Victoria	37	1	2	3	Low	Moderate	Low		Confirm rating
0211	Victoria	39	1	2	3	Low	Low	Low	Low flow	Resample in 2028
0212	Victoria	39	1	3	4	Low	Moderate	Low		Confirm rating
0214	Victoria	39	3	2	5	**High**	Moderate	**High**	SPSO; work done upstream; lower counts 213 on Victoria maps	Continue monitoring
0216	Victoria	40	3	3	6	**High**	**High**	**High**	SPSO, high flow, sewage odour	Continue monitoring
0217	Victoria	40	1	3	4	Moderate	Low	Low	Combined flow with 0218; outfall pipe underwater	Continue monitoring
0222	Victoria	40	3	3	6	**High**	**High**	**High**	Moderate flows	Continue monitoring and source investigations
0225	Victoria	40	1	2	3	NR	NR	Low		Confirm rating
0227	Victoria	41	2	2	4	Moderate	Low	Moderate	Low flow SPSO; SS and SD relining completed	Continue monitoring
0228	Victoria	41	1	3	4	NR	Low	Low	Private pipe	Resample in 2028
0228A	Victoria	41	1	3	4	NR	Low	Low	Private pipe	Resample in 2028
0229	Victoria	41	2	3	5	**High**	Moderate	Moderate	Gonzales Bay; flow low in summer; elevated counts during rain	Continue monitoring and source investigations
0230	Victoria	41	3	2	5	**High**	**High**	**High**	Gonzales Bay; outfall in ocean; sampled manhole	Continue monitoring
0603	Victoria	36	3	2	5	**High**	**High**	**High**	Lower counts; relining and infrastructure upgrades	Continue monitoring
0607	Victoria	36	3	2	5	**High**	**High**	**High**	SPSO	Continue monitoring; start source investigations
0607A	Victoria	36	3	2	5	Low	Moderate	**High**	Eastern pipe; in 607 catchment	Confirm rating
0608	Victoria	35	1	2	3	NR	NR	Low	Dry	Confirm rating
0610	Victoria	35	1	2	3	Moderate	Moderate	Moderate	Cross-connection found	Continue monitoring
0611	Victoria	35	3	2	5	**High**	**High**	**High**	Counts lower; waiting for legislature to respond	Continue monitoring

Table 1 Core Area Public Health Concern Ratings

Discharge	Jurisdiction at Discharge	Fig. No.	Bacterial Rating	Public Shoreline Use Rating	Sum of Ratings	Level of Concern			Comments	Recommendations
						2021	2022	2023		
0613	Victoria	35	2	2	4	Moderate	Moderate	Moderate	Variable counts	Continue monitoring and source investigations
0614	Victoria	35	3	2	5	**High**	**High**	**High**		Continue monitoring
0619	Victoria	34	3	2	5	**High**	Moderate	**High**	Sewer odour	Confirm rating
0619B	Victoria	34	3	2	5	NR	Moderate	Low	High count in 2022; dry since	Confirm rating
0620	Victoria	34	3	1	4	Moderate	Low	Moderate	Near bridge	Confirm rating
0622	Victoria	34	1	2	3	Moderate	Low	Low	Near kayak launch; occasional high count	Confirm rating
0623	Victoria	34	3	1	4	Low	Moderate	NR	Low flow	Continue monitoring and investigations
0624	Victoria	34	3	1	4	Low	Moderate	Moderate	Newer pipe; elevated counts; creosote odour	Confirm rating
0626	Victoria	34	3	1	4	Moderate	Moderate	Moderate	Need permission to access	Continue monitoring
0627	Victoria	34	3	1	4	Moderate	Moderate	Moderate	Need permission to access; high flow	Continue monitoring
0629	Victoria	26	3	1	4	Moderate	Moderate	Moderate	Dark discharge; foul odours; only one sample	Continue monitoring and investigations
0630	Victoria	26	1	1	2	NR	NR	Low		Resample in 2028
0633	Victoria	26	2	1	3	Moderate	Low	Low	Small catchment; only one sample; dry	Confirm rating
0634	Victoria	26	3	1	4	Moderate	Moderate	Moderate	Low flow; hydrocarbon, compost odours	Source narrowed; continue monitoring
0636	Victoria	26	3	1	4	Moderate	**High**	Moderate	High flow; 15 million CFU/100 mL; foul odour, murky, grey	Continue monitoring; start investigations
0639	Victoria	26	3	1	4	Moderate	Moderate	Moderate	Selkirk Water development; aka 639A	Continue monitoring
0641	Victoria	71	2	2	4	Moderate	Moderate	Moderate	Cecelia Creek; high flow; repaired main; SPSO	Continue monitoring and source investigations
0644	Victoria	27	2	2	4	NR	NR	Moderate	Only one sample	Confirm rating
0645	Victoria	27	3	2	5	Moderate	Moderate	Moderate	Dry in summer	Continue monitoring
0645A	Victoria private	27	2	2	4	Moderate	Moderate	Moderate	Difficult access Private discharge	Continue monitoring
0649	Victoria private	27	3	2	5	Moderate	Moderate	Moderate	Gorge Road Hospital Private discharge; lower counts	Continue monitoring

Table 1 Core Area Public Health Concern Ratings

Discharge	Jurisdiction at Discharge	Fig. No.	Bacterial Rating	Public Shoreline Use Rating	Sum of Ratings	Level of Concern			Comments	Recommendations
						2021	2022	2023		
0650	Victoria	27	3	2	5	**High**	**High**	**High**	Low flow in summer	Continue monitoring
0758A	Victoria	27	2	2	4	Moderate	**High**	**High**	Low flow in summer	Confirm rating
0759	Victoria	26	2	2	4	Low	Low	Moderate		Confirm rating
0768	Victoria	25	2	2	4	Moderate	Moderate	Moderate	SPSO; sewer odour	Confirm rating
0769	Victoria	25	2	2	4	Moderate	Moderate	Moderate	SPSO?	Confirm rating
0775	Victoria	24	3	2	5	Moderate	**High**	**High**	SPSO	Confirm rating
0777A	Victoria	24	3	2	5	**High**	**High**	**High**		Confirm rating
0694	View Royal/MOT	32	1	2	3	NR	NR	Low	Dry	Resample in 2028
0697	View Royal	31	1	2	3	Moderate	Low	Low	Hospital Creek: SPSO	Confirm rating
0703	View Royal	31	1	2	3	Moderate	Low	Low		Confirm rating
0709B	View Royal	31	1	2	3	Moderate	Low	Low	Craigflower Creek; SPSO	Continue monitoring creek
0710	View Royal	31	1	2	3	Low	Low	Low		Resample in 2028
0722	View Royal	30	1	2	3	Low	Low	Low	One elevated count	Continue monitoring
0865G	View Royal	17	3	1	4	Moderate	Low	Moderate	High count	Confirm rating
0867	View Royal	16	1	1	2	NR	NR	Low	Dry	Confirm rating
0872	View Royal	16	1	2	3	Low	Low	Low	SPSO; low flows	Resample in 2028
0874	View Royal	15	1	2	3	Low	Low	Low		Resample in 2028
0879	View Royal	15	1	2	3	NR	Low	Low	Only sampled once	Confirm rating
0881	View Royal	15	1	2	3	NR	Low	Low	Dry in spring; only sampled once	Confirm rating
0886	View Royal	14	1	2	3	Low	Low	Low	Millstream Creek; SPSO; spikes during heavy rainfall	Continue monitoring creek

Notes:
Level of Concern determined by the sum of the bacterial and shoreline ratings. Low = sums of 2 and 3, moderate = sum of 4 and high = sums of 5 and 6.
EC = Escherichia coli (E. coli) counts.
NR = Not rated due to insufficient data or sample could not be obtained.
NA = Not assessed this year.
SPSO = This discharge acts as a sewage pump station overflow.
Private discharges are not part of the municipal system.

APPENDIX C

CORE AREA STORMWATER DISCHARGE BACTERIAL DATA

Table 1 Core Area Stormwater Discharge Bacterial Data

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
SW0209	2022-01-26	2800	60	no rain
	2022-06-28	5100	40	no rain prior
	2023-02-10	220	60	rain present
	2023-06-15	4000000		sewer odour, murky, no rain prior
	2023-07-04	2300	10	no rain prior
SW0210	2022-01-26	5	13	no rain
	2022-06-28	2100	7	no rain prior
	2023-02-10	270	16	rain present
	2023-06-15	4	7	amber, no rain prior
SW0211	2022-01-27	5	11	no rain
	2022-06-28	<1	6	no rain prior
SW0212	2022-01-26	<1	42	no rain
	2022-06-28	5	4	no rain prior
	2023-02-07	120	35	slight sewer odour, murky, heavy rain in the morning
	2023-06-15	13	3	amber, no rain prior
SW0214	2022-01-26	3600	>250	no rain
	2022-06-28	28	>200	no rain prior
	2023-04-13	5600	500	rain prior
	2023-06-15	6300	>60	no rain prior
SW0216	2022-01-26	1900	>300	no rain
	2022-06-28	5800	>100	no rain prior
	2022-07-06	3000	>120	no rain prior
	2022-07-12	12000	>100	no rain prior
	2022-07-20	11000	>100	no rain prior
	2022-07-25	8700	>80	no rain prior
	2023-02-10	91000	>120	rain present
	2023-02-16	4700	>250	rain prior
	2023-04-13	3000	300	rain prior
	2023-06-15	24000	>60	no rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-08-24	9600	>80	sewer odour, murky amber, no recent rain
	2023-08-31	260000	>200	sewer odour, murky brown flow, potential first flush two days ago
	2023-09-15	4300	>80	sewer odour, slightly murky, no recent rain
SW0216-3A	2023-08-15	19000	40	sewer odour, slightly murky, no recent rain
	2023-08-24	2700	60	sewer odour, murky amber, no recent rain
	2023-12-14	7600	80	slightly murky, previous rain
SW0218	2022-01-27	56	9	no rain
	2022-07-12	20	7	no rain prior
	2023-02-10	23	10	rain present
	2023-06-15	12	6	no rain prior
SW0222	2022-01-27	12000	>250	no rain
	2022-06-28	7600	>200	creosote odour, no rain prior
	2023-02-10	18000	>350	rain present
	2023-06-15	500000	>80	no rain prior
SW0225	2023-04-24	320	0	dry, not sampled, rain prior
	2023-06-15		0	dry, not sampled, no rain prior
SW0227	2022-01-27	11	4	no rain
	2022-06-28	59	<1	no rain prior
	2023-02-07	1500	15	slight sewer odour, murky, heavy rain in the morning
	2023-06-15	18	<1	no rain prior
	2024-01-29	5900	8	slight sewer odour, slightly murky, rain recent
SW0228	2022-02-24	<1	<1	no rain
	2022-06-28	3	<1	no rain prior
	2023-02-23		0	dry, not sampled, rain in the past two days
	2023-06-15		0	dry, not sampled, no rain prior
SW0228A	2022-02-24	1	3	no rain
	2022-06-28		0	dry, not sampled, no rain prior
	2023-02-07	6	1	heavy rain in the morning
	2023-06-15		0	dry, not sampled, no rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
SW0229	2022-01-27	140	5	no rain
	2022-06-28		0	dry, not sampled, no rain prior
	2023-02-07	5300	12	heavy rain in the morning
	2023-06-15	18	6	no rain prior
	2024-01-29	1200	12	rain recent
SW0230	2022-01-28	34000	12	no rain
	2022-06-21	58000	8	slight sewer odour, no rain
	2023-02-23	33000	30	rain in the past two days
	2023-03-02	2800	30	slight sewer odour, murky, rain in the past two days
	2023-06-15	50000	9	no rain prior
	2024-01-29	7900	60	rain recent
SW0231	2022-01-28	72	5	no rain
	2022-06-28		<0.01	flow too low to sample, no rain prior
	2023-02-23	14	7	rain in the past two days
	2023-06-15	9	6	no rain prior
	2024-01-29	40	8	slight sewer odour, rain recent
SW0236	2022-01-28	21	6	no rain
	2022-06-28	3100	5	no rain prior
	2023-02-16	34	7	rain prior
	2023-06-15	46000	6	no rain prior
SW0237	2022-01-28	15	3	no rain
	2022-06-28	1	5	no rain prior
	2023-02-16	45	3	rain prior
	2023-06-15	1600	1	no rain prior
SW0244	2022-01-24	60	11	no rain
	2022-02-24	100	11	no rain
	2022-07-04	110	5	rain two days ago
	2023-02-16	100	10	rain prior
	2023-06-21	440	7	amber flow, no rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-07-24	590	6	slight amber, no suds, no rain prior
	2024-01-29	940	8	slight sewer odour, rain recent
SW0245	2022-01-24	870	65	no rain
	2022-01-27	120	60	no rain
	2022-07-04	570	12	rain two days ago
	2023-02-16	120	35	rain prior
	2023-06-21	460	25	slight amber flow, no rain prior
	2023-07-24	1200	12	dark amber, slight suds in flow, no rain prior
	2024-01-29	220	>250	slight sewer odour, slightly murky, rain recent
SW0249	2022-01-27	5	2	no rain
	2022-07-05	150	<1	rain two days ago
	2023-02-16	20	<1	rain prior
	2023-06-21	280	<1	amber flow, no rain prior
	2024-01-29	35	2	slight creosote odour, slightly murky, recent rain
SW0250	2022-01-27	730		unknown flow, no rain
	2022-07-05	61000		pooled with unknown flow, rain two days ago
	2023-02-16	4700		rain prior, flow not estimated (pooled)
	2023-06-21	11000	4	sewer odour, slight amber flow, end of pipe (EOP) at low tide, no rain prior
SW0257A	2022-02-24	<1	12	no rain
	2022-07-05	27	<1	rain two days ago
SW0304	2022-02-24	860	<1	no rain
	2022-07-05		<0.01	flow too low to sample, rain two days ago
SW0305	2022-02-24		0	dry, not sampled, no rain
	2022-07-05		0	dry, not sampled, rain two days ago
SW0305A	2022-02-24		<0.01	flow too low to sample, no rain
	2022-07-05		0	dry, not sampled, rain two days ago
SW0306	2022-02-24		<0.01	flow too low to sample, no rain
	2022-07-05		<0.01	flow too low to sample, rain two days ago
	2023-04-24	24	50	potential marine influence, rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-08-14	620	60	marine influenced, no previous rain
SW0307	2022-02-01	170	<1	rain yesterday
	2022-07-05	2300	1	rain two days ago
	2023-02-23	100	1	rain in the past two days
	2023-08-11	14000	1	slight sewage odour, no recent rain
SW0309	2022-02-01	<1	10	surge flow, rain yesterday
	2022-07-05	<1	1	rain two days ago
SW0310	2022-02-01	540	11	rain yesterday
	2022-07-05	90	9	rain two days ago
	2023-02-23	1400	12	rain in the past two days
	2023-08-11	2200	15	no recent rain
SW0310A	2022-02-24	15	1	no rain
	2022-07-05	48	3	rain two days ago
	2023-02-23	20	1	rain in the past two days
	2023-08-11	4600	<1	no recent rain
SW0313	2023-04-05		<0.01	flow too low to sample, rain prior
	2023-08-11	41	<1	no recent rain
SW0313A	2023-04-05		0	dry, not sampled, rain prior
	2023-08-11		0	dry, not sampled, no recent rain
SW0316	2022-02-24	40	>2000	slightly murky, no rain
	2022-07-06	320	>400	no rain prior
	2023-02-23	97	>1000	rain in the past two days
	2023-06-14	520	>2000	no rain prior
	2023-08-15	570	>500	slightly murky, no recent rain
	2023-08-21	930	>600	no recent rain
SW0316-1B	2023-08-14	950		no previous rain
	2023-08-15	2600	500	slightly murky, no recent rain
	2023-08-21	2600	>600	no recent rain
SW0316-1C	2023-08-14	320		no previous rain

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-08-15	380	400	slightly murky, no recent rain
SW0316-3	2023-08-15	2000	400	slightly murky, no recent rain
SW0316-4B	2023-08-15	490	250	slightly murky, no recent rain
SW0317	2022-01-31	11	32	suds in MH, rain
	2022-07-06	9	2	no rain prior
	2023-02-09	350	9	rain within the past two days
	2023-06-14	13	4	no rain prior
	2023-08-21	2	5	no recent rain
	2023-11-28	2	2	no recent rain
	2024-01-23	24	8	slightly amber, rain previous and during sampling
SW0318	2022-01-31	36	60	murky grey, rain
	2022-07-06	21	30	no rain prior
	2023-02-09	1200	45	rain within the past two days
	2023-06-14	15000	40	no rain prior
	2023-08-21	6500	60	no recent rain
	2023-11-28	530	24	no recent rain
	2024-01-23	18000	>250	murky, rain previous and during sampling
SW0319	2023-08-21		<0.01	flow too low to sample, no recent rain
	2023-11-28	72	1	earthy odour, murky brown, no recent rain
	2024-01-23	18	11	murky, rain previous and during sampling
SW0320	2022-01-31	120	80	murky grey, rain
	2022-07-06	68	16	no rain prior
	2023-02-09	19	40	rain within the past two days
	2023-02-23	6	18	rain in the past two days
	2023-06-14	27	7	no rain prior
	2023-08-21	150	40	slight amber, no recent rain
	2023-11-28	57	9	no recent rain
	2024-01-23	320	60	murky, rain previous and during sampling
SW0321	2022-02-02	110	7	rain yesterday

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2022-07-06	35	6	no rain prior
	2023-02-09	39	9	rain within the past two days
	2023-06-14	230	9	white murky flow, no rain prior
	2023-11-28	34	7	no recent rain
	2024-01-24	90	>120	murky brown, rain yesterday
SW0321A	2022-02-02	150	12	rain yesterday
	2022-07-06	1600	10	no rain prior
	2023-02-09	38	14	rain within the past two days
	2023-06-14	36	10	slight amber, no rain prior
	2023-11-28	310	10	no recent rain
	2024-01-24	1900	60	amber, rain yesterday
SW0322	2022-02-02	790	12	rain yesterday
	2022-07-06	70000	9	no rain prior
	2023-02-09	950	9	rain within the past two days
	2023-06-14	250	11	no rain prior
	2023-11-28	660	12	no recent rain
	2024-01-24	550	38	amber, rain yesterday
SW0323	2022-02-01	110	200	rain yesterday
	2022-07-06	360	40	no rain prior
	2023-02-09	38	>200	rain within the past two days
	2023-06-14	6	80	no rain prior
	2023-11-28	<1	120	no recent rain
	2024-01-24	830	>500	murky brown, rain yesterday
SW0323A	2022-02-02	420	5	murky brown, rain yesterday
	2022-07-06		<0.01	flow too low to sample, no rain
	2023-06-14		0	dry, not sampled, no rain prior
SW0324	2022-07-12		0	dry, not sampled, no rain prior
SW0325	2022-07-12		0	dry, not sampled, no rain prior
SW0503	2022-02-02	4100	80	slightly brown, rain yesterday

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2022-07-12	2100	65	no rain prior
	2023-02-09	350	>250	sewer odour, murky, rain within the past two days
	2023-06-20	16	80	murky amber, shorebirds in water, no rain prior
SW0505	2022-02-25	37	>250	no rain
	2022-07-12	53	60	no rain prior
	2023-02-09	61	>90	sewer odour, murky, rain within the past two days
	2023-06-20	68	>100	Amber, no rain prior
SW0506	2022-02-02	18	35	rain yesterday
	2022-07-12	100	7	no rain prior
	2023-02-09	64	40	rain within the past two days
	2023-06-20	300	5	clear, no rain prior
SW0507	2022-02-02	<1	1	rain yesterday
	2022-07-12	60	<1	no rain prior
SW0508	2022-02-02	8	40	rain yesterday
	2022-07-12	40	11	no rain prior
	2023-02-09	34	32	rain within the past two days
	2023-06-20	74	8	amber with suds, no rain prior
SW0513	2022-03-01	2	2	light rain previous
	2022-09-22		0	dry, not sampled, no rain
SW0514	2022-09-22		0	dry, not sampled, no rain
SW0516	2022-02-02	9	18	rain yesterday
	2022-09-22	5	10	slight foul odour, otter activity observed
SW0518	2022-02-02	38	9	rain yesterday
	2022-09-22	2	1	no rain
	2023-02-24	<1	10	rain in the past two days
	2023-06-20	3200	5	no rain prior
SW0519	2022-02-25		<0.01	flow too low to sample, no rain
	2022-09-22		0	dry, not sampled, no rain
SW0520	2022-02-25	<1	3	no rain

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2022-09-22	12	2	no rain
SW0521A	2022-02-03		0	dry, not sampled, rain yesterday
	2022-09-22		0	dry, not sampled, no rain
SW0522	2022-02-03	6	<1	clear with iron oxide bacteria, rain yesterday
	2022-09-22		0	dry, not sampled, no rain
	2023-02-24		<0.01	flow too low to sample, rain in the past two days
	2023-06-20		0	dry, not sampled, no rain prior
SW0524A	2023-04-04	<2	2	no rain prior
	2023-06-20	1	6	no rain prior
SW0525	2022-02-25		0	dry, not sampled, no rain
	2022-09-22		0	dry, not sampled, no rain
SW0530	2022-03-01	<1	12	light rain previous
SW0539	2023-04-04	13	65	no rain previous
	2023-09-26	510	100	no rain prior
SW0539A	2022-09-22	120	45	no rain
SW0540	2022-03-02	2	7	no rain in past two days
SW0541	2022-01-20	70	32	light rain previous
SW0541A	2022-01-20			could not find sample site due to landslide
SW0541B	2022-01-20	6	5	light rain previous
	2023-02-24	<1	<1	rain in the past two days
	2023-09-26		<0.01	flow too low to sample, no recent rain
SW0542	2022-01-20	7	3	light rain previous
SW0542A	2022-01-20	<1	7	light rain previous
SW0542B	2022-01-20	8	8	light rain previous
SW0542C	2022-01-20	<1	10	light rain previous
SW0543	2022-01-20	<10	10	light rain previous
SW0543A	2022-01-20	57	7	light rain previous
SW0544	2022-01-20	49	8	light rain previous
SW0545	2022-01-20	23	24	light rain previous

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
SW0545A	2022-01-20	4	12	light rain previous
SW0550	2022-02-03	6	40	rain yesterday
SW0551	2022-02-03		0	dry, not sampled, rain yesterday
SW0552	2022-02-03		<0.01	flow too low to sample, rain yesterday
SW0553	2022-02-03		<0.01	flow too low to sample, rain yesterday
SW0554	2022-02-03	<10	<1	rain yesterday
SW0557	2022-02-03	28	6	rain yesterday
	2022-09-16		0	dry, not sampled, no rain
SW0558	2022-02-03	40	9	rain yesterday
	2022-09-16	250	1	no rain
	2023-02-24	8	3	rain in the past two days
	2023-06-12	14	2	no rain prior
SW0559	2022-02-03	470	>2000	rain yesterday
	2022-09-16	26	75	no rain
	2023-02-24	130	>1000	rain in the past two days
	2023-06-12	130	>400	no rain prior
SW0560	2022-03-02	2	9	no rain in past two days
	2022-09-16		<0.01	flow too low to sample, no rain
	2023-02-24	<1	1	slightly murky, rain in the past two days
	2023-06-12		<0.01	flow too low to sample, no rain prior
SW0561	2022-04-29		0	dry, not sampled, no rain
SW0562	2023-04-25	2	40	rain prior
	2023-06-12	120	<1	slight sewer odour, no rain prior
SW0564	2022-02-10	<1	22	no rain
	2022-08-16	50	25	no rain previous
SW0567	2022-02-10	470	35	brown, no rain
	2022-08-16	7000	30	no rain previous
	2023-03-14	90	40	light rain prior
	2023-06-12	3800	16	no rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
SW0571	2023-04-25	<1	2	rain prior
	2023-06-12	22	30	no rain prior
SW0573	2023-04-25	3	50	rain prior
	2023-06-12	25	5	no rain prior
SW0574	2022-02-10	11	100	no rain
	2022-04-07	23	85	no rain prior
	2022-08-16	50	200	no rain previous
	2023-03-14	47	>120	light rain prior
	2023-06-06	760	100	no recent rain
	2023-06-12	590	140	no rain prior
SW0574-M	2022-04-07	1		marine water, no rain prior
SW0576A	2022-02-10	2	28	no rain
	2022-04-07	15	65	no rain prior
	2022-08-16	130	125	no rain previous
	2023-03-14	5	40	light rain prior
	2023-06-06	7	28	no recent rain
	2023-06-12	41	32	no rain prior
SW0576A-M	2022-04-07	2		marine water, no rain prior
SW0577	2023-06-06	9	90	no recent rain; part of investigation
SW0578	2022-02-25	8	>300	no rain
	2022-08-16	27	400	no rain previous
	2023-06-06	110	160	no recent rain
	2023-06-09	130	200	drizzle in the morning of sample day
SW0580	2022-02-10	19	8	no rain
	2022-08-16		0	dry, not sampled, no rain previous
	2023-03-14	6	5	light rain prior
	2023-06-09	1100	2	drizzle in the morning of sample day
SW0581	2022-02-10		<0.01	flow too low to sample, no rain
	2022-08-16	58	50	no rain previous

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-03-14	1	9	light rain prior
	2023-06-09	2	12	drizzle in the morning of sample day
SW0592	2022-02-10	16	>600	murky brown, no rain
	2022-08-16	530	500	amber, no rain previous
	2023-03-30	14	3000	no rain prior
	2023-06-12	20	>200	swampy odour, slight amber, no rain prior
SW0603	2022-03-21	9300	15	slight sewer odour, rain
	2022-07-15	17000	2	no rain prior
	2023-03-22	5000	2	no recent rain
	2023-07-04	660000	1	no rain prior
SW0605	2022-03-21	17	<1	rain
	2022-07-25		0	dry, not sampled, no rain prior
SW0607	2022-03-21	6900	300	rain
	2022-07-15	30000	18	slight sewer odour, amber, no rain prior
	2023-04-13	20000	200	rain prior
	2023-07-04	3300	16	amber, no rain prior
SW0607A	2022-03-21	2000	50	rain
	2022-07-15	190	14	no rain prior
	2023-04-13	12000	300	rain prior
	2023-07-04	13000	10	no rain prior
SW0608	2023-04-13		0	dry, not sampled, rain prior
	2023-07-04		0	dry, not sampled, no rain prior
SW0609A	2022-03-21		<0.01	flow too low to sample, rain
	2022-07-15		<0.01	flow too low to sample, no rain prior
SW0609B	2022-03-21		0	dry, not sampled, rain
	2022-07-15		<0.01	flow too low to sample, no rain prior
SW0610	2022-03-04	4700	9	no rain
	2022-07-14	2200	8	no rain prior
	2023-03-22	10	10	no recent rain

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-07-04	12	11	no rain prior
SW0611	2022-03-04	16000	12	sewer odour, no rain
	2022-07-14	17000	7	sewer odour, no rain prior
	2023-03-22	3200	11	sewer odour, no recent rain
	2023-07-04	79000	9	no rain prior
SW0613	2022-01-31	400	>200	low tide odour, rain
	2022-07-14	3800	65	no rain prior
	2023-04-26	1200	60	light rain prior
	2023-07-04	7000	24	no rain prior
SW0614	2022-01-31	9000	>250	low tide odour, murky, rain
	2022-07-14	1900	45	no rain prior
	2023-07-04	760	30	amber, no rain prior
SW0615	2022-03-21		0	dry, not sampled, rain
SW0616	2022-03-21		0	dry, not sampled, rain
SW0619	2022-03-22	600	15	musty/sewer odour, murky, rain
	2022-07-15	92	2	no rain prior
	2023-04-21	36000	15	foul odour, rain yesterday
	2023-07-04	53000	5	no rain prior
SW0619B	2022-03-22	8100	2	rain
	2022-07-15		<0.01	flow too low to sample, no rain prior
	2023-04-21		0	dry, not sampled, rain prior
	2023-07-04		0	dry, not sampled, no rain prior
SW0620	2022-03-22	3300	300	musty/sewer odour, murky, rain
	2022-07-15	2600	20	organic odour, brown, no rain prior
	2023-07-04	22000	12	sewer odour, amber, no rain prior
SW0622	2022-03-21	16	5	rain
	2022-07-25	30	1	sewer odour, amber, no rain prior
	2023-04-21	90		rain prior
	2023-05-05	1800	30	grey, rain just prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-07-04	5	<1	amber, no rain prior
SW0623	2022-03-22	730000	100	rain
	2022-07-15		<0.01	flow too low to sample, no rain prior
SW0624	2022-03-23	12000	10	musty odour, rain
	2022-07-25	2200	1	creosote odour, no rain prior
	2023-04-21	81000		rain prior
	2023-07-04	15	<1	no rain prior
SW0626	2022-03-23	4000	200	rain
	2022-07-25	9000	22	sewer odour, slight amber, no rain prior
	2023-04-21	7000		rain prior
	2023-07-04	65000	18	slight sewer odour, slight amber, no rain prior
SW0627	2022-03-23	9800	600	slight sewer odour, rain
	2022-07-25	1700		pooled with unknown flow, no rain prior
	2023-07-04	14000	65	slight sewer odour, slight amber, no rain prior
SW0629	2022-03-23	3200	50	sewer odour, very turbid, rain
	2022-09-22	10000	20	dark brown flow with film on surface, no rain
SW0630	2022-03-22	140	40	turbid, rain
	2022-08-25		0	dry, not sampled, heavy rain two days ago
SW0633	2022-03-23	300	5	strong sewer odour, sudsy, rain prior two days
	2023-04-24		0	dry, not sampled, rain prior
SW0634	2022-03-23	70000	10	decomposition odour, cloudy flow, rain
	2022-09-22	23000	2	foul, some standing water, no rain
SW0636	2022-03-23	7000	500	hydrocarbon odour, very silty, rain
	2022-09-22	15000000		
SW0639A	2022-03-24	13000	100	slight sewer odour, rain prior two days
	2022-08-25	1800	15	no rain
SW0641	2022-04-11	1800	700	slight sewer odour, rain prior two days
	2022-08-23	2100	500	no rain
	2023-03-08	2700	1000	murky, homeless population in area, no rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-08-09	6000	500	light rain last night
	2023-08-16	820	500	no recent rain
	2023-08-23	550	400	no recent rain
	2023-08-30	50000	700	murky, no recent rain
	2023-09-06	8900	600	no recent rain
	2023-10-18	7900	900	rain previous
	2023-10-25	4000	1500	heavy rain previous
	2023-11-01	250	800	no recent rain
	2023-11-08	1900	>1000	slight sewer odour, murky, drizzle in the morning
	2023-11-15	3000	>1000	drizzle previous
SW0641-3D	2023-08-09	8500	400	oily sheen on surface, trash in channel, light rain last night
	2023-08-16	5100	500	oily sheen on surface, trash in channel, no recent rain
	2023-08-23	13000	400	garbage in channel, no recent rain
	2023-08-30	51000	500	blackish colour with oily sheen, trash in channel, no recent rain
	2023-09-06	13000	600	slight oily sheen, trash in channel, no recent rain
	2023-10-18	9600	700	oily sheen in channel, rain previous
	2023-10-25	2700	1500	heavy rain previous
	2023-11-01	3400	650	possible macerated toilet paper deposits in flow, no recent rain
	2023-11-08	4200	800	slight sewer odour, oily sheen on water, drizzle in the morning
	2023-11-15	3100	800	drizzle previous
SW0641-3G	2023-08-09	13000	50	oily sheen on surface, trash in channel, light rain last night
	2023-08-16	340	20	trash in channel, no recent rain
	2023-08-23	9100	20	garbage in channel, no recent rain
	2023-08-30	100000	200	iron oxide bacteria present, trash in channel, no recent rain
	2023-09-06	15000	100	slight oily sheen, trash in channel, no recent rain
	2023-10-18	17000	100	rain previous
	2023-10-25	8000	200	heavy rain previous
	2023-11-01	320000	150	surface scum on water, trash in channel, no recent rain
	2023-11-08	3900	200	slight sewer odour, oily sheen on water, trash in channel, drizzle in the morning

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-11-15	280	200	oily sheen in flow, drizzle previous
SW0643	2022-03-03	11	1	no rain in past two days
	2022-08-23		<0.01	flow too low to sample, heavy rain two days ago
SW0644	2023-04-21	3600		foul odour, black, rain prior
SW0645	2022-03-03	1200	6	murky, no rain in past two days
	2023-01-17	140	40	murky, light rain in the past two days
	2023-03-27		<0.01	flow too low to sample, no recent rain
	2023-04-21	570000		rain prior
SW0645A	2022-03-03	540	5	no rain in past two days
	2023-03-27	340	7	no recent rain
SW0646	2022-03-03	15	2	no rain in past two days
	2022-08-23		0	dry, not sampled, heavy rain two days ago
SW0649	2022-03-03	130	<1	no rain in past two days
	2022-08-23		0	dry, not sampled, heavy rain two days ago
	2023-03-27		<0.01	flow too low to sample, no recent rain
	2023-05-05	45000	15	murky, rain just prior
SW0649A	2023-03-27	2	1	no recent rain
SW0650	2022-03-03	110000	9	slight brown, no rain in past two days
	2022-03-03	8000	20	no rain in past two days, sampled during surge flow
	2022-08-23	12000	3	musty odour, slightly murky, no rain
	2023-03-27	5800	6	no recent rain
	2023-06-13	1600	40	no rain prior
	2023-08-10	14000	40	slight amber, slight sewer odour, surge flow, no rain prior
	2023-12-05	18000	30	slight sewer odour, murky, recent rain
SW0653	2022-03-24	14	90	asphalt odour, rain prior two days
	2022-08-23	70	45	no rain
	2023-03-27	61	9	no recent rain
SW0655	2023-03-27	360	6	
	2023-04-27	78	7	no rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
SW0658A	2022-03-24	<100	10	murky white with film, rain prior two days
	2022-08-18	10000	2	no rain previous
	2023-04-21	20		rain prior
	2023-08-03		0	dry, not sampled, no recent rain
SW0659	2022-03-24	1	10	rain prior two days
	2022-08-18		<0.01	flow too low to sample, no rain previous
SW0661	2023-04-21	<1		potential surge flow, rain prior
	2023-08-03		0	dry, not sampled, no recent rain
SW0662	2023-04-21		0	dry, not sampled, rain prior
	2023-08-03		0	dry, not sampled, no recent rain
SW0665	2023-04-21	3	2	rain prior
	2023-08-03		0	dry, not sampled, no recent rain
SW0667	2023-04-21		0	dry, not sampled, rain prior
	2023-08-03		0	dry, not sampled, no recent rain
SW0668	2023-04-21		0	dry, not sampled, rain prior
	2023-08-03		0	dry, not sampled, no recent rain
SW0669	2023-04-21		0	dry, not sampled, rain prior
	2023-08-03		0	dry, not sampled, no recent rain
SW0671	2022-03-24	22	40	rain prior two days
	2022-08-18	70	2	no rain previous
	2023-04-21	29	10	rain prior
	2023-08-02	430	1	no recent rain
SW0675	2023-08-02		0	dry, not sampled, no recent rain
SW0676	2022-03-25	<1	2	no field notes, rain prior
	2022-08-18		0	dry, not sampled, no rain previous
	2023-08-02	2	2	no recent rain
SW0687	2023-04-24	23	30	rain prior
	2023-08-02		<0.01	flow too low to sample, no recent rain
SW0690D	2023-03-08	19		flow not estimated, no rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-08-01	61	1000	no recent rain
SW0690D-12	2022-05-31	6		BEES group sampled
	2022-06-30	28		BEES group sampled, flow too low to sample
	2022-07-29	250 (fecal coliforms)		BEES group sampled
	2022-08-26	240 (fecal coliforms)		BEES group sampled
	2022-11-01	300		BEES group sampled
	2022-12-02	1		BEES group sampled, too cold for some meter parameters
	2023-02-02			BEES group sampled
	2023-03-21	1		BEES group sampled
	2023-04-25	<1		BEES group sampled
	2023-05-30	26		BEES group sampled
	2023-06-30			BEES group sampled
	2023-07-31	77		BEES group sampled
	2023-09-27	1400		BEES group sampled
	2023-10-30	37		BEES group sampled
	2023-11-29	4		BEES group sampled
SW0690D-12A	2022-05-31	3		BEES group sampled
	2022-11-01	82		BEES group sampled
	2022-12-02	7		BEES group sampled, too cold for some meter parameters
	2023-02-02	6		BEES group sampled
	2023-03-21	1		BEES group sampled
	2023-04-25	1		BEES group sampled
	2023-05-30	25		BEES group sampled
	2023-06-30			BEES group sampled
SW0690D-12B	2023-07-31	5100		BEES group sampled
	2023-09-27	26		BEES group sampled
	2023-10-30	20		BEES group sampled
	2023-11-29	3		BEES group sampled
SW0690D-15	2022-05-31	5		BEES group sampled

