

**Appendix 1**

**2021 MS4 Stormwater Annual Report**

**Water Testing Data**

Table 1  
 Stormwater Laboratory Analytical Results  
 April 15, 2021  
 New Haven, Connecticut

Location ID	Receiving Waterbody	Sample Date	Field Parameters										Laboratory Analytical Parameters														
			Temperature (Celsius)	Specific Conductivity (µs/cm)	pH (SU)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Color	Boron (mg/L)	Hardness CaCO3 (mg/L)	Chlorine Residual (mg/L)	COD (mg/L)	MBAS (mg/L)	Ammonia as Nitrogen (mg/L)	Nitrite-N (mg/L)	Nitrate-N (mg/L)	Oil and Grease (mg/L)	TKN (mg/L)	Total P (mg/L)	TSS (mg/L)	Escherichia Coli (MPN/100 ms)	Enterococci Bacteria (MPN/100ms)	Fecal Coliforms MPN (MPN/100ms)	Total Coliforms (MPN/100ms)	Conductivity (µmhos/cm)	Salinity (ppt)
OF-61	Wintergreen Brook	4/15/2021	12.2	185.9	7.22	14.38	63.7	25.89	clear-brown	<0.05	13.5	<0.02	73	0.46	2.54	0.041	0.61	2.0	3.78	0.497	30	>24,200	--*	>24,200	>24,200	216	<0.5
CB-6091	Wintergreen Brook	4/15/2021	12.2	284.1	7.32	20.22	40.5	35.72	clear-brown, some solids	<0.05	13.9	<0.02	101	1.00	0.51	0.030	0.41	2.6	1.74	0.311	54	228	--*	169	>24,200		
CB-6094	Wintergreen Brook	4/15/2021	12.3	116.3	7.10	14.5	105.1	52.16	clear-brown, some solids	<0.05	10.0	<0.02	101	0.52	0.65	0.036	0.38	6.3	1.72	0.239	78	6,130	--*	5,480	24,200	122	<0.5
CB-6099	Wintergreen Brook	4/15/2021	11.2	94.4	6.13	5.05	173.6	25.80	clear-brown, some solids	<0.05	35.7	<0.02	82	0.20	1.60	0.016	0.26	<1.4	4.28	1,490	48	7,270	--*	6,130	>24,200	152	<0.5
OF-62	Wintergreen Brook	4/15/2021	17.2	246.4	7.50	5.02	115.1	71.29	brown-grey	0.36	64.6	<0.02	562	11.4	21.4	0.153	0.20	40	53.6	5,990	230	>24,200	--*	>24,200	>24,200	565	<0.5

Notes:  
 Turbidity and pH field tested by ATC  
 Concentrations in bold were reported above the laboratory reporting limits  
 mg/l: milligrams per liter  
 TKN = Nitrogen Tot Kjeldahl  
 < 0.5: indicates compound was Not Detected at or above the specified laboratory reporting limit  
 >24,200: indicates sample was found above the laboratory detection limit  
 -- = Not Sampled  
 \* = Not analyzed per lab error

**Table 2**  
**Stormwater Laboratory Analytical Results**

Laboratory Duplicate Bacteria Samples  
April 2021  
New Haven, Connecticut

Location ID	Receiving Waterbody	Sample Date	Environmental Consulting Laboratories				Phoenix Environmental Laboratories			
			Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)	Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)
OF-61	Wintergreen Brook	4/15/2021	98,040	81,640	68,670	241,960	>24,200	*	>24,200	>24,200
CB-6091	Wintergreen Brook	4/15/2021	300	300	310	38,730	228	*	169	>24,200
CB-6094	Wintergreen Brook	4/15/2021	7,760	24,810	4,480	57,940	6,130	*	5,480	24,200
CB-6099	Wintergreen Brook	4/15/2021	6,270	2,280	4,040	68,670	7,270	*	6,130	>24,200
OF-62	Wintergreen Brook	4/15/2021	>241,960	>241,960	>241,960	>241,960	>24,200	*	>24,200	>24,200

not analyzed per lab error

Table 1  
Stormwater Laboratory Analytical Results  
October 2020  
New Haven, Connecticut

