Illicit Discharge Detection and Elimination Program

INVESTIGATION OF THE WINN'S BROOK AND WELLINGTON BROOK TRIBUTARY AREAS

United States Environmental Protection Agency ORDER OF CONSENT



Prepared for: The Town of Belmont

Prepared by: Stantec Consulting Services Inc.

November 1, 2017

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INTRODUCTION November 1, 2017

1.0 INTRODUCTION

1.1 ORDER OF CONSENT

This report is submitted in compliance with U.S. Environmental Protection Agency (EPA) ORDER ON CONSENT (Order) Docket No. CWA-AO-R01-FY17-11. In accordance with Parts IV.6 and IV.7 of the order, this report summarizes illicit discharge investigations conducted in areas tributary to Winn's Brook and Wellington Brook.

As presented in the Order, from 2012 – 2016 the EPA collected several water quality samples within the Winn's Brook and Wellington Brook tributary areas. The EPA sample results are included for reference in Appendix A.

1.2 BACKGROUND

Figure 1 illustrates the proximity of both the Winn's Brook and Wellington Brook tributary areas within Belmont. Storm drains in these tributaries, and all other tributaries in Belmont, are entirely separate from the sanitary sewer system.

The Winn's Brook tributary area comprises of approximately 68,000 linear feet (13 miles) of storm drains that range in size from 6" diameter to 10'x5' box culvert. Storm drain flow within the Winn's Brook tributary ultimately discharges into Little Pond (Outfall 10).

The Wellington Brook tributary area comprises of approximately 117,000 linear feet (22 miles) of storm drains that range in size from 6" diameter to 13' x 5' box culvert. Storm drain flow within this tributary area ultimately discharges into Clay Pit Pond (Outfall 8).

Stantec (formerly Fay, Spofford & Thorndike) has previously conducted extensive IDDE work in the Winn's Brook and Wellington Brook areas. The results of these investigations were submitted to MADEP under the following covers:

- Storm Water Sampling And Analysis Program Wellington Brook Tributary Area August 2007
- Wellington Brook Tributary Area Sanitary Sewer and Storm Drain Recommended Rehabilitation July 2008
- 2008 Storm Water Sampling and Analysis Program Tributary Areas for Outfall 1, 2 & 10 December 2008
- Evaluation of Sewers and Storm Drains to Identify Illicit Connections in Areas Tributary to Outfalls 1, 2, & 10 October 2010
- 2011 Illicit Connection Identification Program Outfall Areas 1, 2, & 10 September 2011



INTRODUCTION November 1, 2017

Construction contracts specifically targeting illicit discharge removal were completed in 2005, 2007, 2011 and 2015. The total construction cost of the completed contracts was \$6,700,000 (Town-wide total).



OUTFALL & UPPER TRIBUTARY AREA SAMPLING November 1, 2017

2.0 OUTFALL & UPPER TRIBUTARY AREA SAMPLING

2.1 OUTFALL SAMPLING

In November 2016, Stantec conducted outfall sampling at all outfalls tributary to the Mystic River watershed (Outfalls 1 – 15). Each outfall was sampled once during "wet-weather"¹ and once during "dry weather"². Samples were collected between 6:30 A.M. and 10:30 A.M. during the "peak sewer usage" period. Samples were analyzed for both E.Coli and Enterococci in an independent laboratory. Stantec staff utilized field-kits to test for surfactants, total chlorine, ammonia, salinity, conductivity, temperature, and pH.

The sampling results for Wellington Brook (Outfall 8) and Winn's Brook (Outfall 10) are presented in Table 1 and illustrated in Figure 2. Due to their large size, each outfall was divided into several sub-catchment areas. As shown in Table 1, the results for all parameters measured for samples 8-3 and 8-4 were under their respective threshold values during both dry-weather and wetweather sampling. Therefore, the sub-catchment areas tributary to Samples 8-3 and 8-4 were eliminated from further investigation.

2.2 UPPER TRIBUTARY AREA SAMPLING

Based on the findings of samples 8-1, 8-2, 8-5, 8-6, 10-1 and 10-2 (OF-10), additional sampling was conducted to identify smaller tributaries within each sub-catchment area suitable for more intensive investigations. Sampling was conducted during dry weather and during peak sewer usage periods. Field crews utilized ammonia strips to chase positive hits in real time and identify small tributary areas. Samples were collected for E.Coli analysis to confirm the high ammonia hits. Sub-tributary areas that were "dry" were eliminated from further sampling.

Results for Wellington Brook (8-1, 8-2, 8-5, 8-6) and Winn's Brook (10-1, 10-2) are presented in Table 2 and illustrated in Figures 3 through 7. The table is organized to show the continuity of chasing results, whereas, tertiary manholes are tributary to secondary manholes and secondary manholes are tributary to primary manholes. As shown in the table, there are eight smaller tributary areas designated for further investigation as noted below. Certified laboratory results for the sampling are provided in Appendix C.

- 4 Areas for dyed-water testing (green highlighting)
- 3 Areas for mainline CCTV inspection (yellow)

over the previous cumulative 24 hours.

² "Dry Weather" herein refers to any point in time in which there has been less than 0.1 inch of rainfall over the previous cumulative 24 hours.

OUTFALL & UPPER TRIBUTARY AREA SAMPLING November 1, 2017

• 1 Area for additional sampling (blue highlighting)



DYED-WATER TESTING November 1, 2017

3.0 DYED-WATER TESTING

Dyed-water testing is conducted to determine if a building service lateral is an illicit connection. The sewer service is tested by flowing dyed-water from a toilet or sink and then monitoring the downstream sewer and drain manholes for traces of dye. The internal plumbing is also inspected for inadvertent cross connections. If the homeowner was not present during the initial visit, a "Sewer Work Notice" was left at the home requesting the homeowner call for an appointment. A copy of the notice is included in Appendix C.