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2022-06-30	<2		BEES group sampled
	2022-07-29			BEES group sampled, flow too low to sample
	2022-11-01	81		BEES group sampled
	2022-12-02	4		BEES group sampled
	2023-02-02	1		BEES group sampled
	2023-03-21	5		BEES group sampled
	2023-04-25	<1		BEES group sampled
SW0690D-17	2022-05-31	25		BEES group sampled
	2022-06-30	20		BEES group sampled
	2022-07-29	240 (fecal coliforms)		BEES group sampled
	2022-08-26	200 (fecal coliforms)		BEES group sampled
	2022-11-01	60		BEES group sampled
	2022-12-02	23		BEES group sampled, too cold for some meter parameters
	2023-02-02	9		BEES group sampled
	2023-03-21	7		BEES group sampled
	2023-04-25	12		BEES group sampled
	2023-05-30	85		BEES group sampled
	2023-06-30			BEES group sampled
	2023-07-31	380		BEES group sampled
	2023-09-27	30		BEES group sampled
	2023-10-30	17		BEES group sampled
	2023-11-29	21		BEES group sampled
SW0690D-17B	2022-05-31	47		BEES group sampled
	2022-11-01	150		BEES group sampled
	2022-12-02	15		BEES group sampled
	2023-02-02	5		BEES group sampled
	2023-03-21	1		BEES group sampled
	2023-04-25	25		BEES group sampled
SW0690D-17C	2022-05-31	2200		BEES group sampled

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2022-06-30	870		BEES group sampled
	2023-02-02	20		BEES group sampled
	2023-03-21	12		BEES group sampled
	2023-04-25	48		BEES group sampled
SW0690D-2	2022-04-11	23	70000	rain prior two days
	2022-04-25	34	>800	amber, no rain
	2022-08-10	95	>1000	no rain
	2022-08-17	93	>1000	no rain
	2022-08-24	79	>1000	no rain
	2022-08-31	55	>1000	no rain
	2022-09-07	80	35	no rain
	2022-10-24	4900	>5000	rain overnight
	2022-10-31	450	>5000	rain previous
	2022-11-10		>5000	no rain
	2022-11-17	53	>5000	no rain
	2022-11-22	500	>5000	rain present
SW0690D-3	2022-04-25	19	>300	amber, no rain
	2022-08-10	190	40	no rain
	2022-08-17	110	40	no rain
	2022-08-24	52	40	no rain
	2022-08-31	42	35	no rain
	2022-09-07	320		no rain
	2022-10-24	3300	500	rain overnight
	2022-10-31	320	>1000	rain previous
	2022-11-10		>2000	no rain
	2022-11-17	46	1000	no rain
	2022-11-22	180	1500	rain present
SW0690D-4	2022-08-10	190		no rain, flow not estimated
	2022-08-17	230		no rain, flow not estimated

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2022-08-24	510		no rain, flow not estimated
	2022-08-31	40		no rain, flow not estimated
	2022-09-07	80		no rain, flow not estimated
	2022-10-24	5200		rain overnight, flow not estimated
	2022-10-31	500		rain previous, flow not estimated
	2022-11-10		>5000	no rain
	2022-11-17	74		no rain, flow not estimated
	2022-11-22	81		rain present, flow not estimated
SW0690D-5A	2022-04-25	230	>500	amber, no rain, sampled due to suspected sewer overflow
	2022-08-10	480	40	no rain
	2022-08-17	240	35	no rain
	2022-08-24	240	30	no rain
	2022-08-31	120	40	waxy scum on surface of water, no rain
	2022-09-07	450		no rain
	2022-10-24	5000	400	rain overnight
	2022-10-31	670	>1000	rain previous
	2022-11-10		>1000	no rain
	2022-11-17	340	300	no rain
	2022-11-22	800	5000	rain present
SW0690D-8	2022-08-10	78	1500	no rain
	2022-08-17	4	1500	no rain
	2022-08-24	7	>1000	no rain
	2022-08-31	7	>1000	no rain
	2022-09-07	10	75	no rain
	2022-10-24	6	>2000	rain overnight
	2022-10-31	16	>5000	rain previous
	2022-11-10		>5000	no rain
	2022-11-17	3	4000	no rain
	2022-11-22	2	>5000	rain present

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
SW0690D-8A	2022-08-10	430	20	no rain, field turbidity not recorded
	2022-08-17	890	20	no rain
	2022-08-24	1100	20	no rain
	2022-08-31	75	20	no rain
	2022-09-07	270	1000	no rain
	2022-10-24	3000	60	rain overnight
	2022-10-31	7000	300	rain previous
	2022-11-10		400	no rain
	2022-11-17	37	80	no rain
	2022-11-22	210	2000	rain present
SW0690D-9	2022-08-10	37		no rain, flow not estimated
	2022-08-17	56		no rain, flow not estimated
	2022-08-24	320		no rain, flow not estimated
	2022-08-31	26		no rain, flow not estimated
	2022-09-07	48	20	no rain, flow not estimated
	2022-10-24	410		rain overnight, flow not estimated
	2022-10-31	300		rain previous, flow not estimated
	2022-11-10			no rain, flow not estimated
	2022-11-17	16		no rain, flow not estimated
	2022-11-22	53		rain present, flow not estimated
SW0691A	2022-03-25	220	60	rain two days ago
	2022-08-18		<0.01	flow too low to sample, no rain previous
	2023-05-04	5	15	no rain prior
	2023-08-03		0	dry, not sampled, no recent rain
SW0694	2023-04-03		0	dry, not sampled, light rain previous
	2023-08-01		0	dry, not sampled, no recent rain
SW0697	2022-03-24	10	800	rain prior two days
	2022-08-18	87	50	no rain previous
	2023-04-05	46	200	no rain previous

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-07-31	70	40	some marine influence, no recent rain
SW0703	2022-03-25	<2	3	rain two days ago
	2022-07-25		0	dry, not sampled, no rain prior
	2023-04-03	3	5	light rain prior
	2023-07-31		<0.01	flow too low to sample, no recent rain
SW0705	2022-03-25	<1	30	rain two days ago
	2022-07-25	1	1	no rain prior
SW0709B	2022-04-11	10		rain prior two days, flow too high to estimate
	2022-07-25	43	>80	slight amber, no rain prior
	2023-03-08	8		flow not estimated, no rain prior
	2023-08-01	39	60	no recent rain
SW0710	2022-02-15	<1	6	no rain
	2022-07-25	150	1	no rain prior
	2023-04-03	13	10	light rain prior
	2023-06-13	220	2	no rain prior
SW0712	2022-02-15	5	9	no rain
	2022-07-25	9	7	no rain prior
SW0722	2022-02-15	7	20	chemical odour, clear with some suds, surge flow, no rain
	2022-07-20	23	12	sampled during surge flow, no rain prior
	2023-04-03	3	45	strong asphalt odour, light rain previous
	2023-06-13	350	2	no rain prior
SW0722AA	2022-02-15	1	5	no rain
	2022-07-20	170	6	no rain prior
	2023-04-03	26	10	rain prior
	2023-06-13	190	3	no rain prior
SW0726	2022-03-04	12	40	no rain
	2022-07-20	340	11	no rain prior
	2023-04-05	1	80	no rain previous
	2023-06-13	1200	24	sewer odour, murky, no rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
SW0727	2022-02-15	22	6	no rain
	2022-07-20	180	5	no rain prior
	2023-04-05	10	5	no rain previous
	2023-06-13	49	10	potential surge flow, no rain prior
SW0730	2022-03-25	2	2	rain two days ago
	2022-07-20		<0.01	flow too low to sample, no rain prior
SW0736	2022-03-25	10	20	rain two days ago
	2022-07-20		<0.01	flow too low to sample, no rain prior
SW0736A	2022-02-15	13	6	no rain
	2022-06-24	590	4	no rain prior
	2022-07-12	28	1	no rain
	2022-07-20	1500	1	no rain prior
	2023-04-03	3	8	light rain prior
	2023-06-13	420	1	no rain prior
SW0737	2022-07-20	3	<0.01	strong sewer odour from pipe, no rain prior
	2023-04-03	25	5	light rain prior
	2023-06-13	7	2	no rain prior
SW0741	2022-03-25		0	dry, not sampled, rain two days ago
SW0742	2022-02-17	3	7	no rain
	2022-08-18	1100	3	no rain previous, geese present
	2023-03-10	43	12	murky, rain during sampling
	2023-06-13	900	4	no rain prior
SW0742B	2022-02-17	<1		unknown flow, no rain
	2022-08-18			could not sample due to back flooding
	2023-04-05	26		no rain previous, pooled flow (not estimated)
	2023-06-13		<0.01	flow too low to sample, no rain prior
SW0743	2022-03-25	12	1	rain two days ago
	2022-08-18		0	dry, not sampled, no rain previous
	2023-04-05		<0.01	flow too low to sample, rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-06-13		0	dry, not sampled, no rain prior
SW0743A	2022-02-17		<0.01	flow too low to sample, no rain
	2022-08-18	600	2	no rain previous, potentially marine influenced
	2023-04-05	2	5	no rain previous
	2023-06-13	280	<1	no rain prior
SW0744	2022-02-17	630	>250	slightly murky, no rain
	2022-08-19	2400	24	slightly amber, no rain prior
	2023-03-10	1700	>100	murky, rain during sampling
	2023-06-13	250	>200	no rain prior
SW0744A	2022-02-17	<1	<1	no rain
	2022-08-19		<0	flow too low to sample, no rain
	2023-04-05	12	2	no rain previous
	2023-06-13		0	dry, not sampled, no rain prior
SW0744B	2022-01-28	300000	5	sewer odour, murky, no rain
	2022-02-17	410000	5	sewer odour, murky grey, no rain
	2022-03-09	2200000	7	sewer odour, murky, no rain
	2022-05-04	4300000	6	sewer odour, murky, rain previous
	2022-06-24	67000	7	no rain prior
	2022-07-04	74000	9	sewer odour, murky, rain two days ago
	2022-07-12	72000	3	slight sewer odour, slightly murky, no rain
	2022-07-20	10000	4	sewer odour, turbid, no rain prior
	2022-08-09	14000	4	slight sewer odour, murky, no rain prior
	2022-11-02	1400	20	sewer odour, murky, rain during and in the past two days
	2022-11-21	160000	5	slight sewer odour, no rain within two days
	2022-12-06	55000		sewer odour, murky brown, rain present
	2023-03-10	12000	7	murky, rain during sampling
	2023-05-05	52000	>80	slight sewer odour, dark grey flow, rain during sampling
	2023-06-13	14000	8	no rain prior
SW0749	2022-03-04	800	9	no rain

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2022-08-23		<0.01	flow too low to sample, heavy rain two days ago
	2023-03-10	300	1	slight sewer odour, murky, rain during sampling
	2023-06-13	580	<1	no rain prior
SW0749A	2022-03-04		<0.01	flow too low to sample
	2022-08-23	4600	8	no rain previous
	2023-03-10		<0.01	flow too low to sample, rain during sampling
	2023-06-13		0	dry, not sampled, no rain prior
SW0750	2022-08-23		0	dry, not sampled, heavy rain two days ago
SW0751	2022-03-04	400	7	no rain
	2022-08-23	1700	5	no rain previous, sampled before surge flow
	2022-08-23	11000	100	no rain previous, sampled during surge flow
	2023-03-10	420	6	murky, rain during sampling
	2023-06-13	1600	3	no rain prior
SW0755	2023-06-06	<1	10	temperature hot to touch, positive for chlorine, one off sample
SW0756	2022-03-04	120	4	no rain
	2022-08-23	39	4	no rain previous
SW0758A	2022-03-23	55000	15	cloudy flow with suds, rain
	2022-08-23		<0.01	flow too low to sample, no rain prior
	2023-03-22	2200	3	no recent rain
	2023-06-16		<0.01	flow too low to sample, no rain prior
SW0759	2022-03-23	180	5	cloudy flow, rain
	2022-08-23		<0.01	not sampled due to pooled water with no flow
	2023-03-22	3	4	no recent rain
	2023-06-16	800	<1	no rain prior
SW0768	2022-03-23	2500	50	strong sewer odour, cloudy flow, rain
	2022-07-14	34000	5	slight amber, no rain prior
	2023-03-23	1500	7	no recent rain
	2023-06-16	27	18	slight sewer odour, amber, no rain prior
SW0769	2022-04-12	980	500	rain

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2022-07-14	12000	4	no rain prior
	2023-03-22	1500	40	no recent rain
	2023-06-16	5000	35	no rain prior
SW0775	2022-03-04	3000	6	no rain
	2022-07-14	9400	8	amber, no rain prior
	2023-03-22	4400	3	no recent rain
	2023-06-16	7000	1	no rain prior
SW0777A	2022-01-24	51000	75	slight sewer odour, murky, no rain
	2022-03-04	25000	65	sewer odour, murky, no rain
	2022-04-19	20000	40	strong sewer odour, murky grey, rain previous two days
	2022-05-13	44000	60	slight sewer odour, murky, no rain within two days
	2022-07-14	27000	35	slight sewer odour, murky, no rain prior
	2023-01-19	23000	65	sewer odour, murky, light rain two days ago
	2023-06-16	200000	16	slight sewer odour, EOP, no rain prior
	2023-08-23	61000	20	sewer odour, murky brown, no recent rain
	2024-01-16	15000	60	slight sewer odour, slight murky colour, no rain previous
SW0779	2022-02-07	50000	9	perfume odour, brown, potential surge flow event, no rain
	2022-02-16	4000	2	no rain
	2022-07-14	4300	1	no rain prior
	2023-03-10	840	8	chemical odour, murky, rain during sampling
	2023-07-06		1	no rain prior
SW0780	2022-02-07	19000	6	no rain
	2022-07-14	80	6	no rain prior
	2023-03-10	9000	12	murky, rain during sampling
	2023-07-06		250	no rain prior
SW0781	2022-02-07	460	50	creosote odour, no rain
	2022-07-14	27	12	no rain prior
	2023-03-10	1400	90	creosote odour, murky brown, rain during sampling
	2023-07-06		500	no rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
SW0782	2023-03-22		0	dry, not sampled, no recent rain
	2023-05-04		0	dry, not sampled, no rain prior
	2023-05-05		0	dry, not sampled, rain during sampling
SW0805	2022-01-17	23000	>500	sewer odour, brown, rain previous
	2022-01-28	120000	200	sewer odour, murky, no rain
	2022-05-13	130000	20	sewer odour, murky, no rain within two days
	2022-07-14	520000	20	strong sewer odour, murky, no rain prior
	2023-01-18	210	90	
	2023-03-02	2000	60	slight sewer odour, murky, rain in the past two days
	2023-03-10	33000	65	slight sewer odour, murky, rain during sampling
	2023-05-16	12000	20	slight sewer odour, murky, no rain prior
	2023-06-19	180000	12	sewer odour, murky, no rain prior
	2023-12-14	5000	100	slight sewer odour, slightly murky, previous rain
SW0806	2022-01-28	200	35	sewer odour, murky, no rain
	2022-05-13	2100	9	no rain within two days
	2022-07-14	1300	4	no rain prior
	2023-03-02	900	12	slight sewer odour, murky, rain in the past two days
	2023-03-10	1100	14	slight sewer odour, murky, rain during sampling
	2023-06-19	630	2	slight sewer odour, no rain prior
SW0810	2023-04-26	620	<0.01	flow too low to sample, rain prior
	2023-06-19	170	2	amber, no rain prior
SW0811	2023-04-26	950	0	dry, not sampled, rain prior
	2023-06-19		<0.01	flow too low to sample, no rain prior
SW0812	2023-04-26	110000	1	strong acrid odour, grey, rain prior
	2023-05-05	5500	40	grey, rain just prior
	2023-06-19	58000	2	amber, evidence of otter activity, no rain prior
SW0814	2022-02-16	1000	<1	no rain
	2022-07-14		<0.01	flow too low to sample, no rain prior
	2023-03-02	50	6	rain in the past two days

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-06-19	400	<1	amber, no rain prior
SW0854	2022-03-23	800	60	sewer odour, murky grey, light rain previous two days
	2022-07-14	44000	9	slight organic odour, slight amber, no rain prior
	2023-03-23	1600	10	no recent rain
	2023-06-19	100000	40	perfume odour, murky, no rain prior
SW0865AB	2022-04-19	<2	15	rain prior
	2023-05-04		<0.01	flow too low to sample, no rain prior
	2023-07-21		0	dry, not sampled, no recent rain
SW0865ABM	2022-08-25		<0.01	flow too low to sample, heavy rain two days ago
SW0865B	2022-04-19		0	dry, not sampled, no rain
	2022-08-25		0	dry, not sampled, heavy rain two days ago
	2023-05-04		0	dry, not sampled, no rain prior
	2023-07-21		0	dry, not sampled, no recent rain
SW0865C	2022-04-19		0	dry, not sampled, no rain
	2022-08-25		<0.01	flow too low to sample, heavy rain two days ago
	2023-05-04		0	dry, not sampled, no rain prior
	2023-07-21		0	dry, not sampled, no recent rain
SW0865D	2022-04-19	4	15	
	2022-08-25		0	dry, not sampled, heavy rain two days ago
	2023-05-04	18	15	iron oxide bacteria present, no rain prior
	2023-07-21		0	dry, not sampled, no recent rain
SW0865DA	2022-04-19		<0.01	flow too low to sample, no rain
	2022-08-25		<0.01	flow too low to sample, no rain
SW0865E	2022-08-25		<0.01	flow too low to sample, no rain
SW0865F	2022-04-19	2	5	rain prior
	2022-08-25	4600	10	strong fertilizer odour, no rain
	2023-04-05	1	5	no rain prior
	2023-07-21	52	4	no recent rain
SW0865G	2022-04-19	1	40	rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2022-08-25	150	20	no rain
	2023-04-05	10000	20	potential marine influence, no rain prior
	2023-07-21	220	30	no recent rain
SW0867	2023-05-04		0	dry, not sampled, no rain prior
	2023-07-21		0	dry, not sampled, no recent rain
SW0872	2022-04-12	25	50	rain
	2022-08-25		0	dry, not sampled, no rain
	2023-04-05	1	5	no rain prior
	2023-07-21		0	dry, not sampled, no recent rain
SW0874	2022-04-12	10	20	rain
	2022-08-25		0	dry, not sampled, no rain
	2023-05-04		0	dry, not sampled, no rain prior
	2023-07-21		0	dry, not sampled, no recent rain
SW0879	2022-04-11	18	400	rain prior two days
	2022-08-25	470	300	no rain
	2023-05-04	27	200	no rain prior
	2023-07-20	1	30	no rain prior
SW0881	2022-04-11		0	dry, not sampled, no rain
	2022-08-25		0	dry, not sampled, no rain
	2023-07-20		0	dry, not sampled, no recent rain
SW0886	2022-04-11	17		no field comments, rain prior two days, flow too high to estimate
	2022-10-05		1000	no rain
	2023-01-23	92	1000	no rain
	2023-03-17	9	>5000	no rain prior
	2023-08-09	66	800	light rain last night
	2023-08-16	68	800	no recent rain
	2023-08-23	48	500	no recent rain
	2023-08-31	240	800	no recent rain
	2023-09-06	47	1500	no recent rain

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-10-18	590	4000	rain previous
	2023-10-25	2800		flow too high to estimate, heavy rain previous
	2023-11-01	110	>5000	no recent rain
	2023-11-08	18		flow high (not estimated), drizzle in the morning
	2023-11-15	20		flow high (not estimated), drizzle previous
SW0886-3	2023-08-09	100	700	light rain last night
	2023-08-16	43	700	no recent rain
	2023-08-23	130	500	no recent rain
	2023-08-31	130	800	no recent rain
	2023-09-06	53	1500	no recent rain
	2023-10-18	900	3000	rain previous
	2023-10-25	3400		flow too high to estimate, heavy rain previous
	2023-11-01	19	4000	no recent rain
	2023-11-08	11		flow high (not estimated), drizzle in the morning
	2023-11-15	31		flow high (not estimated), drizzle previous
SW0886-6	2023-08-09	70	600	light rain last night
	2023-08-16	31	500	no recent rain
	2023-08-23	38	400	no recent rain
	2023-08-31	390	700	no recent rain
	2023-09-06	120	1000	no recent rain
	2023-10-18	190	3000	rain previous
	2023-10-25	700		flow too high to estimate, heavy rain previous
	2023-11-01	48	3000	no recent rain
	2023-11-08	10		flow high (not estimated), drizzle in the morning
	2023-11-15	8		flow high (not estimated), drizzle previous
SW0886-9	2023-08-09	9	30	light rain last night
	2023-08-16	490	25	no recent rain
	2023-08-23	320	25	no recent rain
	2023-08-31	920	30	no recent rain

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2023-09-06	140	25	no recent rain
	2023-10-18	50	50	rain previous
	2023-10-25	410	300	heavy rain previous
	2023-11-01	1	50	no recent rain
	2023-11-08	4	700	drizzle in the morning
	2023-11-15	<1	1000	drizzle previous
SW0913	2024-01-26	3	7	rain previous
SW0914	2024-01-26	4	40	rain previous
SW0915	2022-04-13	2	90	rain prior
	2022-08-25	19	30	no rain
SW0916	2022-04-13	15	>2000	rain prior
	2022-07-25	180	60	no rain prior
	2022-08-10	65	75	no rain
	2022-08-17	900	75	no rain
	2022-08-24	42	75	no rain
	2022-08-31	26	75	no rain
	2022-09-08	180		no rain
	2022-10-24	5000	200	rain overnight
	2022-10-31	700	>1000	rain previous
	2022-11-10		>1500	no rain
	2022-11-17	23	1000	no rain
	2022-11-22	250	3000	rain present
	2023-03-17	5	1500	no rain prior
	2023-07-31	46	50	no recent rain
	2024-01-26	70	>350	rain previous
SW0916-1A	2022-08-10		0	dry, not sampled, no rain
	2022-08-17		0	dry, not sampled, no rain
	2022-08-24		0	dry, not sampled, no rain
	2022-08-31		0	dry, not sampled, no rain

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2022-09-08		0	dry, not sampled, no rain
	2022-10-24		0	dry, not sampled, rain overnight
	2022-10-31	660	1200	rain previous
	2022-11-10		>1500	no rain
	2022-11-17	42	1080	no rain
	2022-11-22	130	<0.01	flow too low to sample
SW0916-1B	2022-08-10	190		no rain, otter and geese dropping, flow not estimated
	2022-08-17	59		no rain, otter and geese dropping, flow not estimated
	2022-08-24	90		no rain, otter and geese dropping, flow not estimated
	2022-08-31	70		no rain, flow not estimated
	2022-09-08	400		no rain, otter and geese dropping, flow not estimated
	2022-10-24	7000		rain overnight, flow not estimated
	2022-10-31	830		rain previous, flow not estimated
	2022-11-10			no rain, flow not estimated
	2022-11-17	65		no rain, flow not estimated
	2022-11-22	5300		rain present, flow not estimated
SW0916-2	2022-08-10	63		no rain, flow not estimated
	2022-08-17	460		no rain, flow not estimated
	2022-08-24	17		no rain, flow not estimated
	2022-08-31	80	>1000	no rain, flow not estimated
	2022-09-08	300		no rain, flow not estimated
	2022-10-24	3700		rain overnight, flow not estimated
	2022-10-31	310		rain previous, flow not estimated
	2022-11-10			no rain, flow not estimated
	2022-11-17	58		no rain, flow not estimated
	2022-11-22	170		rain present, flow not estimated
SW0917	2022-04-13	<1	10	rain prior
	2022-07-25		0	dry, not sampled, no rain prior
SW0918	2022-07-25			pipe under water, no sample, no rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2022-08-25			could not access, discharge pipe under water
SW0920	2023-05-04	6	500	no rain prior
	2023-07-31	16	400	no recent rain
SW0926	2022-04-13	9	1000	rain prior
	2023-03-17	2	1000	no rain prior
	2023-07-31	40	400	no recent rain
	2024-01-26	24	>350	rain previous
SW0927	2022-04-13	58	30	rain prior
	2023-04-14	<1	30	no rain prior
	2023-07-28	220	30	no recent rain
SW0928	2022-04-13	28	450	rain prior
	2022-08-25	490	400	no rain
	2023-03-17	4	450	no rain prior
	2023-07-31	13	100	no recent rain
	2024-01-26	14	60	rain previous
SW0929	2022-04-13	1100	60	rain prior
	2022-08-25	2000	30	no rain
	2023-03-28	130	50	no rain prior
	2023-07-28	240		unknown flow, no recent rain
SW0930	2022-04-13	<1	40	rain prior
SW0931	2022-04-13	4	35	rain prior
	2022-08-25	340	30	no rain
	2023-03-28	1	35	no rain prior
	2023-07-28	48	10	no recent rain
SW0932	2022-04-13	<1	300	rain prior
	2022-08-25	1	150	no rain
	2023-03-28	<1	300	no rain prior
	2023-07-28	1	40	no recent rain
SW0933	2022-04-13	17	80	rain prior

Table 1, Continued

Station ID	Sample Date	E. Coli	Flow Rate	Sample Comment
		CFU/100 mL	L/min	
	2022-08-25	1000	130	no rain
	2023-03-28	1	300	no rain prior
	2023-07-28	20	40	no recent rain, north end of ditch u/s of end of pipe
SW0934	2023-03-28	1	5	no rain prior
	2023-07-28	22	10	no recent rain
SW0935	2022-04-13	1	10	rain prior
	2022-08-25	<1	20	no rain
	2023-03-28	<1	30	no rain prior
	2023-07-28		10	not sampled due to blackberry growth, no recent rain
SW0935A	2022-04-13	12	80	rain prior
	2022-08-25	2	400	no rain
	2023-03-28	1	400	no rain prior
	2023-07-28	5	80	no recent rain
SW0936	2023-03-28	3	350	no rain prior
	2023-07-28	3	70	no recent rain
SW0940	2023-04-14	<1	40	no rain prior
	2023-07-28		<0.01	flow too low to sample, no recent rain
SW0980-5	2023-10-04	220	458	clear
	2023-12-21	63	3000	clear
SW0980-8	2023-12-21	69	2000	clear
SW0980-9	2023-12-21	57	100	clear

Table 2 Core Area Stormwater Discharge Data

Discharge	Discharge Description
SW0209	Foot of San Jose, west of Holland Point.
SW0210	Foot of Lewis, west of Holland Point.
SW0211	Approximately 270 m east of Finlayson Point, bottom of straight stairs to beach, just east of stairs, end of pipe.
SW0212	Foot of Cook Street, beach access via circular stairs, sample site just west of stairs (metal grate).
SW0214	Clover Point.
SW0216	Foot of Eberts Street, sample from manhole on seawall sidewalk, Ross Bay.
SW0216-3A	MH @ 186 Olive Street.
SW0216-M	Marine station, foot of Eberts (Ross Bay), sample marine from cement box conduit.
SW0218	Foot of Memorial Crescent, eastern pipe, Ross Bay.
SW0222	Middle of Ross Bay Cemetery, Ross Bay.
SW0225	Ross Bay, end of Hollywood Place.
SW0227	Foot of Wildwood Crescent.
SW0228	Robertson Road, west side of Gonzales Bay.
SW0228A	West side of Gonzales Bay, elevated pipe flowing onto rocks from 159 Robertson Street property.
SW0229	Foot of Ross St, Gonzales Bay.
SW0230	Foot of Foul Bay Road, Gonzales Bay.
SW0231	Foot of Marne St, Gonzales Bay.
SW0236	Foot of Crescent Road, Harling Point.
SW0237	Harling Point.
SW0244	Across from 242 Beach Drive, McNeill Bay.
SW0245	Foot of Monterey Avenue, McNeill Bay.
SW0249	Foot of Oliver, McNeill Bay.
SW0250	Foot of St. Patrick, McNeill Bay.
SW0257A	Foot of Radcliffe Lane.
SW0304	End of Satellite Street.
SW0305	Across from 1270 Beach Drive, south of Oak Bay Marina.
SW0305A	West of ramp at 1247 Beach Drive, south of Oak Bay Marina.
SW0306	South side of Oak Bay Marina.
SW0307	Oak Bay Marina.
SW0309	Upper pipe at the end of Windsor Road.

Table 2, Continued

Discharge	Discharge Description
SW0310	Lower pipe at the end of Windsor Road.
SW0310A	Foot of stairs in seawall; north of Windsor Road.
SW0313	South end of Oak Bay.
SW0313A	West of Oak Bay Marina.
SW0316	South of Somass Drive above tidal influence.
SW0316-1B	Bowker Creek, daylight of creek downstream of Monteith Street (Fireman's Park).
SW0316-1C	Bowker Creek, upstream of Monterey Avenue before pipe (Bowker Creek Walkway).
SW0316-3	Near Victoria/Saanich/Oak Bay border at Bee Street.
SW0316-4B	Browning Park.
SW0317	End of Bowker Lane (sample from manhole if tide too high).
SW0318	End of Bowker Avenue (sample from manhole if tide too high).
SW0319	End of Cavendish Avenue (sample from manhole with low flow sampler).
SW0320	End of Dalhousie Street.
SW0321	End of Estevan Avenue.
SW0321A	NE side of intersection; foot of Estevan near stairs; beach side. Storm drain buried in sand.
SW0322	End of Thorpe Place beach access.
SW0323	North end of Esplanade.
SW0323A	Flow from aqua blue pvc pipe, ~5 m from the top of the stairs leading from Willows beach parking, near a memorial bench.
SW0324	Cattle Point.
SW0325	End of Rutland Road.
SW0503	Hobbs creek drains duck pond; Cadboro Bay.
SW0505	Large diffuser; east of Gyro Park parking lot, Cadboro Bay.
SW0506	30 m west of beach access at foot of Telegraph Bay Road, Cadboro Bay.
SW0507	2 m south of discharge 508 at foot of Telegraph Bay Road, Cadboro Bay.
SW0508	Diffuser at foot of Telegraph Bay Road, Cadboro Bay.
SW0513	West side of boat ramp at 2893 Sea View Road, Ten Mile Point.
SW0514	South side of boat ramp at 2893 Sea View Road, Ten Mile Point.
SW0516	2977 Sea View Road, Ten Mile Point.
SW0518	Beach access beside 3895 Tudor Avenue, Ten Mile Point.
SW0519	South of Tudor Avenue beach access, Ten Mile Point.

Table 2, Continued

Discharge	Discharge Description
SW0520	3905 Tudor Avenue, Ten Mile Point.
SW0521A	Corner of McAnally Road and Smugglers Cove Road.
SW0522	Foot of McAnally, Smugglers Cove.
SW0524A	Foot of White Rock Street.
SW0525	3030 Spring Bay Road, Ten Mile Point.
SW0530	End of Phyllis/ Mt Bakerview Road, Ten Mile Point.
SW0539	East side of Queen Alexandra Hospital, Finnerty Cove.
SW0539A	4025 Locarno Lane, Arbutus Cove.
SW0540	East corner of 4035 Larcono Lane, Finnerty Cove.
SW0541	1 m from chain link fence at 4031 Hollydene Place, Arbutus Cove.
SW0541A	Black flexible pipe at the base of hillside from 4039 Hollydene Place.
SW0541B	Black flexible pipe at the base of hillside from 4041 Hollydene Place.
SW0542	2296 Arbutus Cove Lane, Arbutus Cove.
SW0542A	Northeastern corner of vacant lot, flow from hillside onto beach (near clump of trees).
SW0542B	Center of eastern property line 2270 Arbutus Road., at beach flow from hillside (near large stump).
SW0542C	Between 2254 and 2270 Arbutus Road.
SW0543	140 m south of stairs; Arbutus Cove Lane beach access, Arbutus Cove.
SW0543A	Behind wood abutment, 2 m south of discharge 544, Arbutus Cove.
SW0544	55 m south of Arbutus Cove Lane beach access stairs, Arbutus Cove.
SW0545	Foot of southern stairs; end of Arbutus Cove Lane beach access, Arbutus Cove.
SW0545A	Under oak tree; south side of chain link fence; end of Arbutus Cove Lane beach access.
SW0550	Foot of Balmacarra Road and Leynes, Gordon Head.
SW0551	4659 Vantreight Road, Gordon Head.
SW0552	31 m west of Balmacarra and Leynes beach access, Gordon Head.
SW0553	110 m west of Balmacarra Road and Leynes beach access, Gordon Head.
SW0554	280 m west of Balmacarra Road/Leynes beach access.
SW0557	480 m east of Mt Douglas Park beach access stairs.
SW0558	180 m east of Mt Douglas beach access stairs.
SW0559	Mt. Doug Creek, Cordova Bay.
SW0560	130 m west of Mt Douglas Park beach access.

Table 2, Continued

Discharge	Discharge Description
SW0561	430 m west of Mt Douglas beach access.
SW0562	South side of 4550 Cordova Bay Road.
SW0564	4649 Cordova Bay Road.
SW0567	South side of 4771 Timber Place.
SW0571	SW side of 1120 Totem Lane.
SW0573	North of beach access; foot of D'Arcy Lane.
SW0574	4915 Cordova Bay Road.
SW0574-M	Between 4915 and 4915A Cordova Bay Road (marine).
SW0576A	South of beach access; 4989 Cordova Bay Road.
SW0576A-M	Marine station, south of beach access; 4989 Cordova Bay Road.
SW0577	Foot of beach access; 5055 Cordova Bay Road.
SW0578	60 m south of beach access; 5091 Cordova Bay Road.
SW0580	20 m south of park on Agate Lane.
SW0581	5179 Agate Lane.
SW0592	Noble Creek (Noble Watershed), north side of 5575 Parker Road. (EMS#: E310111).
SW0603	20 m south of James Bay Anglers.
SW0605	5 m west of fire hydrant at Canadian Coast Guard property.
SW0607	East of Fishermans Wharf, northwest pipe.
SW0607A	East of Fishermans Wharf, southeast pipe.
SW0608	Between 640 and 636 Montreal, NE of property line.
SW0609A	5 m SW of discharge 609, Laurel Point.
SW0609B	12 m SW of discharge 609A, Laurel Point.
SW0610	Foot of Oswego Street.
SW0611	At foot of Menzies Street.
SW0613	Curved portion of causeway wall at Government Street and Belleville.
SW0614	Humbolt/Wharf and Government.
SW0615	South of Adventure Centre float building.
SW0616	South of Air BC terminal.
SW0619	South side of Johnson Street Bridge.
SW0619B	Under Regency dock walkway.

Table 2, Continued

Discharge	Discharge Description
SW0620	North side of Johnson Street Bridge.
SW0622	End of Swift Street.
SW0623	End of Chatham Street.
SW0624	2140 Store Street, access Rock Bay via Ocean Cement (611 Bay Street), metal railing on headwall with rubber tidegate at discharge.
SW0626	Behind 2122 Government St, Rock Bay.
SW0627	South side of Ocean Cement, Rock Bay.
SW0629	East of foot of Bridge St, Rock Bay.
SW0630	Foot of Bridge Street, Rock Bay.
SW0633	Under south side of Bay Street Bridge.
SW0634	End of David Street, below Budget Steel.
SW0636	South side of Victoria municipal yard, South Bay.
SW0639A	Selkirk Water Development.
SW0641	Mouth of Cecelia Creek.
SW0641-3D	Point of discharge for 1650 mm concrete pipe.
SW0641-3G	Combined flow of 641-3E and 641-3F. Located just above the confluence of 641-3D.
SW0643	Foot of Washington Avenue.
SW0644	Below 221 Gorge Road.
SW0645	Carrol Street easement.
SW0645A	Prince Charles Apts/Gorge Road.
SW0646	20 m east of large concrete outfall.
SW0649	At head of scoured channel, Gorge Road Hospital.
SW0649A	Below end of Lotus St at western side of Gorge Road Hospital.
SW0650	East of "Outfall" and "Pipeline" signs at end of Harriet Road.
SW0653	Below tennis courts at Cedar Shore Appts.
SW0655	In small cove in Gorge Park, east of Gorge Bridge.
SW0658A	Directly below 384 Gorge Road.
SW0659	Foot of Gorge View Drive.
SW0661	In front of park bench; foot of Inez Road.
SW0662	2 m northwest of park bench at foot of Inez Road.
SW0665	Lower pipe below park bench at foot of Parkview Drive.