Location ID	Receiving Waterbody	Sample Date	Field Parameters										Laboratory Analytical Parameters														
			Temperature (Celsius)	Specific Conductivity (µm/cm)	pH (SU)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Color	Boron (mg/L)	Hardness CaCO3 (mg/L)	Chlorine Residual (mg/L)	COD (mg/L)	MBAS (mg/L)	Ammonia as Nitrogen (mg/L)	Nitrite-N (mg/L)	Nitrate-N (mg/L)	Oil and Grease (mg/L)	TKN (mg/L)	Total P (mg/L)	TSS (mg/L)	Escherichia Coli (MPN/100 ml)	Enterococci Bacteria (MPN/100ml)	Fecal Coliforms MPN (MPN/100ml)	Total Coliforms (MPN/100ml)	Conductivity (umhos/cm)	Salinity (ppt)
OF-60A	Wintergreen Brook	10/29/2020	12.2	311.2	7.09	11.43	47.8	27.88	light brown-yellow	<0.05	3.7	<0.02	21	0.25	0.21	0.011	0.25	<1.4	0.51	0.051	14	12,000	19,900	19,900	>24,200	15	<0.5
CB-6078	Wintergreen Brook	10/29/2020	11.8	24.7	6.69	8.77	61.2	31.21	clear-yellow	<0.05	19.2	<0.02	27	<0.10	0.35	0.010	0.10	<1.4	0.94	0.068	19	1,900	9,800	2,060	>24,200	15	<0.5
CB-6124	Wintergreen Brook	10/29/2020	12.2	13.9	6.05	9.04	26.15	26.15	clear-yellow	<0.05	3.8	<0.02	21	<0.10	0.12	0.019	0.12	<1.4	0.66	0.117	620	109	31	>24,200	14	<0.5	
CB-Wintergreen	Wintergreen Brook	10/29/2020	11.2	25.4	5.86	9.76	151.6	176.2	Black-brown, suspended solids	<0.05	12.4	<0.02	89	<0.10	0.33	0.030	0.39	5.2	1.49	0.217	87	7,700	24,200	6,490	>24,200	26	<0.5
OF-45	West River	10/29/2020	12.0	30.6	5.86	9.02	160.7	57.96	yellow-brown	<0.05	6.4	<0.02	53	0.16	0.33	0.023	0.20	1.7	0.99	0.110	34	4,610	>24,200	8,660	>24,200	29	<0.5
OF-25	West River	10/29/2020	10.8	76	6.12	8.21	151.6	450.3	Dark brown-black, suspended solids	0.06	115	0.04	1,410	0.34	1.35	0.032	0.04	7.8	24.5	4.40	1,500	5,790	15,500	>24,200	77	<0.5	
CB-112	West River	10/29/2020	11.2	57.9	6.37	9.48	152.4	263.2	Dark brown-black, suspended solids	<0.05	21.1	<0.02	195	0.22	0.17	0.017	0.12	1.9	3.02	0.689	150	>24,200	>24,200	>24,200	54	<0.5	
CB-76	West River	10/29/2020	10.8	21.4	6.51	9.97	146.2	52.09	yellow-brown	<0.05	3.3	<0.02	46	0.48	0.16	0.011	0.08	<1.4	0.75	0.194	19	9,210	>24,200	6,490	>24,200	23	<0.5
CB-110	West River	10/29/2020	11.0	23.3	6.22	14.05	167.1	33.17	clear-yellow	<0.05	7.7	<0.02	44	0.12	0.12	<0.010	0.04	1.4	0.81	0.270	25	6,490	17,300	9,210	>24,200	23	<0.5
CB-825	West River	10/29/2020	10.9	24.9	6.16	9.36	167.9	48.77	clear-yellow	<0.05	7.9	<0.02	51	0.16	0.13	0.014	0.07	<1.4	0.82	0.368	32	>24,200	>24,200	24,200	>24,200	24	<0.5
OF-26	West River	10/29/2020	11.9	35.7	6.20	9.29	165.5	91.52	brown	<0.05	11.7	<0.02	68	0.14	0.15	0.016	0.10	3.4	0.86	0.281	44	>24,200	>24,200	24,200	>24,200	35	<0.5
CB-244	West River	10/29/2020	11.1	13.7	6.45	11.57	159.2	48.78	yellow-brown	<0.05	8.3	<0.02	51	<0.10	0.16	<0.010	0.04	1.6	1.08	0.222	52	1,520	9,800	1,440	>24,200	12	<0.5
CB-378	West River	10/29/2020	11.0	47.3	6.23	9.85	166.5	503.3	Black, suspended solids	0.06	97.9	<0.02	908	0.37	<0.25	0.028	0.08	7.0	4.03	0.910	700	>24,200	>24,200	>24,200	57	<0.5	
CB-399	West River	10/29/2020	10.7	45.8	6.6	8.71	159.6	90.77	brown, little suspended solids	<0.05	12.7	<0.02	63	0.13	0.20	0.021	0.36	<1.4	1.18	0.288	25	19,900	17,300	8,660	>24,200	45	<0.5
CB-383	West River	10/29/2020	10.6	17.5	6.55	9.72	161.6	55.32	brown	<0.05	3.1	<0.02	57	0.24	0.12	0.012	0.04	<1.4	0.68	0.367	27	1,550	5,170	1,220	>24,200	19	<0.5
CB-789	West River	10/29/2020	14.7	81.7	5.98	6.88	184.7	50.78	brown	<0.05	35.8	<0.02	65	0.13	0.43	0.013	0.02	<1.4	1.96	0.314	27	884	>24,200	1,440	>24,200	83	<0.5
CB-448	West River	10/29/2020	11.9	48.3	6.64	9.12	139.1	34.66	yellow-brown	<0.05	17	<0.02	23	<0.10	0.22	<0.010	0.34	<1.4	1.0	0.217	10	5,480	15,500	4,110	>24,200	46	<0.5

Notes:  
Turbidity and pH field tested by ATC  
Concentrations in bold were reported above the laboratory reporting limits  
mg/L: milligrams per liter  
TKN: Nitrogen Tot Kjeldahl  
< 0.5: indicates compound was Not Detected at or above the specified laboratory reporting limit  
>24,200: indicates sample was found above the laboratory detection limit

**Table 2**  
**Stormwater Laboratory Analytical Results**

Laboratory Duplicate Bacteria Samples  
 Oct. 2020  
 New Haven, Connecticut

Location ID	Receiving Waterbody	Sample Date	Environmental Consulting Laboratories				Phoenix Environmental Laboratories			
			Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)	Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)
OF-60A	Wintergreen Brook	10/29/2020	16,070	30,760	13,960	51,720	12,000	19,900	19,900	>24,200
CB-6078	Wintergreen Brook	10/29/2020	2,880	9,850	1,480	34,480	1,900	9,800	2,060	>24,200
CB-6124	Wintergreen Brook	10/29/2020	520	2,920	200	129,970	109	3,870	31	>24,200
CB-Wintergreen	Wintergreen Brook	10/29/2020	6,500	12,590	8,330	>241,960	7,700	24,200	6,490	>24,200
OF-45	West River	10/29/2020	3,450	22,470	3,590	>241,960	4,610	>24,200	8,660	>24,200
OF-25	West River	10/29/2020	5,730	38,730	5,730	>241,960	5,790	>24,200	15,500	>24,200
CB-112	West River	10/29/2020	104,620	155,310	77,010	>241,960	>24,200	>24,200	>24,200	>24,200
CB-76	West River	10/29/2020	8,200	22,820	7,940	>241,960	9,210	>24,200	6,490	>24,200
CB-110	West River	10/29/2020	5,910	12,740	4,800	>241,960	6490	17300	9210.0	>24,200
CB-825	West River	10/29/2020	32,550	68,670	26,130	>241,960	>24,200	>24,200	24200	>24,200
OF-26	West River	10/29/2020	41,060	86,640	19,350	>241,960	>24,200	>24,200	24200	>24,200
CB-244	West River	10/29/2020	2,160	5,480	410	173,290	1520	9800	1440	>24,200
CB-378	West River	10/29/2020	104,620	198,630	57,940	>241,960	>24,200	>24,200	>24,200	>24,200
CB-399	West River	10/29/2020	19,890	13,910	10,860	>241,960	19900	17300	8660	>24,200
CB-383	West River	10/29/2020	1,460	2,130	1,100	>241,960	1550	5170	1220	>24,200
CB-789	West River	10/29/2020	1,090	26,030	1,450	>241,960	884	>24,200	1440	>24,200
CB-448	West River	10/29/2020	4,390	16,640	2,990	241,960	5480	15900	4110	>24,200