Dyed-water testing was conducted in four locations as shown in Table 3 and illustrated in Figures 8 through 11. Of the several houses targeted, 13 tests were conducted, with two indirect connections to the storm drain system identified. An indirect connection is where dyed-water is seen in both the sanitary sewer and the storm drain, indicating exfiltration from the sewer service lateral into the storm drain service lateral.



ILLICIT CONNECTION IDENTIFICATION November 1, 2017

4.0 ILLICIT CONNECTION IDENTIFICATION

The sampling program has successfully identified eight (8) areas with suspected illicit connections. To date, two (2) houses have been identified as indirect illicit connections through dyed-water testing of the house plumbing systems. Investigations will continue in these eight areas as follows:

Dyed-water testing will continue in the four ongoing areas. If a timely response to the sewer work notice is not received from a homeowner, the Town will seek other alternatives to complete the testing. All houses with positive direct or indirect dyed-water testing results will be subjected to CCTV inspection of the service lateral(s) to determine the appropriate mitigation solution.

Mainline CCTV inspection will be conducted in the three areas noted. Dyed-water testing and service later CCTV inspection will be conducted as required based on the results of the mainline CCTV inspection.

Additional sampling will be conducted along Trapelo Road in the Wellington Brook area, followed by dyed-water testing and CCTV as appropriate.

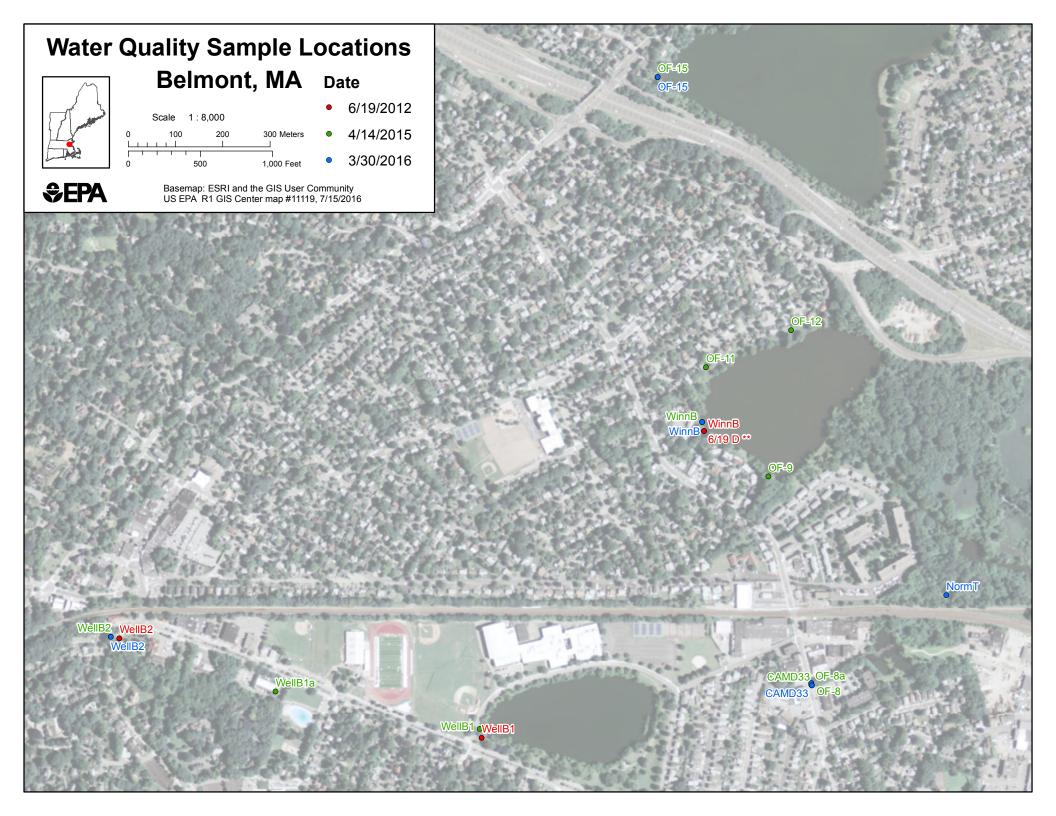
We anticipate that this work will be completed for incorporation into the Compliance Report submitted January 31, 2018.