Table 2, Continued

Discharge	Discharge Description
SW0667	Below middle of Heath Drive.
SW0668	West side of Heath Drive.
SW0669	Foot of Dysart Road.
SW0671	Foot of Austin Avenue, 5 m west of last white pole.
SW0675	Foot of Colquitz Avenue.
SW0676	Across from 820 Gorge Road.
SW0687	Under walkway bridge at 2892 Westing Road.
SW0690D	Under third bridge to east, Colquitz River.
SW0690D-12	Haliburton Brook (Elk/Beaver Lake, Colquitz Watershed), east side of Beaver Lake.
SW0690D-12A	Haliburton Brook (Elk/Beaver Lake, Colquitz Watershed), downstream of the Patricia Bay Highway.
SW0690D-12B	Haliburton Brook (Elk/Beaver Lake, Colquitz Watershed), upstream of the Patricia Bay Highway.
SW0690D-15	Hamsterly Creek/Whiskey Creek (Elk/Beaver Lake, Colquitz Watershed), east side of Hamsterly Beach.
SW0690D-17	O'Donnell Creek (Elk/Beaver Lake, Colquitz Watershed), from north boat launch, sample at bridge.
SW0690D-17B	O'Donnell Creek (Elk/Beaver Lake, Colquitz Watershed), downstream of Walton Place/Oldfield Road intersection.
SW0690D-17C	O'Donnell Creek (Elk/Beaver Lake, Colquitz Watershed), downstream of Brookhaven Road.
SW0690D-2	Colquitz River, behind Tillicum Mall at fish ladder.
SW0690D-3	Colquitz River, Swan Lake Creek just before Colquitz confluence.
SW0690D-4	Colquitz River, 75 m upstream of Marigold Road.
SW0690D-5A	Colquitz River, Blenkinsop Creek, Park at 3958 Quadra Street, follow Galloping Goose west; 50 m downstream of daylighting.
SW0690D-8	Colquitz River, Downstream of Beaver Lake, ~120 m downstream of path.
SW0690D-8A	Normandy Creek (Colquitz Watershed) upstream of 4625 West Saanich Road driveway.
SW0690D-9	Colquitz River, Via park access adjacent to 4470 Wilkinson Road; mainstem of Colquitz at the footbridge.
SW0691A	Wilkinson Road right-of-way, 1173A & B Portage Road.
SW0694	Old trans-Canada rest stop between Portage and Giles, below MH in walkway.
SW0697	Beside 152 Street Giles St, Hospital Creek.
SW0703	Tidewater Road easement at southeast corner of Helmcken Park.
SW0705	Foot of Thomas Park Road.
SW0709B	Craigflower Creek B, under Helmcken Road Bridge.
SW0710	15 m south of Helmcken Road Bridge.
SW0712	Immediately west of 712A to east of E&N railway and north of Old Island Hwy.

Table 2, Continued

Discharge	Discharge Description
SW0722	Directly under center of Craigflower Bridge, aqua PVC pipe in cement wall (metal grate).
SW0722AA	Southwest corner of Craigflower Bridge from rip rap of rain garden.
SW0726	Near center of Pallard Cove - 5601 Lupin Road, ~20 m west of SW7027.
SW0727	2 m to west of path at foot of Aral Road.
SW0730	East side of 905 Aral Road.
SW0736	Below 934 Mesher Place.
SW0736A	#14-915 Glenvale, man-made stream.
SW0737	Foot of Garthland Road.
SW0741	447 Foreshaw Road.
SW0742	Foot of Sioux Place, upstream edge of pool dam.
SW0742B	Southwest of parking area @ Kinsmen Gorge Park.
SW0743	Gorge-Esquimalt Park, south bank of creek on bench.
SW0743A	Gorge-Esquimalt Park, north of Esquimalt Parks Department nursery, south bank.
SW0744	Gorge-Esquimalt Park, Creek main flow - dual pipes under Craigflower Road.
SW0744A	Gorge-Esquimalt Park, E of Esquimalt Parks Department nursery, across from upper settling pond.
SW0744B	Gorge-Esquimalt Park, across from 1034 Gosper Crescent.
SW0749	South side of 306 Uganda.
SW0749A	Access via 936 Selkirk Avenue., on property line with 930 Selkirk Avenue, old wooden spillway.
SW0750	Behind 930 Selkirk Avenue, under wood wharf.
SW0751	Pipe and square concrete spill pad behind 928 Selkirk.
SW0755	1.5 m east of last lamp post, west of foot of Arm Street.
SW0756	Between upper and lower viewing platforms at foot of Arm Street.
SW0758A	Below play area in Banfield Park.
SW0759	West of Trestle Bridge at foot of Currie Lane.
SW0768	Below parking area east of 65 Songhees Road.
SW0769	Foot of Cooperidge Place.
SW0775	Foot of Robert Street.
SW0777A	Extends from curve in rock wall at foot of Barnard Avenue.
SW0779	West side of 531 West Bay Terrace, under boardwalk, West Bay.
SW0780	Under boardwalk sitting area, below 537 Head St, West Bay.

Table 2, Continued

Discharge	Discharge Description
SW0781	Below and south of heritage building at 503 Head St, West Bay.
SW0782	Below 543 Head St (West Bay Marina), north of wharf walkway.
SW0805	8 m west of beach access at foot of Kinver Street.
SW0806	10 m west of beach access at foot of Kinver Street.
SW0810	South side of 440 Constance Avenue.
SW0811	Foot of Nelson, crack in rocks just west of wooden viewing platform.
SW0812	Foot of Sturdee, 7 m east of beach access stairs.
SW0814	Crack in rocks at foot of Grafton Street.
SW0854	Foot of Gate Road off Admirals Road.
SW0865AB	North of 200 Maplebank Road.
SW0865ABM	Marine station of 865AB, north of 200 Maplebank Road.
SW0865B	Below baseball field and small wood sided house.
SW0865C	North of dead Gary Oak at south end of Plumper Bay.
SW0865D	South side of house with red tiled roof on south side of Plumper Bay.
SW0865DA	Southeast section of Plumper Bay, middle of lot 24 Kosapsum Crescent (at fence line), Esquimalt First Nations.
SW0865E	Middle of Plumper Bay, south side of playground.
SW0865F	North side of BC Aboriginal Disability Society building on north side of Plumper Bay.
SW0865G	Thetis Cove, end of Hallowell Road (access trail), in rip rap visible in mud flats.
SW0867	Between 95 and 101 View Royal Avenue.
SW0872	Below PS at foot of Stewart, 3 m west of walkway.
SW0874	Foot of Heddle Avenue, 4 m below park bench, Tovey Bay.
SW0879	Creek on west side of Price Road.
SW0881	Foot of Dukrill, northeast of beach access stairs.
SW0886	Mill Stream below 1700 Wilfert Road, rapids, west side of property.
SW0886-3	Mill Stream, near Langford/Colwood border, 381 Atkins Road.
SW0886-6	Mill Stream, under bridge at Treanor Avenue.
SW0886-9	Mill Stream at Millstream Lake Road and Munn Road.
SW0913	Northern shore, 120 m west of bridge at east end of Esquimalt Lagoon.
SW0914	Below curve in Ocean Blvd, 25 m west of 913.
SW0915	20 m west of Belmont Park septic tanks.

Table 2, Continued

Discharge	Discharge Description
SW0916	20 m east of Royal Roads boathouse, Colwood Creek.
SW0916-1A	Colwood Creek immediately downstream of Sooke Road.
SW0916-1B	Colwood Creek immediately upstream from Royal Colwood Golf Club at Hagel Road.
SW0916-2	Near Langford/Colwood border, downstream of Glen Lake.
SW0917	Below yellow-black guard fence to west of Royal Roads boat house.
SW0918	40 m west of 917, below Royal Roads playing fields.
SW0920	Creek on west side of playing fields.
SW0926	10 m south of chain link fence on north side of Ocean Grove.
SW0927	North side of Matilda Drive beach access, Miller Brook.
SW0928	Foot of Portsmouth Drive, Selleck Creek.
SW0929	Below foot of Anchorage Avenue.
SW0930	Below 3279 Anchorage Drive, 4 m north of concrete stairs.
SW0931	South-west side of 3279 Anchorage Avenue, Lagoona Brook.
SW0932	Ditch discharging into south end of Esquimalt Lagoon.
SW0933	Pipe at south end of Esquimalt Lagoon.
SW0934	Across the street from 3330 Ocean Blvd.
SW0935	Top of bank on Ocean Blvd. east side of Milburn Drive.
SW0935A	Foot of Milburn below discharge 936.
SW0936	West side of road at foot of Milburn Drive.
SW0940	35 m north of 3384B Ocean Blvd.
SW0980-5	Bilston Creek (Bilston Watershed) at Winter Road.
SW0980-8	Bilston Creek (Bilston Watershed) upstream of confluence with Firehall Creek at Lippincott Road.
SW0980-9	Firehall Creek (Bilston Watershed) upstream of confluence with Bilston Creek at Luxton Road.

APPENDIX D

ESCHERICHIA COLI SAMPLING
QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM

APPENDIX D

ESCHERICHIA COLI SAMPLING
QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM FOR 2023

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APPENDIX D

ESCHERICHIA COLI SAMPLING
QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM FOR 2023

1.0 INTRODUCTION

Quality assurance and quality control (QA/QC) programs are a set of protocols adopted to ensure that the results of a study are valid, internally consistent, and comparable with similar projects. These protocols are set out in writing and based on current and relevant research. This appendix discusses:

- field sampling methods
- sample handling procedures
- analytical procedures
- field and laboratory replication (quality control)
- data assessment

The data collected for the stormwater monitoring QA/QC program are used to ensure consistency in field handling and analytical methods. If the 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 *ESCHERICHIA COLI* SAMPLING

CRD staff collected water samples in 500 mL wide-mouth sterile disposable bottles containing 1.5 mL of sodium thiosulphate (a sample preservative). Bottles were supplied by Bureau Veritas (formerly Maxxam Analytics) in Victoria, BC. Labelled samples were stored in an insulated cooler with ice packs and delivered the same day to the laboratory. Bureau Veritas analyzed samples for *Escherichia coli* (*E. Coli*) bacteria following the procedures in Standard Methods (APHA, 1998) and reported as colony forming units/100 mL (CFU/100 mL).

CRD staff collected samples for QA/QC on days that the weather was representative of the sampling season (wet or dry). Conditions such as "first flush", major storms or any other effect that might tend to prejudice the results were avoided.

2.1 Stormwater Discharge Sampling

Field samplers collected stormwater discharge samples from the point of discharge. Care was taken to avoid contamination of the sample with substances that did not originate in the stormwater (e.g., salt water, other discharges) that may confuse the results.

2.2 Quality Assurance

2.2.1 Stormwater Sample Replicates (Field Splits)

Ten percent of the samples collected were replicated and the field replicate samples identified as "field splits". CRD staff collected a single sample in a 500 mL sample bottle and inverted 30 times to ensure that the sample was well-mixed. The sample was then split evenly into two separate bottles. Staff labelled the bottles and submitted them to Bureau Veritas for analysis. These samples were submitted as blind samples (not identified as field splits).

2.2.2 Quality Control Precision Assessment

In 2023, field staff collected 18 field splits at six stormwater discharges in the core area of the CRD. Samples were analyzed for *E. Coli* levels. Field splits were used to establish the precision criterion for the CRD Core Area, District of Sooke and Southern Gulf Island Electoral Area sampling programs. The discharges were chosen based on previous high, moderate, or low levels of *E. Coli* concentrations (two discharges for each category) to represent the varying *E. Coli* counts that would be analyzed. Staff collected three individual 500 mL grab samples at each of the six stations and split each into two replicate bottles. Staff also submitted three blank samples of potable water in 500 mL sample bottles as part of the assessment. Each sample had a unique identification number and was submitted blindly to the lab (i.e., the lab had no information about the sample).

2.2.3 Calculation of Laboratory Precision

Laboratory precision for *E. Coli* analysis (e.g., a measure of consistency by the lab) is determined by analyzing 18 pairs of field samples (field splits). The following, taken from Standard Methods, 18th Edition (APHA, 1998), explains the procedure for calculating the precision criterion and determining whether the log ranges for the field splits are “acceptable” or “unacceptable”:

- The data are arranged in pairs (D_1 and D_2). The log of each field measurement is determined (L_1, L_2) and the difference (range) in the log value between each pair of field splits is calculated: $R = (L_2 - L_1)$. 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 criterion:

  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. All 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 from the QA calculation, 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 5% of the samples to be outside of the precision criterion, through randomness. Also, any *E. Coli* count under 200 FC/100 mL is considered too small an amount 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 FC/100 mL receive a low public health concern rating.

The results are rounded to one decimal place and compared to the precision criterion (e.g., 0.5). If the calculated value from the duplicate results still exceeds the criterion (e.g., 0.55 or greater), then an informal investigation of the laboratory should be initiated. If only a few duplicates are unacceptable (e.g., one out of every twenty 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. As part of the review, the following elements are considered:

- the number of pairs exceeding the criterion
- the actual *E. Coli* value of the pairs of data
- field notes on the "field split" procedure
- comments from the laboratory

3.0 RESULTS

3.1 Quality Assurance Results

Field staff collected 18 pairs of stormwater samples from six discharges having historically high, moderate or low levels of *E. Coli* bacteria. Staff blindly submitted samples to the lab for analysis of the *E. Coli* concentration and used the data to calculate the precision criterion.

3.1.1 Blanks

Field staff submitted three blank samples (CRD tap water) to the lab for analysis for *E. Coli* bacteria. Blanks were reported as having <10 CFU/100 mL. Therefore, the results meet the QA requirements.

3.1.2 Precision Criterion

Table 1 shows the lab results of the 18 pairs of samples used to determine the precision criterion for the 2023 Stormwater Monitoring Program. The calculated criterion for this laboratory, using these 18 sets of duplicates was 0.6.

3.1.3 Field Splits

Wet Weather Sampling

Table 2 presents the results for the field splits collected in the core area during the wet period of the 2023 Stormwater Sampling Program. Data were compared to the precision criterion (0.3), as described in Section 3.1.2. One of the field splits exceeded the precision criterion; however, they had counts below 200 CFU/100 mL. Counts below 200 CFU/100 mL are not expected to meet the precision criteria. Therefore, the results are acceptable.

Dry Weather Sampling

Table 3 presents the results for the field splits collected in the core area during the dry period of the 2023 Stormwater Sampling Program. Two of the field splits exceeded the precision criterion; however, one had counts below 200 CFU/100 mL. The other set of splits did not meet the criterion despite the counts being above 200 CFU/100 mL. There is an allowance for 5% of the splits to be out of range due to natural variability. In addition, the 2023 precision criterion was very small relative to other years (it was 0.6 in 2022).

4.0 CONCLUSIONS

Requirements for the Stormwater Monitoring QA/QC Program were carried out in 2023. The 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.

Drinnan, R.W. 1995. Memo to R. Miller, CRD Engineering, February 7; 4pp.

Hutcheson, D. 1995. Memo to R. Miller, CRD Engineering, February 7; 2pp.

Table 1 Laboratory Quality Assurance Exercise Results for 2023

CRD Data, Batch Samples: 18 pairs, January 2023						
Discharge No.	**Pair No.**	**1st Duplicate D1**	**2nd Duplicate D2**	**Log D1 L1**	**Log D2 L2**	**Range of Logs (Rlog) (Log L1 - Log L2)**
245	1	140	110	2.1461	2.0414	0.1047
	2	94	83	1.9731	1.9191	0.0540
	3	120	110	2.0792	2.0414	0.0378
805	1	210	260	2.3222	2.4150	0.0928
	2	240	180	2.3802	2.2553	0.1249
	3	300	300	2.4771	2.4771	0.0000
503	1	350	320	2.5441	2.5051	0.0389
	2	320	380	2.5051	2.5798	0.0746
	3	310	320	2.4914	2.5051	0.0138
216	1	4700	6300	3.6721	3.7993	0.1272
	2	5600	6200	3.7482	3.7924	0.0442
	3	5900	6800	3.7709	3.8325	0.0617
447	1	4400	4900	3.6435	3.6902	0.0467
	2	3400	5400	3.5315	3.7324	0.2009
	3	4300	5700	3.6335	3.756	0.1224
777A	1	23000	27000	4.3617	4.4314	0.0696
	2	20000	23000	4.3010	4.3617	0.0607
	3	32000	31000	4.5051	4.4914	0.0138
Mean - R_{log} (Sum R_{log}/18)						0.0867
Precision Criterion (3.27 x Mean-R_{log})						0.2834

Table 2 Laboratory Quality Assurance Results – Wet Period 2023

Date	Discharge Number	E. Coli Counts CFU/100 mL	Log	Log Range	Acceptable (A) or Unacceptable (U)
7-Feb	227	1500	3.1761	0.0300	A
		1400	3.1461		
9-Feb	322	950	2.9777	0.1648	A
		650	2.8129		
10-Feb	216	91000	4.9590	0.0000	A
		91000	4.9590		
23-Feb	310	1400	3.1461	0.1761	A
		2100	3.3222		
2-Mar	805	2000	3.3010	0.0458	A
		1800	3.2553		
10-Mar	781	1400	3.1461	0.0300	A
		1500	3.1761		
14-Mar	574	47	1.6721	0.0000	A
		47	1.6721		
22-Mar	611	3200	3.5051	0.1076	A
		4100	3.6128		
24-Mar	768	1500	3.1761	0.2730	A
		800	2.9031		
24-Mar	854	1600	3.2041	0.0000	A
		1600	3.2041		
27-Mar	650	5800	3.7634	0.0147	A
		6000	3.7782		
3-Apr	737	25	1.3979	0.0334	A
		27	1.4314		
14-Apr	6003	2	0.3010	0.3010	U*
		1	0.0000		
24-Apr	306	24	1.3802	0.0792	A
		20	1.3010		
4-May	920	6	0.7782	0.0792	A
		5	0.6990		
5-May	812	5500	3.7404	0.1383	A
		4000	3.6021		

Notes:
*Counts below 200 CFU/100 mL are not expected to meet the criterion.
5% of samples will have results outside of the precision criterion, through randomness.

Table 3 Laboratory Quality Assurance Results – Dry Period 2023

Date	Discharge Number	E. Coli Counts CFU/100 mL	Log	Log Range	Acceptable (A) or Unacceptable (U)
9-Jun	578	130	2.1139	0.0726	A
		110	2.0414		
12-Jun	559	130	2.1139	0.0348	A
		120	2.0792		
12-Jun	567	3800	3.5798	0.3123	U
		7800	3.8921		
13-Jun	736A	420	2.6232	0.0928	A
		520	2.7160		
13-Jun	744B	14000	4.1461	0.4559	U
		4900	3.6902		
14-Jun	320	27	1.4314	0.0334	A
		25	1.3979		
14-Jun	322	250	2.3979	0.0362	A
		230	2.3617		
15-Jun	212	13	1.1139	0.0726	A
		11	1.0414		
15-Jun	237	1600	3.2041	0.3274	A
		3400	3.5315		
16-Jun	768	27	1.4314	0.0164	A
		26	1.4150		
16-Jun	777A	200000	5.3010	0.0414	A
		220000	5.3424		
19-Jun	854	100000	5.0000	0.0269	A
		94000	4.9731		
20-Jun	503	16	1.2041	1.4293	U*
		430	2.6335		
4-Jul	607	3300	3.5185	0.0835	A
		4000	3.6021		
4-Jul	620	22000	4.3424	0.0555	A
		25000	4.3979		
4-Jul	627	14000	4.1461	0.0300	A
		15000	4.1761		

Notes:
*Discharges with counts below 200 CFU/100 mL are not expected to meet the criterion.
5% of samples will have results outside of the precision criterion, through randomness.

APPENDIX E

CORE AREA STORMWATER CONTAMINANT DATA

Table 1 Stormwater Sediment Contaminant Data

Station ID	Station Name	Sample Date	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Silver	Zinc	HPAH	LPAH	Sample Comments
	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	0.13	1	124	-	-	
		CCME PEL	42	4.2	160	108	112	0.7	2.2	271	-	-	
	Vancouver Island Background		4	0.95	65	100	40	0.15	1	150	-	-	
SW0244	Across from 242 Beach Drive, McNeill Bay	2023-04-19	2.76	0.113	28.8	*35.4*	20.9	<0.05	<0.05	90.9	1.1	0.16	sand and dark fines
SW0309	Upper pipe at the end of Windsor Road	2023-08-11	5.02	0.1	30.9	131	80	<0.05	0.12	115	0.91	0.14	
SW0324	Cattle Point	2022-04-29	3.39	0.139	29.4	*45*	190	<0.05	0.06	103	0.14	0.079	dark fines and sand; oil sheen
SW0407	SA-SU Rd. east corner of Saanichton Bay	2022-12-12	4.05	0.104	26.9	*27.3*	5.99	<0.05	<0.05	43.7	0.03	0.012	medium brown fines, marine influence
SW0467	Beach access at foot of Shoreacres Rd. and Memory	2022-12-12	3.83	0.093	26.2	*29.5*	8.36	<0.05	<0.05	44.8	0.04	0.009	dark brown fines; organic debris
SW0558	180 m east of Mt Douglas beach access stairs	2023-04-19	2.58	0.117	21.4	*51.4*	8.57	<0.05	0.074	*124*	0.32	0.033	sand
SW0558	180 m east of Mt Douglas beach access stairs	2023-06-12	4.74	0.435	34.9	131	19.9	0.118	0.206	*262*	0.42	0.065	medium brown fines and organics
SW0559	Mt. Doug Creek, Cordova Bay	2023-04-19	3.25	0.085	20	*21.3*	7.05	<0.05	<0.05	91.3	0.37	0.053	sand and fine mud
SW0559	Mt. Doug Creek, Cordova Bay	2023-06-12	3.36	0.075	20.4	*24.1*	6.69	<0.05	<0.05	87.9	0.11	0.032	medium grey sand and fines
SW0592	Noble Creek (Noble Watershed), north side of 5575 Parker Rd. (EMS#: E310111)	2023-06-12	4.65	0.371	36.2	*46.6*	10.6	0.073	0.143	120	0.1	0.017	medium brown fines and mud
SW0633	Under south side of Bay St. bridge	2022-03-24	2.3	0.156	44.5	*50.2*	15.8	<0.05	0.053	*134*	0.47	0.14	thick sand and black mud
SW0641	Mouth of Cecelia Creek	2023-09-14	3.6	0.13	29.5	*48.9*	27.4	0.066	<0.05	*129*	0.29	0.037	medium grey coarse sand and fines
SW0645	Carrol St. easement	2023-04-21	4.68	0.225	37	*56.6*	60.6	<0.05	<0.05	*142*	1	0.12	small gravels, sand and fines
SW0655	In small cove in Gorge Park, east of Gorge bridge	2022-04-12	2.08	0.09	45.8	*43.9*	415	<0.05	<0.05	80.7	0.12	0.0099	sand
SW0655	In small cove in Gorge Park, east of Gorge bridge	2023-04-27	3.85	0.139	29.7	*52.3*	87.3	0.055	<0.05	103	0.078	0.0041	dark grey gravel and fines
SW0687	Under walkway bridge at 2892 Westing Rd	2022-04-12	4.2	0.156	28.2	*42.3*	24.1	0.423	0.073	155	3.1	0.92	sand with mud and silt
SW0687	Under walkway bridge at 2892 Westing Rd	2023-04-24	5.41	0.26	28.3	*57.5*	*33.9*	0.122	0.312	*225*	2	0.31	no odour, clear
SW0712	Immediately west of 712A to east of E&N railway and north of Old Island Hwy.	2022-02-15	3.7	0.166	*55.4*	*54.1*	20.8	<0.05	<0.05	153	1.6	0.28	dark grey sand with paint flecks
SW0722	Directly under center of Craigflower Bridge, aqua PVC pipe in cement wall (metal grate)	2023-04-03	2.54	0.142	36.4	*61.6*	9.88	0.095	0.053	*138*	0.093	0.027	sand and dark fines
SW0737	Foot of Garthland Rd.	2022-07-20	5.71	0.103	23.3	*50.8*	10.6	<0.05	<0.05	98.7	0.21	0.031	black sand, gravel with asphalt
SW0737	Foot of Garthland Rd.	2023-04-03	3.7	0.122	27.8	*47.6*	11.3	0.082	0.055	*126*	3.8	0.79	clay, sand light coloured
SW0737	Foot of Garthland Rd.	2023-06-13	3.18	0.1	26.4	*42.4*	16.8	<0.05	0.07	92	6.7	1.8	dark grey sand and fines
SW0873	Larger of 2 pipes on east side of ravine at foot of Helmcken Rd.	2022-04-12	2.06	0.079	41.3	*49.2*	13.3	<0.05	<0.05	99.2	3.8	0.84	sand and fine silt
SW0874	Foot of Heddle Ave., 4 m below park bench, Tovey Bay	2022-04-12	5.29	0.276	33.6	*46.2*	28	0.057	0.486	214	0.48	0.061	dark fine mud and silt
SW0874	Foot of Heddle Ave., 4 m below park bench, Tovey Bay	2023-05-04	5.12	0.379	28.5	*56.9*	29.6	0.123	1.38	290	0.2	0.034	soil, no flow
SW0875	Between 547 and 549 View Royal Ave.	2022-05-11	3.19	0.285	23.5	*36.9*	10.7	<0.05	<0.05	105	2.3	0.26	
SW0879	Creek on west side of Price Rd.	2022-04-11	7.93	0.381	36.2	*97.9*	19	0.052	0.078	*131*	0.085	0.014	fines and sand
SW0886-2	Millstream, near southwestern corner of 1730 Island Highway. Access through access road at the end of Wilfert Rd.	2023-09-14	1.46	0.05	21.4	*20.3*	4.7	<0.05	<0.05	60.9	0.17	0.069	medium grey sand and fines
SW0886-6	Mill Stream, under bridge at Treanor Ave.	2023-09-14	2.43	0.094	28.1	*36*	5.14	0.061	<0.05	89.2	0.023	0.0098	darker grey sand and fines
SW0916	20 m east of Royal Roads boathouse, Colwood Creek	2022-04-13	1.45	0.064	18.9	*22.1*	5.15	<0.05	<0.05	70.1	0.024	0.0017	fine sand and cobble
SW0927	North side of Matilda Dr. beach access, Miller Brook	2023-04-14	15.3	0.313	17.1	*44.4*	29.5	0.138	0.083	119	0.5	0.11	dark fines and organic matter
SW0933	Pipe at south end of Esquimalt Lagoon	2022-04-13	2.96	0.088	27.4	*42.9*	8.13	<0.05	<0.05	83.1	0.19	0.026	sand
SW0934	Across the street from 3330 Ocean Blvd.	2023-03-28	2.32	0.106	28.2	*42.3*	11.9	<0.05	0.062	77.2	0.2	0.037	fine dark organics
SW0980-5	Bilston Creek (Bilston Watershed) at Winter Road	2023-10-04	3.22	0.062	19.9	*19*	3.79	<0.05	<0.05	55	0.062	0.018	no odour, clear
SW6006	West side of Saanich Inlet, north side of Hall's Boat House driveway	2022-04-29	5.58	0.336	46.4	106	84.2	0.08	0.131	199	6.7	1.5	fine sediment
SW6008	North side of barn style building at 3680 Trans Canada Hwy.	2023-04-14	4.4	0.258	38.2	*48.8*	9.32	<0.05	0.068	245	0.23	0.048	light coloured fines

Table notes on next page.

Table 1, Continued

Notes

Concentrations are in mg/kg dry weight
CRD MSQG =Marine sediment quality guidelines adopted from Washington State's Department of Ecology for protection of marine 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 (95th percentiles) from BC MOE; https://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/protocols/protocol_4.pdf

XX	italicized values are those that exceed a guideline but are below the Vancouver Island background concentration
XX	Value is greater than or equal to the CCME ISQG
XX	Value is greater than or equal to the CCME PEL
XX	Value is 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 discharge to marine, therefore marine guidelines are not applicable but used for screening purposes, see Table 4 for freshwater comparisons
No sediment available in discharge SW0450

Table 2 Calculation of Sediment Contaminant Ratings

Station ID	Sample Date	Ratios of Contaminant Concentration to CRD Marine Sediment Quality Guideline*										TEQ	Rating
		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Silver	Zinc	HPAH	LPAH		
SW0244	2023-04-19	0.05	0.02	0.11	0.09	0.05	0.12	0.01	0.22	0.09	0.03	0.79	Low
SW0309	2023-08-11	0.09	0.02	0.12	0.34	0.18	0.12	0.02	0.28	0.08	0.03	1.27	Moderate
SW0324	2022-04-29	0.06	0.03	0.11	0.12	0.42	0.12	0.01	0.25	0.01	0.02	1.15	Moderate
SW0407	2022-12-12	0.07	0.02	0.10	0.07	0.01	0.12	0.01	0.11	0.00	0.00	0.52	Low
SW0467	2022-12-12	0.07	0.02	0.10	0.08	0.02	0.12	0.01	0.11	0.00	0.00	0.52	Low
SW0558	2023-04-19	0.05	0.02	0.08	0.13	0.02	0.12	0.01	0.30	0.03	0.01	0.77	Low
SW0558	2023-06-12	0.08	0.09	0.13	0.34	0.04	0.29	0.03	0.64	0.04	0.01	1.69	Moderate
SW0559	2023-04-19	0.06	0.02	0.08	0.05	0.02	0.12	0.01	0.22	0.03	0.01	0.61	Low
SW0559	2023-06-12	0.06	0.01	0.08	0.06	0.01	0.12	0.01	0.21	0.01	0.01	0.59	Low
SW0592	2023-06-12	0.08	0.07	0.14	0.12	0.02	0.18	0.02	0.29	0.01	0.00	0.94	Low
SW0633	2022-03-24	0.04	0.03	0.17	0.13	0.04	0.12	0.01	0.33	0.04	0.03	0.93	Low
SW0641	2023-09-14	0.06	0.03	0.11	0.13	0.06	0.16	0.01	0.31	0.02	0.01	0.90	Low
SW0645	2023-04-21	0.08	0.04	0.14	0.15	0.13	0.12	0.01	0.35	0.08	0.02	1.13	Low
SW0655	2022-04-12	0.04	0.02	0.18	0.11	0.92	0.12	0.01	0.20	0.01	0.00	1.60	**High**
SW0655	2023-04-27	0.07	0.03	0.11	0.13	0.19	0.13	0.01	0.25	0.01	0.00	0.94	Low
SW0687	2022-04-12	0.07	0.03	0.11	0.11	0.05	1.03	0.01	0.38	0.26	0.18	2.23	**High**
SW0687	2023-04-24	0.09	0.05	0.11	0.15	0.08	0.30	0.05	0.55	0.17	0.06	1.60	Moderate
SW0712	2022-02-15	0.06	0.03	0.21	0.14	0.05	0.12	0.01	0.37	0.13	0.05	1.19	Moderate
SW0722	2023-04-03	0.04	0.03	0.14	0.16	0.02	0.23	0.01	0.34	0.01	0.01	0.98	Low
SW0737	2022-07-20	0.10	0.02	0.09	0.13	0.02	0.12	0.01	0.24	0.02	0.01	0.76	Low
SW0737	2023-04-03	0.06	0.02	0.11	0.12	0.03	0.20	0.01	0.31	0.32	0.15	1.33	Moderate
SW0737	2023-06-13	0.06	0.02	0.10	0.11	0.04	0.12	0.01	0.22	0.56	0.35	1.59	Moderate
SW0873	2022-04-12	0.04	0.02	0.16	0.13	0.03	0.12	0.01	0.24	0.32	0.16	1.22	Moderate
SW0874	2022-04-12	0.09	0.05	0.13	0.12	0.06	0.14	0.08	0.52	0.04	0.01	1.25	Moderate
SW0874	2023-05-04	0.09	0.07	0.11	0.15	0.07	0.30	0.23	0.71	0.02	0.01	1.74	Moderate
SW0875	2022-05-11	0.06	0.06	0.09	0.09	0.02	0.12	0.01	0.26	0.19	0.05	0.95	Low
SW0879	2022-04-11	0.14	0.07	0.14	0.25	0.04	0.13	0.01	0.32	0.01	0.00	1.12	Moderate
SW0886-2	2023-09-14	0.03	0.01	0.08	0.05	0.01	0.12	0.01	0.15	0.01	0.01	0.49	Low
SW0886-6	2023-09-14	0.04	0.02	0.11	0.09	0.01	0.15	0.01	0.22	0.00	0.00	0.65	Low
SW0916	2022-04-13	0.03	0.01	0.07	0.06	0.01	0.12	0.01	0.17	0.00	0.00	0.48	Low
SW0927	2023-04-14	0.27	0.06	0.07	0.11	0.07	0.34	0.01	0.29	0.04	0.02	1.28	Moderate
SW0933	2022-04-13	0.05	0.02	0.11	0.11	0.02	0.12	0.01	0.20	0.02	0.01	0.66	Low
SW0934	2023-03-28	0.04	0.02	0.11	0.11	0.03	0.12	0.01	0.19	0.02	0.01	0.65	Low
SW0980-5	2023-10-04	0.06	0.01	0.08	0.05	0.01	0.12	0.01	0.13	0.01	0.00	0.48	Low
SW6006	2022-04-29	0.10	0.07	0.18	0.27	0.19	0.20	0.02	0.49	0.56	0.29	2.35	Moderate
SW6008	2023-04-14	0.08	0.05	0.15	0.13	0.02	0.12	0.01	0.60	0.02	0.01	1.18	Moderate

Notes

This table shows the ratio of contaminant concentration to CRD Marine Sediment Quality Guideline.

*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.

XX Value is approaching (ratio >0.75) or greater than (ratio is >1) the CRD MSQG and adverse effects to aquatic life probable.

TEQ is toxicity equivalency quotient which is a sum of all the ratios as an indicator of overall probable adverse effect from all contaminants.

Ratings are calculated as follows: low if the ratio sum (TEQ) is < 1; moderate if it is > 1 with no individual ratios greater than 0.75 and high if an individual ratio is > 0.75.

Some samples are not collected at discharge to marine, therefore marine guidelines are not applicable but used for screening purposes, see Table 4 for freshwater comparisons.

Table 3 Summary of Recent Chemical Contaminant Ratings and Recommendations

Discharge[1]	Figure	Jurisdiction	Contaminant Ratings Over Time							Notes & Recommendations
			2017	2018	2019	2020	2021	2022	2023	
210 West of Holland Pt	37	Victoria	–	–	–	Low	–	–	–	Small residential catchment, historically low. Copper may be elevated in water.
212 East of Finlayson Pt	39	Victoria	–	Moderate	Low	Low	Low	–	–	Elevated lead in 2018. Resample in 2026. Metals elevated in water in fall 2020; in subsequent samples copper elevated only.
216 Ross Bay	40	Victoria	–	no sediment	Low	–	–	–	Moderate based on water	Elevated mercury u/s in seds & discharge; 216 is tidal, sampled at 216-3A. Narrowed down a source of Hg. Hg detected after relining done. Metals intermittently elevated in water. Sewage present. Resample in 2024.
218 Ross Bay	40	Victoria	–	–	–	NR	Low	–	–	No sediment in 2019 or 2020. Summer water sample clean. Elevated metals in water including Pb and Ag in 2022; lower in 2023.
229 Gonzales Bay	41	Victoria	–	–	–	–	-	–	–	Small residential catchment; tidal; no sediment available; contaminants low in water.
244 McNeill Bay	43	Oak Bay	Moderate	–	–	–	–	–	Low	Lead slightly elevated in 2012, low in 2017. Confirm rating.
245 McNeill Bay	43	Oak Bay	–	–	–	–	–	–	Moderate based on water	Low in 2001, 2004, 2013. No sediment in 2018. Water has elevated Cu and Zn and soap suds.
250 McNeill Bay	43	Oak Bay	High / Moderate	–	–	–	–	–	–	250-2A is POD but doesn't drain whole catchment. PAHs elevated in sediment but not detected in water; elevated metals in water. **Action Required.** 250-1A is high & 250-2A is moderate. Continue to delineate contamination. Confirm contaminants in water.
306 Orchard & Newport Ave	45	Oak Bay	High	High	High u/s	High u/s	–	–	–	Elevated HPAH and lead. **Action required**. No sediment at 306-1 and 306-2 in 2019; elevated HPAH and lead in sediment at 306-2a (Newport Ave & Currie Rd), low PAH and lead in summer water sample. Sample in 2023.
307 Oak Bay Marina	45	Oak Bay	–	High	High	-	Moderate at 307-2A	–	–	Sampled at 307 and 307-2. Elevated PAH, mercury, lead and zinc. **Action Required**: Oak Bay cleaned out manholes at Currie & Newport in 2021. Narrowed down to intersection of Newport and Currie. Confirm rating at 307-2.
310 Windsor Rd	45	Oak Bay	High upstream	–	High u/s	-	–	–	Moderate	Copper, lead, zinc & PAH elevated (310-1). Other contaminants upstream. Low at 310-5 in 2016 elevated PAH in 2019. Upstream contamination at Windsor & Monterey. **Action Required**: Oak Bay cleaned out manholes in 2021. Confirm rating.
311 1420 Beach Dr	45	Oak Bay	–	–	–	–	–	–	–	Short line, packed with beach sand in 2017. Intertidal. Cease sampling.