Table 1  
Stormwater Laboratory Analytical Results

October 2020  
New Haven, Connecticut

Location ID	Receiving Waterbody	Sample Date	Field Parameters										Laboratory Analytical Parameters														
			Temperature (Celsius)	Specific Conductivity (µs/cm)	pH (SU)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Color	Boron (mg/L)	Hardness CaCO3 (mg/L)	Chlorine Residual (mg/L)	COD (mg/L)	MBAS (mg/L)	Ammonia as Nitrogen (mg/L)	Nitrite-N (mg/L)	Nitrate-N (mg/L)	Oil and Grease (mg/L)	TKN (mg/L)	Total P (mg/L)	TSS (mg/L)	Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)	Conductivity (µmhos/cm)	Salinity (ppt)
OF-15	Lake Wintergreen	10/2/2020	20.3	190.3	5.33	0.88	156.2	20.22	Oily brown, visible solids	0.05	43.5	0.12	349	0.25	0.50	0.041	0.5	46	6.25	1.090	790	>24200	24,200	>24,200	>24,200	182	<0.5
OF-16	Lake Wintergreen	10/2/2020	18.7	198.5	6.86	6.89	82.6	17.02	clear-light yellow, visible solids	<0.05	61.1	<0.02	49	0.19	0.16	0.014	1.23	<1.4	1.25	0.254	57	987	8,160	2,600	>24,200	206	<0.5
OF-21	Lake Wintergreen	10/2/2020	19.8	194.1	6.91	0.84	155.2	16.41	light grey-clear, visible solids	<0.05	45.2	<0.02	76	161	0.16	<0.010	<0.02	<1.4	1.38	0.291	9.3	10,500	6,870	19,900	>24,200	161	<0.5
CB-110	Lake Wintergreen	10/2/2020	19.3	193.2	5.31	0.22	150.8	15.54	light grey-clear, visible solids	<0.05	42.6	<0.02	83	0.44	0.10	<0.010	<0.02	<1.4	1.39	0.302	20	6,290	10,500	19,900	>24,200	160	<0.5
CB-76	Lake Wintergreen	10/2/2020	19.6	195.6	6.45	0.54	152.6	15.77	light grey-clear, visible solids	<0.05	44.5	<0.02	81	0.29	<0.10	<0.010	<0.02	<1.4	1.76	0.316	27	9,800	8,160	24,200	>24,200	163	<0.5
CB-751	Lake Wintergreen	10/2/2020	19.4	192.3	6.88	0.73	143.6	14.86	light grey-clear, visible solids	<0.05	42.9	<0.02	76	0.33	<0.10	<0.010	<0.02	<1.4	1.18	0.299	13	7,270	9,800	>24,200	>24,200	167	<0.5
CB-114	Lake Wintergreen	10/2/2020	19.7	196.3	7.02	0.85	156.4	14.66	light grey-clear, visible solids	<0.05	51.7	<0.02	87	0.21	0.12	<0.010	<0.02	<1.4	1.39	0.342	22	7,270	10,500	24,200	>24,200	164	<0.5

Notes:  
Turbidity and pH field tested by ATC  
Concentrations in bold were reported above the laboratory reporting limits  
mg/l: milligrams per liter  
TKN = Nitrogen Tot Kjeldahl  
< 0.5: indicates compound was Not Detected at or above the specified laboratory reporting limit  
>24,200: indicates sample was found above the laboratory detection limit

**Table 2**  
**Stormwater Laboratory Analytical Results**

Laboratory Duplicate Bacteria Samples  
Oct. 2020  
New Haven, Connecticut

Location ID	Receiving Waterbody	Sample Date	Environmental Consulting Laboratories				Phoenix Environmental Laboratories			
			Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)	Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)
OF-15	Lake Wintergreen	10/2/2020	5,790	19,510	198,630	>241,960	>24,200	24,200	>24,200	>24,200
OF-16	Lake Wintergreen	10/2/2020	750	3,830	3,010	>241,960	987	8,160	2,600	>24,200
OF-21	Lake Wintergreen	10/2/2020	6,200	4,710	41,060	>241,960	10,500	6,870	19,900	>24,200
CB-110	Lake Wintergreen	10/2/2020	7,430	6,090	41,060	>241,960	6,290	10,500	19,900	>24,200
CB-76	Lake Wintergreen	10/2/2020	6,370	7,030	19,180	>241,960	9,800	8,160	24,200	>24,200
CB-751	Lake Wintergreen	10/2/2020	5,730	5,540	41,060	>241,960	7,270	9,800	>24,200	>24,200
CB-114	Lake Wintergreen	10/2/2020	6,380	4,590	38,730	>241,960	7,270	10,500	24,200	>24,200

**Notes**

Concentrations in **bold** were reported above the laboratory reporting limits  
mg/l: milligrams per liter  
< 0.5: indicates compound was Not Detected at or above the specified laboratory reporting limit  
>24,200: Indicates sample was found above the laboratory detection limit