Appendix A EPA SAMPLING DATA November 1, 2017

Appendix A EPA SAMPLING DATA





EPA New England MS4 Outfall Sampling Summary - Belmont, MA

	Loca	tion	•	•		·											linates		YSI M	eter
								F	PPCP ng/L				Surfactants	Chlorine	NH3 (mg/l)			Salinity	Temp	Conductivity
				E.coli	Entero				1,7-											
	_			•	•		Acetamin		Dimethyl			Carbama					000 W (1)		0	
Date	Town	Site Name	Time	0ml)	0ml)	Atenolol	ophen					zepine	0.05	0.00		GPS North(+)	· · · ·	ppt	C	uS
	Belmont, MA		805	542	213	3.1	8	1.2	32	28	1.7	0.6	0.05	0.03	0.1	42.399385	71.1610380	0.3	15.2	477
	Belmont, MA		805	504	201	3.4 7.2	4.7	2.1	22	36 200	ND 8.6	0.75	NA	NA 0.01	NA	42.399385		0.3	15.2	477 1099
	Belmont, MA		845	1,844	314 2,909	7.2 24	190 530	3.8 6.3	100 560			3.1 3.7	0.2 0.75	0.01 0.02	0.2	42.393559		0.5	14.2 13.7	312
0/19/12	Belmont, MA	Wellbz	910	19,890	2,909	24	530	0.3	000	1100	18	3.1	0.75	0.02	0.6	42.395482	71.1760920	0.1	13.7	312
4/14/15	Belmont, MA	OF-15	820	>241.960	3,255	10	460	4.2	150	620	10	0.61	0.5	0	0.25	42.40613	71.1621990	0.9	9.2	1766
	Belmont, MA		900	1,379	187	15	170	1.2	33	68	2.5	2.2	0.2	0.01	0	42.39956		0.6	10.3	1308
	Belmont, MA		930	8	20	ND	5.8	4.2	7	41	ND	0.57	0.1	0.01	0 0	42.398513	71.1593890	0.5	9.3	1006
	Belmont, MA		955	34	10	2.2	22	16	21	160	1.8	0.8	0.25	0	0	42.4013	71.1587940	0.9	8.3	1706
	Belmont, MA		1020	9,678	121	27	3100	1.4	30	130	19	ND	0.1	0.05	0	42.400601	71.1609810	0.4	8.3	773
	Belmont, MA		1045	25	10	ND	21	10	24	250	3.5	1.7	0.3	0.03	0	42.394574	71.1583130	1.1	11.7	2148
	Belmont, MA		1050	25	10	1.9	22	10	24	250	3.7	1.5	0.3	0.05	0	42.394543	71.1583110	1	11.4	1813
	Belmont, MA		1110	992	275	40	280	3.4	150	550	6.3	1.3	0.2	0.01	0.25	42.394532	71.1582940	0.7	9.2	1354
4/14/15	Belmont, MA	WellB1	1140	924	10	1.7	42	1.4	15	100	2.5	2	0.2	0.06	0	42.393727	71.1668390	0.9	9.6	1682
4/14/15	Belmont, MA	WellB1a	1200	293	ND	ND	22	1.3	12	69	ND	2.2	NA	NA	NA	42.394458	71.1720880	0.9	11.3	1827
4/14/15	Belmont, MA	WellB2	12:15	504	31	2.3	24	1.2	12	70	1.5	2.4	0.2	0.08	0	42.395509	71.1763200	0.9	9.7	1854
3/30/16	Belmont, MA	NormT	1020	3,922	288	ND	42	2	36	240	3.3	ND	0.2	0.04	0.4	42.39624	71.1548260	0.5	11.9	1067
3/30/16	Belmont, MA	OF-8a	1100	8	ND	ND	44	12	30	280	2.9	0.75	NA	NA	NA	42.394574	71.1583130	1.1	8.5	2177
	Belmont, MA		1105	4,480	2,613	13	780	4.6	150	560	14	0.97	0.25	0.04	0.1	42.394532	71.1582940	0.8	9.9	1616
	Belmont, MA		1130	3,466	295	8.1	45	2.8	44	210	7.8	2.4	0.3	0.02	3	42.39956		0.6	8.2	1139
	Belmont, MA		1144	1,741	990	ND	50	4.2	39	94	ND	1.3	NA	NA	NA	42.395509	71.1763200	0.9	10.4	1679
3/30/16	Belmont, MA	OF-15	1205	384	63	ND	23	3.3	30	60	ND	1.9	0.2	0.04	0.4	42.40613	71.1621990	1.1	9.5	2198

Note 1: MA Water Quality Standard single sample maximum for E. coli in Class B waters is 235 cfu/100ml

Note 2: MA Water Quality Standard single sample maximum for enterococcus in inland Class B waters is 61 cfu/100 ml

Note 3: Color coding is provided to assist in understanding and prioitization for IDDE purposes - any color in the E. coli or Entero column indicates a violation of water quality standards

** Location 6/19 D was a duplicate of WinnB for quality control purposes

E. coli - color key: Red ≥ 10,000 col/100ml, Orange ≥ 1260 col/100ml, Yellow ≥ 235 col/100ml, No Shading < 235 col/100ml

Entero - color key: Red ≥ 1000 col/100ml, Orange ≥ 350 Yellow ≥ 61 col/100ml, No Shading < 61 col/100ml

NH3 - color key: Red \geq 6 mg/L, Orange \geq 0.5 mg/L, Yellow \geq 0.0 mg/L

Surfactants - color key: Red \geq 1.0 mg/L, Orange \geq 0.5 mg/L, Yellow \geq 0.25 mg/L, No Shading < 0.25 mg/L *** may give false positive at salinity greater than 1 ppt

PPCP color key (X times Reporting Limit): 3X 10X +100X

Cl2 - color key: Red \geq 1.0 mg/L, Orange \geq 0.3 mg/L, Yellow \geq 0.02 mg/L, No Shading < 0.02 mg/L

ND – not detected above the associated detection limit

NA – not applicable (analyte not tested for at that site at this time)

Reporting Limits

E. coli = 4 MPN/100mL Enterococcus = 10 MPN/100mL Surfactants Field = 0.1 mg/L Ammonia Field = 0.1 mg/L Chlorine Field = 0.02 mg/L

Appendix B CERTIFIED LABORATORY RESULTS November 1, 2017

Appendix B CERTIFIED LABORATORY RESULTS



 N ashoba Analytical, LLC
 Tel: 978-391-4428
 Fax: 978-391-4643
 LabNumber:

 31A Willow Road, Ayer MA 01432
 Website: http://www.NashobaAnalytical.com
 Use this number:

 Client:
 Use this number:
 Use this number:

Stantec

5 Burlington Woods Dr

Burlington, MA 01803-4542

Certificate of Analysis

Belmont MA

Parameter	Method	Result	MRL	Date of Analysis	Analyst
10- 10-1					
Sampled: 11/8/2016 7:40:00 AM	by Stantec				
E.coli, /100ML	EPA 1603	1250	50	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	450	50	11/8/2016 1:50:00 PM	M-MA1118
3- 8-1					
Sampled: 11/8/2016 8:20:00 AM	by Stantec				
E.coli, /100ML	EPA 1603	ND	50	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	50	50	11/8/2016 1:50:00 PM	M-MA1118
6- 8-2					
Sampled: 11/8/2016 8:40:00 AM	by Stantec				
E.coli, /100ML	EPA 1603	1950	50	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	300	50	11/8/2016 1:50:00 PM	M-MA1118
7- 8-3					
Sampled: 11/8/2016 9:20:00 AM	by Stantec				
E.coli, /100ML	EPA 1603	ND	50	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	ND	50	11/8/2016 1:50:00 PM	M-MA1118
8-8-4					
Sampled: 11/8/2016 9:45:00 AM	by Stantec				
E.coli, /100ML	EPA 1603	ND	50	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	ND	50	11/8/2016 1:50:00 PM	M-MA1118
9- 8-5					
Sampled: 11/8/2016 10:15:00 Al	M by Stantec				
E.coli, /100ML	EPA 1603	1100	50	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	2600	50	11/8/2016 1:50:00 PM	M-MA1118
4- 8-6					
Sampled: 11/8/2016 6:50:00 AM	by Stantec				
E.coli, /100ML	EPA 1603	1550	50	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	150	50	11/8/2016 1:50:00 PM	M-MA1118
1- OF-1					
Sampled: 11/8/2016 7:37:00 AM	by Stantec				
E.coli, /100ML					
	EPA 1603	100	50	11/8/2016 1:50:00 PM	M-MA1118

MRL=Minimum Reporting Level, ND = None Detected (<MRL) Analysis performed according to 310CMR42.00

Massachusetts Certified Laboratory #M-MA1118 Use this number with all correspondence

ReportDate: 11/9/2016

 N ashoba Analytical, LLC
 Tel: 978-391-4428
 Fax: 978-391-4643
 LabNumber:

 31A Willow Road, Ayer MA 01432
 Website: http://www.NashobaAnalytical.com
 Use this number

 Client:
 Stantec
 ReportDate:

5 Burlington Woods Dr

Burlington, MA 01803-4542

Certificate of Analysis

Belmont MA

Parameter	Method	Result	MRL	Date of Analysis	Analyst
11- OF-10					
Sampled: 11/8/2016 8:40:00	AM by Stantec				
E.coli, /100ML	EPA 1603	200	50	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	3450	50	11/8/2016 1:50:00 PM	M-MA1118
13- OF-11					
Sampled: 11/8/2016 9:20:00	AM by Stantec				
E.coli, /100ML	EPA 1603	>10000	50	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	2700	50	11/8/2016 1:50:00 PM	M-MA1118
12- OF-11A					
Sampled: 11/8/2016 9:10:00	AM by Stantec				
E.coli, /100ML	EPA 1603	8600	50	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	3200	50	11/8/2016 1:50:00 PM	M-MA1118
15- OF-12					
Sampled: 11/8/2016 10:20:00	AM by Stantec				
E.coli, /100ML	EPA 1603	>10000	25	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	300	25	11/8/2016 1:50:00 PM	M-MA1118
14- OF-13					
Sampled: 11/8/2016 9:50:00	AM by Stantec				
E.coli, /100ML	EPA 1603	50	50	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	50	50	11/8/2016 1:50:00 PM	M-MA1118
16- OF-15A					
Sampled: 11/8/2016 11:00:00	AM by Stantec				
E.coli, /100ML	EPA 1603	1050	25	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	900	25	11/8/2016 1:50:00 PM	M-MA1118
2- OF-2					
Sampled: 11/8/2016 8:30:00	AM by Stantec				
E.coli, /100ML	EPA 1603	5550	50	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	1150	50	11/8/2016 1:50:00 PM	M-MA1118
5- OF-8					
Sampled: 11/8/2016 7:45:00	AM by Stantec				
E.coli, /100ML	EPA 1603	100	50	11/8/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	700	50	11/8/2016 1:50:00 PM	M-MA1118

MRL=Minimum Reporting Level, ND = None Detected (<MRL) Analysis performed according to 310CMR42.00

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Burlington, MA 01803-4542

Certificate of Analysis

Belmont MA

Parameter	Method	Result	MRL	Date of Analysis	Analyst
15- 10-1					
Sampled: 11/16/2016 9:10:00 A	AM by Stantec				
E.coli, /100ML	EPA 1603	2700	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	2700	100	11/16/2016 1:50:00 PM	M-MA1118
9- 8-1					
Sampled: 11/16/2016 9:20:00 A	AM by Stantec				
E.coli, /100ML	EPA 1603	9200	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	2200	100	11/16/2016 1:50:00 PM	M-MA1118
5- 8-2					
Sampled: 11/16/2016 9:45:00 A	AM by Stantec				
E.coli, /100ML	EPA 1603	>20000	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	11200	100	11/16/2016 1:50:00 PM	M-MA1118
10- 8-3					
Sampled: 11/16/2016 9:40:00 A	AM by Stantec				
E.coli, /100ML	EPA 1603	ND	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	ND	100	11/16/2016 1:50:00 PM	M-MA1118
6- 8-4					
Sampled: 11/16/2016 10:15:00	AM by Stantec				
E.coli, /100ML	EPA 1603	ND	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	ND	100	11/16/2016 1:50:00 PM	M-MA1118
17- 8-5					
Sampled: 11/16/2016 10:10:00	AM by Stantec				
E.coli, /100ML	EPA 1603	2900	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	1000	100	11/16/2016 1:50:00 PM	M-MA1118
16- 8-6					
Sampled: 11/16/2016 9:50:00 A	AM by Stantec				
E.coli, /100ML	EPA 1603	8300	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	2000	100	11/16/2016 1:50:00 PM	M-MA1118
7 - OF-1					
Sampled: 11/16/2016 7:25:00 A	AM by Stantec				
E.coli, /100ML	EPA 1603	4000	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	1200	100	11/16/2016 1:50:00 PM	M-MA1118