Table 3, Continued

Discharge[1]	Figure	Jurisdiction	Contaminant Ratings Over Time							Notes & Recommendations
			2017	2018	2019	2020	2021	2022	2023	
316 Bowker Creek	46	Oak Bay	–	–	Low	–	–	–	–	Discharge rated low. Upstream, 316-5D rated high due to copper & zinc. Sample in 2024.
320 Dalhousie St	46	Oak Bay	–	Low	–	–	–	–	–	Resample in 2024.
323 North Esplanade	46	Oak Bay	–	–	–	–	–	Low in water	Low in water	Resample in 2025.
324 Cattle Point	46	Oak Bay	–	–	High	–	Low	Moderate	–	Sampled for first time in 2019; Elevated lead but doesn't drain into ocean. Cease sampling.
325 Rutland Rd	48	Oak Bay	–	–	–	–	–	–	–	Sample discharge in 2024.
327 Cadboro Bay	49	Oak Bay	–	Low	–	–	–	–	–	Resample in 2024.
503 Cadboro Bay	50	Saanich	Low	Moderate	–	–	–	–	–	Elevated PAHs in 2016. Resample in 2024.
505 Cadboro Bay	50	Saanich	High	High	High	High	Moderate u/s	–	Low in water	Overflow for CRD's Penrhyn Station. Elevated Pb, Hg and PAH in 505-3. Sample 505-1 or -3 to avoid tidal influence. **Action Required.** Saanich cleaned line out 2019. Sediment elevated in Hg upstream to Cadboro Bay Road. Continue source investigations upstream of 505-6.
558 Mt. Douglas Beach	59	Saanich	Low	–	–	–	–	–	Moderate	Confirm rating in 2024.
559 Douglas Creek	60	Saanich	Low	–	–	–	Low	–	Low	Sample above weir (559-2) after spill June 17 had elevated zinc & PAHs. Resample in 2026.
574 Cordova Bay Rd	63	Saanich	–	–	–	–	Low	–	–	Resample 2026.
578 Cordova Bay Rd	63	Saanich	–	–	–	–	Low	–	–	Resample 2026.
586 Parker Ave	64	Saanich	–	Low	–	–	–	–	–	Sample in 2025.
589 Burnham Brook	65	Saanich	–	–	–	–	Low	–	–	Drains golf course. Sample in 2026.
592 Noble Creek	65	Saanich	Low	–	–	–	–	–	Low	Sample in 2025 (Noble Creek).
603 James Bay Anglers	36	Victoria	Moderate	NA	–	–	–	–	–	Elevated zinc & PAH in 2017; no sediment in 2018 or 2020. Contaminants in water low in summer. **Action Required.** Sediment not available. Confirm lower rating.
613 Government St & Belleville	35	Victoria	–	–	–	–	–	–	–	Moderate (2014). Sampled at 613-2 (MH D2719). Water samples have elevated copper and zinc in summer. Sample sediment in 2024.
613A Government St & Belleville	35	Victoria	–	–	–	–	–	–	–	Rated high in 2014 due to mercury & zinc behind Crystal Gardens. Cease sampling, line is intertidal.

Table 3, Continued

Discharge[1]	Figure	Jurisdiction	Contaminant Ratings Over Time							Notes & Recommendations
			2017	2018	2019	2020	2021	2022	2023	
614 Wharf & Government St	35	Victoria	High u/s	Moderate	–	–	–	–	Contaminants in water	Elevated lead, mercury & zinc. Tidal. 614-1a is a short tributary, from a shallow line that drops into the discharge, confirmed by dye. Samples trapped at 614-2 in 2009 & 2014. Sampled 614-1A in 2017. **Action Required.** CRD narrowed down a source. COV pumped out manhole at tourist sign and catchbasin in front of Empress Hotel.
620 North of Johnson St Bridge	34	Victoria	–	–	–	–	–	–	Contaminants in water	**Action Required.** Consistently rated high for zinc but copper & lead elevated in past. Couldn't access site in 2018. Fire upstream in 2019, elevated metals in water. Resample.
627 Rock Bay	34	Victoria	–	–	–	–	–	–	–	Tidally influenced at discharge (627) & 627-3 **Action Required.** Access difficult.
629 Rock Bay	26	Victoria	–	–	–	–	–	–	–	Water samples show elevated arsenic, cadmium, chromium, iron, lead, zinc and aqueous PAHs. **Action Required.** Access difficult.
630 Rock Bay	26	Victoria	–	–	–	–	–	–	Contaminants in water	Access difficult. Sample in 2024.
633 Bay St. Bridge	26	Victoria	Moderate	–	–	–	–	**Low in sed / high in water**	–	Difficult access. Low in sediment but elevated zinc and other metals in past at 633-2. Confirm rating. **Action Required.** Elevated cadmium, chromium, copper, iron, lead, zinc and pyrene in water.
634 David St	26	Victoria	–	–	–	–	–	–	–	**Action Required.** Rated high for zinc in 2009. Water samples show elevated iron, cadmium, chromium, copper, iron, lead and zinc.
635 Ralmax	26	Victoria	–	–	–	–	–	–	–	This discharge is tidal and can't be sampled upstream; sampling ceased.
636 S. of Victoria Works Yard	26	Victoria	–	Metals elevated in water	–	–	–	–	–	Elevated zinc and other metals in sediment. **Action Required.** Elevated cadmium, chromium, copper, iron, lead and zinc in water.
641 Cecelia Creek	26	Victoria	–	Moderate	–	–	–	–	Low	Zinc and PAH above freshwater sediment guidelines. Resample in 2029.
645 Carrol St	27	Victoria	–	Moderate	–	–	–	–	Low	Confirm Rating.
649 Gorge Rd Hospital	27	Victoria private	–	–	–	–	–	–	–	Copper, mercury & zinc elevated in sediment. Copper elevated and mercury detected in water, sewage present. **Action Required**. Hospital investigating sources.
653 Cedar Shore Appts	27	Saanich	–	–	–	–	–	Low in water	–	Sample in 2024.

Table 3, Continued

Discharge[1]	Figure	Jurisdiction	Contaminant Ratings Over Time							Notes & Recommendations
			2017	2018	2019	2020	2021	2022	2023	
654 Cedar Shore Appts	27	Saanich private	–	–	–	–	–	–	–	Rated high in past, but potential tidal influence. No seds in 2016 or 2018. Attempt resample in 2024.
655 E. of Gorge Bridge	28	Saanich	Low	–	–	–	–	**High**	Low	Lead elevated above PEL. Confirm rating.
657 W. of Gorge Bridge	28	Saanich	–	–	–	–	–	–	–	Tidal, sample at 657-1. Small catchment, need traffic control, low in past, cease sampling.
669 Dysart Rd	29	Saanich	Moderate	–	–	–	–	–	–	Report of oil coming out of pipe in June 2018; no PAHs detected in water in 2020. No sediment in pipe in 2018 or 2019; Could not access in 2020. Confirm rating.
672 Adelaide Ave	29	Saanich	–	–	Moderate	Low	–	–	–	Resample in 2025.
679 Gorge & Admirals	29	Saanich	–	Low	–	–	–	–	–	Resample in 2024.
687 Westing Rd	30	Saanich	–	–	–	–	–	**High**	Moderate	Stream. Elevated mercury. Confirm rating.
689 Below Admirals Rd	33	Saanich	–	–	Low	Low	–	–	–	Resample in 2025.
690BB Foot of Dysart	33	Saanich	–	–	–	–	–	–	–	Tidal at discharge & no upstream sampling location.
690D Colquitz River	33	Saanich	Low	–	–	–	–	–	–	No elevated metals in water in 2023.
690E Colquitz River	33	Saanich	–	–	Low	Low	–	–	–	Resample in 2025.
692 Portage Rd	32	Saanich	–	–	Moderate	**High**	Moderate	–	–	Zinc elevated in sediment but low in water. Deteriorating pipe.
695 Camden Ave	32	View Royal	Moderate	–	Moderate	Low	–	–	–	Sampled at 695-1A; Resample in 2025.
697 Hospital Creek	31	View Royal	–	–	–	–	–	–	–	Zinc in ditch near hospital parking lot. Source narrowed down. Can't be sampled at discharge (sampling ceased).
698 Stillwater Rd	31	View Royal	–	–	Moderate	–	–	–	–	Resample in 2025.
709B Craigflower Creek	31	View Royal	–	–	–	Low	–	–	–	Continue monitoring.
710 Helmcken Rd Bridge	31	View Royal	–	Moderate	Moderate	–	–	–	–	Resample in 2024
712 Old Island Hwy	30	View Royal	Moderate	Low	High	Moderate	Moderate	Moderate	–	Low contaminants in water. Resample in 2027.
722 Craigflower Bridge	30	View Royal	–	–	–	–	Moderate based on water	Low based on water	Low	No seds in 2016, 2019 or 2020. Elevated copper in water in 2021, lower upon resampling.
726 Craigflower & Admirals	29	Esquimalt	Low	Low	–	–	–	–	–	Low rating confirmed. Resample in 2024.

Table 3, Continued

Discharge[1]	Figure	Jurisdiction	Contaminant Ratings Over Time							Notes & Recommendations
			2017	2018	2019	2020	2021	2022	2023	
737 Garthland Rd	29	Esquimalt	Low but High upstream	–	–	–	**High**	Low	Moderate	PAHs elevated in 2021; low in 2022 but hydrocarbons still elevated in water samples. **Action Required**. Source appears to be catchbasin at Garthland Pl (737-1). Asked Esquimalt to clean out manhole. Confirm rating.
742 Sioux Pl	28	Esquimalt	High	–	Low u/s	High u/s	High u/s	High u/s	-	Sampled at 742-2 as 742 is tidal. Source narrowed. **Mercury 5X > guideline. Action Required.** Esquimalt has been notified. Low mercury on the golf course.
744 Gorge-Esquimalt Pk	28	Esquimalt	–	–	–	Moderate	Moderate	–	–	Elevated zinc in sediment and slightly elevated in water. Resample in 2024.
749 Uganda St	28	Esquimalt	High	–	–	–	–	–	–	Samples marine-influenced before 2008. Zinc and mercury elevated in 2017. Appears to be food waste present upstream. Oil spill in past. Copper elevated in water. **Action Required.** Source narrowed down. Esquimalt contacted. Resample after action taken.
758A Bamfield Park	27	Victoria	–	–	–	–	–	–	–	Discharge is intertidal. Rating based on 758A-1. No sediment in 2020. Manhole not accessible.
767 Ocean Pt Resort	25	Victoria	–	–	–	–	–	–	–	Short line, intertidal. Discharge not accessible. Zinc elevated in past. Removed from action list. Cease sampling.
780 Head St	24	Esquimalt	–	–	–	–	–	–	–	No sediment available in 2020. Resample in 2024.
781 Head St	23	Esquimalt	–	–	–	–	–	–	–	Elevated lead in 2015. Not enough sediment in 2016. No seds in 2017 or 2018.
806 Kinver St	22	Esquimalt	–	–	–	–	–	–	–	Copper & zinc in discharge; zinc & PAH u/s of Hatfield & Kinver but not farther u/s. **Action Required;** CRD narrowed down to within two blocks. Resample discharge.
847 Concrete building	19	DND	–	–	–	–	–	–	–	Rating confirmed. Cannot access site. DND doing own monitoring. Cease sampling.
849 Fleet building	19	DND	–	–	–	–	–	–	–	Findings shared with DND.
866 Portage Pk	16	View Royal	–	High u/s	–	Low	Moderate	–	–	Removed from action list. Previously rated high for zinc. Narrowed down; potentially historic source. Elevated copper and zinc in stream. VR cleaned out manhole and catchbasins upstream.
873 Helmcken Rd	16	View Royal	–	–	–	–	–	Moderate	–	Resample in 2027.
873A Helmcken Rd	16	View Royal	–	–	–	–	–	–	–	Sampled at 873 to represent discharge of 873, 873A and 873C. Zinc elevated in ditch upstream likely due to corroded pipe. Zinc low at discharge.
873C Helmcken Rd	16	View Royal	–	–	–	–	–	–	–	Sampled at 873 to represent discharge of 873, 873A and 873C. Corroded pipe u/s but zinc low at discharge.

Table 3, Continued

Discharge[1]	Figure	Jurisdiction	Contaminant Ratings Over Time							Notes & Recommendations
			2017	2018	2019	2020	2021	2022	2023	
874 Tovey Bay	15	View Royal	_	_	_	_	Moderate	Moderate	Moderate	Zinc above PEL in sediment. Source may be corroded pipe. Copper elevated in water. Action removed. Resample in 2024.
875 View Royal Ave	15	View Royal	_	_	_	_	_	Low	_	Resample in 2027.
879 Price Rd	15	View Royal	_	_	_	_	_	Moderate	_	Resample in 2027.
882 Parsons Bridge	13	View Royal	Moderate	_	_	_	Moderate	_	_	No exceedances in water sample.
886 Millstream Creek	14	View Royal	_	Low	_	_	_	_	Low	Resample in 2026 (Mill Stream Creek).
887 Wilfert Rd	14	View Royal	_	_	_	_	Low	_	_	Low in past. No sediment in 2018 or 2019.
902 Joe's Creek	13	DND	_	Low	_	_	_	_	_	Resample in 2024 (Joe's Creek).
916 Colwood Creek	9	Royal Roads	Low	_	_	_	_	Low	_	Resample in 2027.
921	8	Royal Roads	_	_	Low	_	_	_	_	Resample in 2024.
922 Hatley Creek	8	Royal Roads	_	_	Low	_	_	_	_	Resample in 2024.
926 Bee Creek	8	Colwood	_	_	Low	Low	_	_	_	Elevated arsenic measured upstream. Resample in 2025.
927 Miller Brook	8	Colwood	_	Low	_	_	_	_	Moderate	Confirm rating.
928 Selleck Creek	8	Colwood	Low	_	Moderate	_	_	_	_	Sampled with 5 in 30s; Resample in 2024.
931 Lagoona Brook	7	Colwood	_	_	Low	_	_	_	_	Resample in 2024.
932 S end Esquimalt Lagoon	7	Colwood	_	_	Low	_	_	_	_	Resample in 2024.
933 S end Esquimalt Lagoon	7	Colwood	_	_	_	_	_	Low	_	Resample in 2027.
934 Ocean Blvd	7	Colwood	_	_	_	_	Low	_	Low	Resample in 2028.
937 Ocean Blvd	7	Colwood	_	_	Low	_	_	_	_	Resample in 2025.
6003 Goldstream River	67	Langford	_	_	Low	_	_	_	_	Resample in 2026 as part of 5/30s.
6004 Saanich Inlet	67	Langford	_	_	Low	_	_	_	_	Resample in 2025.
6006 Saanich Inlet	68	Langford	High	_	_	_	_	Moderate	_	**Action Required.** Confirm rating; Elevated PAH in past; creosote log pile nearby. PAH in water above CCME ISQG.
6008 Trans Canada	68	Langford	_	Moderate	Moderate	_	_	_	Moderate	Slightly elevated zinc. Sample water in 2028.

Notes:
[1] Contaminant rating for a discharge is based on point of discharge.
Ratings from 2012 to 2018 are displayed; refer to previous reports for ratings prior to 2010.
Metals: arsenic As, cadmium Cd, chromium Cr, copper Cu, lead Pb, mercury Hg, silver Ag and zinc Zn.
Organic substances: high and low molecular weight polycyclic aromatic hydrocarbons HPAH and LPAH.
u/s is upstream.

Table 4 Freshwater Stream Sediment Analytical Data

Station ID	Freshwater Sediment Quality Guidelines		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Silver	Zinc	HPAH	LPAH	Sample Comments
		CCME ISQG	5.9	0.6	37.3	35.7	35	0.17	0.5	123	-	-	
		CCME PEL	17	3.5	90	197	91	0.486	-	315	-	-	
	Vancouver Island Background		4	0.95	65	100	40	0.15	1	150	-	-	
SW0558	180 m east of Mt Douglas beach access stairs.	2023-04-19	2.58	0.117	21.4	*51.4*	8.57	0.05	0.074	*124*	0.32	0.033	sand
SW0558	180 m east of Mt Douglas beach access stairs.	2023-06-12	4.74	0.435	34.9	131	19.9	0.118	0.206	262	0.42	0.065	medium brown fines and organics
SW0559	Mt. Doug Creek, Cordova Bay.	2023-04-19	3.25	0.085	20	21.3	7.05	0.05	0.05	91.3	0.37	0.053	sand and fine mud
SW0559	Mt. Doug Creek, Cordova Bay.	2023-06-12	3.36	0.075	20.4	24.1	6.69	0.05	0.05	87.9	0.11	0.032	medium grey sand and fines
SW0592	Noble Creek (Noble Watershed), north side of 5575 Parker Rd. (EMS#: E310111).	2023-06-12	4.65	0.371	36.2	*46.6*	10.6	0.073	0.143	120	0.1	0.017	medium brown fines and mud
SW0641	Mouth of Cecelia Creek.	2023-09-14	3.6	0.13	29.5	*48.9*	27.4	0.066	0.05	*129*	0.29	0.037	medium grey coarse sand and fines
SW0722	Directly under center of Craigflower Bridge, aqua PVC pipe in cement wall (metal grate).	2023-04-03	2.54	0.142	36.4	*61.6*	9.88	0.095	0.053	*138*	0.093	0.027	sand and dark fines
SW0879	Creek on west side of Price Rd.	2022-04-11	7.93	0.381	36.2	*97.9*	19	0.052	0.078	*131*	0.085	0.014	fines and sand
SW0886-2	Millstream, near southwestern corner of 1730 Island Highway. Access through access road at the end of Wilfert Rd.	2023-09-14	1.46	0.05	21.4	20.3	4.7	0.05	0.05	60.9	0.17	0.069	medium grey sand and fines
SW0886-6	Mill Stream, under bridge at Treanor Ave.	2023-09-14	2.43	0.094	28.1	*36*	5.14	0.061	0.05	89.2	0.023	0.0098	darker grey sand and fines
SW0927	North side of Matilda Dr. beach access, Miller Brook.	2023-04-14	15.3	0.313	17.1	*44.4*	29.5	0.138	0.083	119	0.5	0.11	dark fines and organic matter
SW0980-5	Bilston Creek (Bilston Watershed) at Winter Road.	2023-10-04	3.22	0.062	19.9	19	3.79	0.05	0.05	55	0.062	0.018	no odour, clear
SW6006	West side of Saanich Inlet, north side of Hall's Boat House driveway.	2022-04-29	5.58	0.336	46.4	106	84.2	0.08	0.131	199	6.7	1.5	fine sediment
SW6008	North side of barn style building at 3680 Trans Canada Hwy.	2023-04-14	4.4	0.258	38.2	*48.8*	9.32	0.05	0.068	245	0.23	0.048	light coloured fines

Notes
Concentrations are in mg/kg dry weight.
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 (95th percentiles) from BC MOE; https://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/protocols/protocol_4.pdf.
"-" means no guideline is available.
XX italicized values are those that exceed a guideline but are below the Vancouver Island background concentration.
XX Value is greater than or equal to the CCME ISQG.
XX Value is greater than or equal to the CCME PEL.
For mercury only, the CRD MSQG is lower than the CCME PEL.
Some samples are not collected at discharge to marine, therefore marine guidelines are not applicable but used for screening purposes, see Table 4 for freshwater comparisons.

Table 5 2023 Stormwater Discharge Metals

Station ID	Start Date	Aluminum µg/L	Arsenic µg/L	Cadmium µg/L	Chromium µg/L	Copper µg/L	E. Coli CFU/100mL	Iron µg/L	Lead µg/L	Nickel µg/L	Silver µg/L	Sodium mg/L	PAH µg/L	Zinc µg/L	Comment
BC Marine Aquatic Life Guidelines	max	-	12.5 [1]	0.12	-	3	-	-	140	-	3	-		55	
	average	-	-	-	-	2	-	-	2	-	1.5	-		10	
BC Freshwater Aquatic Life Guidelines	max	100	5	-	1 / 9 [2]	11.4	-	1000	81.6	25-110	0.1	-		40.5	
	average	50	-	-	-	4	-	-	6.5	-	0.05	-		15	
SW0209	2022-01-26	99.4	1.03	0.023	0.63	6.06	2800	141	0.32	1.66	<0.005	55.6	<0.1	4.94	no rain
SW0209	2023-02-10	57.8	0.88	0.0205	0.5	4.53	220	131	0.256	1.5	<0.005	34.5		6.01	rain present
SW0210	2022-01-26	16.1	1.31	0.0484	0.27	4.73	5	10.6	0.0131	1.07	<0.005	36.2	<0.1	2.18	no rain
SW0210	2023-02-10	90.9	1.23	0.0298	0.82	5.7	270	81.5	1.03	1.11	<0.005	47.9		7.34	rain present
SW0211	2022-01-27	309	0.701	0.0073	0.75	6.12	5	168	0.207	0.843	<0.005	26.4	<0.1	0.66	no rain
SW0212	2022-01-26	248	0.414	0.0095	0.46	3.34	<1	139	0.172	1.32	0.0067	28.6	<0.1	1.26	no rain
SW0212	2023-02-07	371	0.388	0.0146	0.84	3.47	120	381	0.956	1.31	<0.01	26.5		4.2	sewer odour, murky, heavy rain
SW0214	2022-01-26	46.8	0.516	0.0075	0.39	3.24	3600	50.1	0.126	0.899	<0.005	28.3	<0.1	4.2	no rain
SW0214	2023-04-13	1230	1.06	0.0846	*2.85*	14.2	5600	2290	8.47	2.83	0.029	31.2		38.1	rain prior
SW0216	2022-01-26	480	1.23	0.0312	*1.25*	9.87	1900	784	3.98	2.98	<0.01	41.3	<0.1	12.7	no rain
SW0216	2023-02-10	124	1.03	0.0174	0.9	6.41	91000	191	0.366	2.54	0.0059	35.7		8.85	rain present
SW0216	2023-02-16	87.8	0.921	0.0137	0.69	4.96	4700	158	0.307	2.12	<0.01	36.6		6.9	rain prior
SW0216	2023-04-13	2570	1.88	0.0234	*4.48*	9.11	3000	2960	2.88	6.02	0.03	54.3	<0.1	15.8	rain prior
SW0218	2022-01-27	1560	1.42	0.0306	*4.79*	8.51	56	2330	11.9	4.12	0.071	158	<0.1	8.6	no rain
SW0218	2023-02-10	216	1.01	0.0194	*1.76*	4.42	23	960	1.46	1.95	0.015	170		5.7	rain present
SW0222	2022-01-27	93.9	0.93	0.0141	0.56	6.14	12000	119	0.216	2.19	<0.01	29.8	<0.1	4.4	no rain
SW0222	2023-02-10	2200	0.991	0.0184	*4.23*	11.2	18000	1950	1.57	4.06	0.015	26		10.4	rain present
SW0227	2023-02-07	824	1.6	0.0357	*1.96*	8.7	1500	616	3.59	3.47	0.014	15.9		16.8	sewer odour, murky, heavy rain
SW0227	2024-01-29	197	0.747	0.0226	0.73	5.81	5900	166	0.923	1.88	<0.01	25.1		9.1	sewer odour, murky, rain recent
SW0227	2022-01-27	163	0.454	0.0104	0.39	4.62	11	212	0.646	1.49	0.0053	33.7	<0.1	3.31	no rain
SW0228	2022-02-24	290	1.58	0.0098	*1.28*	7.81	<1	361	0.541	1.53	0.015	13.8	<0.1	5.4	no rain
SW0228A	2022-02-24	49.3	0.339	0.0072	0.68	25.5	1	30.7	0.111	0.567	0.0126	4.82	<0.1	10.9	no rain
SW0228A	2023-02-07	32	0.242	0.0119	0.3	12.3	6	13.8	0.1	0.331	0.0078	7.48		5.68	heavy rain in the morning
SW0229	2022-01-27	76.1	0.703	0.0155	0.64	4.18	140	77.1	0.337	1.97	0.0088	35.6	<0.1	6.78	no rain
SW0229	2023-02-07	475	0.908	0.0296	*1.34*	6.74	5300	408	1.86	1.69	0.012	14.6		17.7	heavy rain in the morning
SW0229	2024-01-29	176	0.751	0.0291	*1.14*	6.25	1200	139	0.545	1.83	<0.01	25.7		11.2	rain recent
SW0230	2023-03-02	209	0.552	0.0191	0.7	16.7	2800	228	0.843	1.07	<0.005	33.5		14.1	sewer odour, murky, rain past two days
SW0230	2022-01-28	75.2	0.392	0.01	0.3	2.47	34000	77	0.244	1.08	0.0116	31.8	<0.1	2.58	no rain
SW0230	2023-02-23	208	0.508	0.0101	0.79	3.97	33000	325	0.455	1.52	0.0063	27.1		5.9	rain in the past two days
SW0230	2024-01-29	72.3	0.46	0.0131	0.42	3.54	7900	66.9	0.226	0.94	<0.01	33.6		3.8	rain recent
SW0231	2022-01-28	44.2	0.41	0.0081	0.18	4.12	72	47.2	0.126	0.57	<0.005	38.6	<0.1	3.24	no rain
SW0231	2023-02-23	33.9	0.46	0.0084	0.29	3.61	14	62.1	0.0951	0.91	<0.005	41		5.81	rain in the past two days
SW0231	2024-01-29	110	0.537	0.0089	0.35	5.85	40	121	0.408	0.7	<0.01	33.3		4.4	sewer odour, clear, rain recent
SW0236	2022-01-28	51.8	0.44	0.013	0.8	7.29	21	35.4	0.172	4.03	<0.005	46.5	<0.1	9.02	no rain
SW0236	2023-02-16	56.9	0.42	0.0079	*3.6*	4.83	34	39.4	0.138	11.9	<0.01	43		8.5	rain prior
SW0237	2022-01-28	134	0.626	0.0176	0.6	4.17	15	114	0.143	1.92	<0.005	40.6	<0.1	10.6	no rain
SW0237	2023-02-16	191	0.723	0.0115	*1.18*	3.62	45	203	0.15	3.58	<0.01	42.1		9.5	rain prior
SW0244	2022-02-24	83.3	3.68	0.011	*1.54*	6.51	100	89.7	0.572	0.77	<0.01	23.5	<0.1	5	no rain
SW0244	2022-07-04	63.1	2.63	0.0111	0.73	5.53	110	49.7	0.178	1.11	0.0051	28	<0.1	8.71	rain two days ago
SW0244	2023-02-16	71	0.611	0.0072	0.47	2.91	100	63.2	0.168	1.39	<0.01	29.8		2.8	rain prior
SW0244	2023-07-24	271	0.828	0.0167	*1.02*	11	590	188	0.463	2.41	<0.01	11.2		8.2	amber, no rain prior
SW0244	2024-01-29	98.9	0.353	0.0145	0.39	3.21	940	84	0.303	0.87	<0.01	28		4.3	sewer odour, clear, rain recent
SW0245	2022-07-04	136	1.54	0.0468	*1.22*	17	570	330	0.38	1.88	0.0132	34.4	<0.1	10.1	rain two days ago
SW0245	2024-01-29	487	0.837	0.0204	*1.31*	5.96	220	475	1.83	2.31	<0.01	23		7.5	sewer odour, murky, rain recent
SW0245	2022-01-27	154	0.813	0.0083	0.61	4.62	120	413	0.243	1.41	<0.005	30.8	<0.1	3.13	no rain
SW0245	2023-02-16	115	0.815	0.0111	0.97	4.67	120	165	0.181	1.84	<0.01	32		4.2	rain prior
SW0245	2023-07-24	447	1.54	0.0313	*1.73*	91.9	1200	757	1.84	4.58	<0.01	26.7		29.9	amber, no odour, suds, no rain prior

Table 5, Continued

Station ID	Start Date	Aluminum µg/L	Arsenic µg/L	Cadmium µg/L	Chromium µg/L	Copper µg/L	E. Coli CFU/100mL	Iron µg/L	Lead µg/L	Nickel µg/L	Silver µg/L	Sodium mg/L	PAH µg/L	Zinc µg/L	Comment
BC Marine Aquatic Life Guidelines	max	-	12.5 [1]	0.12	-	3	-	-	140	-	3	-		55	
	average	-	-	-	-	2	-	-	2	-	1.5	-		10	
BC Freshwater Aquatic Life Guidelines	max	100	5	-	1 / 9 [2]	11.4	-	1000	81.6	25-110	0.1	-		40.5	
	average	50	-	-	-	4	-	-	6.5	-	0.05	-		15	
SW0249	2022-01-27	238	1.32	0.0125	*1.21*	8.35	5	203	0.427	2.37	0.016	58.1	<0.1	6.5	no rain
SW0249	2022-07-05	389	1.6	0.0183	*1.68*	10.8	150	264	0.569	2.28	0.0112	51.5		7.04	rain two days ago
SW0249	2023-02-16	72.5	0.706	0.0116	0.81	3.5	20	63.3	0.108	2.29	<0.01	71.5		3.3	rain prior
SW0249	2024-01-29	411	1.6	0.0316	*1.74*	23.8	35	342	1.15	2.87	0.023	42.1		16.6	creosote odour, murky, recent rain
SW0250	2022-01-27	85	1.68	<0.1	*<2*	3.9	730	201	0.32	1.44	<0.1	4770	<0.1	4.6	no rain
SW0250	2022-07-05	47	2.22	<0.1	*<2*	4.1	61000	236	0.38	0.55	<0.1	6160	<0.1	6.4	pooled, rain two days ago
SW0250	2023-02-16	202	1.19	0.0187	*1.35*	6.17	4700	261	0.432	2.17	0.028	253		5.8	rain prior, pooled
SW0257A	2022-02-24	30.4	0.087	<0.005	0.1	2.51	<1	53.9	0.0523	0.257	<0.005	5.86	0.1	3.37	no rain
SW0257A	2022-07-05	42.9	0.606	<0.005	0.3	9.17	27	51	0.251	0.645	0.059	137		1.83	rain two days ago
SW0304	2022-02-24	61.5	1.01	0.0241	0.75	53.9	860	189	0.559	1.07	<0.01	28.1	<0.1	55.2	no rain
SW0306	2023-04-24	99	0.66	<0.025	*3.83*	8.46	24	121	0.22	15.3	<0.05	886	<0.1	7.9	marine influence? rain prior
SW0307	2022-02-01	57.4	0.383	0.0146	0.17	2.26	170	205	0.291	1.1	<0.005	51.8	<0.1	2.97	rain yesterday
SW0307	2022-07-05	47.5	0.359	0.0079	0.25	6.95	2300	415	0.349	0.908	0.0093	21.7	0.14	4.45	rain two days ago
SW0307	2023-02-23	118	0.436	0.008	0.31	2.7	100	394	0.36	1.31	<0.005	88.6	<0.1	3.14	rain in the past two days
SW0309	2022-02-01	37.7	1.49	<0.005	<0.1	2.59	<1	71.3	0.116	0.416	<0.005	27.7	0.26	0.66	surge flow, rain yesterday
SW0309	2022-07-05	62.8	0.604	<0.005	0.27	5.36	<1	56	0.381	0.281	0.0051	13.8	0.44	2.23	rain two days ago
SW0310	2023-02-23	63.5	0.79	0.0069	0.9	3.48	1400	45.1	0.081	1.3	<0.005	36.3	<0.1	4.17	rain in the past two days
SW0310	2022-02-01	1310	1.18	0.0142	*1.92*	5.71	540	802	0.631	2.84	<0.01	31.3	<0.1	6.2	rain yesterday
SW0310	2022-07-05	118	1.45	0.0118	0.72	9.47	90	92.5	0.208	1.43	<0.005	33.6	<0.1	5.45	rain two days ago
SW0310A	2022-02-24	27.4	0.467	0.0149	0.32	6.02	15	30.3	0.119	1.22	<0.005	52.9	<0.1	6.46	no rain
SW0310A	2022-07-05	115	1.27	0.0131	0.57	6.93	48	145	0.696	1.18	0.0066	60.5	<0.1	5.02	rain two days ago
SW0310A	2023-02-23	21.2	0.497	0.0107	0.33	2.64	20	29.9	0.0623	1.38	<0.005	54		2.56	rain in the past two days
SW0316	2022-02-24	114	0.557	0.0473	0.43	4.75		212	0.563	1.02	0.0063	88.8	<0.1	13.7	no odour, murky, no rain
SW0316	2022-07-06	125	1.12	0.0175	0.47	5.92	320	256	0.611	1.35	<0.01	27.9	<0.1	8.1	no rain prior
SW0316	2023-02-23	86.7	0.625	0.008	0.41	2.73	97	219	0.187	1.09	<0.005	35.4		4.83	rain in the past two days
SW0317	2022-01-31	31.4	0.487	0.0095	0.28	11.6	11	19.5	0.0683	1.17	<0.005	22.2	<0.1	2.85	suds in MH, rain
SW0317	2022-07-06	21.3	0.635	0.0148	0.28	12.6	9	17.9	0.0598	1.02	<0.005	23.7	<0.1	1.85	no rain prior
SW0317	2023-02-09	76	0.454	0.0097	0.43	8.67	350	47.1	0.108	1.44	<0.005	21.1		4.34	rain within the past two days
SW0318	2022-01-31	133	0.361	0.0096	0.63	2.6	36	101	0.147	0.798	<0.005	15.3	0.11	6.61	no odour, murky grey, rain
SW0318	2022-07-06	72.3	0.551	0.0094	0.52	2.12	21	78.9	0.0945	0.633	<0.005	8.37	0.17	3.03	no rain prior
SW0318	2023-02-09	204	0.528	0.0141	0.87	3.91	1200	153	0.294	1.23	<0.005	15.4		4.84	rain within the past two days
SW0320	2022-01-31	1800	5.52	0.118	*13.4*	24.8	120	1190	2.34	2.97	0.0208	35.8	<0.1	23.7	no odour, murky grey, rain
SW0320	2023-02-09	224	0.77	0.013	0.96	5.78	19	149	0.36	1.7	<0.005	14		8.35	rain within the past two days
SW0320	2023-02-23	177	1.04	0.007	0.89	3.17	6	121	0.139	1.48	<0.005	22.9	<0.1	3.92	rain in the past two days
SW0321	2022-02-02	211	0.766	0.013	0.59	4.81	110	172	0.501	1.03	0.0061	21	<0.1	14.6	rain yesterday
SW0321	2022-07-06	97	1.16	0.0195	0.37	10.3	35	78.9	0.405	0.787	<0.005	21.4		8.22	no rain prior
SW0321	2023-02-09	243	0.619	0.0115	0.67	6.01	39	176	0.504	1.07	0.0057	19		11.6	rain within the past two days
SW0321A	2022-02-02	427	1.63	0.0131	*1.34*	6.41	150	282	0.672	1.62	0.0088	14.7	<0.1	13.1	rain yesterday
SW0321A	2022-07-06	207	1.16	0.0229	*1.46*	7.57	1600	130	5.13	1.44	<0.005	19		15	no rain prior
SW0321A	2023-02-09	266	1.04	0.0124	*1.07*	4.97	38	172	0.405	1.72	0.0061	16.2		8.69	rain within the past two days
SW0322	2023-02-09	308	0.964	0.0125	*1.41*	4.8	950	214	0.319	1.76	<0.005	18.8		11.4	rain within the past two days
SW0322	2022-02-02	379	0.941	0.0136	*1.03*	4.75	790	267	0.512	1.48	<0.005	17.7	<0.1	23.6	rain yesterday
SW0322	2022-07-06	138	1.3	0.0107	0.95	6.93	70000	103	0.294	1.31	<0.005	18.1		11.2	no rain prior
SW0323	2022-02-01	179	0.638	0.0083	0.47	3.11	110	258	0.215	1.47	<0.005	16.1	<0.1	6.13	rain yesterday
SW0323	2022-07-06	54.2	0.645	<0.005	0.17	2.02	360	106	0.0987	0.671	<0.005	16.5	<0.1	3.28	no rain prior
SW0323	2023-02-09	273	0.855	0.0087	0.79	4.13	38	311	0.356	1.51	<0.005	12.7		9.98	rain within the past two days
SW0323A	2022-02-02	232	0.456	0.0169	0.65	2.78	420	278	0.205	2.45	0.012	8.6	<0.1	27.6	no odour, murky, rain yesterday
SW0405	2022-03-22	837	1.47	0.0712	*3.58*	5.79	10	3460	0.635	12.8	0.02	278	<0.1	10.6	organic odour, amber, light rain