**Table 2**  
**Stormwater Sampling Bacterial Comparative Results**  
 New Haven, CT  
 June 11, 2020

<b>Laboratory Analytical Results</b>											
				<b>Environmental Consulting Laboratories</b>				<b>Phoenix Environmental Laboratories</b>			
<b>Location ID</b>	<b>Receiving Waterbody</b>	<b>Sample Date</b>	<b>Escherichia Coli (MPN/100 mls)</b>	<b>Enterococci Bacteria (MPN/100mls)</b>	<b>Fecal Coliforms MPN (MPN/100mls)</b>	<b>Total Coliforms (MPN/100mls)</b>	<b>Escherichia Coli (MPN/100 mls)</b>	<b>Enterococci Bacteria (MPN/100mls)</b>	<b>Fecal Coliforms MPN (MPN/100mls)</b>	<b>Total Coliforms (MPN/100mls)</b>	
OF 156	New Haven Harbor	6/11/2020	200	100	<100	2,130	<10	2,050	<10	373	
CB 5123	New Haven Harbor	6/11/2020	<100	3,450	<100	61,310	31	2,140	228	>24,200	
CB 5128	New Haven Harbor	6/11/2020	970	610	410	>241,960	323	195	20	>24,200	
CB 5141	New Haven Harbor	6/11/2020	1,350	53,350	61,310	>241,960	860	>24,200	>24,200	>24,200	
CB 5152	New Haven Harbor	6/11/2020	840	3,860	14,080	>241,960	743	2,400	3,080	>24,200	
CB 5000	New Haven Harbor	6/11/2020	410	32,550	4,710	>241,960	309	4,350	6,130	>24,200	

**Notes**

Concentrations in **bold** were reported above the laboratory reporting limits  
 mg/l: milligrams per liter  
 < 0.5: indicates compound was Not Detected at or above the specified laboratory reporting limit  
 >24,200: Indicates sample was found above the laboratory detection limit





**Table 2**  
**Stormwater Sampling Bacterial Comparative Results**  
 New Haven, CT  
 February 6, 2020,  
 March 13 19, 2020,

Laboratory Analytical Results										
Location ID	Receiving Waterbody	Sample Date	Environmental Consulting Laboratories				Phoenix Environmental Laboratories			
			Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)	Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)
OF-122	Mill River	2/6/2020	100	520	<100	3,990	161	272	110	6,870
CB-8547	Mill River	2/6/2020	<100	300	<100	520	41	108	<10	2,360
CB-8560	Mill River	2/6/2020	<100	200	<100	1,220	31	173	20	2,140
CB-8961	Mill River	2/6/2020	740	1,380	<100	9,590	573	2,490	41	9,210
CB-8989	Mill River	2/6/2020	200	2,260	200	9,900	573	1,470	243	14,100
CB-9037	Mill River	2/6/2020	100	980	<100	6,200	161	441	218	9,210
CB-9080	Mill River	2/6/2020	<100	200	310	14,670	41	315	75	14,100
OF-124	Mill River	2/6/2020	520	960	100	20,460	408	1,210	594	19,900
CB-9307	Mill River	2/6/2020	100	520	200	4,370	160	235	10	3,450
CB-9368	Mill River	2/6/2020	7,490	1,440	2,280	30,760	5,010	1,400	2,380	11,200
CB-9392	Mill River	2/6/2020	100	100	<100	5,040	41	84	63	3,260
OF-161	New Haven Harbor	3/13/2020	13,140	2,310	860	57,940	2,500	1,960	1,350	>24,200
CB-5195	New Haven Harbor	3/13/2020	100	100	<100	6,330	10	1,790	<10	7,700
CB-5165	New Haven Harbor	3/13/2020	200	5,200	<100	6,830	52	4,610	52	>24,200
CB-5176	New Haven Harbor	3/13/2020	14,390	49,960	2,590	>241,960	4,880	>24,200	4,610	>24,200
OF-162	New Haven Harbor	3/13/2020	300	750	<100	3,360	74	657	31	8,160
CB-5186	New Haven Harbor	3/13/2020	1,690	1,100	410	12,110	1,210	24,200	738	>24,200
CB-5203	New Haven Harbor	3/13/2020	100	750	<100	14,830	74	836	120	14,100
OF-162A	New Haven Harbor	3/13/2020	860	11,090	200	14,210	594	727	350	11,200
CB-5206A	New Haven Harbor	3/13/2020	1,990	200	310	5,200	884	169	749	4,880
CB-5208	New Haven Harbor	3/13/2020	<100	100	<100	7,030	<10	52	10	7,270
CB-5591	New Haven Harbor	3/13/2020	<100	100	<100	22,240	<10	31	<10	15,500
OF-44	West River	3/19/2020	1,610	620	410	6,630	1,940	776	122	4,350
CB-286	West River	3/19/2020	<100	1,180	100	2,950	20	464	20	19,900
CB-274	West River	3/19/2020	520	410	100	4,710	1,080	345	110	8,668
CB-280	West River	3/19/2020	410	<100	200	29,090	292	75	109	>24,200
OF-6	Maltby Lake	3/19/2020	100	1,310	<100	23,100	<10	487	<10	>24,200
CB-671	Maltby Lake	3/19/2020	<100	970	<100	9,500	10	238	<10	4,880
CB-674	Maltby Lake	3/19/2020	2,410	410	2,490	2,720	4,350	384	836	5,790
CB-577	Maltby Lake	3/19/2020	100	750	<100	7,800	85	223	63	12,000
CB-883	Maltby Lake	3/19/2020	100	8,910	<100	1,950	145	5,790	<10	5,170
OF-24	West River	3/19/2020	100	310	100	15,390	86	141	20	19,900
CB-106A	West River	3/19/2020	<100	960	<100	34,480	<10	813	10	>24,200
OF-25	West River	3/19/2020	100	1,830	<100	9,060	31	455	10	15,500

**Notes**

Concentrations in **bold** were reported above the laboratory reporting limits  
 mg/l: milligrams per liter  
 < 0.5: indicates compound was Not Detected at or above the specified laboratory reporting limit  
 >24,200: Indicates sample was found above the laboratory detection limit