MRL=Minimum Reporting Level, ND = None Detected (<MRL) Analysis performed according to 310CMR42.00

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Stantec

5 Burlington Woods Dr Burlington, MA 01803-4542

Certificate of Analysis

Belmont MA

Parameter	Method	Result	MRL	Date of Analysis	Analyst
14- OF-10					
Sampled: 11/16/2016 8:40:00	AM by Stantec				
E.coli, /100ML	EPA 1603	7200	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	2100	100	11/16/2016 1:50:00 PM	M-MA1118
2- OF-11					
Sampled: 11/16/2016 8:15:00	AM by Stantec				
E.coli, /100ML	EPA 1603	>20000	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	12600	100	11/16/2016 1:50:00 PM	M-MA1118
3- OF-11A					
Sampled: 11/16/2016 8:30:00	AM by Stantec				
E.coli, /100ML	EPA 1603	>20000	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	3300	100	11/16/2016 1:50:00 PM	M-MA1118
11- OF-12					
Sampled: 11/16/2016 7:30:00	AM by Stantec				
E.coli, /100ML	EPA 1603	400	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	600	100	11/16/2016 1:50:00 PM	M-MA1118
1- OF-13					
Sampled: 11/16/2016 7:45:00	AM by Stantec				
E.coli, /100ML	EPA 1603	1100	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	1100	100	11/16/2016 1:50:00 PM	M-MA1118
12- OF-15					
Sampled: 11/16/2016 8:00:00	AM by Stantec				
E.coli, /100ML	EPA 1603	>20000	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	>20000	100	11/16/2016 1:50:00 PM	M-MA1118
13- OF-15A					
Sampled: 11/16/2016 8:20:00	AM by Stantec				
E.coli, /100ML	EPA 1603	>20000	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	13800	100	11/16/2016 1:50:00 PM	M-MA1118
8- OF-2					
Sampled: 11/16/2016 7:45:00	AM by Stantec				
E.coli, /100ML	EPA 1603	19000	100	11/16/2016 1:50:00 PM	M-MA1118
Enterococcus, /100ML	EPA 1600	8800	100	11/16/2016 1:50:00 PM	M-MA1118

MRL=Minimum Reporting Level, ND = None Detected (<MRL) Analysis performed according to 310CMR42.00

Massachusetts Certified Laboratory #M-MA1118 Use this number with all correspondence

ReportDate: 11/17/2016

N ^{ashoba} Ana	alytical, LLC	Tel: 978-391-4428	Fax: 978-391-4643		LabNumber:		172643
31A Willow Road, Ayer M	MA 01432	Website: http://www.	NashobaAnalytical.com		Use this number with all correspond		rrespondence
Client:							
Stantec					ReportDate:	11/17/2	2016
5 Burlington Woods	Dr						
Burlington, MA 01803	3-4542						
		<u>Certificate</u>	of Analysis				
Belmont MA							
Parameter	Method		Result	MRL	Date of Ar	nalysis	Analyst
4- OF-8							
Sampled: 11/16/2016 9	:15:00 AM by Stantec						

8400

7100

9450

3250

100

100

50

50

MRL=Minimum Reporting Level, ND = None Detected (<MRL) Analysis performed according to 310CMR42.00

E.coli, /100ML

18- OF-9A

E.coli, /100ML

Enterococcus, /100ML

Enterococcus, /100ML

Sampled: 11/16/2016 11:00:00 AM by Stantec

EPA 1603

EPA 1600

EPA 1603

EPA 1600

11/16/2016 1:50:00 PM M-MA1118

11/16/2016 1:50:00 PM M-MA1118

11/16/2016 1:50:00 PM M-MA1118

11/16/2016 1:50:00 PM M-MA1118

 N^{ashoba} Analytical, LLC Tel: 978-391-4428

4428 Fax: 978-391-4643

LabNumber:

179710

Website: http://www.NashobaAnalytical.com

Use this number with all correspondence

ReportDate: 7/19/2017

Client:

Stantec

5 Burlington Woods Dr

Burlington, MA 01803-4542

31A Willow Road, Ayer MA 01432

Certificate of Analysis

Parameter	Method	Result	MRL	Date of Analysis	Analyst
2 Belmont MA, OF 1	-4				
Sampled: 7/18/2017 7:48:0	00 AM by Client				
E.coli, /100ML	EPA 1603	ND	100	7/18/2017 2:40:00 PM	M-MA1118
3 Belmont MA, OF 1	-4A				
Sampled: 7/18/2017 8:01:0	00 AM by Client				
E.coli, /100ML	EPA 1603	7000	100	7/18/2017 2:40:00 PM	M-MA1118
1 Belmont MA, OF-1	1				
Sampled: 7/18/2017 6:53:0	00 AM by Client				
E.coli, /100ML	EPA 1603	600	100	7/18/2017 2:40:00 PM	M-MA1118
4 Belmont MA, OF-2	2				
Sampled: 7/18/2017 8:27:0	00 AM by Client				
E.coli, /100ML	EPA 1603	6800	100	7/18/2017 2:40:00 PM	M-MA1118
5 Belmont MA, OF-2	2-09D003				
Sampled: 7/18/2017 8:48:0	00 AM by Client				
E.coli, /100ML	EPA 1603	19600	100	7/18/2017 2:40:00 PM	M-MA1118
6 Belmont MA, OF-2	2-09D003-A				
Sampled: 7/18/2017 9:24:0	00 AM by Client				
E.coli, /100ML	EPA 1603	5500	100	7/18/2017 2:40:00 PM	M-MA1118
7 Belmont MA, OF-2	2-2				
Sampled: 7/18/2017 9:51:0	00 AM by Client				
E.coli, /100ML	EPA 1603	>20,000	50	7/18/2017 2:40:00 PM	M-MA1118
8 Belmont MA, OF-2	-3				
Sampled: 7/18/2017 10:00.	:00 AM by Client				
E.coli, /100ML	EPA 1603	>20,000	100	7/18/2017 2:40:00 PM	M-MA1118
9 Belmont MA, OF-2	-4				
Sampled: 7/18/2017 10:06:	:00 AM by Client				
E.coli, /100ML	EPA 1603	3900	100	7/18/2017 2:40:00 PM	M-MA1118
10 Belmont MA, OF-	8-1				
Sampled: 7/18/2017 10:25:	00 AM by Client				
E.coli, /100ML	EPA 1603	1700	100	7/18/2017 2:40:00 PM	M-MA1118
11 Belmont MA, OF-	8-1-1				
Sampled: 7/18/2017 10:47:	00 AM by Client				
E.coli, /100ML	EPA 1603	>20,000	50	7/18/2017 2:40:00 PM	M-MA1118

MRL = Minimum Reporting Level Analysis performed according to 310CMR42.00 Massachusetts Certified Laboratory #M-MA1118

David L. Unmoth

David L. Knowlton Laboratory Director

 ${
m N}^{
m ashoba}$ Analytical, LLC

31A Willow Road, Ayer MA 01432

Client:

Stantec

5 Burlington Woods Dr Burlington, MA 01803-4542 Tel: 978-391-4428 Fax: 97

8 Fax: 978-391-4643

LabNumber:

180105

Website: http://www.NashobaAnalytical.com

Use this number with all correspondence

ReportDate: 7/28/2017

Certificate of Analysis

Belmont, MA

Parameter	Method	Result	MRL	Date of Analysis	Analyst
12- 10-1-1					
Sampled: 7/27/2017 9:5	5:00 AM by M. Hernon				
E.coli, /100ML	EPA 1603	500	100	7/27/2017 1:45:00 PM	M-MA1118
13- 10-1-2					
Sampled: 7/27/2017 10:	10:00 AM by M. Hernon				
E.coli, /100ML	EPA 1603	100	100	7/27/2017 1:45:00 PM	M-MA1118
2-8-2-1					
Sampled: 7/27/2017 6:5.	2:00 AM by M. Hernon				
E.coli, /100ML	EPA 1603	>20000	100	7/27/2017 1:45:00 PM	M-MA1118
3-8-2-2					
Sampled: 7/27/2017 7:1	5:00 AM by M. Hernon				
E.coli, /100ML	EPA 1603	10500	100	7/27/2017 1:45:00 PM	M-MA1118
4-8-2-3					
Sampled: 7/27/2017 7:2	5:00 AM by M. Hernon				
E.coli, /100ML	EPA 1603	900	100	7/27/2017 1:45:00 PM	M-MA1118
5- 8-5-1					
Sampled: 7/27/2017 8:10	0:00 AM by M. Hernon				
E.coli, /100ML	EPA 1603	12400	100	7/27/2017 1:45:00 PM	M-MA1118
9- 8-6-1					
Sampled: 7/27/2017 8:50	0:00 AM by M. Hernon				
E.coli, /100ML	EPA 1603	12750	50	7/27/2017 1:45:00 PM	M-MA1118
10- 8-6-2					
Sampled: 7/27/2017 9:20	0:00 AM by M. Hernon				
E.coli, /100ML	EPA 1603	800	100	7/27/2017 1:45:00 PM	M-MA1118
7- 8-6-3					
Sampled: 7/27/2017 8:45	5:00 AM by M. Hernon				
E.coli, /100ML	EPA 1603	300	100	7/27/2017 1:45:00 PM	M-MA1118
8-8-6-4					
Sampled: 7/27/2017 8:50	0:00 AM by M. Hernon				
E.coli, /100ML	EPA 1603	16800	100	7/27/2017 1:45:00 PM	M-MA1118

MRL=Minimum Reporting Level, ND = None Detected (<MRL) Analysis performed according to 310CMR42.00

Massachusetts Certified Laboratory #M-MA1118

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David L. Knowlton Laboratory Director

Page 1 of 2

N^{ashoba} Analytical, LLC

31A Willow Road, Ayer MA 01432

Client:

Stantec

5 Burlington Woods Dr

Burlington, MA 01803-4542

Certificate of Analysis

Website: http://www.NashobaAnalytical.com

Fax: 978-391-4643

Tel: 978-391-4428

Belmont, MA

Parameter	Method	Resu	t MRL	Date of Analysis	Analyst
11- OF 10-1					
Sampled: 7/27/2017 9:50:00	AM by M. Hernon				
E.coli, /100ML	EPA 1603	ND	100	7/27/2017 1:45:00 PM	M-MA1118
1- OF 8-2					
Sampled: 7/27/2017 6:45:00	AM by M. Hernon				
E.coli, /100ML	EPA 1603	110	0 100	7/27/2017 1:45:00 PM	M-MA1118
15- OF 8-5					
Sampled: 7/27/2017 7:45:00	AM by M. Hernon				
E.coli, /100ML	EPA 1603	740	D 50	7/27/2017 1:45:00 PM	M-MA1118
6- OF 8-6					
Sampled: 7/27/2017 8:30:00	AM by M. Hernon				
E.coli, /100ML	EPA 1603	1440	0 100	7/27/2017 1:45:00 PM	M-MA1118
14- OF-15					
Sampled: 7/27/2017 10:30:00	AM by M. Hernon				
E.coli, /100ML	EPA 1603	1020	0 100	7/27/2017 1:45:00 PM	M-MA1118