Table 5, Continued

Station ID	Start Date	Aluminum µg/L	Arsenic µg/L	Cadmium µg/L	Chromium µg/L	Copper µg/L	E. Coli CFU/100mL	Iron µg/L	Lead µg/L	Nickel µg/L	Silver µg/L	Sodium mg/L	PAH µg/L	Zinc µg/L	Comment
BC Marine Aquatic Life Guidelines	**max**	**-**	**12.5 [1]**	**0.12**	**-**	**3**	**-**	**-**	**140**	**-**	**3**	**-**		**55**	
	average	**-**	**-**	**-**	**-**	**2**	**-**	**-**	**2**	**-**	**1.5**	**-**		**10**	
BC Freshwater Aquatic Life Guidelines	**max**	**100**	**5**	**-**	**1 / 9 [2]**	**11.4**	**-**	**1000**	**81.6**	**25-110**	**0.1**	**-**		**40.5**	
	average	**50**	**-**	**-**	**-**	**4**	**-**	**-**	**6.5**	**-**	**0.05**	**-**		**15**	
SW0405	2023-04-11	432	1.02	0.042	*2.49*	2.53	92	4450	0.341	8.95	<0.02	419		6	earthy odour, amber, no rain prior
SW0409	2023-01-31	6830	2.03	0.0838	*6.9*	23.5	79	6110	8.14	6.36	0.024	11.7		128	no odour, murky, light rain recent
SW0409A	2023-01-31	1000	3.11	0.0613	*1.51*	5.03	<1	6100	1.7	2.32	<0.01	13.8		14	light rain recent
SW0411	2022-03-11	333	0.333	0.0087	0.65	3.6	<1	536	0.31	1.08	<0.01	22.7	<0.1	6.2	no rain
SW0411	2023-01-31	1910	0.682	0.035	*2.74*	9.17	40	2550	3.17	3.07	0.012	12.9		22.5	no odour, murky, light rain recent
SW0411A	2022-03-11	161	0.326	0.0137	0.3	2.22		449	0.164	0.89	<0.01	14.5	<0.1	8.6	no rain
SW0411A	2023-01-31	163	0.327	0.0243	0.37	2.72	38	199	0.099	0.97	<0.01	28		14.1	sewer odour, murky, rain recent
SW0412	2023-04-11	162	0.433	0.0138	0.57	2.53	19000	349	0.124	1.33	<0.01	15	<0.1	4.2	sewer odour, murky, no rain prior
SW0412	2023-03-29	130	0.377	0.0057	0.69	2.1	160000	275	0.077	2.06	<0.01	14.7		4.1	
SW0420	2022-03-11	206	0.302	0.0061	0.27	2.26	<1	298	0.125	0.613	<0.005	11.9	<0.1	7.98	no rain
SW0426	2023-01-31	187	0.38	0.011	0.49	3.29	50	216	0.195	0.92	<0.01	28.8		12.4	light rain recent
SW0426	2022-03-11	193	0.372	0.0078	0.35	2.58	23	273	0.152	0.78	<0.005	17.2	<0.1	8.43	no rain
SW0430B	2022-03-11	345	0.514	0.0054	0.59	2.17	<1	908	0.159	1.24	<0.01	18.9	<0.1	3.2	no odour, amber, no rain
SW0430B	2023-01-31	580	0.399	<0.005	*1.13*	1.79	11	821	0.235	1.2	<0.01	29.6		2.6	light rain recent
SW0432	2022-03-11	63.3	0.253	0.0061	0.21	3.19		71.9	0.0629	0.497	<0.005	14.6	<0.1	16.8	no rain
SW0432	2023-01-31	192	0.434	0.017	0.92	5.25	260	233	0.368	0.78	<0.01	74.9		49.5	earthy odour, murky, light rain
SW0441	2022-03-11	96.7	0.402	0.0394	0.39	2.12	6	329	0.118	0.774	<0.005	72.4	<0.1	5.89	no rain
SW0441	2023-03-29	124	0.456	0.049	0.64	1.94	10	340	0.162	1.25	<0.02	505	<0.1	5.3	
SW0441	2023-07-05	74.6	1.23	0.041	*1.84*	1.68	64	234	0.144	6.81	<0.025	1140		6.11	low tide odour, no rain prior
SW0444	2022-03-10	185	0.566	0.0063	0.42	3.36	<1	129	0.0903	1.27	0.0051	39	<0.1	8.78	no rain
SW0444	2023-01-31	368	0.418	0.0062	0.67	5.07	5	272	0.166	1.03	<0.01	20.3		6.2	light rain recent
SW0444A	2023-01-31	234	1.12	0.0161	0.56	4.19	9	294	0.343	1.02	<0.01	83.2		23.5	light rain recent
SW0445	2022-12-08	1660	0.762	0.056	*2.86*	15.4	170	2160	3.23	2.86	0.023	3.63		65	no odour, murky amber, rain
SW0446	2022-03-10	48.8	0.598	0.0078	0.27	5.27	<1	57.4	0.089	2.98	<0.01	21	<0.1	11.8	no rain
SW0446	2023-01-20	61.2	0.644	0.007	0.28	4.97	<1	36.3	0.0624	0.976	<0.005	27.7		9.72	light rain two days ago
SW0447	2023-01-20	1160	0.872	0.012	*1.4*	8.56	4400	750	0.56	2.12	<0.01	18.7		18	sewer odour, clear, rain two days ago
SW0447	2022-03-10	522	0.822	0.0082	0.97	5.07	34	330	0.389	1.6	0.0052	23.6	<0.1	6.46	no rain
SW0448	2022-03-10	546	0.987	0.0203	*1.01*	8		510	0.287	2.05	0.014	26.6	<0.1	8.76	no odour, amber, no rain
SW0448	2023-01-20	375	0.911	0.0106	0.61	8.54	10	284	0.327	1.75	<0.01	23.4		8.9	light rain two days ago
SW0449	2022-03-10	823	0.533	0.0176	*1.54*	5.44		1490	1.13	1.68	<0.01	9.73	0.37	18.4	no odour, murky brown, no rain
SW0449	2023-03-29	3940	1.56	0.029	*6.82*	17.7	2	6290	1.1	7.77	<0.02	352	<0.1	23	
SW0449A	2022-03-10	79.7	0.62	0.0283	0.37	13.2	10	218	0.114	1.24	<0.01	76.8	<0.1	14.9	no rain
SW0449A	2023-03-29	2430	1.28	0.116	*4.44*	18.1	8	2860	2.21	6.2	0.188	131		40.2	
SW0450	2022-03-10	125	0.895	0.0179	0.85	6.84	860	157	0.284	1.03	0.0105	78.2	<0.1	27.7	no odour, murky, no rain
SW0450	2023-03-29	320	1.07	0.031	*1.54*	9.92	17	447	1.21	1.76	0.011	116	<0.1	26.5	
SW0459	2022-03-14	214	1.01	0.0148	0.47	17.8	90	221	0.556	0.81	0.0063	18	<0.1	33.1	no rain
SW0459	2023-04-12	122	1.54	0.0134	*14.4*	13.8	3	117	0.253	59.1	<0.01	54.3		14.9	no rain prior
SW0462	2022-03-14	75.2	0.343	0.0071	0.17	17.3	1	98.9	0.171	0.293	<0.005	3.22	<0.1	14.6	no rain
SW0464	2022-03-14	151	0.411	0.0078	0.3	3.39	<1	145	0.13	0.516	<0.005	9.4	<0.1	8.91	no rain
SW0467	2022-03-14	377	0.627	0.0085	0.56	9.32	6	311	0.285	1.11	0.0061	15.3	<0.1	5.27	no rain
SW0467	2022-03-22	1760	1.19	0.0221	*2.52*	7.6	5	1500	1.21	3.37	0.026	15.3	<0.1	20.2	no odour, amber, light rain
SW0503	2023-02-09	149	1.01	0.007	0.5	2.45	350	316	0.455	0.766	<0.005	35.7		3.55	sewer odour, murky, rain past two days
SW0503	2022-02-02	1330	1.64	0.0568	*3.01*	9.81	4100	1830	5.33	2.71	0.019	75.4	<0.1	24.8	no odour, brown, rain yesterday
SW0505	2022-02-25	54.4	0.505	0.007	0.4	1.84	37	164	0.201	0.696	<0.005	31	<0.1	3.07	no rain
SW0505	2023-02-09	247	0.834	0.0128	0.8	5.01	61	396	0.292	1.44	0.0051	42.1		7.44	sewer odour, murky, rain past two days
SW0506	2022-02-02	171	0.544	0.0143	0.56	4.62	18	369	0.204	1.95	<0.01	21.1	0.32	8.2	rain yesterday

Table 5, Continued

Station ID	Start Date	Aluminum µg/L	Arsenic µg/L	Cadmium µg/L	Chromium µg/L	Copper µg/L	E. Coli CFU/100mL	Iron µg/L	Lead µg/L	Nickel µg/L	Silver µg/L	Sodium mg/L	PAH µg/L	Zinc µg/L	Comment
BC Marine Aquatic Life Guidelines	max	-	12.5 [1]	0.12	-	3	-	-	140	-	3	-		55	
	average	-	-	-	-	2	-	-	2	-	1.5	-		10	
BC Freshwater Aquatic Life Guidelines	max	100	5	-	1 / 9 [2]	11.4	-	1000	81.6	25-110	0.1	-		40.5	
	average	50	-	-	-	4	-	-	6.5	-	0.05	-		15	
SW0506	2023-02-09	152	0.616	0.0227	0.64	5	64	348	0.158	2.33	0.0052	24.7		7.06	rain within the past two days
SW0507	2022-02-02	269	0.694	0.0166	0.95	4.41	<1	330	1.37	2.59	<0.01	24.9	<0.1	7.2	rain yesterday
SW0508	2022-02-02	67.3	1.52	0.0117	0.46	5.18	8	52.7	0.105	0.605	<0.005	19.1	<0.1	12.7	rain yesterday
SW0508	2023-02-09	177	1.69	0.0273	0.83	13.1	34	249	0.478	1.01	<0.005	21.5		15.1	rain within the past two days
SW0513	2022-03-01	63.9	0.21	0.007	0.24	3.04	2	13.6	0.0266	0.54	<0.005	16.3	<0.1	9.28	light rain previous
SW0516	2022-02-02	111	0.292	<0.005	0.26	3.8	9	248	0.0987	0.662	<0.005	18.2	<0.1	3.06	rain yesterday
SW0518	2022-02-02	74.2	0.876	0.0085	0.29	3.53	38	46.1	0.0703	0.556	<0.005	19.6	<0.1	2.87	rain yesterday
SW0518	2023-02-24	17.7	0.194	0.0051	0.21	2.16	<1	11.1	0.027	0.501	<0.005	21.7		0.97	rain in the past two days
SW0520	2022-02-25	22.2	0.159	0.0058	0.1	1.75	<1	21.8	0.042	0.496	<0.005	31.1	<0.1	2.11	no rain
SW0522	2022-02-03	176	0.416	0.0443	0.42	7.55	6	286	0.487	1.35	<0.01	30	<0.1	8.6	iron oxide bacteria, rain yesterday
SW0524A	2023-04-04	74.6	0.744	0.0122	0.54	0.87	<2	97.2	0.083	0.92	<0.01	18.4		2	no rain prior
SW0530	2022-03-01	111	0.244	<0.005	0.2	2.07	<1	50	0.022	0.3	<0.01	21.4	<0.1	1.4	light rain previous
SW0539	2023-04-04	6560	1.77	0.215	*11.7*	91	13	9800	33.8	12	0.034	3.39		204	no rain previous
SW0540	2022-03-02	52.8	0.441	<0.005	0.2	3.41	2	179	0.0923	0.652	<0.005	14.6	<0.1	2.73	no rain in past two days
SW0541B	2023-02-24	233	0.694	0.0116	0.87	2.06	<1	341	0.283	1.13	<0.01	23.3		2.2	rain in the past two days
SW0550	2022-02-03	47.9	0.333	<0.005	0.26	1.61	6	80.1	0.0636	0.464	<0.005	10.9	<0.1	1.7	rain yesterday
SW0554	2022-02-03	1020	1.1	0.052	*1.15*	2.51	<10	2180	1.1	1.52	<0.01	19.2	<0.1	10.7	rain yesterday
SW0557	2022-02-03	121	1.65	0.0197	0.51	5.62	28	91.8	0.198	1.06	<0.005	11.5	<0.1	5.3	rain yesterday
SW0558	2022-02-03	234	0.442	0.0128	*1.03*	3.86	40	162	0.16	1.69	0.0155	12.4	<0.1	7.47	rain yesterday
SW0558	2023-02-24	178	0.41	0.008	0.57	2.45	8	133	0.0825	1.57	0.0075	20.3		2.64	rain in the past two days
SW0559	2022-02-03	420	0.6	0.0229	0.94	4.72	470	450	0.558	1.32	<0.01	17.5	0.14	19	rain yesterday
SW0559	2023-02-24	117	0.532	0.0123	0.41	2.24	130	138	0.105	1.04	<0.005	20.5	<0.1	7.88	rain in past two days
SW0560	2022-03-02	245	0.224	<0.005	0.42	1.24	2	267	0.126	0.758	<0.005	21.1	<0.1	2.16	no rain in past two days
SW0560	2023-02-24	4200	1.25	0.0247	*7.42*	8.43	<1	5800	1.67	8.02	0.02	20.9		13.4	no odour, murky, rain past two days
SW0562	2023-04-25	516	0.37	0.0426	*16.5*	3.86	2	600	0.499	68.5	0.012	14.8		6.9	rain prior
SW0564	2022-02-10	208	0.254	0.0099	0.46	4.79	<1	267	0.157	2.32	<0.01	11.7	<0.1	3.8	no rain
SW0567	2022-02-10	5690	1.64	0.0373	*7*	27.1	470	6610	2.95	6.52	0.039	15.2	<0.1	22.9	no odour, brown, no rain
SW0567	2023-03-14	18.2	0.269	0.0053	0.2	2.35	90	79.9	0.051	0.84	<0.01	14.9		2.4	light rain prior
SW0571	2023-04-25	56.7	0.365	0.0591	*3.68*	2.24	<1	178	0.228	15.3	<0.01	15.3		7.2	rain prior
SW0573	2023-04-25	8.9	0.262	0.0071	0.54	1.67	3	20.7	0.026	2.38	<0.01	11.5		2.2	rain prior
SW0574	2023-03-14	24.8	0.323	<0.005	0.22	1.77	47	145	0.05	0.79	<0.01	17.1		2.6	light rain prior
SW0574	2022-02-10	24.7	0.333	<0.005	0.12	1.85	11	245	0.047	0.603	<0.005	15.8	<0.1	2.93	no rain
SW0576A	2022-02-10	115	0.534	0.0092	0.59	1.83	2	186	0.17	0.69	<0.01	15.8	<0.1	6	no rain
SW0576A	2023-03-14	99.9	0.436	0.0075	0.48	1.25	5	154	0.137	0.7	<0.01	12.7		3.3	light rain prior
SW0578	2022-02-25	16.1	0.461	<0.005	0.38	0.922	8	341	0.047	0.425	<0.005	14.1	<0.1	1.54	no rain
SW0580	2022-02-10	41.7	0.237	0.0071	0.28	1.56	19	123	0.0827	0.63	<0.005	16.1	<0.1	2.75	no rain
SW0580	2023-03-14	65.4	0.517	0.0081	0.44	1.8	6	159	0.485	0.76	<0.01	15.2		8.9	light rain prior
SW0581	2023-03-14	27.7	0.276	0.0062	0.46	1.21	1	123	0.049	1.06	<0.01	14.9		2.8	light rain prior
SW0592	2022-02-10	1090	1.05	0.0372	*2.06*	4.93	16	1540	0.686	3.13	0.014	17.8	<0.1	10	no odour, murky brown, no rain
SW0592	2023-03-30	704	0.914	0.0356	*11.8*	3.74	14	1050	0.449	46	<0.01	17.4		5.5	no rain prior
SW0603	2023-03-22	96.5	2.22	0.547	0.61	7.03	5000	121	0.569	1.95	<0.01	59.6	0.18	7.6	no recent rain
SW0607	2023-04-13	82.4	1.1	0.0247	0.54	4.55	20000	253	0.394	1.5	0.0092	273		11.2	rain prior
SW0607A	2023-04-13	25	1.86	<0.1	*<2*	3.3	12000	112	0.27	2.71	<0.1	7280		11.6	rain prior
SW0610	2023-03-22	49.5	0.591	0.363	0.85	37.5	10	113	3.01	0.86	0.013	13.2		15.7	no recent rain
SW0611	2023-03-22	100	0.604	0.0548	0.59	24.4	3200	214	2.69	1.49	0.321	41.9		16.3	sewer odour, clear, no recent rain
SW0613	2022-01-31	354	0.743	0.0248	*1.2*	17.2	400	934	1.73	1.15	<0.01	42.8	<0.1	43	low tide odour, clear, rain
SW0613	2023-04-26	91.9	1.03	0.0352	0.69	22.9	1200	489	1.28	1.34	<0.01	109		17.8	light rain prior
SW0613	2023-07-04	34.6	0.895	0.0121	*1.34*	5.33	7000	319	0.301	4.58	<0.01	210		9.2	no rain prior

Table 5, Continued

Station ID	Start Date	Aluminum µg/L	Arsenic µg/L	Cadmium µg/L	Chromium µg/L	Copper µg/L	E. Coli CFU/100mL	Iron µg/L	Lead µg/L	Nickel µg/L	Silver µg/L	Sodium mg/L	PAH µg/L	Zinc µg/L	Comment
BC Marine Aquatic Life Guidelines	max	-	12.5 [1]	0.12	-	3	-	-	140	-	3	-		55	
	average	-	-	-	-	2	-	-	2	-	1.5	-		10	
BC Freshwater Aquatic Life Guidelines	max	100	5	-	1 / 9 [2]	11.4	-	1000	81.6	25-110	0.1	-		40.5	
	average	50	-	-	-	4	-	-	6.5	-	0.05	-		15	
SW0614	2022-01-31	241	0.993	0.0376	0.97	14.6		275	1.07	1.08	0.0074	94.6	<0.1	41.5	low tide odour, murky, rain
SW0614	2023-07-04	171	5.79	0.297	*5.04*	28.8	760	278	1.79	4.08	0.018	173		27.6	no odour, amber, no rain prior
SW0619	2023-04-21	184	1.28	0.0282	*1.04*	19.6	36000	310	1.43	2.02	0.02	47.8		14.5	foul odour, clear, rain yesterday
SW0620	2023-07-04	221	1.26	0.0345	*5.35*	16	22000	517	1.83	21.4	0.022	61.2	<0.1	35.8	sewer odour, amber, no rain prior
SW0620	2022-07-15	54	1.31	0.0233	0.47	18	2600	932	0.505	1.01	0.061	102	<0.1	155	organic odour, brown, no rain prior
SW0622	2023-04-21	127	0.65	0.0341	0.66	14.9	90	270	0.843	1.84	0.011	180		119	rain prior
SW0622	2023-05-05	590	18.5	0.04	*2.6*	16.6	1800	886	2.96	1.95	0.014	15.8		132	no odour, grey, rain just prior
SW0624	2023-04-21	530	1.3	0.0277	*1.15*	27	81000	715	0.857	1.68	0.018	56.3		23.8	rain prior
SW0624	2023-07-04	25	1.04	<0.025	0.53	3.66	15	77	0.27	0.91	<0.05	908		7.1	no rain prior
SW0626	2023-04-21	251	0.95	0.0298	*1.08*	17.4	7000	459	1.21	1.63	0.026	47.9		56.4	rain prior
SW0627	2023-07-04	95.4	1.1	0.0141	0.64	5.5	14000	287	0.561	1.51	<0.01	72		31.7	sewer odour, amber, no rain prior
SW0629	2022-03-23	14300	8.03	0.982	*26.8*	537	3200	18200	178	57	0.263	104	17	1670	sewer odour, turbid, rain
SW0630	2022-03-22	16200	7.55	0.214	*42.5*	63.5	140	18300	25.4	20	0.087	24.6	3.6	180	no odour, turbid, rain
SW0633	2022-03-23	1670	3.52	0.104	*6.09*	62.3	300	3570	11	7.16	0.054	361	0.33	122	sewer odour, sudsy, rain prior two days
SW0641	2023-03-08	175	0.651	0.0135	*2.67*	3.97	2700	364	0.516	10.5	<0.005	48.2		13.7	murky, people tenting, no rain prior
SW0643	2022-03-03	170	1.07	0.0181	0.52	4.28	11	183	0.135	1.41	<0.01	106	<0.1	7.2	no rain in past two days
SW0644	2023-04-21	32200	14.3	3.8	*79.1*	384	3600	52200	248	77.1	0.495	75.1		1690	foul odour, black, rain prior
SW0645	2022-03-03	176	0.654	0.0121	0.41	4.48	1200	171	0.32	0.91	<0.01	24.3	<0.1	7.3	no odour, murky, no recent rain
SW0645	2023-04-21	141	0.554	0.0175	*1.53*	16.2	570000	176	0.461	1.44	0.048	17.4	<0.1	37.5	rain prior
SW0645A	2022-03-03	22.7	0.319	<0.005	0.18	1.35	540	52.1	0.0267	0.678	<0.005	43.5	<0.1	2	no rain in past two days
SW0645A	2023-03-27	4.4	0.284	<0.005	*5.41*	1.03	340	37.2	0.0171	22.8	<0.005	50.2		1.01	no recent rain
SW0646	2022-03-03	19.6	0.261	0.0332	0.25	2.36	15	26.5	0.105	1.45	<0.01	244	<0.1	14	no rain in past two days
SW0649	2022-03-03	64.3	0.698	0.0085	0.27	8.03	130	123	0.256	1.29	<0.005	34.2	<0.1	9.76	no rain in past two days
SW0649	2023-05-05	207	0.477	0.0085	0.64	34.1	45000	277	1.15	0.85	<0.01	11.5		12.4	no odour, murky, rain just prior
SW0649A	2023-03-27	6	0.668	0.04	*4.82*	5.35	2	65	0.041	17.9	0.022	611		4.55	no recent rain
SW0650	2023-03-27	49.5	0.683	0.0127	0.68	1.74	5800	57.2	0.174	2.78	<0.01	18.3		6.5	no recent rain
SW0650	2022-03-03	2020	1.16	0.0361	*3.17*	8.56	110000	2430	4.39	3.14	0.014	20.4	<0.1	15.6	no odour, brown, no recent rain
SW0650	2022-03-03	359	0.476	0.0133	0.7	5.12	8000	442	0.698	0.97	<0.01	61.3	<0.1	5.5	no rain past two days, surge flow
SW0653	2023-03-27	74.1	0.546	0.0068	0.74	1.98	61	239	0.147	1.4	<0.01	36.2		3.6	no recent rain
SW0655	2023-03-27	777	1.44	0.0387	*1.88*	7.25	360	3070	2.35	3.58	0.013	53.4		26.4	
SW0655	2023-04-27	259	0.815	0.037	*7.19*	5.96	78	1790	0.795	29.2	<0.01	53.8		10.5	no rain prior
SW0658A	2023-04-21	2530	1.45	0.055	*6.91*	24.6	20	3740	9.25	5.18	0.026	20.1		72	rain prior
SW0661	2023-04-21	25.8	0.067	<0.005	0.2	0.92	<1	39.6	0.029	0.42	<0.01	3.13		1.2	potential surge flow, rain prior
SW0665	2023-04-21	171	0.822	0.0072	*1.88*	2.87	3	161	0.229	1.25	<0.01	105		5.5	rain prior
SW0671	2023-04-21	63.7	0.554	0.0122	0.49	5.62	29	64.5	0.124	2.84	<0.01	19.5		6.1	rain prior
SW0687	2023-04-24	388	0.715	0.0223	*1.21*	10	23	573	0.77	2.3	0.013	29.7	<0.1	14.4	rain prior
SW0690D	2023-03-08	113	0.529	0.008	*2.65*	2.17	19	328	1.06	10.6	<0.005	22.9		4.03	flow not estimated, no rain prior
SW0691A	2023-05-04	2660	0.933	0.09	*5.02*	26.9	5	3590	17.2	5.22	0.026	24.3		62.2	no rain prior
SW0697	2023-04-05	54.9	0.528	0.0137	0.23	2.82	46	193	0.063	1.33	<0.01	40		14.9	no rain previous
SW0703	2023-04-03	222	0.785	0.0104	0.58	2.23	3	2950	0.892	1.6	<0.01	148		7	light rain prior
SW0709B	2023-03-08	101	0.141	<0.005	0.65	0.634	8	190	0.0585	2.02	<0.005	6.64		0.67	flow not estimated, no rain prior
SW0710	2022-02-15	591	0.514	0.0141	0.91	6.35	<1	798	0.74	1.3	0.014	21.9	<0.1	6.1	no rain
SW0710	2023-04-03	261	0.281	0.0103	0.49	7.16	13	245	0.281	0.84	<0.01	21		12.2	light rain prior
SW0712	2022-02-15	24.2	0.234	0.0108	0.14	2.47	5	60	0.0498	2.44	<0.005	26	<0.1	6.03	no rain
SW0722	2022-02-15	42.5	0.459	0.0106	0.39	2.69	7	78.3	0.192	0.756	<0.005	29.7	<0.1	4.72	chemical odour, suds, surge, no rain
SW0722	2023-04-03	171	0.672	0.0096	0.6	2.82	3	193	0.291	0.83	<0.01	22.8	<0.1	7.2	asphalt odour, light rain previous
SW0722AA	2022-02-15	413	0.724	0.0175	*1.15*	5.17	1	646	1.31	1.32	<0.01	29.9	<0.1	14.8	no rain

Table 5, Continued

Station ID	Start Date	Aluminum µg/L	Arsenic µg/L	Cadmium µg/L	Chromium µg/L	Copper µg/L	E. Coli CFU/100mL	Iron µg/L	Lead µg/L	Nickel µg/L	Silver µg/L	Sodium mg/L	PAH µg/L	Zinc µg/L	Comment
BC Marine Aquatic Life Guidelines	max	-	12.5 [1]	0.12	-	3	-	-	140	-	3	-		55	
	average	-	-	-	-	2	-	-	2	-	1.5	-		10	
BC Freshwater Aquatic Life Guidelines	max	100	5	-	1 / 9 [2]	11.4	-	1000	81.6	25-110	0.1	-		40.5	
	average	50	-	-	-	4	-	-	6.5	-	0.05	-		15	
SW0722AA	2023-04-03	112	0.565	0.0078	0.51	2.72	26	164	0.336	0.75	<0.01	24.6		8	rain prior
SW0726	2023-04-05	117	0.412	0.03	0.33	2.66	1	304	0.22	0.72	<0.01	64.2	<0.1	8.5	no rain previous
SW0727	2022-02-15	27.4	0.268	0.0104	0.16	1.38	22	26.7	0.0666	0.519	<0.005	39.1	<0.1	2.93	no rain
SW0727	2023-04-05	31.2	0.322	0.005	0.18	0.9	10	173	0.054	0.64	<0.01	171		2	no rain previous
SW0736A	2023-06-13	31.6	0.416	0.0055	0.23	2.13	420	36.5	0.156	0.498	<0.005	40.9		3.17	no rain prior
SW0736A	2022-02-15	62.3	0.265	0.007	0.41	2.53	13	95.1	0.123	0.62	<0.01	31.6	<0.1	5.5	no rain
SW0736A	2023-04-03	42.2	0.255	0.0352	0.28	2.71	3	61.5	0.08	0.53	<0.01	23.2		5	light rain prior
SW0737	2023-04-03	341	0.616	0.0205	*1.26*	5.39	25	455	1.39	1.31	<0.01	46.1	<0.1	10.2	light rain prior
SW0737	2022-07-20	299	0.59	0.0245	0.74	8.48	3	368	0.662	1	0.036	55.2	<0.1	9.6	sewer odour, clear, no rain prior
SW0737	2023-06-13	61.2	0.643	0.0079	0.64	3.42	7	58.5	0.0699	1.69	<0.005	49.1		2.66	no rain prior
SW0742	2022-02-17	104	0.372	0.0075	0.34	1.49	3	859	0.107	1.39	<0.01	21.3	<0.1	2.7	no rain
SW0742	2023-03-10	266	0.426	0.0129	*1.02*	3.51	43	760	0.381	1.83	<0.01	36.7		9.9	no odour, murky, raining
SW0742B	2022-02-17	177	0.347	0.008	0.38	3.61	<1	674	0.158	0.838	0.0055	13.2	<0.1	3.44	unknown flow, no rain
SW0742B	2023-04-05	413	0.916	0.0297	*1.12*	6.01	26	1650	0.942	1.69	<0.01	25.7		18.6	no rain previous, pooled flow
SW0743A	2023-04-05	853	0.685	0.0368	*2.14*	6.76	2	2120	3.13	1.77	0.033	316		20.5	no rain previous
SW0744	2022-02-17	67	0.493	0.0109	0.3	2.56	630	398	0.151	1.31	<0.005	25.8	<0.1	11.8	no odour, murky, no rain
SW0744	2023-03-10	552	0.648	0.0296	*2.24*	11.7	1700	971	2.27	2.57	0.017	44.2		125	no odour, murky, raining
SW0744A	2022-02-17	37.3	0.369	0.0231	0.16	2.15	<1	227	0.109	1.09	<0.01	40.4	<0.1	19.9	no rain
SW0744A	2023-04-05	151	0.979	0.0357	0.55	3.52	12	2250	0.596	1.59	<0.01	36.4		186	no rain previous
SW0744B	2022-02-17	124	0.959	0.0278	0.52	5.56	410000	418	0.237	1.74	<0.01	45.3	<0.1	9.9	sewer odour, murky grey, no rain
SW0744B	2022-01-28	110	0.788	0.0193	0.39	8.43	300000	350	0.213	1.6	0.0061	42.8	<0.1	7.02	sewer odour, murky, no rain
SW0744B	2023-03-10	771	0.795	0.03	*2.27*	12.6	12000	1130	1.78	2.81	0.01	32.7		40.4	no odour, murky, raining
SW0744B	2023-05-05	4180	1.5	0.107	*10.2*	47.4	52000	6200	10.7	8.24	0.037	7.11		150	sewer odour, grey, raining
SW0749	2022-03-04	113	0.7	0.0093	0.57	3.61	800	101	0.151	1.43	<0.005	62.5	<0.1	4.25	no rain
SW0749	2023-03-10	552	0.83	0.026	*2.39*	8.65	300	723	2.03	7.29	0.014	105	<0.1	12.5	sewer odour, murky, raining
SW0751	2023-03-10	267	0.652	0.028	*1.08*	5.99	420	259	1.06	3.58	<0.01	20.9		9.1	no odour, murky, raining
SW0758A	2023-03-22	231	0.665	0.029	*1.19*	4.25	2200	484	0.938	3.5	<0.02	340		9.2	no recent rain
SW0759	2023-03-22	266	1.03	0.0222	*1.9*	6.13	3	380	2.25	2.54	<0.01	174		6.7	no recent rain
SW0768	2023-03-23	29.3	0.511	0.009	0.41	14.7	1500	408	0.334	1	<0.005	98		26.3	no recent rain
SW0769	2023-03-22	649	0.662	0.0571	*7.02*	13.1	1500	1230	4.24	26.2	0.024	20.6		95.5	no recent rain
SW0775	2023-03-22	105	0.716	0.037	*3.68*	6.85	4400	110	1.07	15.3	<0.01	27.8		25.8	no recent rain
SW0777A	2022-03-04	153	0.871	0.0152	0.41	7.2	25000	302	0.383	1.68	0.0068	35.8	<0.1	7.92	sewer odour, murky, no rain
SW0779	2022-02-07	5930	2.21	0.161	*8.68*	33.1	50000	7350	11.5	9.8	0.087	19.7	<0.1	91.5	perfume odour, brown, surge, no rain
SW0779	2022-02-16	55.6	0.454	0.0128	0.3	1.8	4000	136	0.318	0.937	<0.005	30	<0.1	2.9	no rain
SW0779	2023-03-10	772	1.08	0.0279	*2.59*	9.05	840	1050	2.01	2.37	<0.01	23.4		24.5	chemical odour, murky, raining
SW0780	2022-02-07	28.6	0.76	0.0123	0.49	3.3	19000	43.7	0.191	0.53	<0.005	32	<0.1	8.2	no rain
SW0780	2023-03-10	773	3.77	0.0312	*4.18*	19.2	9000	1080	2.93	1.98	0.01	46.5	0.91	57.1	murky, raining
SW0781	2022-02-07	57.7	0.423	0.0118	0.32	3.39	460	419	0.143	0.72	<0.005	35.3	<0.1	6.28	creosote odour, clear, no rain
SW0781	2023-03-10	917	0.891	0.0469	*2.89*	18.3	1400	1460	3.14	2.35	0.02	87.3	1.3	56.4	creosote odour, murky, raining
SW0805	2023-03-02	479	2.35	0.0665	*2.08*	7.53	2000	473	0.639	1.42	0.018	52.2		15	sewer odour, murky, rain past two days
SW0805	2022-01-28	130	0.474	0.0171	0.99	9.71	120000	221	0.505	1.05	0.015	28.1	<0.1	12	sewer odour, murky, no rain
SW0805	2023-03-10	348	0.549	0.0201	0.82	7.57	33000	489	1.31	1.18	<0.01	15.4	<0.1	13.6	sewer odour, murky, raining
SW0805	2023-05-16	42.5	0.606	0.0079	*5.94*	4.21	12000	111	0.217	24.7	<0.01	27.1		5.7	sewer odour, murky, no rain prior
SW0806	2022-01-28	126	0.604	0.0188	0.33	3.51	200	321	0.145	1.25	<0.005	42.4	<0.1	6.43	sewer odour, murky, no rain
SW0806	2023-03-02	235	0.87	0.0304	0.56	3.72	900	339	0.338	1.07	0.0051	22		13.4	sewer odour, murky, rain past two days
SW0806	2023-03-10	287	0.624	0.0174	0.75	6.59	1100	425	0.643	1.3	<0.01	14.3	<0.1	17.7	sewer odour, murky, raining

Table 5, Continued

Station ID	Start Date	Aluminum µg/L	Arsenic µg/L	Cadmium µg/L	Chromium µg/L	Copper µg/L	E. Coli CFU/100mL	Iron µg/L	Lead µg/L	Nickel µg/L	Silver µg/L	Sodium mg/L	PAH µg/L	Zinc µg/L	Comment
BC Marine Aquatic Life Guidelines	max	-	12.5 [1]	0.12	-	3	-	-	140	-	3	-		55	
	average	-	-	-	-	2	-	-	2	-	1.5	-		10	
BC Freshwater Aquatic Life Guidelines	max	100	5	-	1 / 9 [2]	11.4	-	1000	81.6	25-110	0.1	-		40.5	
	average	50	-	-	-	4	-	-	6.5	-	0.05	-		15	
SW0812	2023-04-26	114	0.56	0.0133	*11.3*	5.14	110000	139	0.447	45.7	0.011	31.7		16.2	strong acrid odour, grey, rain prior
SW0814	2022-02-16	411	0.785	0.017	0.85	5.25	1000	346	0.881	1.28	0.0109	27.2	<0.1	9.36	no rain
SW0814	2023-03-02	403	1.24	0.0279	*2.58*	14.5	50	280	0.82	1.94	0.008	35		12.5	rain in the past two days
SW0854	2022-03-23	732	0.75	0.0178	*1.75*	12	800	1240	1.37	4.51	<0.01	25.8	<0.1	24.1	sewer odour, murky, rain past two days
SW0854	2022-07-14	62.6	2.03	0.0226	0.46	7.99	44000	672	0.212	1.92	0.006	121		11.7	organic odour, amber, no rain prior
SW0854	2023-03-23	27.2	0.438	0.0091	0.29	3.71	1600	256	0.175	0.778	<0.005	33.6	<0.1	5.92	no recent rain
SW0865D	2023-05-04	16.1	1.64	<0.005	0.32	0.51	18	10300	0.163	2.68	<0.01	56.9		1.8	iron oxide bacteria, no rain prior
SW0865F	2023-04-05	922	1.81	0.158	*1.88*	48.2	1	1320	2.44	9.33	0.015	30.7		37.8	no rain prior
SW0865G	2023-04-05	730	0.828	0.031	*1.47*	12.9	10000	1290	0.482	1.56	<0.02	432		20.2	marine influence? no rain prior
SW0872	2023-04-05	56	0.226	0.0078	0.32	2.95	1	57.5	0.064	0.94	<0.01	18		3.5	no rain prior
SW0879	2023-05-04	506	0.486	0.0156	0.92	2.62	27	829	0.717	1.04	<0.01	16.7		5.3	no rain prior
SW0886	2023-03-17	24.5	0.113	0.0079	*130*	0.894	9	102	0.0544	559	<0.005	12		1.69	no rain prior
SW0916	2023-03-17	32.9	0.218	0.006	*1.35*	1.39	5	252	0.0902	4.91	<0.005	23.5		3.34	no rain prior
SW0920	2023-05-04	7.8	0.145	<0.005	0.27	0.36	6	53.8	0.031	0.33	<0.01	12.2		<1	no rain prior
SW0926	2023-03-17	42.6	0.287	0.101	*16.7*	0.47	2	117	0.0894	69.3	<0.005	16.5		0.9	no rain prior
SW0927	2023-04-14	118	1.28	0.0187	0.38	1.08	<1	552	0.193	0.58	<0.01	9.4	<0.1	2.6	no rain prior
SW0928	2023-03-17	47.8	0.185	0.784	*3.96*	0.94	4	98.5	0.0724	15.5	<0.005	15.6		1.53	no rain prior
SW0929	2023-03-28	64.4	0.208	0.0205	0.57	0.96	130	88.7	0.062	0.35	<0.01	17.2		1.8	no rain prior
SW0931	2023-03-28	60.9	0.202	0.0055	0.47	0.82	1	76.2	0.163	0.4	<0.01	15.9		1.2	no rain prior
SW0932	2023-03-28	15.7	0.144	0.0309	0.36	0.48	<1	18.8	0.027	0.29	<0.01	15.2		<1	no rain prior
SW0933	2023-03-28	24	0.185	0.0204	0.43	0.79	1	28.8	0.056	0.28	<0.01	15.3		<1	no rain prior
SW0934	2023-03-28	10	0.246	0.0071	0.4	0.68	1	10.2	0.03	0.52	<0.01	17.2	<0.1	1.3	no rain prior
SW0935	2023-03-28	1140	0.519	1.96	*1.8*	8.18	<1	1760	2.78	2.84	<0.01	21.2		89.3	no rain prior
SW0935A	2023-03-28	18.5	0.179	<0.005	0.35	0.54	1	28	0.05	0.36	<0.01	17.4		2.8	no rain prior
SW0936	2023-03-28	9.5	0.184	0.0592	0.3	0.56	3	11.7	<0.02	0.26	<0.01	15.6		2.6	no rain prior
SW0940	2023-04-14	57.7	0.169	0.0078	0.42	0.58	<1	105	0.187	0.4	<0.01	9.8		1.1	no rain prior
SW6003	2023-04-14	19.1	0.113	0.0386	<0.1	0.36	2	19.7	<0.02	0.32	<0.01	3.11		<1	no rain prior, flow not estimated
SW6008	2022-04-29	19	0.089	<0.005	0.25	0.389	<1	25.3	0.0435	0.237	<0.005	9.92	<0.1	1.28	no rain
SW6008	2023-04-14	44.6	0.104	<0.005	0.29	0.42	<1	55.7	0.033	0.48	<0.01	12.4	<0.1	20.9	no rain prior

Notes:
All metals are as total state.
British Columbia approved and working water quality guidelines for protection of freshwater or marine aquatic life were used for comparison.
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 100 mg/L CaCO3 was used to calculate hardness dependant water quality parameters.
Interim guideline.
Cr(IV) / Cr (III)
Guideline If methylmercury is 5% of the total mercury; methyl mercury was not measured in these samples.
Background concentrations of mercury in Vancouver Island streams ranged from less than 0.001 to 0.046 mg/L in a 2014 study.

xx	value exceeds the provincial guideline for protection of freshwater aquatic life.
xx	value exceeds the provincial guideline for protection of marine aquatic life.
xx	value exceeds the provincial guideline for the marine and freshwater aquatic life.
xx	italicized value exceeds a guideline which is only partially applicable. Further investigation is needed.