**Table 2**  
**Stormwater Sampling Bacterial Comparative Results**

New Haven, CT  
 April 24, 2020

				Laboratory Analytical Results				Phoenix Environmental Laboratories			
				Environmental Consulting Laboratories							
Location ID	Receiving Waterbody	Sample Date	Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)	Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)	
OF 141	New Haven Harbor	4/24/2020	200	520	100	6,630	218	187	131	4,880	
CB 5036J	New Haven Harbor	4/24/2020	<100	100	<100	1,100	31	52	<10	691	
CB 5007	New Haven Harbor	4/24/2020	860	2,230	410	22,470	355	4,160	169	15,500	
CB 5036A	New Haven Harbor	4/24/2020	200	740	100	9,060	98	512	74	6,490	
CB 5145	New Haven Harbor	4/24/2020	100	410	<100	24,890	20	131	<10	15,500	
CB 5163	New Haven Harbor	4/24/2020	520	100	100	27,550	161	228	75	24,200	
OF 147	New Haven Harbor	4/24/2020	>241,960	241,960	>241960	>241,960	>24,200	>24,200	>24,200	>24,200	
CB 5027	New Haven Harbor	4/24/2020	3,790	410	850	54,750	2,280	776	2,010	24,200	
CB 5033	New Haven Harbor	4/24/2020	10,170	8,800	3,590	21,430	8,160	5,480	6,870	>24,200	
OF 148	New Haven Harbor	4/24/2020	1,450	1,190	310	36,540	393	880	355	19,900	
CB 5199C	New Haven Harbor	4/24/2020	36,540	200	13,140	48,840	24,200	384	10,500	>24,200	
CB 5221	New Haven Harbor	4/24/2020	310	2,530	100	86,640	226	1,500	96	>24,200	

**Notes**

Concentrations in **bold** were reported above the laboratory reporting limits

mg/l: milligrams per liter

< 0.5: indicates compound was Not Detected at or above the specified laboratory reporting limit

>24,200: Indicates sample was found above the laboratory detection limit

**Table 1**  
**Summary of Stormwater Analytical Results**  
 New Haven, CT  
 April 24, 2020

Location ID	Receiving Waterbody	Sample Date	Field Parameters										Laboratory Analytical Parameters														
			Temperature (Celsius)	Specific Conductivity (µm/cm)	pH (SU)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Color	Boron (mg/L)	Hardness CaCO3 (mg/L)	Chlorine Residual (mg/L)	COD (mg/L)	MBAS (mg/L)	Ammonia as Nitrogen (mg/L)	Nitrite-N (mg/L)	Nitrate-N (mg/L)	Oil and Grease (mg/L)	TKN (mg/L)	Total P (mg/L)	TSS (mg/L)	Escherichia Coli (MPN/100 ml)	Enterococci Bacteria (MPN/100ml)	Fecal Coliforms MPN (MPN/100ml)	Total Coliforms (MPN/100ml)	Conductivity (µmhos/cm)	Salinity (ppt)
OF 141	New Haven Harbor	4/24/2020	6.6	0.485	9.32	11.47	138.8	60.86	Light-to-medium brown	<0.05	31.9	<0.02	46	0.18	0.13	0.021	0.11	2.7	0.42	0.090	48	218	187	131	4880	390	<0.5
CB 5036f	New Haven Harbor	4/24/2020	7.1	0.84	8.26	11.41	129.8	41.79	Clear/light brown	<0.05	77.6	<0.02	25	0.17	0.09	0.018	0.14	<1.4	0.53	0.046	31	31	52	<10	691	1,210	0.6
CB 5007	New Haven Harbor	4/24/2020	6.2	0.166	7.93	11.43	100.9	75.22	Brown/dark grey. Murky	<0.05	38.9	<0.02	78	0.18	0.33	0.059	0.22	8.4	1.31	0.159	88	355	4,160	169	15,500	193	<0.5
CB 5036A	New Haven Harbor	4/24/2020	7.3	3.66	7.38	8.31	146.7	99.86	Clear, strong oil sheen	0.49	662	<0.02	160	0.14	0.39	0.016	0.21	11	1.69	0.576	350	98	512	74	6,490	3,980	2.2
CB 5145	New Haven Harbor	4/24/2020	7.4	0.09	8.42	11.13	35.6	22.99	Clear-to-light yellow	<0.05	5.2	<0.02	19	0.08	0.22	<0.010	0.11	<1.4	0.42	0.054	28	20	131	<10	15,500	23	<0.5
CB 5163	New Haven Harbor	4/24/2020	7.3	0.084	7.84	10.03	61.5	67.67	Clear-to-light yellow, strong oil sheen	<0.05	26.9	<0.02	48	0.1	0.14	0.017	0.25	2.4	0.66	0.099	110	161	228	75	24,200	83	<0.5
OF 147	New Haven Harbor	4/24/2020	11.2	0.69	7.05	6.63	92	38	Light brown-to-grey, strong oil sheen	0.10	179	<0.02	120	1.04	7.13	0.073	0.64	13	13.3	1.76	65	>24,200	>24,200	>24,200	933	0.5	
CB 5027	New Haven Harbor	4/24/2020	9.0	0.221	7.63	7.39	77.9	28.15	Light yellow-to-clear	<0.05	66.6	<0.02	23	0.16	0.14	<0.010	0.41	<1.4	0.57	0.123	13	2,280	776	2,010	24,200	570	<0.5
CB 5033	New Haven Harbor	4/24/2020	6.8	0.131	7.86	11.31	48.3	72.14	Dark yellow-to-brown, slight oil sheen	<0.05	20.4	<0.02	31	0.14	0.20	0.033	0.39	1.7	0.70	0.096	37	8,160	5,480	6,870	>24,200	139	<0.5
OF 148	New Haven Harbor	4/24/2020	9.8	0.412	7.55	9.41	69.1	12.32	Clear/light yellow	<0.05	88.7	<0.02	<10	0.07	<0.05	<0.010	1.18	<1.4	0.22	0.026	13	393	880	355	19,900	403	<0.5
CB 5199C	New Haven Harbor	4/24/2020	9.0	0.044	7.38	10.03	49.8	112.9	Dark yellow-to-brown, slight oil sheen	<0.05	14.5	<0.02	50	0.11	0.14	0.021	0.31	<1.4	0.61	0.228	220	24,200	384	10,500	>24,200	42	<0.5
CB 5221	New Haven Harbor	4/24/2020	7.3	0.132	7.43	11.52	46.1	11.63	Dark yellow-to-dark brown	<0.05	35.3	<0.02	19	0.10	0.13	<0.010	0.87	<1.4	0.77	0.091	27	226	1,500	96	>24,200	128	<0.5