Massachusetts Certified Laboratory #M-MA1118

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David L. Knowlton Laboratory Director

Use this number with all correspondence

ReportDate: 7/28/2017

LabNumber:

180105

 N^{ashoba} Analytical, LLC

Tel: 978-391-4428 Fa:

8 Fax: 978-391-4643

LabNumber:

181040

31A Willow Road, Ayer MA 01432

Client:

Stantec

5 Burlington Woods Dr Burlington, MA 01803-4542 Website: http://www.NashobaAnalytical.com

Use this number with all correspondence

ReportDate: 8/18/2017

Certificate of Analysis

Belmont, MA

Parameter	Method	Result	MRL	Date of Analysis	Analyst
3- 15A-1					
Sampled: 8/17/2017 8:40:00 AM	1 by Stantec				
E.coli, /100ML	EPA 1603	8700	100	8/17/2017 1:25:00 PM	M-MA1118
9- 8-1-1A					
Sampled: 8/17/2017 10:34:00 A	M by Stantec				
E.coli, /100ML	EPA 1603	>20000	100	8/17/2017 1:25:00 PM	M-MA1118
7- 8-1-2					
Sampled: 8/17/2017 10:05:00 Al	M by Stantec				
E.coli, /100ML	EPA 1603	500	100	8/17/2017 1:25:00 PM	M-MA1118
5- 8-1-3					
Sampled: 8/17/2017 9:18:00 AM	by Stantec				
E.coli, /100ML	EPA 1603	>20000	100	8/17/2017 1:25:00 PM	M-MA1118
6-8-1-4					
Sampled: 8/17/2017 9:31:00 AM	by Stantec				
E.coli, /100ML	EPA 1603	1000	100	8/17/2017 1:25:00 PM	M-MA1118
8-8-1-5					
Sampled: 8/17/2017 10:09:00 Al	M by Stantec				
E.coli, /100ML	EPA 1603	>20000	100	8/17/2017 1:25:00 PM	M-MA1118
1- OF-15					
Sampled: 8/17/2017 7:15:00 AM	by Stantec				
E.coli, /100ML	EPA 1603	3000	100	8/17/2017 1:25:00 PM	M-MA1118
2- OF-15A					
Sampled: 8/17/2017 8:10:00 AM	by Stantec				
E.coli, /100ML	EPA 1603	14900	100	8/17/2017 1:25:00 PM	M-MA1118
4- OF8-1					
Sampled: 8/17/2017 9:15:00 AM	by Stantec				
E.coli, /100ML	EPA 1603	800	100	8/17/2017 1:25:00 PM	M-MA1118

MRL=Minimum Reporting Level, ND = None Detected (<MRL) Analysis performed according to 310CMR42.00

Massachusetts Certified Laboratory #M-MA1118

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David L. Knowlton Laboratory Director

Page 1 of 1

${ m N}^{ m ashoba}$ Analytical, LLC	Tel: 978-391-4428	Fax: 978-391-4643	LabNumber:	181629
31A Willow Road, Ayer MA 01432	Website: http://www.l	NashobaAnalytical.com	Use this number w	with all correspondence
Client:				
Stantec			ReportDate:	9/5/2017
5 Burlington Woods Dr				
Burlington, MA 01803-4542				

Belmont, MA

Parameter	Method	Result	MRL	Date of Analysis	Analyst
2- 10-2-1					
Sampled: 9/1/2017 7:00:00 AN	1 by Client				
E.coli, /100ML	EPA 1603	ND	100	9/1/2017 1:05:00 PM	M-MA1118
3- 10-2-2					
Sampled: 9/1/2017 8:00:00 AN	1 by Client				
E.coli, /100ML	EPA 1603	800	100	9/1/2017 1:05:00 PM	M-MA1118
4- 10-2-3					
Sampled: 9/1/2017 8:40:00 AN	1 by Client				
E.coli, /100ML	EPA 1603	>20000	100	9/1/2017 1:05:00 PM	M-MA1118
5- 10-2-4					
Sampled: 9/1/2017 9:30:00 AN	1 by Client				
E.coli, /100ML	EPA 1603	500	100	9/1/2017 1:05:00 PM	M-MA1118
6- 10-2-5					
Sampled: 9/1/2017 10:00:00 A	M by Client				
E.coli, /100ML	EPA 1603	ND	50	9/1/2017 1:05:00 PM	M-MA1118
1- OF 10-2					
Sampled: 9/1/2017 6:40:00 AN	1 by Client				
E.coli, /100ML	EPA 1603	200	100	9/1/2017 1:05:00 PM	M-MA1118

N ashoba Analytical, LLC	Tel: 978-391-4428	Fax: 978-391-4643	LabNumber:	182479
31A Willow Road, Ayer MA 01432	Website: http://www.	NashobaAnalytical.com	Use this number	with all correspondence
Client:				
Stantec			ReportDate:	9/28/2017
5 Burlington Woods Dr				
Burlington, MA 01803-4542				
	Certificate	of Analysis		
Belmont, MA				