APPENDIX F

WATERCOURSE MONITORING DATA

Table 1 Summary Table for 5 in 30 Water Quality Data Collected for Cecelia Creek and Mill Stream

	Parameter	Aluminum	Aluminum	Antimony	Antimony	Arsenic	Arsenic	Barium	Beryllium	Cadmium	Cadmium	Organic Carbon	Chromium	Chromium
State		TOT	DIS	TOT	DIS	TOT	DIS	TOT	TOT	TOT	DIS	DIS	TOT	DIS
Unit		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L
BC ENV Freshwater	acute /instantaneous		100*	20 [1]		5					0.2-2.3 [2]		1 / 8.9 [1,3]	
Aquatic Life Guidelines	chronic /average	46-600 [2]	50*					1,000 [1]	0.13 [1]		0.1-0.6 [2]			
Station Description														
Cecelia Creek														
Cecelia Creek mouth (SW0641)														
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	0%	0%	80%	0%	80%	0%	0%	0%
	min	30.8	6.1	0.517	0.56	0.891	0.853	16.9	0.01	0.0073	0.005	4.4	0.33	0.19
	max	246	42.7	1.74	1.94	1.15	1.35	23.5	0.011	0.025	0.0643	19	*2.72*	2.56
	ave	80	14.9	0.81	0.85	1.04	1.00	21.1	0.01	0.014	0.017	9	0.86	0.68
	sd	83	13.9	0.47	0.55	0.09	0.18	2.5	0.0	0.008	0.024	6	0.9	0.94
Fall	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	0%	0%	80%	0%	0%	0%	0%	0%
	min	45.1	8.36	0.448	0.459	0.729	0.632	17.2	0.01	0.0074	0.0071	3.6	0.35	0.17
	max	*327*	15.8	0.929	0.901	1.1	1.06	24.3	0.01	0.0231	0.0892	6.9	*1.93*	2.74
	ave	151	11.4	0.68	0.67	0.88	0.82	21.9	0.01	0.015	0.0281	5	1.00	0.99
	sd	104	2.4	0.20	0.17	0.17	0.18	2.9	0.0	0.006	0.031	1	0.6	1.01
Cecelia Creek -1650 mm concrete pipe (SW0641-3D)														
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	0%	0%	60%	0%	0%	0%	0%	0%
	min	91.1	16.9	0.637	0.703	0.852	0.901	18.5	0.01	0.0177	0.0076	5.3	0.45	0.26
	max	*510*	57.1	2.35	2.84	1.45	1.79	24.7	0.02	0.138	0.0816	22	*3.89*	3.8
	ave	233	30.9	1.35	1.40	1.14	1.12	21.8	0.01	0.062	0.042	13	*1.77*	1.06
	sd	161	14.9	0.60	0.77	0.21	0.34	2.0	0.0	0.041	0.026	7	*1.2*	1.37
Fall	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%
	min	55.2	11	0.467	0.466	0.657	0.624	16.9	0.01	0.0107	0.01	3.6	0.42	0.18
	max	277	58.2	1.31	1.1	1.3	1.16	24.7	0.01	0.0296	0.145	7.4	*4.78*	27.4
	ave	169	24.7	0.79	0.72	0.86	0.80	20.3	0.01	0.019	0.041	5	*1.81*	6.75
	sd	85	17.0	0.30	0.22	0.24	0.19	3.2	0.0	0.007	0.052	1	1.7	10.40
Cecelia Creek - Combined flow of 641-3E and 641-3F (SW0641-3G														
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	0%	0%	80%	0%	0%	0%	0%	0%
	min	136	7.94	0.539	0.472	1.05	0.872	22.4	0.01	0.0134	0.005	6.8	0.6	0.17
	max	403	34.4	1.51	1.67	1.4	1.26	37.3	0.014	0.0463	0.0381	31	1.31	0.93
	ave	219	14.6	0.81	0.82	1.21	1.13	32.2	0.01	0.028	0.014	15	0.94	0.41
	sd	99	10.0	0.37	0.44	0.12	0.14	5.4	0.0	0.013	0.012	10	0.3	0.28
Fall	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	0%	0%	100%	0%	20%	0%	0%	0%
	min	81.9	4.73	0.45	0.454	1.06	0.826	26.3	0.01	0.0146	0.005	5.4	0.57	0.32
	max	153	19.6	1.49	1.66	2.88	3.09	33.2	0.01	0.0239	0.0176	7.1	*3.27*	2.81
	ave	114	11.2	0.84	0.83	1.56	1.42	29.6	0.01	0.018	0.011	6	1.36	0.97
	sd	28	5.7	0.36	0.44	0.67	0.85	2.3	0.0	0.004	0.004	1	1.0	0.94

Table 1, Continued

	Parameter	Aluminum	Aluminum	Antimony	Antimony	Arsenic	Arsenic	Barium	Beryllium	Cadmium	Cadmium	Organic Carbon	Chromium	Chromium
State		TOT	DIS	TOT	DIS	TOT	DIS	TOT	TOT	TOT	DIS	DIS	TOT	DIS
Unit		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L
BC ENV Freshwater	acute /instantaneous		100*	20 [1]		5					0.2-2.3 [2]		1 / 8.9 [1,3]	
Aquatic Life Guidelines	chronic /average	46-600 [2]	50*					1,000 [1]	0.13 [1]		0.1-0.6 [2]			
Station Description														
Mill Stream														
Mill Stream below 1700 Wilfert Rd, rapids (SW0886)														
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	0%	0%	100%	60%	40%	0%	0%	0%
	min	17.4	2.15	0.056	0.071	0.183	0.226	8.88	0.01	0.005	0.005	2.3	0.14	0.12
	max	30.7	5.33	0.174	0.179	0.266	0.282	12.6	0.01	0.011	0.56	4	0.29	0.18
	ave	23	3.0	0.10	0.11	0.23	0.24	11.4	0.01	0.006	0.121	3	0.23	0.15
	sd	6	1.2	0.04	0.04	0.03	0.02	1.3	0.0	0.002	0.220	1	0.0	0.02
Fall	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	0%	0%	100%	80%	80%	0%	0%	20%
	min	25.1	2.66	0.089	0.059	0.148	0.148	5.97	0.01	0.005	0.005	2.9	0.16	0.1
	max	*336*	9.08	0.309	0.261	0.354	0.337	11.7	0.01	0.0099	0.0056	4.9	*1.31*	0.77
	ave	138	7.0	0.15	0.12	0.24	0.21	9.2	0.01	0.006	0.005	4	0.60	0.32
	sd	129	2.6	0.08	0.07	0.08	0.08	2.0	0.0	0.002	0.000	1	0.5	0.27
Mill Stream, near Langford/Colwood border, 381 Atkin Rd. (SW0886-3)														
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	0%	0%	100%	100%	80%	0%	40%	60%
	min	9.77	1.65	0.047	0.064	0.161	0.185	10.4	0.01	0.005	0.005	2.8	0.1	0.1
	max	14.8	3.18	0.099	0.092	0.273	0.243	13.2	0.01	0.005	0.119	3.4	0.29	0.14
	ave	12	2.3	0.07	0.07	0.20	0.21	12.0	0.01	0.005	0.028	3	0.15	0.11
	sd	2	0.5	0.02	0.01	0.04	0.02	0.9	0.0	0.000	0.046	0	0.1	0.02
Fall	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	0%	0%	80%	80%	80%	0%	40%	60%
	min	8.19	2.39	0.065	0.053	0.138	0.139	5.61	0.01	0.005	0.005	2.7	0.1	0.1
	max	702	9.56	0.277	0.216	0.576	0.279	17.2	0.017	0.0276	0.0165	5	*1.9*	1.27
	ave	182	6.7	0.16	0.11	0.27	0.20	9.9	0.01	0.010	0.007	4	0.78	0.39
	sd	265	2.7	0.08	0.06	0.17	0.06	4.3	0.0	0.009	0.005	1	0.8	0.45
Mill Stream, under bridge at Treanor Ave. (SW0886-6)														
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	0%	0%	100%	0%	40%	0%	0%	80%
	min	33.1	3.46	0.103	0.095	0.314	0.267	16.9	0.01	0.013	0.005	3.2	0.16	0.1
	max	95.1	7.08	0.155	0.184	0.338	0.346	18.9	0.01	0.03	0.0511	4.7	0.38	0.11
	ave	60	4.7	0.12	0.12	0.32	0.30	18.0	0.01	0.020	0.019	4	0.26	0.10
	sd	20	1.2	0.02	0.03	0.01	0.03	0.8	0.0	0.006	0.018	0	0.1	0.00
Fall	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	0%	0%	100%	20%	40%	0%	0%	60%
	min	23.7	3.82	0.056	0.071	0.128	0.152	5.79	0.01	0.005	0.005	2.3	0.12	0.1
	max	228	12.9	0.155	0.141	0.273	0.222	17.7	0.01	0.0255	0.0293	5	*1.02*	0.57
	ave	94	7.3	0.11	0.11	0.19	0.18	10.8	0.01	0.012	0.013	4	0.42	0.22
	sd	83	3.4	0.04	0.03	0.05	0.03	5.0	0.0	0.008	0.009	1	0.3	0.18
Hazlitt Creek at Millstream Lake and Munn roads (SW0886-9)														
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	100%	100%	0%	0%	0%	100%	40%	80%	0%	40%	100%
	min	11.6	4	0.02	0.02	0.117	0.114	3.44	0.01	0.005	0.005	3.8	0.1	0.1
	max	17.4	6.87	0.02	0.02	0.161	0.189	4.62	0.01	0.018	0.0358	13	0.17	0.1
	ave	14	5.3	0.02	0.02	0.14	0.16	4.2	0.01	0.009	0.011	6	0.12	0.10
	sd	2	0.9	0.00	0.00	0.02	0.03	0.4	0.0	0.005	0.012	4	0.0	0.00

Table 1, Continued

	Parameter	Aluminum	Aluminum	Antimony	Antimony	Arsenic	Arsenic	Barium	Beryllium	Cadmium	Cadmium	Organic Carbon	Chromium	Chromium
State		**TOT**	**DIS**	**TOT**	**DIS**	**TOT**	**DIS**	**TOT**	**TOT**	**TOT**	**DIS**	**DIS**	**TOT**	**DIS**
Unit		**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**mg/L**	**µg/L**	**µg/L**
BC ENV Freshwater	**acute /instantaneous**		**100***	**20** [1]		**5**					**0.2-2.3** [2]		**1 / 8.9** [1,3]	
Aquatic Life Guidelines	**chronic /average**	**46-600** [2]	**50***					**1,000** [1]	**0.13** [1]		**0.1-0.6** [2]			
Station Description														
Fall	n	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	60%	60%	0%	0%	0%	100%	100%	80%	0%	40%	60%
	min	15.7	3.12	0.02	0.02	0.082	0.116	2.59	0.01	0.005	0.005	4.1	0.1	0.1
	max	70	22	0.046	0.028	0.121	0.125	3.73	0.01	0.005	0.0391	6.4	0.38	17.2
	ave	30	11.4	0.03	0.02	0.10	0.12	2.9	0.01	0.005	0.012	5	0.18	3.52
	sd	20	6.9	0.01	0.00	0.01	0.00	0.4	0.0	0.000	0.014	1	0.1	6.84

Table 1, Continued

	Parameter	Conductivity	Copper	Copper	Oxygen	E. Coli	F. Coliforms	Hardness (CaCO3)	Iron	Iron	Lead	Lead	Manganese	No2 (As N)	No3 (As N)
State		**NA**	**DIS**	**TOT**	**DIS**	**NA**	**NA**	**TOT**	**DIS**	**TOT**	**TOT**	**DIS**	**TOT**	**DIS**	**DIS**
Unit		**µS/cm**	**µg/L**	**µg/L**	**mg/L**	**CFU/100 mL**	**CFU/100 mL**	**mg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**mg/L**	**mg/L**
BC ENV Freshwater	**acute /instantaneous**		**0.4 - 70** [2,4]		**5** [5]	**400** [6]			**350**	**1,000**	**15.9-434** [2]		**540-4639** [2]	**0.24**	**32.8**
Aquatic Life Guidelines	**chronic /average**		**0.3 - 12** [2,4]		**8** [5]	**200** [6]					**4.2-13.6** [2]		**605-2242** [2]	**0.08**	**3**
Station Description															
Cecelia Creek															
Cecelia Creek mouth (SW0641)															
Summer	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	135.8	4.08	4.17	3.83	550	1000	51.9	16.8	176	0.169	0.0084	44.1	0.0354	0.94
	max	613	27.3	25.8	4.7	50000	72000	204	186	482	1.16	0.544	91.1	0.0983	1.25
	ave	420	10.3	10.6	4.3	13254	18020	155	52	274	0.39	0.117	62.1	0.0697	1.14
	sd	199	8.8	8.1	0.3	18643	27161	54	67	107	0.39	0.213	19.9	0.0230	0.11
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	309.9	2.94	3.02	6.9	250	660	86	11.6	171	0.167	0.0089	27.9	0.0298	0.859
	max	720	7.36	9.29	9.06	7900	8900	209	57.1	582	1.01	0.07	78.1	0.0492	2.21
	ave	553	4.9	5.9	7.7	3410	4332	155	31	312	0.52	0.040	54.8	0.0412	1.42
	sd	162	1.9	2.5	0.7	2567	2633	42	15	146	0.27	0.022	16.4	0.0064	0.47
Cecelia Creek -1650 mm concrete pipe (SW0641-3D															
Summer	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	245.8	7.75	8.59	5.73	5100	6900	52.6	42.6	279	0.299	0.0327	44.5	0.0269	0.736
	max	552.9	33.1	31.3	7.14	51000	67000	162	245	961	2.03	0.652	154.0	0.0852	1.72
	ave	445	19.6	21.4	6.4	18120	22000	130	99	543	1.07	0.202	71.1	0.0564	1.19
	sd	108	9.2	9.2	0.5	16707	22647	39	75	255	0.62	0.227	41.7	0.0238	0.34
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	343.4	4.39	4.63	7.8	2700	4300	88.2	32.4	173	0.197	0.0395	36	0.0173	0.819
	max	635	9.59	12.5	9.93	9600	9600	185	215	464	0.959	0.177	67.7	0.0428	2.08
	ave	473	7.0	8.1	9.1	4600	7080	140	108	335	0.50	0.092	52.6	0.0328	1.28
	sd	97	2.2	2.9	0.7	2548	2037	32	75	101	0.26	0.053	10.6	0.0086	0.45
Cecelia Creek - Combined flow of 641-3E and 641-3F (SW0641-3G															
Summer	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	341.5	5.89	7.17	2.78	340	10000	72.5	13.2	560	0.472	0.0065	146	0.0579	1.26
	max	1039	28.2	30.1	3.65	100000	440000	255	206	1260	2.36	0.534	219	0.307	2.15
	ave	790	15.0	16.7	3.2	27488	98000	192	57	720	1.09	0.117	182	0.152	1.69
	sd	258	9.3	9.2	0.3	36603	171008	62	75	270	0.69	0.209	24	0.088	0.34
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	635	3.86	5.03	2.2	280	5000	160	25.6	286	0.341	0.0168	91.9	0.115	1.95
	max	824	7.08	9.7	6.77	320000	330000	248	37.4	570	0.618	0.0447	258	0.289	4.13
	ave	693	5.9	7.5	5.6	69836	73560	216	32	408	0.41	0.028	172	0.153	2.66
	sd	68	1.1	1.5	1.7	125206	128284	32	5	122	0.10	0.010	67	0.068	0.85

Table 1, Continued

	Parameter	Conductivity	Copper	Copper	Oxygen	E. Coli	F. Coliforms	Hardness (CaCO3)	Iron	Iron	Lead	Lead	Manganese	No2 (As N)	No3 (As N)
State		**NA**	**DIS**	**TOT**	**DIS**	**NA**	**NA**	**TOT**	**DIS**	**TOT**	**TOT**	**DIS**	**TOT**	**DIS**	**DIS**
Unit		**µS/cm**	**µg/L**	**µg/L**	**mg/L**	**CFU/100 mL**	**CFU/100 mL**	**mg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**mg/L**	**mg/L**
BC ENV Freshwater	**acute /instantaneous**		**0.4 - 70** [2,4]		**5** [5]	**400** [6]			**350**	**1,000**	**15.9-434** [2]		**540-4639** [2]	**0.24**	**32.8**
Aquatic Life Guidelines	**chronic /average**		**0.3 - 12** [2,4]		**8** [5]	**200** [6]					**4.2-13.6** [2]		**605-2242** [2]	**0.08**	**3**
Station Description															
Mill Stream															
Mill Stream below 1700 Wilfert Rd, rapids (SW0886)															
Summer	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%	60%	0%	20%	0%
	min	396.4	0.983	0.83	7.04	47	52	130	5.7	76.5	0.026	0.005	29.5	0.002	1.13
	max	481.7	3.82	2.3	8.13	240	780	180	20.6	101	0.0388	0.0153	49.1	0.0047	1.33
	ave	445	2.2	1.3	7.6	94	229	164	10	88	0.03	0.007	35	0.0032	1.22
	sd	39	1.0	0.5	0.4	74	277	18	6	10	0.00	0.004	8	0.0009	0.07
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%	20%	0%	40%	0%
	min	267.3	1.47	1.2	10.37	18	43	96.4	9	118	0.0306	0.005	11	0.002	0.536
	max	582.9	2.77	3.88	12.35	2800	1200	226	65.1	545	0.428	0.0169	53.3	0.0044	2.66
	ave	368	2.0	2.4	11.7	708	400	141	30	280	0.17	0.009	27	0.0026	1.49
	sd	113	0.5	1.2	0.7	1067	449	51	20	183	0.16	0.004	15	0.0009	0.72
Mill Stream, near Langford/Colwood border, 381 Atkin Rd. (SW0886-3)															
Summer	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%	20%	80%	0%	80%	0%
	min	377.1	1.22	0.85	9.08	43	55	154	7.3	80.9	0.0167	0.005	14.8	0.002	0.765
	max	508.7	2.06	1.34	9.79	130	160	205	23.4	105	0.033	0.006	27.4	0.0025	1.09
	ave	454	1.5	1.1	9.5	91	107	183	12	93	0.02	0.005	21	0.0021	0.91
	sd	45	0.3	0.2	0.2	37	37	16	6	8	0.01	0.000	5	0.0002	0.12
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%	40%	0%	40%	0%
	min	166.1	1.47	1.1	11.05	11	54	56.9	12.4	70.6	0.0188	0.005	13.4	0.002	0.388
	max	594.1	3.05	7.18	12.68	3400	3400	230	68.3	1540	1.21	0.0163	331	0.0154	4.87
	ave	346	2.1	2.8	11.9	872	907	136	32	430	0.29	0.008	80	0.0059	2.09
	sd	145	0.6	2.3	0.5	1309	1286	60	21	560	0.46	0.004	126	0.0050	1.59
Mill Stream, under bridge at Treanor Ave. (SW0886-6)															
Summer	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%	80%	0%	40%	0%
	min	501.6	2.79	3.18	5.8	31	78	230	3.6	112	0.0509	0.005	56.3	0.002	0.974
	max	707	5.57	4.82	7.47	390	16000	274	12.1	267	0.206	0.0133	129	0.0035	1.54
	ave	646	3.8	3.9	6.4	130	5860	251	6	190	0.12	0.007	92	0.0027	1.25
	sd	74	1.0	0.6	0.6	134	6776	17	3	54	0.05	0.003	30	0.0007	0.22
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%	0%	0%	80%	0%	20%	0%
	min	233.7	1.4	0.989	9.5	8	17	54.2	1.7	99.2	0.034	0.005	19.2	0.002	0.318
	max	680.7	2.96	3.98	11.53	700	860	372	64.1	354	0.299	0.0157	91.7	0.0140	3.53
	ave	450	2.2	2.4	10.2	191	243	189	24	203	0.13	0.007	40.5	0.0064	1.91
	sd	184	0.6	1.1	0.7	263	315	115	23	116	0.11	0.004	26.7	0.0044	1.20
Hazlitt Creek at Millstream Lake and Munn roads (SW0886-9)															
Summer	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%	100%	0%
	min	111.9	0.346	0.26	3.96	9	9	38	129	481	0.0266	0.007	104	0.002	0.0259
	max	137.7	1.01	0.48	5.49	920	1100	46.9	358	687	0.094	0.0178	309	0.0020	0.05
	ave	129	0.8	0.4	4.5	376	542	43	236	613	0.05	0.010	188	0.0020	0.04
	sd	9	0.2	0.1	0.6	317	424	4	78	75	0.02	0.004	77	0.0000	0.01

Table 1, Continued

	Parameter	Conductivity	Copper	Copper	Oxygen	E. Coli	F. Coliforms	Hardness (CaCO3)	Iron	Iron	Lead	Lead	Manganese	No2 (As N)	No3 (As N)
State		**NA**	**DIS**	**TOT**	**DIS**	**NA**	**NA**	**TOT**	**DIS**	**TOT**	**TOT**	**DIS**	**TOT**	**DIS**	**DIS**
Unit		**µS/cm**	**µg/L**	**µg/L**	**mg/L**	**CFU/100 mL**	**CFU/100 mL**	**mg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**mg/L**	**mg/L**
BC ENV Freshwater	**acute /instantaneous**		**0.4 - 70** [2,4]		**5** [5]	**400** [6]			**350**	**1,000**	**15.9-434** [2]		**540-4639** [2]	**0.24**	**32.8**
Aquatic Life Guidelines	**chronic /average**		**0.3 - 12** [2,4]		**8** [5]	**200** [6]					**4.2-13.6** [2]		**605-2242** [2]	**0.08**	**3**
Station Description															
Fall	n	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	100%	0%
	min	84	0.712	0.224	6.53	1	2	27.6	82.8	214	0.0276	0.0054	8.22	0.002	0.0089
	max	128.4	3.07	0.76	10.71	410	420	42.1	744	1230	0.0659	0.0261	111	0.0020	0.20
	ave	106	1.3	0.4	8.6	93	102	36	303	574	0.04	0.015	47	0.0020	0.11
	sd	15	0.9	0.2	1.5	159	162	6	240	364	0.01	0.008	37	0.0000	0.08

Table 1, Continued

	Parameter	Nickel	Nickel	pH	Phosphorus	Selenium	Silver	Silver	Temperature	Solids	Turbidity	Zinc	Zinc
State		**TOT**	**DIS**	**NA**	**TOT**	**TOT**	**TOT**	**DIS**	**NA**	**TOT**	**NA**	**TOT**	**DIS**
Unit		**µg/L**	**µg/L**	**pH**	**mg/L**	**µg/L**	**µg/L**	**µg/L**	**°C**	**mg/L**	**NTU**	**µg/L**	**µg/L**
BC ENV Freshwater	acute /instantaneous		25 -110 [1,2]	6.5-9 [9]	0.01 [8]	2	0.1-3.0 [2]			26 [11]	9 [12]		20-164 [2]
Aquatic Life Guidelines	chronic /average				0.005 [8]		0.1-1.5 [2]		17 [10]	6 [11]	3 [12]		7.7-56 [2]
Station Description													
Cecelia Creek													
Cecelia Creek mouth (SW0641)													
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	20%	0%	80%	80%	0%	20%	0%	0%	0%
	min	1.08	1.12	7.19	0.001	0.127	0.005	0.005	16.3	1	2.32	6.8	3.16
	max	2.32	3.19	7.62	0.26	0.35	0.01	0.010	17.8	6.4	17.5	51.8	68.5
	ave	1.48	1.64	7.45	0.14	0.20	0.01	0.006	17.0	2.8	5.7	16.7	17.2
	sd	0.44	0.78	0.14	0.08	0.08	0.00	0.002	0.6	1.9	5.9	17.6	25.7
Fall	n	5	5	5		5	5	5	5	5	5	5	5
	%nd	0%	0%	0%		0%	80%	100%	0%	0%	0%	0%	0%
	min	1.39	1.38	7.16		0.115	0.005	0.005	11.7	1.2	3.63	8.57	5.31
	max	1.92	2.74	7.57		0.25	0.01	0.005	15.1	19.0	17.9	28.6	23.9
	ave	1.74	1.90	7.38		0.20	0.01	0.005	12.9	5.4	8.0	18.4	14.1
	sd	0.20	0.48	0.13		0.05	0.00	0.000	1.2	6.9	5.3	8.3	7.0
Cecelia Creek -1650 mm concrete pipe (SW0641-3D													
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	20%	80%	0%	0%	0%	0%	0%
	min	1.63	1.64	7.52	0.14	0.121	0.0074	0.005	17.6	4.4	5.4	21.5	17.6
	max	3.02	2.81	7.93	0.42	0.32	0.02	0.012	18.4	36	32.4	169	159
	ave	2.48	2.34	7.81	0.26	0.22	0.01	0.006	18.1	16	12.5	70	62.2
	sd	0.48	0.51	0.15	0.10	0.07	0.01	0.003	0.3	11	10.2	53	51.5
Fall	n	5	5	5		5	5	5	5	5	5	5	5
	%nd	0%	0%	0%		0%	60%	60%	0%	0%	0%	0%	0%
	min	1.39	1.24	7.38		0.15	0.005	0.005	13.2	2	3.17	18.9	15.2
	max	2.42	4.24	7.69		0.30	0.01	0.006	15.6	8.0	11.6	53.70	43.00
	ave	1.88	2.29	7.50		0.21	0.01	0.005	14.0	4.4	7.7	31.8	25.0
	sd	0.44	1.03	0.11		0.06	0.00	0.000	0.9	2.4	3.7	12.3	9.4
Cecelia Creek - Combined flow of 641-3E and 641-3F (SW0641-3G													
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	20%	80%	0%	0%	0%	0%	0%
	min	1.7	1.13	7.3	0.18	0.124	0.0063	0.005	17.7	6	8.46	10.5	3.24
	max	2.61	2.61	7.85	0.30	0.22	0.02	0.010	18.0	89	36.2	50.00	50.4
	ave	2.06	1.88	7.64	0.24	0.17	0.01	0.006	17.8	25	17.8	27.2	15.6
	sd	0.35	0.55	0.19	0.05	0.03	0.00	0.002	0.1	32	9.8	16.0	17.6
Fall	n	5	5	5		5	5	5	5	5	5	5	5
	%nd	0%	0%	0%		0%	20%	80%	0%	20%	0%	0%	0%
	min	1.64	1.17	7.01		0.182	0.0058	0.005	12	1	5.27	9.55	3.25
	max	1.90	1.85	7.61		0.80	0.02	0.006	15.6	5.2	9.52	24.00	13.00
	ave	1.78	1.55	7.40		0.36	0.01	0.005	13.9	4	7.04	18.0	9.9
	sd	0.08	0.23	0.21		0.23	0.00	0.000	1.2	2	1.59	5.1	3.5
Mill Stream													
Mill Stream below 1700 Wilfert Rd, rapids (SW0886)													
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	100%	100%	0%	80%	0%	0%	0%
	min	0.29	0.266	7.49	0.015	0.063	0.005	0.005	13.8	1	1.28	1.1	0.46
	max	0.47	0.59	7.71	0.02	0.10	0.01	0.005	17.5	1.6	3.0	2.42	2.78
	ave	0.39	0.42	7.63	0.018	0.08	0.01	0.005	15.7	1	1.9	1.5	1.5
	sd	0.06	0.12	0.08	0.00	0.01	0.00	0.000	1.3	0	0.6	0.5	1.0

Table 1, Continued

	Parameter	Nickel	Nickel	pH	Phosphorus	Selenium	Silver	Silver	Temperature	Solids	Turbidity	Zinc	Zinc
State		**TOT**	**DIS**	**NA**	**TOT**	**TOT**	**TOT**	**DIS**	**NA**	**TOT**	**NA**	**TOT**	**DIS**
Unit		**µg/L**	**µg/L**	**pH**	**mg/L**	**µg/L**	**µg/L**	**µg/L**	**°C**	**mg/L**	**NTU**	**µg/L**	**µg/L**
BC ENV Freshwater	acute /instantaneous		25 -110 [1,2]	6.5-9 [9]	0.01 [8]	2	0.1-3.0 [2]			26 [11]	9 [12]		20-164 [2]
Aquatic Life Guidelines	chronic /average				0.005 [8]		0.1-1.5 [2]		17 [10]	6 [11]	3 [12]		7.7-56 [2]
Station Description													
Fall	n	5	5	5		5	5	5	5	5	5	5	5
	%nd	0%	0%	0%		0%	100%	100%	0%	40%	0%	0%	0%
	min	0.587	0.425	7.4		0.07	0.005	0.005	6.5	1	1.59	1.87	0.9
	max	1.09	0.62	7.63		0.46	0.01	0.005	12.2	8.8	19.5	8.29	2.20
	ave	0.79	0.52	7.50		0.27	0.01	0.005	8.9	4	8.5	4.5	1.5
	sd	0.19	0.06	0.09		0.14	0.00	0.000	2.0	3	7.4	2.8	0.5
Mill Stream, near Langford/Colwood border, 381 Atkin Rd. (SW0886-3)													
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	100%	100%	0%	40%	0%	0%	0%
	min	0.345	0.319	7.55	0.0087	0.063	0.005	0.005	13.9	1	1.13	1	0.4
	max	0.48	0.45	7.94	0.02	0.10	0.01	0.005	*17.9*	3.2	1.6	2.28	10.70
	ave	0.41	0.39	7.78	0.013	0.09	0.01	0.005	15.9	2	1.4	1.3	2.6
	sd	0.05	0.04	0.13	0.00	0.01	0.00	0.000	1.4	1	0.2	0.5	4.1
Fall	n	5	5	5		5	5	5	5	5	5	5	5
	%nd	0%	0%	0%		0%	80%	100%	0%	60%	0%	0%	0%
	min	0.563	0.312	7.35		0.059	0.005	0.005	7.2	1	1.06	1.67	1.12
	max	2.30	0.71	7.62		0.51	0.01	0.005	12.4	14.0	35.1	24.40	4.49
	ave	0.99	0.56	7.48		0.32	0.01	0.005	9.2	4	9.2	7.0	2.0
	sd	0.66	0.14	0.11		0.17	0.00	0.000	1.9	5	13.1	8.8	1.3
Mill Stream, under bridge at Treanor Ave. (SW0886-6)													
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	0%	100%	100%	0%	0%	0%	0%	0%
	min	1.5	1.22	7.33	0.021	0.19	0.005	0.005	15.2	2.8	2.44	5.37	1.32
	max	1.86	2.31	7.54	0.10	0.42	0.01	0.005	*18*	31	5.4	8.80	10.50
	ave	1.67	1.53	7.41	0.042	0.27	0.01	0.005	16.5	10	3.5	6.1	4.8
	sd	0.13	0.41	0.08	0.028	0.08	0.00	0.000	1.0	11	1.0	1.3	3.6
Fall	n	5	5	5		5	5	5	5	5	5	5	5
	%nd	0%	0%	0%		0%	100%	100%	0%	40%	0%	0%	0%
	min	0.589	0.468	7.24		0.119	0.005	0.005	7.3	1	1.68	1.27	0.85
	max	4.60	4.03	7.46		1.23	0.01	0.005	14.5	12	10.9	12.90	7.40
	ave	1.80	1.61	7.34		0.67	0.01	0.005	10.3	5	4.7	7.3	4.3
	sd	1.48	1.31	0.08		0.46	0.00	0.000	2.5	4	3.7	4.6	2.6
Hazlitt Creek at Millstream Lake and Munn roads (SW0886-9)													
Summer	n	5	5	5	5	5	5	5	5	5	5	5	5
	%nd	0%	0%	0%	0%	40%	100%	100%	0%	40%	0%	20%	20%
	min	0.24	0.086	5.91	0.016	0.04	0.005	0.005	12.9	1	1.56	0.42	0.1
	max	0.31	0.30	7.14	0.02	0.12	0.01	0.005	*18.2*	4.4	2.4	1.20	3.27
	ave	0.26	0.22	6.79	0.018	0.06	0.01	0.005	15.4	2	1.9	0.9	1.1
	sd	0.03	0.07	0.45	0.001	0.03	0.00	0.000	2.0	1	0.3	0.3	1.3
Fall	n	5	5	5		5	5	5	5	5	5	5	5
	%nd	0%	0%	0%		100%	100%	80%	0%	40%	0%	40%	0%
	min	0.119	0.119	6.62		0.04	0.005	0.005	5.2	1	1.24	0.23	0.11
	max	0.57	6.30	6.80		0.04	0.01	0.006	11.0	3.6	5.1	1.00	3.89
	ave	0.27	1.44	6.73		0.04	0.01	0.005	7.5	2	2.9	0.6	1.1
	sd	0.16	2.43	0.06		0.00	0.00	0.000	2.0	1	1.6	0.3	1.4

Table 1, Continued

Notes:

Where values were not detected, the detection limit was used to calculate statistics.
BC ENV approved water quality guidelines for protection of freshwater aquatic life applied unless otherwise stated.
DIS = dissolved state, TOT = total state

* Guidelines were recently updated but previous guidelines shown for comparison.
1 BC ENV working water quality guideline.
2 Water quality-dependant guideline.
3 Cr(IV) / Cr (III)
4 Site specific BC Biotic Ligand Model guidelines for dissolved copper.
If more than 1 of 5 samples or average of the 5 samples exceed chronic guideline, station has exceeded.
5 Guidelines are minimum (rather than maximum) values for dissolved oxygen.
6 Average guideline is a geomean of 200 CFU/100 mL; E.coli values in the "Average" row are geomeans.
7 Dependant on pH and temperature.
8 Draft Vancouver Island Objective, applies to monthly samples collected June to September; our data was collected 5 times in 30 days.
9 Optimum pH range.
10 Draft objective proposed to protect juvenile Coho (the most sensitive species); average weekly temperature at any location in the creeks.
11 25 and 5 mg/L over ambient levels of 2 mg/L in the upper Sooke River watersheds
12 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.