**Notes:**  
 Turbidity and pH field tested by ATC  
 Concentrations in bold were reported above the laboratory reporting limits  
 mg/L: milligrams per liter  
 TKN = Nitrogen Tot Kjeldahl  
 < 0.5: indicates compound was Not Detected at or above the specified laboratory reporting limit  
 >24,200: Indicates sample was found above the laboratory detection limit

TABLE 1  
STORMWATER LABORATORY ANALYTICAL RESULTS  
JUNE 2018, QUINNIPAC AND MILL RIVER  
NEW HAVEN, CONNECTICUT

Field Parameters				Laboratory Analytical Parameters																		
Sampling Location	Receiving Waterbody	Sample Date	pH	Turbidity	Boron (mg/L)	Hardness CaCO <sub>3</sub> (mg/L)	Chlorine Residual (mg/L)	COD (mg/L)	MBAS (mg/L)	Ammonia as Nitrogen (mg/L)	Nitrite-N (mg/L)	Nitrate-N (mg/L)	Oil and Grease (mg/L)	TKN (mg/L)	Total P (mg/L)	TSS (mg/L)	Escherichia Coli (MPN/100 ml)	Enterococci Bacteria (MPN/100ml)	Fecal Coliforms MPN (MPN/100ml)	Total Coliforms (MPN/100ml)	Conductivity (umhos/cm)	Salinity (ppt)
O180	Quinnipiac	6/21/18	7.04	6.37	0.05	220	<0.02	<10	< 0.05	0.08	0.033	2.23	<1.4	0.82	0.123	8.0	616	>24,200	605	>24,200	678	<0.5
CB3140	Quinnipiac	6/21/18	6.85	160.5	0.06	115	<0.02	305	1.15	3.80	0.044	1.27	4.4	8.17	0.959	76	1,660	6,870	1,350	>24200	165	<0.5
CB3154D	Quinnipiac	6/21/18	6.58	218.3	<0.05	11.1	<0.02	164	0.89	0.80	0.054	0.68	11	2.65	0.460	110	1,860	>24,200	>24,200	>24,200	92	<0.5
CB3145	Quinnipiac	6/21/18	6.97	36.42	<0.05	5.4	<0.02	368	0.56	0.42	0.033	0.67	4.8	4.99	1.25	26	>24,200	>24,200	>24,200	38	<0.5	
CB3163	Quinnipiac	6/21/18	6.81	181.5	<0.05	94.5	<0.02	276	0.54	2.04	0.168	<0.02	3.7	6.17	1.940	100	3,870	2,480	17,300	>24,200	299	<0.5
CB3111	Quinnipiac	6/21/18	6.89	386.2	<0.05	33.0	<0.02	257	0.49	2.98	0.492	0.05	4.9	6.88	1.510	340	>24,200	>24,200	19,900	>24200	169	<0.5
CB3245	Quinnipiac	6/21/18	6.63	204.5	<0.05	25.3	<0.02	212	0.98	1.06	0.056	1.00	5.7	2.77	0.471	120	789	2,360	884	>24,200	506	<0.5
O119	Mill	6/28/18	6.95	303.0	<0.05	43.2	<0.02	204	0.67	0.42	0.012	0.15	2.7	3.32	0.545	200	3,450	12,000	4,110	>242,000	112	<0.5
CB9268	Mill	6/28/18	7.00	298.0	<0.05	4.5	<0.02	90	0.23	0.18	<0.010	0.25	1.6	1.48	0.295	280	9,800	27,600	7,270	>242,000	28	<0.5
CB8843	Mill	6/28/18	6.55	224.9	<0.05	15.4	<0.02	124	0.11	0.28	<0.010	0.12	3.5	1.58	0.476	140	15,500	29,100	5,170	>242000	14	<0.5
CB8818	Mill	6/28/18	6.89	66.86	<0.05	4.9	<0.02	40	<0.10	0.08	<0.010	0.09	<1.4	1.16	0.231	48	24,200	61,300	17,300	>242,000	16	<0.5
CB8810	Mill	6/28/18	6.65	45.26	<0.05	4.4	0.03	25	<0.10	0.20	<0.010	0.14	<1.4	0.91	0.249	30	15,500	19,900	11,200	>242,000	16	<0.5
CB8803	Mill	6/28/18	6.71	43.79	<0.05	3.0	<0.02	38	0.11	0.09	<0.010	0.14	1.5	0.60	0.177	24	36,500	19,900	19,900	>242,000	20	<0.5
CB8494	Mill	6/28/18	6.80	48.50	<0.05	2.7	<0.02	31	0.11	0.46	<0.010	0.23	<1.4	1.45	0.254	39	2,910	24,200	1,350	>242,000	25	<0.5

Notes:  
Turbidity and pH field tested by ATC  
Concentrations in **bold** were reported above the laboratory reporting limits  
mg/l: milligrams per liter  
TKN = Nitrogen Tot Kjeldahl  
< 0.5: indicates compound was Not Detected at or above the specified laboratory reporting limit  
>24,200: Indicates sample was found above the laboratory detection limit