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

Recent Precipitation	
Summer	
2023-08-09	light rain last night
2023-08-16	no recent rain
2023-08-23	no recent rain
2023-08-30	no recent rain
2023-09-06	no recent rain

APPENDIX G

NEARSHORE MARINE WATER QUALITY DATA

Table 1 Nearshore Marine Water Quality Data – Esquimalt Harbour

		Aluminum	Arsenic	Boron	Cadmium	Chromium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
		TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**	**-**	**12.5** [1]	**1200** [1,7]	**0.12** [2]		3 [2]	**5** [2]	**70** [2]	**-**		**140** [3]
	average	**-**					2 [2]	**8** [2]	**35** [2]	**14 / 43** [2]		**2** [3]
Esquimalt Harbour												
SWEH-1	Duntze Head											
summer	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	40%	0%	0%	40%	40%	60%	0%	80%	40%	80%	20%
	min	18.6	1.20	3340	0.039	0.5	0.5	7.96	1	1	10	0.078
	max	32	2.05	4200	*<0.25*	0.71	2.5	11.83	1	6	50	1.01
	average	25	1.5	3776	*0.16*	0.6	1.0	9.26	1	2	36	0.459
	sd	5	0.3	353	0.09	0.1	0.9	1.53	0	2	19	0.359
fall	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	20%	0%	0%	20%	100%	100%	0%	0%	0%	100%	80%
	min	5	1.37	3080	0.01	0.5	0.5	7.42	1	1	10	0.05
	max	10.6	2.35	3950	0.054	0.5	0.5	9.1	31	29	10	0.265
	average	6.6	1.89	3562	0.03	0.5	0.5	8.1	3	5	10	0.093
	sd	2.3	0.43	358	0.02	0.0	0.0	0.7	13	11	0	0.096
	90th percentile									10		
SWEH-1A	Esquimalt Harbour in between Jetty A and Jetty B											
	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	40%	0%	0%	40%	40%	60%	0%	60%	20%	40%	40%
	min	5.6	1.40	3530	0.044	0.5	0.5	7.58	1	1	10	0.054
	max	37	1.88	4330	*<0.25*	0.95	2.5	12.01	3	16	26	1.91
	average	21	1.6	3914	*0.14*	0.7	1.8	9.39	1	2	15	0.536
	sd	12	0.2	345	0.10	0.2	0.8	1.75	1	6	7	0.772
	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	20%	0%	0%	0%	100%	20%	0%	0%	0%	100%	80%
	min	5	1.29	3220	0.019	0.5	0.5	7.02	1	1	10	0.05
	max	21.6	2.59	3890	0.081	0.5	1.49	9.08	34	26	10	0.284
	average	12.8	1.92	3514	0.05	0.5	0.9	8.1	4	4	10	0.097
	sd	7.7	0.48	253	0.02	0.0	0.4	0.8	15	10	0	0.105
	90th percentile									17		

Table 1, Continued

		Aluminum	Arsenic	Boron	Cadmium	Chromium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
		TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**	**-**	**12.5** [1]	**1200** [1,7]	**0.12** [2]		3 [2]	**5** [2]	**70** [2]	**-**		**140** [3]
	average	**-**					2 [2]	**8** [2]	**35** [2]	**14 / 43** [2]		**2** [3]
Esquimalt Harbour												
SWEH-2A	Middle of Lang Cove											
summer	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	20%	0%	0%	0%	80%	0%	0%	40%	20%	20%	0%
	min	14.5	1.58	3450	0.043	0.5	2.35	6.72	1	1	15	0.246
	max	34	2.6	4350	1.75	5	53.1	10.79	220	170	89	8.42
	average	23	2.0	3934	0.52	1.4	13.4	8.35	7	13	40	2.318
	sd	8	0.4	405	0.74	2.0	22.2	1.77	96	71	31	3.465
fall	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	20%	0%	0%	20%	100%	0%	0%	0%	0%	20%	60%
	min	5	1.86	3200	0.01	0.5	0.5	6.65	5	3	10	0.05
	max	38.6	2.39	3920	0.083	0.5	4.54	10.34	190	330	84	0.412
	average	18.0	2.08	3564	0.04	0.5	1.9	8.1	32	35	31	0.130
	sd	14.7	0.27	300	0.03	0.0	1.7	1.4	75	142	30	0.158
	90th percentile									186		
SWEH-3A	Constance Cove in front Victoria Shipyards Graving dock											
summer	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	40%	0%	0%	40%	60%	20%	0%	60%	40%	40%	20%
	min	19.7	1.49	3890	0.01	0.5	1.33	7.65	1	1	10	0.091
	max	62	2.8	4260	0.3	4.1	2.77	12.14	36	180	50	74.4
	average	31	1.9	4042	0.13	1.2	2.09	9.56	2	5	27	15.992
	sd	17	0.5	178	0.13	1.6	0.6	2.21	16	79	16	32.693
fall	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	20%	0%	0%	20%	100%	40%	0%	0%	0%	80%	60%
	min	5	1.22	3160	0.01	0.5	0.5	7.14	1	1	10	0.05
	max	10.2	2.45	3820	0.077	0.5	8.15	9.71	74	39	11	0.441
	average	7.4	1.90	3520	0.04	0.5	2.61	8.3	9	4	10	0.186
	sd	1.9	0.54	258	0.03	0.0	3.3	1.0	30	16	0	0.190
	90th percentile									53		

Table 1, Continued

		Aluminum	Arsenic	Boron	Cadmium	Chromium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
		TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**	**-**	**12.5** [1]	**1200** [1,7]	**0.12** [2]		3 [2]	**5** [2]	**70** [2]	**-**		**140** [3]
	average	**-**					2 [2]	**8** [2]	**35** [2]	**14 / 43** [2]		**2** [3]
Esquimalt Harbour												
SWEH-5	Plumper Bay											
summer	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	40%	0%	0%	40%	60%	40%	0%	60%	40%	40%	20%
	min	5	1.07	3540	0.01	0.5	0.5	8.55	1	1	10	0.05
	max	71	3.4	4100	0.96	0.69	27.4	11.37	4	14	94	1.17
	average	33	2.1	3904	0.27	0.6	7.4	9.75	1	4	37	0.375
	sd	27	0.9	216	0.40	0.1	11.4	1.11	1	5	36	0.466
fall	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	40%	0%	0%	60%	80%	80%	0%	0%	20%	60%	80%
	min	5	1.50	3140	0.01	0.5	0.5	7.11	2	1	10	0.05
	max	30.6	2.55	3860	0.049	0.56	1.13	9.88	56	62	20	0.149
	average	11.3	1.98	3470	0.02	0.5	0.6	8.2	7	4	13	0.070
	sd	10.9	0.46	274	0.02	0.0	0.3	1.2	23	27	4	0.044
	90th percentile									19		
SWEH-6A	Esquimalt Harbour, SE of small island downstream of Parsons Bridge											
summer	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	40%	0%	0%	40%	100%	60%	0%	60%	0%	20%	40%
	min	5	1.26	3380	0.018	0.5	0.5	4.57	1	1	10	0.05
	max	190	2.41	4730	*<0.25*	2	3.1	10.72	16	81	148	0.99
	average	55	1.7	3916	0.116	0.8	1.9	8.4	2	5	52	0.317
	sd	77	0.5	563	0.12	0.7	1.2	2.39	7	35	58	0.388
fall	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	0%	0%	20%	100%	80%	0%	0%	20%	40%	40%
	min	6.9	0.98	2480	0.01	0.5	0.5	6.8	2	1	10	0.05
	max	19.4	2.34	3820	0.137	0.5	0.59	10.05	62	69	15	0.273
	average	13.9	1.86	3344	0.05	0.5	0.5	8.2	7	5	12	0.116
	sd	5.3	0.55	517	0.05	0.0	0.0	1.2	26	29	2	0.093
	90th percentile									70		

Table 1, Continued

		Aluminum	Arsenic	Boron	Cadmium	Chromium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
		TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**	**-**	**12.5** [1]	**1200** [1,7]	**0.12** [2]		3 [2]	**5** [2]	**70** [2]	**-**		**140** [3]
	average	**-**					2 [2]	**8** [2]	**35** [2]	**14 / 43** [2]		**2** [3]
Esquimalt Harbour												
SWEH-7	Parsons Bridge											
summer	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	0%	0%	40%	80%	20%	0%	20%	0%	0%	20%
	min	41.4	1.12	3220	0.01	0.5	0.5	3.6	1	1	75	0.05
	max	367	1.95	4930	*<0.25*	5	2.2	9.18	32	120	234	197
	average	161	1.5	4052	0.072	1.8	1.0	6.09	3	14	171	39.849
	sd	126	0.4	625	0.10	1.9	0.7	2.07	13	48	59	87.851
fall	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	20%	0%	20%	80%	60%	0%	0%	0%	20%	60%
	min	19.9	0.40	1320	0.01	0.5	0.5	6.37	5	3	10	0.05
	max	88.4	2.05	3720	0.128	0.54	0.77	8.8	58	72	139	0.547
	average	38.8	1.64	2992	0.06	0.5	0.6	**7.5**	18	18	60	0.227
	sd	28.4	0.71	953	0.05	0.0	0.1	1.0	21	27	50	0.245
	90th percentile									77		
SWEH-8	McCarthy Island											
summer	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	40%	0%	0%	20%	80%	40%	0%	60%	20%	40%	40%
	min	7.3	1.04	3210	0.012	0.5	0.5	7.34	1	1	10	0.05
	max	37	2.8	5240	*<0.25*	5	1.5	11.16	3	27	57	0.52
	average	21	1.9	4126	0.07	1.7	0.8	9.28	1	3	32	0.265
	sd	12	0.6	750	0.10	1.9	0.4	1.59	1	11	22	0.191
fall	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	20%	0%	0%	40%	80%	80%	0%	0%	0%	40%	60%
	min	5	1.33	3140	0.01	0.5	0.5	6.92	2	1	10	0.05
	max	21	2.48	3800	0.107	0.61	0.55	9.7	120	72	23	1.17
	average	12.3	1.90	3460	0.05	0.5	0.5	8.3	9	4	13	0.281
	sd	6.4	0.42	294	0.04	0.0	0.0	1.2	51	31	6	0.497
	90th percentile									32		

Table 1, Continued

		Aluminum	Arsenic	Boron	Cadmium	Chromium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
		TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**	**-**	**12.5** [1]	**1200** [1,7]	**0.12** [2]		3 [2]	**5** [2]	**70** [2]	**-**		**140** [3]
	average	**-**					2 [2]	**8** [2]	**35** [2]	**14 / 43** [2]		**2** [3]
Esquimalt Harbour												
SWEH-8A	Esquimalt Harbour in line with green port hand marker and end of dock											
summer	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	20%	0%	0%	40%	80%	40%	0%	20%	40%	20%	0%
	min	10.3	1.50	3840	0.01	0.5	0.5	7.43	1	1	12	0.065
	max	31.2	2.7	4830	*0.25*	5	2.5	11.75	7	21	50	0.536
	average	24	2.0	4164	0.09	2.3	1.5	9.48	2	3	29	0.232
	sd	8	0.5	415	0.11	2.4	0.8	1.81	3	9	14	0.187
fall	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	40%	0%	0%	20%	100%	40%	0%	0%	0%	60%	60%
	min	5	1.37	3190	0.01	0.5	0.5	7.04	3	1	10	0.05
	max	24.8	2.41	3690	0.063	0.5	0.74	9.78	47	59	13	0.808
	average	9.9	1.93	3406	0.04	0.5	0.6	8.4	8	4	11	0.251
	sd	8.5	0.39	210	0.02	0.0	0.1	1.2	19	26	1	0.329
	90th percentile									25		

Table 1, Continued

		Manganese	Nickel	pH	Phosphorus	Salinity	Selenium	Silver	Temp	Tin	Zinc
		TOT	TOT	NoRs	TOT	NoRs	TOT	TOT	NA	TOT	TOT
		µg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**	**100** [3]		**6.5-9**			**1 , 2** [6,1]	**3** [1]			**10** [2]
	average							**1.5**	**NA** [5]		
Esquimalt Harbour											
SWEH-1	Duntze Head										
summer	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	20%	60%	0%	0%	0%	100%	100%	0%	80%	60%
	min	2.5	1	7.67	101	29.81	0.5	0.05	12.1	1	3
	max	3.68	2.44	8.12	196	30.57	*<2*	0.25	16.1	10	6
	average	3.0	1	7.87	149	30.36	1	0.09	14.0	3	4
	sd	0.5	0.6	0.18	35	0.31	1	0.09	1.6	4	1
fall	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	100%	0%	20%	0%	100%	100%	0%	100%	100%
	min	0.93	0.2	7.55	50	30.08	0.5	0.05	9.3	1	3
	max	2.45	0.2	7.69	172	30.35	0.5	0.05	11.1	1	3
	average	1.64	0.2	7.61	116	30.21	0.5	0.05	9.9	1	3
	sd	0.65	0.0	0.05	47	0.11	0.0	0.00	0.7	0	0
	90th percentile										
SWEH-1A	Esquimalt Harbour in between Jetty A and Jetty B										
	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	40%	0%	0%	0%	100%	100%	0%	80%	60%
	min	2.69	0.65	7.57	102	29.8	0.5	0.05	12.9	1	3
	max	3	1.3	7.96	192	30.61	*<2*	0.25	16.4	10	6.5
	average	2.9	1	7.79	144	30.36	1	0.13	14.3	5	4
	sd	0.1	0.2	0.15	33	0.33	1	0.11	1.3	5	1
	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	60%	0%	0%	0%	100%	100%	0%	100%	100%
	min	1.01	0.2	7.43	80	29.98	0.5	0.05	8.9	1	3
	max	2.93	0.4	7.6	164	30.35	0.5	0.05	10.8	1	3
	average	1.92	0.3	7.53	125	30.16	0.5	0.05	9.8	1	3
	sd	0.78	0.1	0.07	35	0.15	0.0	0.00	0.8	0	0
	90th percentile										

Table 1, Continued

		Manganese	Nickel	pH	Phosphorus	Salinity	Selenium	Silver	Temp	Tin	Zinc
		TOT	TOT	NoRs	TOT	NoRs	TOT	TOT	NA	TOT	TOT
		µg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**	**100 [3]**		**6.5-9**			**1 , 2 [6,1]**	**3 [1]**			**10 [2]**
	average							**1.5**	**NA [5]**		
Esquimalt Harbour											
SWEH-2A	Middle of Lang Cove										
summer	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	20%	0%	0%	0%	100%	100%	0%	80%	60%
	min	3.98	0.2	7.42	109	28.72	0.5	0.05	13.5	1	3
	max	26.4	29.1	7.94	215	30.56	*<2*	0.25	17.4	10	8.6
	average	10.4	7	7.66	151	29.98	1	0.13	15.4	3	5
	sd	9.4	12.6	0.22	39	0.74	1	0.11	1.9	4	2
fall	n	5	5	5	4	5	5	5	5	5	5
	#non-detects	0%	60%	0%	0%	0%	100%	100%	0%	100%	80%
	min	2.51	0.2	7.3	70	29.14	0.5	0.05	8.3	1	3
	max	5.93	0.64	7.49	154	30.4	0.5	0.05	11.4	1	6.3
	average	3.88	0.3	7.41	117	29.84	0.5	0.05	9.8	1	4
	sd	1.37	0.2	0.08	38	0.51	0.0	0.00	1.1	0	1
	90th percentile										
SWEH-3A	Constance Cove in front Victoria Shipyards Graving dock										
summer	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	20%	0%	0%	0%	100%	100%	0%	80%	40%
	min	2.49	0.2	7.63	116	29.63	0.5	0.05	13	1	3
	max	10.2	13.1	8.07	203	30.58	*<2*	0.25	16.6	10	12.3
	average	4.6	4	7.84	144	30.28	1	0.13	14.7	5	6
	sd	3.2	5.4	0.20	35	0.39	1	0.11	1.6	5	4
fall	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	60%	0%	0%	0%	100%	100%	0%	100%	100%
	min	0.95	0.2	7.46	58	30.01	0.5	0.05	9.2	1	3
	max	2.8	0.35	7.6	160	30.32	0.5	0.05	11.2	1	3
	average	1.68	0.2	7.55	114	30.13	0.5	0.05	9.9	1	3
	sd	0.74	0.1	0.07	44	0.12	0.0	0.00	0.8	0	0
	90th percentile										

Table 1, Continued

		Manganese	Nickel	pH	Phosphorus	Salinity	Selenium	Silver	Temp	Tin	Zinc
		TOT	TOT	NoRs	TOT	NoRs	TOT	TOT	NA	TOT	TOT
		µg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**	**100 [3]**		**6.5-9**			**1 , 2 [6,1]**	**3 [1]**			**10 [2]**
	average							**1.5**	**NA [5]**		
Esquimalt Harbour											
SWEH-5	Plumper Bay										
summer	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	60%	0%	0%	0%	80%	100%	0%	100%	40%
	min	2.35	0.2	7.72	86	29.76	0.5	0.05	14.3	1	3
	max	6.1	1	8.14	197	30.56	<2	0.25	18.3	10	5.4
	average	4.0	0	7.96	137	30.33	1	0.14	16.2	3	4
	sd	1.5	0.3	0.16	42	0.32	1	0.10	1.7	4	1
fall	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	60%	0%	0%	0%	100%	100%	0%	100%	100%
	min	1.46	0.2	7.45	53	29.6	0.5	0.05	9	1	3
	max	3.37	0.44	7.69	173	30.32	0.5	0.05	11.5	1	3
	average	2.11	0.3	7.58	120	30.08	0.5	0.05	10.0	1	3
	sd	0.77	0.1	0.10	48	0.28	0.0	0.00	0.9	0	0
	90th percentile										
SWEH-6A	Esquimalt Harbour, SE of small island downstream of Parsons Bridge										
summer	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	80%	0%	0%	0%	100%	100%	0%	100%	60%
	min	2.36	0.2	7.54	126	29.75	0.5	0.05	14.2	1	3
	max	7.6	1	8.09	170	30.5	0.5	0.25	19.1	10	11.7
	average	4.5	1	7.81	149	30.29	1	0.09	16.2	3	5
	sd	1.9	0.4	0.21	20	0.31	0	0.09	2.1	4	4
fall	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	60%	0%	20%	0%	100%	100%	0%	100%	80%
	min	1.2	0.2	7.5	50	29.65	0.5	0.05	9.3	1	3
	max	4.88	0.48	7.7	180	30.27	0.5	0.05	11.1	1	5.5
	average	2.76	0.3	7.61	127	30.07	0.5	0.05	10.1	1	4
	sd	1.68	0.1	0.08	49	0.25	0.0	0.00	0.7	0	1
	90th percentile										

Table 1, Continued

		Manganese	Nickel	pH	Phosphorus	Salinity	Selenium	Silver	Temp	Tin	Zinc
		TOT	TOT	NoRs	TOT	NoRs	TOT	TOT	NA	TOT	TOT
		µg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**	**100** [3]		**6.5-9**			**1 , 2** [6,1]	**3** [1]			**10** [2]
	average							**1.5**	**NA** [5]		
Esquimalt Harbour											
SWEH-7	Parson's Bridge										
summer	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	20%	0%	0%	0%	100%	100%	0%	100%	60%
	min	6.11	0.2	7.47	162	29.32	0.5	0.05	14.9	1	3
	max	16.5	2.7	7.89	204	30.03	*<2*	0.25	20.8	10	11.5
	average	10.3	1	7.66	177	29.75	1	0.09	17.4	3	6
	sd	4.1	1.0	0.18	16	0.31	1	0.09	2.6	4	4
fall	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	60%	0%	20%	0%	100%	100%	0%	100%	60%
	min	2.43	0.2	7.46	50	29.06	0.5	0.05	9.4	1	3
	max	8.25	0.69	7.64	165	30.16	0.5	0.05	11.2	1	5.9
	average	5.36	0.4	7.58	126	29.65	0.5	0.05	10.3	1	4
	sd	2.17	0.2	0.07	46	0.40	0.0	0.00	0.8	0	1
	90th percentile										
SWEH-8	McCarthy Island										
summer	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	80%	0%	0%	0%	100%	100%	0%	100%	100%
	min	2.31	0.2	7.71	135	29.79	0.5	0.05	14.4	1	3
	max	4.5	1	8.07	163	30.5	*<2*	0.25	18.7	10	5
	average	3.6	1	7.90	147	30.31	1	0.09	16.1	3	4
	sd	0.9	0.4	0.17	12	0.29	1	0.09	1.9	4	1
fall	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	60%	0%	0%	0%	100%	100%	0%	100%	60%
	min	1.5	0.2	7.47	67	29.46	0.5	0.05	8.1	1	3
	max	4.92	0.75	7.7	157	30.24	0.5	0.05	11.4	1	9
	average	2.97	0.4	7.62	118	29.87	0.5	0.05	9.9	1	4
	sd	1.40	0.3	0.10	34	0.35	0.0	0.00	1.2	0	3
	90th percentile										

Table 1, Continued

		Manganese	Nickel	pH	Phosphorus	Salinity	Selenium	Silver	Temp	Tin	Zinc
		TOT	TOT	NoRs	TOT	NoRs	TOT	TOT	NA	TOT	TOT
		µg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**	**100 [3]**		**6.5-9**			**1 , 2 [6,1]**	**3 [1]**			**10 [2]**
	average							**1.5**	**NA [5]**		
Esquimalt Harbour											
SWEH-8A	Esquimalt Harbour in line with green port hand marker and end of dock										
summer	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	40%	0%	0%	0%	100%	100%	0%	80%	80%
	min	2.82	0.2	7.65	100	29.79	0.5	0.05	14.2	1	3
	max	4.4	3.54	8.1	200	30.51	<2	0.25	18.4	16.4	5.6
	average	3.8	1	7.92	153	30.26	1	0.09	15.9	6	4
	sd	0.6	1.3	0.18	41	0.30	1	0.09	1.8	7	1
fall	n	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	60%	0%	0%	0%	100%	100%	0%	100%	60%
	min	1.19	0.2	7.52	71	29.39	0.5	0.05	8.4	1	3
	max	4.69	0.8	7.71	165	30.27	0.5	0.05	11.1	1	8.3
	average	2.63	0.3	7.63	125	29.91	0.5	0.05	9.8	1	4
	sd	1.38	0.3	0.08	35	0.44	0.0	0.00	1.0	0	2
	90th percentile										

Notes:

TOT is total concentration; DISS is dissolved concentration; NA is not applicable.
For parameters that were not detected, the detection limit was used to calculate summary statistics.

1 BC Working water quality guideline.
2 BC approved water quality guideline.
3 Draft water quality objective.
4 Guidelines are for Cr(III) /Cr(VI).
5 + or - 1°C from background; background unknown.
6 Alert value.
7 Boron concentrations in BC marine waters are naturally elevated.

Other metals were analyzed but not all are shown here.

X Exceeds a water quality guideline that is only partially applicable ; or value wasn't detected but detection limits were above guideline.
X Exceeds a marine water quality guideline.

Table 2 Nearshore Marine Water Quality Data – Esquimalt Lagoon

		Aluminum	Arsenic	Boron	Cadmium	Calcium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
		TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
		µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**		**12.5 [1]**	**1200 [1,7]**	**0.12 [2]**		3 [2]	**5 [2]**	**70 [2]**	**-**		**140 [3]**
	average						2 [2]	**8 [2]**	**35 [2]**	**14 / 43 [2]**		**2 [3]**
Esquimalt Lagoon												
SWEL-1A	Toe of Esquimalt Lagoon, South											
summer	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	20%	20%	0%	80%	0%	80%	0%	0%	0%	20%	20%
	min	23.3	1.00	3360	0.01	287	0.5	6.03	14	5	39	0.113
	max	26	1.92	4110	0.61	360	2.5	12.11	260	220	80	0.734
	average	25	1.7	3582	0.18	319	1.3	8.27	60	51	54	0.335
	sd	1	0.4	302	0.26	32	1.1	2.72	103	98	15	0.236
fall	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	0%	0%	40%	0%	40%	0%	0%	0%	0%	0%
	min	8.4	0.48	971	0.01	102	0.5	2.88	6	8	38	0.069
	max	149	2.25	2740	0.043	258	2.24	13.57	960	1200	220	0.98
	average	48.4	1.21	1754	0.02	168	1.1	9.3	185	87	86	0.348
	sd	57.3	0.67	661	0.01	61	0.8	4.0	416	508	77	0.372
	90th percentile									318		
SWEL-1B	Esquimalt Lagoon at Portsmouth Drive											
summer	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	60%	0%	0%	60%	0%	80%	0%	0%	0%	20%	40%
	min	20.1	0.67	2530	0.01	217	0.5	5.8	3	1	36	0.05
	max	25	2.3	4270	*<0.25*	361	2.5	11.18	16	56	69	1.57
	average	23	1.6	3448	0.11	295	2.0	7.51	6	8	53	0.759
	sd	2	0.6	619	0.13	51	0.9	2.39	6	23	14	0.733
fall	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	0%	0%	60%	0%	40%	0%	0%	0%	0%	40%
	min	7.5	0.54	931	0.01	101	0.5	5.68	19	7	27	0.05
	max	171	1.97	2650	0.027	253	3.82	16.93	140	110	231	0.567
	average	59.2	1.29	1964	0.02	190	1.5	11.8	75	55	90	0.257
	sd	69.2	0.54	638	0.01	56	1.4	4.2	49	42	88	0.272
	90th percentile									110		

Table 2, Continued

		Aluminum	Arsenic	Boron	Cadmium	Calcium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
		TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
		µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**		**12.5 [1]**	**1200 [1,7]**	**0.12 [2]**		3 [2]	**5 [2]**	**70 [2]**	**-**		**140 [3]**
	average						2 [2]	**8 [2]**	**35 [2]**	**14 / 43 [2]**		**2 [3]**
Esquimalt Lagoon												
SWEL-2A	Esquimalt Lagoon halfway along Colburg Peninsula at "dog on leash" sign											
summer	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	20%	0%	0%	100%	0%	100%	0%	40%	20%	0%	0%
	min	9.3	1.62	3550	0.01	274	0.5	7.73	1	1	17	0.107
	max	104	5.3	5300	*<0.25*	453	2.5	13.47	210	120	100	0.989
	average	41	2.8	4020	0.11	342	0.9	10.06	3	4	39	0.455
	sd	38	1.5	731	0.13	69	0.9	2.52	93	53	34	0.371
fall	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	20%	0%	0%	60%	0%	40%	0%	20%	20%	20%	40%
	min	5	1.42	3010	0.01	272	0.5	9.67	1	1	10	0.05
	max	29.1	2.44	3490	0.032	313	1.36	15.31	36	120	36	1.63
	average	15.0	1.87	3212	0.02	293	0.8	11.8	8	14	25	0.695
	sd	9.5	0.45	200	0.01	17	0.4	2.4	14	49	10	0.746
	90th percentile									120		
SWEL-7	Mouth of Colwood Creek											
summer	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	20%	0%	0%	100%	0%	60%	0%	0%	0%	0%	40%
	min	20.3	0.47	835	0.01	78.7	0.5	6.49	180	130	59	0.05
	max	57.8	1.9	4020	*<0.25*	334	2.9	11.3	3100	1400	308	0.68
	average	35	1.3	2181	0.09	192	1.4	8.66	614	638	231	0.253
	sd	17	0.5	1237	0.10	99	1.2	2.11	1239	522	100	0.250
fall	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	20%	0%	0%	80%	0%	40%	0%	0%	0%	0%	20%
	min	5	1.01	981	0.01	91.2	0.5	8.54	8	7	27	0.05
	max	45.8	1.86	3070	0.041	280	0.89	13.53	120	110	155	0.361
	average	21.9	1.42	2324	0.02	217	0.7	11.3	32	24	74	0.145
	sd	15.2	0.32	835	0.01	76	0.2	2.4	49	44	54	0.127
	90th percentile									1310		

Table 2, Continued

		Aluminum	Arsenic	Boron	Cadmium	Calcium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
		TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
		µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**		**12.5** [1]	**1200** [1,7]	**0.12** [2]		3 [2]	**5** [2]	**70** [2]	**-**		**140** [3]
	average						2 [2]	**8** [2]	**35** [2]	**14 / 43** [2]		**2** [3]
Esquimalt Lagoon												
SWEL-REF	Ocean side of Colburg Peninsula opposite station EL-2A (Esquimalt Lagoon Ref.)											
summer	n	4	4	4	4	4	4	5	4	4	4	4
	#non-detects	20%	0%	0%	60%	0%	40%	0%	20%	0%	20%	20%
	min	35	1.20	3410	0.01	297	0.74	6.83	1	1	61	0.121
	max	150	2.2	4130	*<0.25*	352	<5	10.57	24	11	250	2.3
	average	91	1.6	3765	0.08	316	2.3	8.31	4	3	128	1.123
	sd	51	0.4	303	0.12	25	2.0	1.60	11	5	89	1.101
fall	n	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	0%	0%	40%	0%	40%	0%	0%	20%	0%	0%
	min	35.9	1.29	3260	0.01	302	0.5	7.9	1	1	51	0.053
	max	147	2.51	3430	0.061	315	1.71	9.3	110	40	200	0.266
	average	82.6	1.76	3358	0.03	309	0.9	8.7	8	4	116	0.185
	sd	47.3	0.49	81	0.02	5	0.5	0.7	47	17	60	0.079
	90th percentile									17		

Table 2, Continued

		Manganese	No2 (As N)	No3 (As N)	Nickel	pH	Phosphorus	Salinity	Selenium	Silver	Temperature	Tin	Zinc
		TOT	DIS	DIS	TOT	NoRs	TOT	NoRs	TOT	TOT	NA	TOT	TOT
		µg/L	mg/L	mg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**	**100 [3]**				**6.5-9**			**1, 2 [6,1]**	**3 [1]**			**10 [2]**
	average			**3.7 [2]**						**1.5**	**NA [5]**		
Esquimalt Lagoon													
SWEL-1A	Toe of Esquimalt Lagoon, South												
summer	n	5	5	5	5	5	3	5	5	5	5	5	5
	#non-detects	0%	20%	40%	40%	0%	0%	0%	100%	100%	0%	80%	80%
	min	3	0.002	0.002	0.2	7.59	148	27.72	0.5	0.05	16.2	1	3
	max	8.7	0.0058	1.6	2.7	8.31	183	30.04	<2	0.25	21.1	15	55.8
	average	5.5	0.0	0.4	1	7.96	169	29.23	1	0.13	18.7	6	14
	sd	2.1	0.0	0.7	0.9	0.29	19	0.90	1	0.11	1.9	7	24
fall	n	5	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	0%	0%	0%	0%	20%	0%	100%	80%	0%	100%	60%
	min	4.25	0.007	0.0652	0.69	7.36	50	9.75	0.5	0.05	6.3	1	3
	max	23	0.0154	4.87	6.64	8	172	29.86	0.5	0.053	15.2	1	14.3
	average	12.46	0.0	2.6	2.1	7.72	134	20.51	0.5	0.05	9.7	1	6
	sd	7.72	0.0	2.1	2.5	0.23	53	8.54	0.0	0.00	3.7	0	5
	90th percentile												
SWEL-1B	Esquimalt Lagoon at Portsmouth Drive												
summer	n	5	5	5	5	5	3	5	5	5	5	5	5
	#non-detects	0%	60%	20%	20%	0%	0%	0%	100%	100%	0%	100%	80%
	min	4.1	0.002	0.002	0.55	7.51	157	28.81	0.5	0.05	15.1	1	3
	max	15.2	0.0096	0.139	2.6	8.29	168	30.14	<2	0.25	22.3	10	9.1
	average	7.2	0.0	0.1	2	7.93	161	29.62	1	0.13	19.2	5	4
	sd	4.6	0.0	0.1	0.9	0.29	6	0.52	1	0.11	2.6	5	3
fall	n	5	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	0%	0%	0%	0%	20%	0%	100%	100%	0%	80%	40%
	min	7.24	0.0063	0.539	0.32	7.61	50	22.17	0.5	0.05	7.4	1	3
	max	23.8	0.0129	3.57	7	8.19	182	29.87	0.5	0.05	14.7	3.2	23.2
	average	15.43	0.0	1.6	1.9	7.96	128	25.42	0.5	0.05	10.3	1	11.2
	sd	6.04	0.0	1.2	2.9	0.23	48	2.90	0.0	0.00	3.0	1	9
	90th percentile												

Table 2, Continued

		Manganese	No2 (As N)	No3 (As N)	Nickel	pH	Phosphorus	Salinity	Selenium	Silver	Temperature	Tin	Zinc
		TOT	DIS	DIS	TOT	NoRs	TOT	NoRs	TOT	TOT	NA	TOT	TOT
		µg/L	mg/L	mg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**	**100 [3]**				**6.5-9**			**1, 2 [6,1]**	**3 [1]**			**10 [2]**
	average			**3.7 [2]**						**1.5**	**NA [5]**		
Esquimalt Lagoon													
SWEL-2A	Esquimalt Lagoon halfway along Colburg Peninsula at "dog on leash" sign												
summer	n	5	5	5	5	5	3	5	5	5	5	5	5
	#non-detects	0%	60%	80%	20%	0%	0%	0%	100%	100%	0%	80%	60%
	min	2.6	0.002	0.002	0.2	8.11	154	28.51	0.5	0.05	18.2	1	3
	max	25.6	0.0038	0.0167	4.3	8.36	178	30.03	<2	0.25	22.4	10	25.9
	average	8.5	0.0	0.0	2	8.21	162	29.63	1	0.13	19.8	3	9.8
	sd	9.7	0.0	0.0	1.7	0.11	14	0.64	1	0.11	1.7	4	10
fall	n	5	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	40%	0%	20%	0%	20%	0%	100%	100%	0%	80%	60%
	min	3.01	0.002	0.003	0.2	7.79	50	26.63	0.5	0.05	7.3	1	3
	max	7.18	0.0077	0.295	6.97	8.58	198	29.75	0.5	0.05	15.2	1.3	12.2
	average	5.50	0.0	0.1	1.8	8.09	135	28.76	0.5	0.05	11.1	1	6
	sd	1.81	0.0	0.1	2.9	0.30	54	1.25	0.0	0.00	2.9	0	4
	90th percentile												
SWEL-7	Mouth of Colwood Creek												
summer	n	5	5	5	5	5	3	5	5	5	5	5	5
	#non-detects	0%	0%	0%	40%	0%	0%	0%	100%	100%	0%	80%	60%
	min	10.8	0.0027	0.0161	0.2	7.81	162	25.2	0.5	0.05	18.7	1	3
	max	161	0.0093	0.562	1.42	8.12	205	29.24	<2	0.25	28.2	16	5.3
	average	110.0	0.0	0.3	1	7.89	180	27.51	1	0.11	23.5	5	3
	sd	59.5	0.0	0.2	0.5	0.13	23	1.75	1	0.08	3.4	6	1
fall	n	5	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	20%	0%	40%	0%	20%	0%	100%	100%	0%	100%	60%
	min	6.58	0.002	0.114	0.2	7.62	50	26.67	0.5	0.05	8.7	1	3
	max	75.8	0.0076	0.393	2.11	8.13	159	29.35	0.5	0.05	16.3	1	11.2
	average	28.28	0.0	0.2	0.7	7.82	123	28.21	0.5	0.05	11.8	1	5
	sd	27.92	0.0	0.1	0.8	0.24	45	0.97	0.0	0.00	3.0	0	4
	90th percentile												

Table 2, Continued

		Manganese	No2 (As N)	No3 (As N)	Nickel	pH	Phosphorus	Salinity	Selenium	Silver	Temperature	Tin	Zinc
		TOT	DISS	DISS	TOT	NoRs	TOT	NoRs	TOT	TOT	NA	TOT	TOT
		µg/L	mg/L	mg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective	**maximum**	**100 [3]**				**6.5-9**			**1, 2 [6,1]**	**3 [1]**			**10 [2]**
	average			**3.7 [2]**						**1.5**	**NA [5]**		
Esquimalt Lagoon													
SWEL-REF	Ocean side of Colburg Peninsula opposite station EL-2A (Esquimalt Lagoon Ref.)												
summer	n	4	4	4	4	5	2	5	4	4	5	4	4
	#non-detects	0%	40%	0%	40%	0%	0%	0%	80%	80%	0%	80%	60%
	min	3.52	0.002	0.0217	0.8	7.81	142	30.1	0.5	0.05	13.9	1	3
	max	5.5	0.005	0.203	5	8.23	186	30.42	*<2*	0.5	18.7	10	*<50*
	average	4.9	0.0	0.1	2	8.01	164	30.22	*<2*	0.21	16.3	6	*16.8*
	sd	0.9	0.0	0.1	1.9	0.19	31	0.12	1	0.21	2.0	5	22
fall	n	5	5	5	5	5	5	5	5	5	5	5	5
	#non-detects	0%	0%	0%	0%	0%	0%	0%	100%	100%	0%	100%	60%
	min	2.45	0.0049	0.245	0.44	7.6	67	29.82	0.5	0.05	9.8	1	3
	max	9.33	0.007	0.288	3.71	7.78	201	30.55	0.5	0.05	12.2	1	12.4
	average	4.43	0.0	0.3	1.3	7.70	155	30.17	0.5	0.05	10.7	1	5
	sd	2.99	0.0	0.0	1.4	0.07	53	0.31	0.0	0.00	1.0	0	4
	90th percentile												

Notes:

TOT is total concentration; DISS is dissolved concentration; NA is not applicable.
For parameters that were not detected, the detection limit was used to calculate summary statistics.

[1] BC approved water quality guideline.
[2] BC Draft water quality objective.
[3] BC Working water quality guideline.
[4] Guidelines are for Cr(III) /Cr(VI).
[5] + or - 1°C from background; background unknown.
[6] Alert level.
[7] Boron concentrations in BC marine waters are naturally elevated at concentrations around 4000 mg/L.

Other metals were analyzed but are not shown here.

X Exceeds a water quality guideline that is only partially applicable ; or value wasn't detected but detection limits were above guideline.
X Exceeds a water quality guideline.