TABLE 2  
STORMWATER LABORATORY ANALYTICAL RESULTS

West River  
November 2018  
New Haven, Connecticut

Location ID	Sample Date	Temp	Field Parameters							Laboratory Analytical Parameters																
			Conductivity	pH	DO	ORP	Turbidity	Color	Boron (mg/L)	Hardness CaCO <sub>3</sub> (mg/L)	Chlorine Residual (mg/L)	COD (mg/L)	MBAS (mg/L)	Ammonia as Nitrogen (mg/L)	Nitrite-N (mg/L)	Nitrate-N (mg/L)	Oil and Grease (mg/L)	TKN (mg/L)	Total P (mg/L)	TSS (mg/L)	Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)	Conductivity (umhos/cm)	Salinity (ppt)
O11	11/13/18	10.2	195.8	6.37	9.91	294.5	8.49	Tan	<0.05	43.2	<0.02	19	0.09	0.17	<0.010	0.49	<1.4	0.48	0.076	7.0	609	602	383	17,300	186	<0.5
	11/13/18	7.4	40.9	5.9	11.7	358.5	131.5	Brown	<0.05	17.5	0.03	139	0.07	<0.10	<0.010	<0.02	<1.4	0.79	0.452	17	243	862	134	>24,200	37	<0.5
CB157	11/13/18	8	82.3	5.28	7.67	337.1	57.24	Tan/Brown	<0.05	14.2	<0.02	294	0.06	0.31	<0.010	<0.02	<1.4	3.11	1.210	39	146	24,200	388	>24,200	84	<0.5
	11/13/18	7.3	34.1	5.39	12.3	340.6	31.31	Brown	<0.05	13.2	<0.02	127	<0.05	<0.10	<0.010	<0.02	<1.4	0.72	0.49	66	439	650	148	>24,200	34	<0.5
CB172	11/13/18	8.3	55.8	5.18	12.1	347.8	17.86	Tan	<0.05	12.7	0.03	199	0.09	0.21	<0.010	<0.02	<1.4	1.99	1.910	68	161	>24,200	231	>24,200	61	<0.5
	11/13/18	7.3	12.1	5.58	13.6	323	9.18	Clear	<0.05	1.3	0.03	<10	<0.05	<0.05	<0.010	0.05	<1.4	0.13	0.115	25	41	201	31	17,300	11	<0.05
CB689	11/13/18	7.9	138.6	5.8	9.09	368.6	55.66	Yellow	<0.05	42.9	<0.02	298	0.16	0.36	0.012	<0.02	<1.4	3.12	0.890	140	>24,200	>24,200	>24,200	>24,200	139	<0.5
	11/13/18																									

Notes:

Concentrations in **bold** were reported above the laboratory reporting limits

mg/L: milligrams per liter

TKN = Nitrogen Tot Kjeldahl

< 0.5: indicates compound was Not Detected at or above the specified laboratory reporting limit

>24,200: Indicates sample was found above laboratory detection limits



TABLE 5  
STORMWATER LABORATORY ANALYTICAL RESULTS

Mill River - Outfall 126  
December 2019  
New Haven, Connecticut

Location ID	Field Parameters										Laboratory Analytical Parameters																
	Sample Date	Temp	Conductivity	pH	DO	ORP	Turbidity	Color	Boron (mg/L)	Hardness CaCO3 (mg/L)	Chlorine Residual (mg/L)	COD (mg/L)	MBAS (mg/L)	Ammonia as Nitrogen (mg/L)	Nitrite-N (mg/L)	Nitrate-N (mg/L)	Oil and Grease (mg/L)	TKN (mg/L)	Total P (mg/L)	TSS (mg/L)	Escherichia Coli (MPN/100 ml)	Enterococci Bacteria (MPN/100ml)	Fecal Coliforms MPN (MPN/100ml)	Total Coliforms (MPN/100ml)	Conductivity (umhos/cm)	Salinity (ppt)	
O126	12/9/19	9.9	162.3	7.49	8.98	334.4	287.1	Greyish/Brown	<0.05	15.4	<0.02	293	0.20	0.51	0.024	0.04	7.5	3.95	0.812	110	2,600	>24,200	1,080	>24,200	205	<0.5	
	12/9/19	9.8	295.5	7.46	9.25	347.5	11.67	Greyish/Brown	<0.05	12.0	<0.02	118	0.15	<0.10	0.010	0.05	2.0	0.91	0.149	90	459	2,610	109	>24,200	297	<0.5	
CBI3001	12/9/19																										
	12/9/19	11.6	329.8	7.37	8.30	328	28.6	Greyish	<0.05	4.5	<0.02	36	0.12	<0.05	0.013	0.06	<1.4	0.46	0.124	28	10	633	10	12,000	38	<0.5	
CBI3015	12/9/19	9.9	103.6	7.98	9.42	313.2	8.65	Greyish	<0.05	2.7	<0.02	19	0.12	<0.05	<0.010	0.07	<1.4	0.51	0.075	13	31	448	74	17,300	64	<0.5	
	12/9/19	9.8	1,029	7.11	9.06	356.8	125.1	Greyish/Brown	<0.05	22.4	<0.02	125	0.14	0.32	0.053	0.15	3.6	1.70	0.386	70	1,040	3,450	583	>24,200	3,460	0.5	
CBI3073	12/9/19																										
	12/9/19	9.8	199.6	7.57	9.42	343.3	28.7	Greyish	<0.05	16.2	<0.02	223	0.12	<0.25	0.013	0.03	<1.4	3.08	1.14	25	958	3,870	529	>24,200	199	<0.5	
CBI3089	12/9/19	11.2	474.4	6.96	7.82	354.8	118.7	Greyish/Brown	<0.05	44.8	<0.02	220	0.13	0.42	0.071	0.13	8.4	2.20	0.553	220	134	1,400	187	24,200	471	<0.5	
	12/9/19	9.9	175.1	7.16	9.44	338.6	55.2	Greyish	<0.05	12.6	<0.02	42	0.11	0.16	<0.010	0.06	<1.4	1.01	0.182	29	145	3,450	199	>24,200	174	<0.5	
CB8609	12/9/19	10.0	189.7	7.24	9.12	377.8	78.7	Greyish	<0.05	12.9	<0.02	70	0.16	0.31	0.030	0.10	2.1	1.10	0.257	39	2,050	9,800	465	>24,200	214	<0.5	
	12/9/19	11.0	427.3	6.97	5.72	355.2	287.1	Greyish/Brown	<0.05	55.1	<0.02	405	0.27	<0.25	0.025	0.04	8.2	5.83	1.39	240	987	9,800	520	>24,200	293	<0.5	
CB9436	12/9/19	9.0	339.6	7.70	8.39	339.5	183	Greyish	0.10	118	<0.02	161	0.41	0.44	0.066	0.13	10	1.94	0.265	100	327	857	189	>24,200	928	0.5	
	12/9/19	9.9	91.3	8.10	9.22	315.4	53.1	Greyish	<0.05	11.1	<0.02	690	0.27	0.58	0.011	0.06	5.7	7.28	1.10	160	31	557	20	>24,200	84	<0.5	
CBI3157	12/9/19																										
	12/9/19	9.9	220.8	7.11	8.86	940.9	90.3	Greyish	<0.05	60.0	<0.02	378	0.32	0.60	0.031	0.10	13	4.42	4.70	250	134	1,350	52	>24,200	226	<0.5	
CB9473	12/9/19																										
	12/9/19	9.9	314.7	8.29	8.68	329.5	110	Greyish	<0.05	26.6	<0.02	152	0.25	0.61	0.046	0.11	6.2	2.27	0.390	92	51	1,210	10	14,100	314	<0.5	
CBI3205	12/9/19																										
	12/9/19	9.9	314.7	8.29	8.68	329.5	110	Greyish	<0.05	26.6	<0.02	152	0.25	0.61	0.046	0.11	6.2	2.27	0.390	92	51	1,210	10	14,100	314	<0.5	