Table 3 Nearshore Marine Water Quality Data – Victoria Harbour

			Aluminum	Arsenic	Boron	Cadmium	Chromium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
			TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**		**12.5 [2]**	**1200 [1,7]**	**0.12 [2]**	**56 /1.5 [3,4]**	**3 [2]**	**5 [2]**	**70 [2]**	**-**		**140 [3]**
		average					**-**	**2 [3]**	**8 [2]**	**35 [2]**	**14 / 43 [2]**		**2 [3]**
SWVH-1	Outer Harbour												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	20%	0%	0%	60%	20%	100%	0%	40%	0%	40%	20%
		min	11.2	1.16	3360	0.012	0.5	0.5	6.26	1	1	10	0.05
		max	54.7	1.9	4250	0.25	0.78	2.5	8.25	8	35	71	0.591
		average	35	1.6	3830	0.17	0.6	1.7	**7.38**	2	4	43	0.284
		sd	19	0.3	370	0.11	0.1	1.1	0.73	3	14	25	0.214
	fall	n	4	4	4	4	4	4	5	5	5	4	4
		#non-detects	20%	0%	0%	0%	80%	60%	0%	0%	0%	40%	60%
		min	5	0.66	2530	0.025	0.5	0.5	7.11	1	4	10	0.05
		max	19.2	1.91	3470	0.073	0.5	**3.69**	8.42	4	28	23	0.79
		90th percentile									29		
		average	11	1.3	3120	0.05	0.5	1.3	**7.84**	2	8	15	0.235
		sd	6	0.5	431	0.02	0.0	1.6	0.48	1	10	6	0.370
SWVH-2	West Bay												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	20%	0%	0%	60%	40%	60%	0%	20%	0%	40%	0%
		min	10.9	1.21	3530	0.01	0.5	0.5	6.33	1	2	10	0.051
		max	41.6	2.2	4190	*<0.25*	5	2.61	12.63	17	80	58	1.76
		average	25	1.8	3802	0.12	1.5	1.8	9.09	2	11	37	0.667
		sd	11	0.4	275	0.12	2.0	1.0	2.77	7	33	22	0.648
	fall	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	20%	0%	0%	20%	100%	20%	0%	0%	0%	40%	80%
		min	5	0.91	2830	0.01	0.5	0.5	7.07	13	17	10	0.05
		max	18	2.15	3850	0.057	0.5	**3.49**	8.03	63	590	13	1.09
		90th percentile									**144**		
		average	10	1.7	3402	0.03	0.5	**2.1**	**7.59**	21	**65**	11	0.258
		sd	5	0.5	371	0.02	0.0	1.1	0.47	21	244	2	0.465

Table 3, Continued

			Aluminum	Arsenic	Boron	Cadmium	Chromium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
			TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**		**12.5 [2]**	**1200 [1,7]**	**0.12 [2]**	**56 /1.5 [3,4]**	**3 [2]**	**5 [2]**	**70 [2]**	**-**		**140 [3]**
		average					**-**	**2 [3]**	**8 [2]**	**35 [2]**	**14 / 43 [2]**		**2 [3]**
SWVH-3	Fisherman's Wharf												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	20%	0%	0%	40%	100%	60%	0%	40%	0%	0%	0%
		min	12.7	1.25	3350	0.01	0.5	0.5	6.23	1	3	19	0.062
		max	77.7	2.01	4280	*<0.25*	5	2.5	10.5	15	110	103	1.28
		average	30	1.7	3774	0.09	3.2	1.7	8.06	2	8	59	0.544
		sd	27	0.3	409	0.09	2.5	1.0	1.97	6	47	37	0.464
	fall	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	20%	0%	0%	20%	100%	20%	0%	0%	0%	40%	60%
		min	5	0.83	2810	0.01	0.5	0.5	7.57	8	14	10	0.05
		max	13.2	1.96	3670	0.064	0.5	2.99	9.04	30	140	29	0.224
		90th percentile									**113**		
		average	10	1.6	3334	0.03	0.5	1.2	8.13	17	**48**	15	0.100
		sd	3	0.5	362	0.02	0.0	1.0	0.55	10	48	8	0.077
SWVH-4	Inner Harbour												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	0%	0%	0%	40%	40%	60%	0%	20%	0%	0%	0%
		min	15.5	1.28	3260	0.03	0.5	0.5	5.84	1	2	33	0.1
		max	76	1.82	4410	*<0.25*	5	**3**	9.94	**31000**	**1100000**	128	0.76
		average	35	1.6	3832	0.13	1.6	**2.3**	**7.59**	26	**213**	70	0.529
		sd	24	0.2	432	0.11	1.9	1.0	1.84	13860	491908	38	0.255
	fall	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	20%	0%	0%	40%	100%	40%	0%	0%	0%	40%	40%
		min	5	0.65	2240	0.01	0.5	0.5	7.42	20	36	10	0.05
		max	33.5	2.28	3670	0.059	0.5	**5.1**	9.74	68	160	31	0.941
		90th percentile									**110153**		
		average	15	1.5	3140	0.03	0.5	**2.2**	8.62	35	**72**	19	0.262
		sd	11	0.6	567	0.02	0.0	1.9	0.82	20	58	9	0.382

Table 3, Continued

			Aluminum	Arsenic	Boron	Cadmium	Chromium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
			TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**		**12.5 [2]**	**1200 [1,7]**	**0.12 [2]**	**56 /1.5 [3,4]**	**3 [2]**	**5 [2]**	**70 [2]**	**-**		**140 [3]**
		average					**-**	**2 [3]**	**8 [2]**	**35 [2]**	**14 / 43 [2]**		**2 [3]**
SWVH-5	Johnson St. Bridge												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	0%	0%	0%	80%	60%	80%	0%	0%	0%	20%	0%
		min	16.8	1.08	3120	0.01	0.5	0.5	5.77	1	4	19	0.094
		max	59.2	1.99	4400	*0.25*	5	2.5	8.41	55	180	91	4.09
		average	31	1.5	3894	0.17	2.4	1.9	**7.02**	5	**20**	43	1.171
		sd	18	0.4	486	0.11	2.4	0.9	1.17	23	74	29	1.647
	fall	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	20%	0%	0%	20%	80%	40%	0%	0%	0%	20%	20%
		min	5	0.93	2700	0.01	0.5	0.5	7.39	9	21	10	0.05
		max	102	2.53	3690	**0.637**	0.85	2.62	8.85	52	61	348	2.52
		90th percentile									**73**		
		average	33	1.6	3346	**0.15**	0.6	1.2	8.15	18	**35**	98	0.656
		sd	40	0.6	402	0.27	0.2	0.9	0.57	17	16	143	1.051
SWVH-5A	Centre of Victoria Harbour between barge loading belt and marine railway at Point Hope												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	0%	0%	0%	80%	80%	40%	0%	0%	0%	40%	0%
		min	14.4	1.24	3650	0.01	0.5	0.69	5.93	2	7	30	0.402
		max	67	2	4460	*<0.25*	5	2.5	8.32	**78**	220	71	16.5
		average	37	1.6	3940	0.11	3.3	1.7	**6.95**	8	**32**	46	3.896
		sd	23	0.3	328	0.13	2.4	0.8	1.09	34	88	17	7.061
	fall	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	0%	0%	0%	20%	100%	20%	0%	0%	0%	40%	40%
		min	12.5	1.15	2810	0.01	0.5	0.5	7.45	13	15	10	0.05
		max	505	2.12	3720	0.058	0.5	1.14	8.93	34	62	28	0.413
		90th percentile									**78**		
		average	129	1.7	3254	0.03	0.5	0.8	8.26	20	**28**	19	0.159
		sd	212	0.4	397	0.02	0.0	0.2	0.60	9	18	9	0.149

Table 3, Continued

			Aluminum	Arsenic	Boron	Cadmium	Chromium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
			TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**		**12.5 [2]**	**1200 [1,7]**	**0.12 [2]**	**56 /1.5 [3,4]**	**3 [2]**	**5 [2]**	**70 [2]**	**-**		**140 [3]**
		average					**-**	**2 [3]**	**8 [2]**	**35 [2]**	**14 / 43 [2]**		**2 [3]**
SWVH-5B	Victoria Harbour at middle of Rock Bay												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	0%	0%	0%	60%	100%	40%	0%	20%	0%	20%	0%
		min	10.4	1.34	2160	0.01	0.5	0.5	**4.22**	1	1	18	0.171
		max	128	2	4180	*<0.25*	5	**19.1**	8.64	**52000**	480000	361	2.27
		average	47	1.7	3386	0.12	2.3	**5.35**	**6.66**	35	**175**	110	1.098
		sd	49	0.3	786	0.12	2.5	7.7	1.66	23247	214631	142	1.035
	fall	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	20%	0%	0%	40%	80%	20%	0%	0%	0%	20%	20%
		min	5	1.09	2010	0.01	0.5	0.5	7.32	19	14	10	0.05
		max	130	2.11	3680	0.069	0.9	**4.27**	10.19	**1200**	5500	195	1.3
		90th percentile									**52950**		
		average	50	1.5	2782	0.03	0.6	**2.09**	8.19	**103**	**462**	84	0.527
		sd	53	0.4	782	0.03	0.2	1.5	1.23	505	2313	81	0.563
SWVH-6A	Middle of South Bay 30m out from barge dock												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	0%	0%	0%	40%	80%	40%	0%	0%	0%	0%	0%
		min	16.6	1.35	3390	0.019	0.5	0.5	**4.33**	1	13	41	0.238
		max	51.2	2.12	4180	*<0.25*	5	**4.4**	7.41	**82000**	610000	136	1.42
		average	33	1.8	3798	0.09	2.4	**2.1**	**6.15**	**98**	**547**	69	0.661
		sd	16	0.3	280	0.09	2.4	1.5	1.13	36596	272540	40	0.450
	fall	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	20%	0%	0%	20%	100%	40%	0%	0%	0%	20%	0%
		min	5	1.39	2620	0.01	0.5	0.5	6.92	32	22	10	0.077
		max	43.1	1.98	3640	0.044	0.5	1.76	9.96	**150**	200	92	0.872
		90th percentile									**62980**		
		average	29	1.6	3154	0.03	0.5	1.2	8.16	**58**	**70**	42	0.308
		sd	15	0.3	430	0.01	0.0	0.6	1.27	47	84	30	0.329

Table 3, Continued

			Aluminum	Arsenic	Boron	Cadmium	Chromium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
			TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**		**12.5 [2]**	**1200 [1,7]**	**0.12 [2]**	**56 /1.5 [3,4]**	**3 [2]**	**5 [2]**	**70 [2]**	**-**		**140 [3]**
		average					**-**	**2 [3]**	**8 [2]**	**35 [2]**	**14 / 43 [2]**		**2 [3]**
SWVH-7A	The Gorge, mouth of Cecelia Creek												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	0%	0%	0%	60%	60%	40%	0%	20%	0%	20%	0%
		min	25.5	1.31	2310	0.01	0.5	0.76	6.15	1	2	50	0.226
		max	269	2.1	3990	*<0.25*	5	**3.8**	8.96	**120**	1200	474	4.14
		average	108	1.7	3254	0.07	2.5	**2.2**	**6.80**	17	**41**	190	1.693
		sd	96	0.4	674	0.10	2.3	1.1	1.22	59	517	168	1.525
	fall	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	0%	0%	0%	40%	80%	40%	0%	0%	0%	0%	0%
		min	17.5	1.11	2540	0.01	0.5	0.5	6.85	11	20	40	0.191
		max	104	2.16	3510	0.063	0.52	1.16	9.61	**160**	580	155	1.09
		90th percentile									**642**		
		average	45	1.6	3102	0.03	0.5	0.8	**7.93**	**42**	**75**	76	0.719
		sd	34	0.4	391	0.02	0.0	0.3	1.04	63	239	46	0.338
SWVH-7B	The Gorge, centre of pool downstream of Tillicum Bridge												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	60%	0%	0%	60%	100%	40%	0%	20%	0%	20%	0%
		min	19.2	1.26	3320	0.01	0.5	0.5	6.03	1	2	41	0.13
		max	53.3	2.3	4170	*<0.25*	5	2.5	9.19	13	50	82	1.23
		average	30	1.7	3748	0.07	2.3	1.3	**7.55**	3	6	54	0.453
		sd	14	0.4	380	0.10	2.5	0.7	1.52	5	20	17	0.454
	fall	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	20%	0%	0%	20%	80%	40%	0%	0%	0%	20%	0%
		min	5	1.19	2530	0.01	0.5	0.5	7.54	13	8	10	0.096
		max	37.5	1.91	3680	0.05	1.78	1.69	10.62	43	39	61	2.78
		90th percentile									40		
		average	25	1.6	3064	0.02	0.8	0.9	8.53	20	15	32	0.703
		sd	13	0.3	423	0.02	0.6	0.5	1.22	12	13	18	1.163

Table 3, Continued

			Aluminum	Arsenic	Boron	Cadmium	Chromium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
			TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**		**12.5 [2]**	**1200 [1,7]**	**0.12 [2]**	**56 /1.5 [3,4]**	**3 [2]**	**5 [2]**	**70 [2]**	**-**		**140 [3]**
		average					**-**	**2 [3]**	**8 [2]**	**35 [2]**	**14 / 43 [2]**		**2 [3]**
SWVH-9	The Gorge, Admirals Rd. Bridge												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	60%	0%	0%	40%	100%	40%	0%	0%	0%	20%	20%
		min	9.9	1.26	3560	0.01	0.5	0.5	7.01	1	4	27	0.05
		max	25	2.5	4130	*<0.25*	5	2.5	10.27	13	50	54	1.48
		average	21	2.0	3810	0.07	2.3	1.2	8.64	5	14	40	0.886
		sd	7	0.5	267	0.10	2.5	0.8	1.36	5	19	11	0.688
	fall	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	0%	0%	0%	40%	80%	40%	0%	0%	0%	20%	20%
		min	5.4	1.01	2750	0.01	0.5	0.5	7.65	12	8	10	0.05
		max	64.7	2.22	3630	0.034	0.53	1.02	9.67	24	25	46	0.715
		90th percentile									29.3		
		average	28	1.6	3178	0.02	0.5	0.6	8.65	17	14	36	0.260
		sd	23	0.5	397	0.01	0.0	0.2	0.88	6	8	15	0.265
SWVH-10	Portage Inlet in front of Colquitz Creek												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	0%	0%	0%	60%	100%	60%	0%	0%	20%	0%	0%
		min	18	1.51	3540	0.01	0.5	0.5	6.79	1	1	46	0.322
		max	84.5	2.48	4050	0.018	5	2.5	10.27	**110**	1100	151	1.72
		average	50	2.0	3812	0.01	2.3	1.6	8.08	13	**51**	94	0.714
		sd	28	0.4	244	0.00	2.5	0.9	1.38	45	467	43	0.602
	fall	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	20%	0%	0%	80%	100%	40%	0%	0%	0%	0%	20%
		min	5	0.65	1660	0.01	0.5	0.5	6.41	30	18	23	0.05
		max	77.2	1.8	3300	0.036	0.5	0.78	11.53	**140**	140	142	0.702
		90th percentile									**281**		
		average	37	1.2	2338	0.02	0.5	0.6	9.52	**55**	**48**	72	0.301
		sd	28	0.4	627	0.01	0.0	0.1	1.96	46	55	43	0.289

Table 3, Continued

			Aluminum	Arsenic	Boron	Cadmium	Chromium	Copper	Oxygen	Enterococci	F. Coliforms	Iron	Lead
			TOT	TOT	TOT	TOT	TOT	TOT	DIS	NA	NA	TOT	TOT
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	CFU/100 mL	CFU/100 mL	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**		**12.5 [2]**	**1200 [1,7]**	**0.12 [2]**	**56 /1.5 [3,4]**	**3 [2]**	**5 [2]**	**70 [2]**	**-**		**140 [3]**
		average					**-**	**2 [3]**	**8 [2]**	**35 [2]**	**14 / 43 [2]**		**2 [3]**
SWVH-10A	Portage Inlet												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	40%	0%	0%	60%	80%	40%	0%	0%	0%	20%	0%
		min	25	1.45	3620	0.01	0.5	1.57	8.15	1	1	48	0.058
		max	74	2.51	4220	*<0.25*	5	2.64	10.22	18	65	129	15.8
		average	38	2.1	3914	0.06	2.4	**2.2**	9.17	6	10	67	3.527
		sd	21	0.5	231	0.11	2.4	0.5	0.94	8	28	35	6.868
	fall	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	0%	0%	0%	80%	80%	40%	0%	0%	0%	0%	20%
		min	8.7	0.59	1740	0.01	0.5	0.5	6.72	17	21	38	0.05
		max	96.5	1.83	2940	0.096	2.68	1.46	10.69	**120**	170	167	5.1
		90th percentile									**76**		
		average	42	1.1	2192	0.03	0.9	0.9	9.09	**44**	**42**	84	1.091
		sd	33	0.5	546	0.04	1.0	0.4	1.47	46	64	52	2.241
SWVH-10B	Portage Inlet sampled between discharge 695 and Hospital Creek (697) 30m from shore												
	summer	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	20%	0%	0%	80%	80%	40%	0%	0%	0%	0%	0%
		min	15.4	1.25	2790	0.01	0.5	0.5	6.64	2	16	49	0.115
		max	157	2.6	4110	*<0.25*	5	**3.9**	11.26	41	200	219	0.601
		average	59	1.7	3496	0.06	2.6	**2.2**	8.63	7	**50**	111	0.335
		sd	57	0.6	513	0.11	2.3	1.3	1.97	16	75	76	0.218
	fall	n	5	5	5	5	5	5	5	5	5	5	5
		#non-detects	0%	0%	0%	80%	80%	20%	0%	0%	0%	0%	40%
		min	20.3	0.67	1650	0.01	0.5	0.5	6.75	12	9	48	0.05
		max	77.9	2.09	2810	0.043	0.64	0.87	10.73	**320**	510	219	0.218
		90th percentile									**231**		
		average	41	1.2	2346	0.02	0.5	0.7	9.01	35	**35**	90	0.126
		sd	23	0.6	452	0.01	0.1	0.2	1.52	134	219	73	0.083

Table 3, Continued

			Manganese	Nickel	Po4 (As P)	pH	Phosphorus	Salinity	Selenium	Silver	Temperature	Tin	Zinc
			TOT	TOT	TOT	NoRs	TOT	NoRs	TOT	TOT	NoRs	TOT	TOT
			µg/L	µg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**	**100** [3]			**6.5-9**				**3** [1]			**10** [2]
		average							**1 , 2** [6,1]	**1.5**	**NA** [5]		
SWVH-1	Outer Harbour												
	summer	n	5	5	2	5	3	5	5	5	5	5	5
		#non-detects	0%	60%	0%	0%	0%	0%	100%	100%	0%	100%	100%
		min	2.55	0.2	108	7.59	131	30.05	0.5	0.05	11.1	1	3
		max	4.5	1.1	224	7.82	174	30.72	*<2*	0.25	13.5	10	5
		average	3.5	1	166	7.70	152	30.38	1	0.17	12.4	3	4
		sd	0.7	0.4	82	0.09	22	0.24	1	0.11	1.2	4	1
	fall	n	4	4	1	5	3	5	4	4	5	4	4
		#non-detects	0%	60%	0%	0%	20%	0%	80%	80%	0%	80%	60%
		min	0.87	0.2	128	7.55	50	29.87	0.5	0.05	9.2	1	3
		max	2.26	0.67	128	7.67	139	30.59	0.5	0.05	10.6	1	3.6
		90th percentile											
		average	1.4	0	128	7.60	92	30.27	1	0.05	9.8	1	3
		sd	0.6	0.2		0.05	45	0.27	0	0.00	0.5	0	0
SWVH-2	West Bay												
	summer	n	5	5	2	5	3	5	5	5	5	5	5
		#non-detects	0%	20%	0%	0%	0%	0%	100%	100%	0%	100%	80%
		min	2.96	0.2	151	7.5	127	29.95	0.5	0.05	13	1	3
		max	3.93	6.2	242	8.26	153	30.64	*<2*	0.25	17	10	6.3
		average	3.6	2	197	7.81	140	30.38	1	0.17	14.4	6	4
		sd	0.4	2.6	64	0.29	13	0.27	1	0.11	1.5	5	2
	fall	n	5	5	1	5	4	5	5	5	5	5	5
		#non-detects	0%	80%	0%	0%	0%	0%	100%	100%	0%	80%	80%
		min	2.21	0.2	150	7.46	67	28.99	0.5	0.05	7.9	1	3
		max	4.37	0.45	150	7.63	155	30.09	0.5	0.05	11.3	1.9	7.3
		90th percentile											
		average	3.6	0	150	7.55	120	29.50	1	0.05	9.7	1	4
		sd	0.9	0.1		0.07	39	0.52	0	0.00	1.2	0	2

Table 3, Continued

			Manganese	Nickel	Po4 (As P)	pH	Phosphorus	Salinity	Selenium	Silver	Temperature	Tin	Zinc
			TOT	TOT	TOT	NoRs	TOT	NoRs	TOT	TOT	NoRs	TOT	TOT
			µg/L	µg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**	**100** [3]			**6.5-9**				**3** [1]			**10** [2]
		average							**1 , 2** [6,1]	**1.5**	**NA** [5]		
SWVH-3	Fisherman's Wharf												
	summer	n	5	5	2	5	3	5	5	5	5	5	5
		#non-detects	0%	40%	0%	0%	0%	0%	100%	100%	0%	100%	60%
		min	3.61	0.2	147	7.53	149	29.9	0.5	0.05	12.7	1	3
		max	4.99	42.4	214	8	164	30.61	*<2*	0.25	15.4	10	**22.7**
		average	4.2	9	181	7.76	154	30.36	1	0.09	14.1	3	9
		sd	0.5	18.7	47	0.17	8	0.29	1	0.09	1.1	4	8
	fall	n	5	5	1	5	4	5	5	5	5	5	5
		#non-detects	0%	80%	0%	0%	0%	0%	100%	100%	0%	100%	60%
		min	3.13	0.2	143	7.53	59	28.45	0.5	0.05	8.1	1	3
		max	5.51	0.22	143	7.61	250	30.26	0.5	0.05	11.1	1	4.1
		90th percentile											
		average	4.4	0	143	7.58	136	29.18	1	0.05	9.5	1	3
		sd	1.0	0.0		0.03	84	0.78	0	0.00	1.2	0	0
SWVH-4	Inner Harbour												
	summer	n	5	5	2	5	3	5	5	5	5	5	5
		#non-detects	0%	60%	0%	0%	0%	0%	100%	100%	0%	100%	40%
		min	4.9	0.2	136	7.51	150	29.21	0.5	0.05	13.6	1	3
		max	9.35	1	239	7.96	200	30.6	*<2*	0.25	17.2	10	**19.7**
		average	6.6	0	188	7.72	167	30.08	1	0.13	14.8	5	8
		sd	1.8	0.3	73	0.21	29	0.52	1	0.11	1.5	5	7
	fall	n	5	5	1	5	4	5	5	5	5	5	5
		#non-detects	0%	80%	0%	0%	20%	0%	100%	100%	0%	100%	60%
		min	5.2	0.2	142	7.55	50	26.31	0.5	0.05	7.5	1	3
		max	8.57	0.74	142	7.63	162	29.85	0.5	0.05	11.8	1	6.3
		90th percentile											
		average	6.7	0	142	7.59	114	27.75	1	0.05	9.4	1	4
		sd	1.4	0.2		0.04	48	1.31	0	0.00	1.7	0	1

Table 3, Continued

			Manganese	Nickel	Po4 (As P)	pH	Phosphorus	Salinity	Selenium	Silver	Temperature	Tin	Zinc
			TOT	TOT	TOT	NoRs	TOT	NoRs	TOT	TOT	NoRs	TOT	TOT
			µg/L	µg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**	**100** [3]			**6.5-9**				**3** [1]			**10** [2]
		average							**1 , 2** [6,1]	**1.5**	**NA** [5]		
SWVH-5	Johnson St. Bridge												
	summer	n	5	5	2	5	3	5	5	5	5	5	5
		#non-detects	0%	20%	0%	0%	0%	0%	100%	100%	0%	100%	80%
		min	5.51	0.2	145	7.57	143	29.86	0.5	0.05	13.3	1	3
		max	8.1	15.7	243	7.92	169	30.51	*<2*	0.25	16.2	10	7
		average	6.5	4	194	7.73	153	30.25	1	0.13	15.1	5	4
		sd	1.1	6.8	69	0.13	14	0.25	1	0.11	1.1	5	2
	fall	n	5	5	1	5	4	5	5	5	5	5	5
		#non-detects	0%	60%	0%	0%	0%	0%	80%	80%	0%	100%	60%
		min	6.99	0.2	128	7.56	57	26.55	0.5	0.05	8	1	3
		max	11.8	0.54	128	7.66	170	29.37	0.66	0.059	12.2	1	**92**
		90th percentile											
		average	8.4	0	128	7.61	121	27.86	1	0.05	9.8	1	21
		sd	1.9	0.2		0.05	47	1.16	0	0.00	1.7	0	40
SWVH-5A	Centre of Victoria Harbour between barge loading belt and marine railway at Point Hope												
	summer	n	5	5	2	5	3	5	5	5	5	5	5
		#non-detects	0%	40%	0%	0%	0%	0%	100%	100%	0%	100%	60%
		min	7.22	0.2	144	7.51	138	29.75	0.5	0.05	14.8	1	3
		max	9.52	15.6	230	7.86	182	30.38	*<2*	0.05	19	10	**19**
		average	8.5	4	187	7.74	163	30.14	1	0.05	16.7	3	7
		sd	0.9	6.6	61	0.14	22	0.26	1	0.00	1.6	4	7
	fall	n	5	5	1	5	4	5	5	5	5	5	5
		#non-detects	0%	100%	0%	0%	0%	0%	100%	100%	0%	100%	80%
		min	6.31	0.2	142	7.57	66	24.96	0.5	0.05	8.3	1	3
		max	9.54	0.2	142	7.67	167	29.48	0.5	0.05	12.2	1	4.5
		90th percentile											
		average	7.9	0	142	7.61	116	27.17	1	0.05	9.9	1	3
		sd	1.4	0.0		0.05	43	1.61	0	0.00	1.5	0	1

Table 3, Continued

			Manganese	Nickel	Po4 (As P)	pH	Phosphorus	Salinity	Selenium	Silver	Temperature	Tin	Zinc
			TOT	TOT	TOT	NoRs	TOT	NoRs	TOT	TOT	NoRs	TOT	TOT
			µg/L	µg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**	**100** [3]			**6.5-9**				**3** [1]			**10** [2]
		average							**1 , 2** [6,1]	**1.5**	**NA** [5]		
SWVH-5B	Victoria Harbour at middle of Rock Bay												
	summer	n	5	5	2	5	3	5	5	5	4	5	5
		#non-detects	0%	60%	0%	0%	0%	0%	100%	100%	0%	100%	60%
		min	6.75	0.2	161	7.48	146	23.94	0.5	0.05	16.4	1	3
		max	65.6	16.9	248	7.85	420	30.02	*<2*	0.25	18.7	10	**33.5**
		average	20.9	4	205	7.67	241	28.25	1	0.13	17.7	3	13
		sd	25.1	7.2	62	0.15	155	2.46	1	0.11	1.2	4	14
	fall	n	5	5	1	5	4	5	5	5	5	5	5
		#non-detects	0%	40%	0%	0%	0%	0%	100%	100%	0%	100%	40%
		min	7.83	0.2	164	7.54	64	22.46	0.5	0.05	8	1	3
		max	45.6	0.57	164	7.7	191	29.5	0.5	0.05	12.2	1	**14.2**
		90th percentile											
		average	20.4	0	164	7.62	150	27.01	1	0.05	10.2	1	8
		sd	15.8	0.2		0.07	58	2.68	0	0.00	1.6	0	5
SWVH-6A	Middle of South Bay 30m out from barge dock												
	summer	n	5	5	2	5	3	5	5	5	5	5	5
		#non-detects	0%	60%	0%	0%	0%	0%	100%	100%	0%	100%	60%
		min	11.6	0.2	159	7.47	195	28.6	0.5	0.05	16.4	1	2
		max	31.1	15.7	251	7.98	248	30.02	*<2*	0.25	21.7	1	**18.2**
		average	17.9	4	205	7.72	213	29.49	1	0.14	17.9	1	8
		sd	7.7	6.7	65	0.19	30	0.60	1	0.10	2.3	0	7
	fall	n	5	5	1	5	4	5	5	5	5	5	5
		#non-detects	0%	60%	0%	0%	0%	0%	100%	100%	0%	100%	60%
		min	7.6	0.2	144	7.54	54	23.46	0.5	0.05	7.6	1	3
		max	14	1.24	144	7.69	159	2961	0.5	0.05	12	1	8.4
		90th percentile											
		average	10.3	0	144	7.60	113	613.06	1	0.05	10.0	1	5
		sd	2.5	0.5		0.07	45	1312.54	0	0.00	1.6	0	3

Table 3, Continued

			Manganese	Nickel	Po4 (As P)	pH	Phosphorus	Salinity	Selenium	Silver	Temperature	Tin	Zinc
			TOT	TOT	TOT	NoRs	TOT	NoRs	TOT	TOT	NoRs	TOT	TOT
			µg/L	µg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**	**100** [3]			**6.5-9**				**3** [1]			**10** [2]
		average							**1 , 2** [6,1]	**1.5**	**NA** [5]		
SWVH-7A	The Gorge, mouth of Cecelia Creek												
	summer	n	5	5	2	5	3	5	5	5	5	5	5
		#non-detects	0%	40%	0%	0%	0%	0%	100%	100%	0%	100%	60%
		min	8.57	0.2	176	7.76	192	29.79	0.5	0.05	16.9	1	3
		max	38.5	2.8	232	8.08	232	30.06	*<2*	0.25	23	10	5.8
		average	18.1	1	204	7.87	213	29.93	1	0.13	19.2	3	4
		sd	11.8	1.1	40	0.13	20	0.10	1	0.11	2.5	4	2
	fall	n	5	5	1	5	4	5	5	5	5	5	5
		#non-detects	0%	60%	0%	0%	0%	0%	100%	100%	0%	100%	80%
		min	7.85	0.2	162	7.52	69	22.57	0.5	0.05	8.7	1	3
		max	21.7	0.5	162	7.66	158	29.13	0.5	0.05	12.9	1	3.8
		90th percentile											
		average	15.3	0	162	7.58	116	26.90	1	0.05	10.4	1	3
		sd	5.3	0.1		0.06	39	2.54	0	0.00	1.6	0	0
SWVH-7B	The Gorge, centre of pool downstream of Tillicum Bridge												
	summer	n	5	5	2	5	3	5	5	5	5	5	5
		#non-detects	0%	40%	0%	0%	0%	0%	100%	100%	0%	100%	80%
		min	13	0.2	170	7.74	223	29.45	0.5	0.05	17.6	1	3
		max	18.2	2.6	261	8.23	226	29.88	*<2*	0.05	24.9	10	6.2
		average	14.6	1	216	8.04	225	29.77	1	0.05	20.8	5	4
		sd	2.1	1.0	64	0.21	2	0.18	1	0.00	2.8	5	1
	fall	n	5	5	1	5	4	5	5	5	5	5	5
		#non-detects	0%	60%	0%	0%	0%	0%	100%	100%	0%	100%	80%
		min	9.11	0.2	163	7.55	68	23.06	0.5	0.05	8.5	1	3
		max	14.2	1.29	163	7.67	164	29.45	0.5	0.05	12.6	1	6.8
		90th percentile											
		average	11.1	0	163	7.62	106	26.30	1	0.05	10.2	1	4
		sd	2.6	0.5		0.05	46	2.40	0	0.00	1.6	0	2

Table 3, Continued

			Manganese	Nickel	Po4 (As P)	pH	Phosphorus	Salinity	Selenium	Silver	Temperature	Tin	Zinc
			TOT	TOT	TOT	NoRs	TOT	NoRs	TOT	TOT	NoRs	TOT	TOT
			µg/L	µg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**	**100** [3]			**6.5-9**				**3** [1]			**10** [2]
		average							**1 , 2** [6,1]	**1.5**	**NA** [5]		
SWVH-9	The Gorge, Admirals Rd. Bridge												
	summer	n	5	5	2	5	3	5	5	5	5	5	5
		#non-detects	0%	60%	0%	0%	0%	0%	100%	100%	0%	100%	80%
		min	12.8	0.2	159	8.03	179	29.24	0.5	0.05	19.6	1	3
		max	19.7	1	268	8.34	221	29.92	2	0.25	26.6	10	5
		average	16.4	1	214	8.17	198	29.63	1	0.17	21.9	5	4
		sd	2.8	0.4	77	0.14	21	0.27	1	0.11	3.0	5	1
	fall	n	5	5	1	5	4	5	5	5	5	5	5
		#non-detects	0%	60%	0%	0%	20%	0%	100%	100%	0%	100%	80%
		min	7.14	0.2	145	7.57	50	24.92	0.5	0.05	8.5	1	3
		max	12.5	0.54	145	7.7	171	28.99	0.5	0.05	12.7	1	4.4
		90th percentile											
		average	10.0	0	145	7.63	109	26.68	1	0.05	10.3	1	3
		sd	2.3	0.2		0.06	53	1.47	0	0.00	1.6	0	1
SWVH-10	Portage Inlet in front of Colquitz Creek												
	summer	n	5	5	2	5	3	5	5	5	5	5	5
		#non-detects	0%	40%	0%	0%	0%	0%	100%	100%	0%	100%	80%
		min	16.5	0.2	162	7.98	222	28.91	0.5	0.05	20.8	1	2
		max	52	5	269	8.33	253	29.6	*<2*	0.25	30.3	10	3.8
		average	31.4	1	216	8.13	241	29.25	1	0.14	24.1	5	3
		sd	14.0	2.1	76	0.13	16	0.30	1	0.10	4.1	5	1
	fall	n	5	5	1	5	4	5	5	5	5	5	5
		#non-detects	0%	40%	0%	0%	20%	0%	100%	100%	0%	100%	80%
		min	12.7	0.2	142	7.49	50	9.88	0.5	0.05	7.7	1	3
		max	30	0.77	142	7.76	149	27.17	0.5	0.05	14	1	4.9
		90th percentile											
		average	21.5	0	142	7.66	99	20.42	1	0.05	10.1	1	3
		sd	7.3	0.2		0.10	55	6.42	0	0.00	2.4	0	1

Table 3, Continued

			Manganese	Nickel	Po4 (As P)	pH	Phosphorus	Salinity	Selenium	Silver	Temperature	Tin	Zinc
			TOT	TOT	TOT	NoRs	TOT	NoRs	TOT	TOT	NoRs	TOT	TOT
			µg/L	µg/L	µg/L	pH	µg/L	ppt	µg/L	µg/L	°C	µg/L	µg/L
BC Water Quality Guideline or Objective		**maximum**	**100** [3]			**6.5-9**				**3** [1]			**10** [2]
		average							**1 , 2** [6,1]	**1.5**	**NA** [5]		
SWVH-10A	Portage Inlet												
	summer	n	5	5	2	5	3	5	5	5	5	5	5
		#non-detects	0%	40%	0%	0%	0%	0%	100%	100%	0%	100%	80%
		min	12.3	0.2	151	8.26	222	28.25	0.5	0.05	20.4	1	3
		max	28.6	1.5	272	8.66	606	31.1	*<2*	0.25	31.6	10	**262**
		average	20.8	1	212	8.39	375	29.44	1	0.17	24.2	5	55
		sd	6.5	0.5	86	0.16	204	1.12	1	0.11	4.6	5	116
	fall	n	5	5	1	5	4	5	5	5	5	5	5
		#non-detects	0%	40%	0%	0%	20%	0%	100%	100%	0%	100%	60%
		min	14.2	0.2	151	7.59	50	20.85	0.5	0.05	8	1	3
		max	30.4	1.97	151	7.91	138	26.48	0.5	0.05	14.1	1	**104**
		90th percentile											
		average	20.9	1	151	7.73	94	22.32	1	0.05	10.5	1	24
		sd	6.7	0.8		0.14	51	2.37	0	0.00	2.4	0	45
SWVH-10B	Portage Inlet sampled between discharge 695 and Hospital Creek (697) 30m from shore												
	summer	n	5	5	2	5	3	5	5	5	5	5	5
		#non-detects	0%	40%	0%	0%	0%	0%	100%	100%	0%	100%	80%
		min	18.7	0.2	157	8.04	211	27.45	0.5	0.05	19.8	1	3
		max	53.4	3.7	284	8.52	249	29.97	*<2*	0.25	30.7	10	5
		average	30.2	1	221	8.26	229	29.08	1	0.09	23.5	3	3
		sd	14.2	1.4	90	0.21	19	0.96	1	0.09	4.4	4	1
	fall	n	5	5	1	5	4	5	5	5	5	5	5
		#non-detects	0%	60%	0%	0%	0%	0%	100%	100%	0%	100%	80%
		min	13.4	0.2	192	7.49	54	20.84	0.5	0.05	8.4	1	3
		max	43.2	0.5	192	7.8	145	26.88	0.5	0.05	14.3	1	3.8
		90th percentile											
		average	23.3	0	192	7.68	100	22.64	1	0.05	10.7	1	3
		sd	11.9	0.1		0.12	44	2.46	0	0.00	2.4	0	0

Table 3, Continued

Notes:

TOT is total concentration; DISS is dissolved concentration; NA is not applicable.
For parameters that were not detected, the detection limit was used to calculate summary statistics.

[1] BC Working water quality guideline.
[2] BC approved water quality guideline.
[3] Draft water quality objective.
[4] Guidelines are for Cr(III) /Cr(VI).
[5] + or - 1°C from background; background unknown.
[6] Alert value.
[7] Boron concentrations in BC marine waters are naturally elevated.
Other metals were analyzed but are not shown.

X Exceeds a water quality guideline that is only partially applicable ; or value wasn't detected but detection limits were above guideline.
X Exceeds a water quality guideline.

APPENDIX H

CRD PUBLIC HEALTH AND ENVIRONMENTAL CONCERN RATING SYSTEM

STORMWATER DISCHARGE RATING SYSTEM

The Capital Regional District (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 but individual discharges are also assessed and updated as necessary each year.

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

CRD 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 *E.coli* count consistently under 200 CFU/100 mL	1	Low contact (e.g., inaccessible, beach walking)
2	*E.coli* count between 200 and 5,000 CFU/100 mL	2	Secondary contact (e.g., kayaking)
3	*E.coli* 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 eight metals and two 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 two 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 three 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 the CRD 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