Notes:  
Concentrations in **bold** were reported above the laboratory reporting limits  
mg/l: milligrams per liter  
TKN = Nitrogen Tot Kjeldahl  
< 0.5: indicates compound was Not Detected at or above the specified laboratory reporting limit  
>24,200: Indicates sample was found above laboratory detection limits



**TABLE 6  
STORMWATER LABORATORY ANALYTICAL RESULTS**

Laboratory Duplicate Bacteria Samples  
New Haven, Connecticut

Location ID	Sample Date	Phoenix Environmental Labs				Environmental Consulting Laboratories			
		Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)	Escherichia Coli (MPN/100 mls)	Enterococci Bacteria (MPN/100mls)	Fecal Coliforms MPN (MPN/100mls)	Total Coliforms (MPN/100mls)
O11	11/13/18	609	602	383	17,300	200	310	300	17,250
CB157	11/13/18	243	862	134	>24,200	200	630	<100	173,290
CB166A	11/13/18	146	24,200	388	>24,200	<100	12,220	100	>241,960
CB172	11/13/18	439	650	148	>24,200	1,030	850	100	241,960
CB214	11/13/18	161	>24,200	231	>24,200	410	28,120	630	>241,960
CB689	11/13/18	41	201	31	17,300	200	<100	<100	25,950
CB771	11/13/18	>24,200	>24,200	>24,200	>24,200	>241,960	92,080	173,290	>241,960
O7	11/13/18	>24,200	>24,200	>24,200	>24,200	241,960	>241,960	48,840	>241,960
O10	12/28/18	>24,200	>24,200	>24,200	>24,200	>241,960	>241,960	>241,960	>241,960
O12	11/13/18	5,480	5,170	1,860	>24,200	5,040	6,770	1,560	198,630
O13	12/28/18	>24,200	>24,200	>24,200	>24,200	>241,960	61,310	155,310	>241,960
O14	11/13/18	3,450	2,280	588	>24,200	6,310	1,870	630	86,640
O41	12/28/18	>24,200	>24,200	>24,200	>24,200	>241,960	92,080	>241,960	>241,960
O46	12/21/18	637	2,280	197	9,800	410	1,990	200	8,420
O47	12/21/18	9,140	3,870	5,170	10,100	3,360	1,580	1,610	13,540
O57	12/28/18	>24,200	>24,200	>24,200	>24,200	>241,960	>241,960	>241,960	>241,960
O58	12/28/18	>24,200	>24,200	>24,200	>24,200	>241,960	81,640	>241,960	>241,960
O66	11/13/18	3,080	2,190	1,480	>24,200	2,350	1,350	1,610	61,310
O68	12/28/18	30	249	20	13,000	100	8,600	100	5,810
O87	12/28/18	>24,200	6,910	>24,200	>24,200	>241,960	>241,960	>241,960	>241,960
O88	12/28/18	591	471	637	>24,200	520	1,100	200	30,760
O89	12/21/18	7,700	5,480	2,610	>24,200	9,590	5,540	2,980	46,110
O121	12/21/18	708	1,620	288	17,300	520	1,580	310	11,450
O132	12/21/18	12,000	2,190	1,260	19,900	7,940	630	1,100	18,600
O138	12/21/18	171	554	158	>24,200	100	1,630	100	77,010
CB13001	12/9/19	459	2,610	109	>24,200	630	4,540	100	41,060
CB13015	12/9/19	10	633	10	12,000	<100	630	<100	11,780
CB13033	12/9/19	31	448	74	17,300	<100	1,340	<100	11,460
CB13073	12/9/19	1,040	3,450	583	>24,200	740	5,460	310	111,990
CB13089	12/9/19	958	3,870	529	>24,200	850	10,030	300	104,620
CB8609	12/9/19	134	1,400	187	24,200	200	950	310	14,140
CB9129	12/9/19	145	3,450	199	>24,200	100	6,310	520	51,720
CB13175	12/9/19	2,050	9,800	465	>24,200	1,890	15,760	410	98,040
CB9436	12/9/19	987	9,800	520	>24,200	1,600	9,340	1,090	>241,960
O126	12/9/19	2,600	>24,200	1,080	>24,200	2,750	111,990	2,130	>241,960
CB13157	12/9/19	31	557	20	>24,200	<100	740	<100	72,700
CB13205	12/9/19	51	1,210	10	14,100	100	1,580	<100	11,120
O129	12/9/19	327	857	189	>24,200	100	1,090	300	18,600
O128	12/9/19	384	857	189	>24,200	410	1,450	520	21,870
CB9473	12/9/19	134	1,350	52	>24,200	310	2,720	100	24,000

< 0.5: indicates compound was Not Detected at or above the specified laboratory reporting limit  
 >24,200: Indicates sample was found above laboratory detection limits  
 Blank cells indicate outfalls that have not yet been sampled