Parameter	Method	Result	MRL	Date of Analysis	Analyst
1- 8-1-7					
Sampled: 9/26/2017 7:35:00 AM	1 by Stantec				
E.coli, /100ML	EPA 1603	>20000	100	9/26/2017 12:00:00 PM	M-MA1118
2- 8-1-8					
Sampled: 9/26/2017 8:30:00 AM by Stantec					
E.coli, /100ML	EPA 1603	5550	50	9/26/2017 12:00:00 PM	M-MA1118

${ m N}^{ m ashoba}$ Analytical, LLC	Tel: 978-391-4428	Fax: 978-391-4643	LabNumber:	182534
31A Willow Road, Ayer MA 01432	Website: http://www.l	NashobaAnalytical.com	Use this number	with all correspondence
Client:				
Stantec			ReportDate:	9/28/2017
5 Burlington Woods Dr				
Burlington, MA 01803-4542				

Belmont, MA

Parameter	Method	Result	MRL	Date of Analysis	Analyst
3- 10-2-6					
Sampled: 9/27/2017 10:0	07:00 AM by Client				
E.coli, /100ML	EPA 1603	>20000	100	9/27/2017 1:15:00 PM	M-MA1118
4- 10-2-7					
Sampled: 9/27/2017 10:1	16:00 AM by Client				
E.coli, /100ML	EPA 1603	1300	50	9/27/2017 1:15:00 PM	M-MA1118
1- 8-5-2					
Sampled: 9/27/2017 7:00	0:00 AM by Client				
E.coli, /100ML	EPA 1603	16000	100	9/27/2017 1:15:00 PM	M-MA1118
2- 8-5-3					
Sampled: 9/27/2017 7:15	5:00 AM by Client				
E.coli, /100ML	EPA 1603	7400	100	9/27/2017 1:15:00 PM	M-MA1118

N ^{ashoba} Analytical, LLC	Tel: 978-391-4428	Fax: 978-391-4643	LabNumber:	182586
31A Willow Road, Ayer MA 01432	Website: http://www.	NashobaAnalytical.com	Use this number	with all correspondence
Client:				
Stantec			ReportDate:	9/29/2017
5 Burlington Woods Dr				
Burlington, MA 01803-4542				

Belmont MA

Parameter	Method	Result	MRL	Date of Analysis	Analyst
3- 10-2-10 Sampled: 9/28/2017 9:10:00 / E.coli, /100ML	AM by Client EPA 1603	150	50	9/28/2017 12:50:00 PM	M-MA1118
1- 10-2-8	LFA 1003	130	50	9/20/2017 12.30.00 FM	
Sampled: 9/28/2017 7:00:00 / E.coli, /100ML	AM by Client EPA 1603	100	100	9/28/2017 12:50:00 PM	M-MA1118
2- 10-2-9 Sampled: 9/28/2017 7:30:00 / E.coli, /100ML	AM by Client EPA 1603	200	100	9/28/2017 12:50:00 PM	M-MA1118

${ m N}^{ m ashoba}{ m A}$ nalytical, LLC	Tel: 978-391-4428	Fax: 978-391-4643	LabNumber:	182851
31A Willow Road, Ayer MA 01432	Website: http://www.	NashobaAnalytical.com	Use this number	with all correspondence
Client:				
Stantec			ReportDate:	10/6/2017
5 Burlington Woods Dr				
Burlington, MA 01803-4542				

Belmont, MA

Parameter	Method	Result	MRL	Date of Analysis Analyst
1- 8-6-5				
Sampled: 10/5/2017 7:35	5:00 AM by Client			
E.coli, /100ML	EPA 1603	ND	100	10/5/2017 11:50:00 AM M-MA1118
2-8-6-6				
Sampled: 10/5/2017 7:45	5:00 AM by Client			
E.coli, /100ML	EPA 1603	>20000	100	10/5/2017 11:50:00 AM M-MA1118
3- 8-6-7				
Sampled: 10/5/2017 7:35	5:00 AM by Client			
E.coli, /100ML	EPA 1603	>20000	100	10/5/2017 11:50:00 AM M-MA1118
4- 8-6-8				
Sampled: 10/5/2017 8:25	5:00 AM by Client			
E.coli, /100ML	EPA 1603	100	100	10/5/2017 11:50:00 AM M-MA1118
5- 8-6-9				
Sampled: 10/5/2017 9:00	0:00 AM by Client			
E.coli, /100ML	EPA 1603	ND	50	10/5/2017 11:50:00 AM M-MA1118

MRL=Minimum Reporting Level, ND = None Detected (<MRL) Analysis performed according to 310CMR42.00

N ^{ashoba} Analytical, LLC	Tel: 978-391-4428	Fax: 978-391-4643	LabNumber:	183240
31A Willow Road, Ayer MA 01432	Website: http://www.NashobaAnalytical.com Use this number with		with all correspondence	
Client:				
Stantec			ReportDate:	10/18/2017
5 Burlington Woods Dr				
Burlington, MA 01803-4542				

Belmont, MA

Parameter	Method	Result	MRL	Date of Analysis Analyst		
1- 8-2-4						
Sampled: 10/17/2017 8:14:00	AM by Client					
E.coli, /100ML	EPA 1603	ND	100	10/17/2017 1:45:00 PM M-MA1118	8	
2- 8-6-10						
Sampled: 10/17/2017 10:08:0	0 AM by Client					
E.coli, /100ML	EPA 1603	ND	100	10/17/2017 1:45:00 PM M-MA1118	8	
3- 8-6-11						
Sampled: 10/17/2017 10:35:00 AM by Client						
E.coli, /100ML	EPA 1603	350	50	10/17/2017 1:45:00 PM M-MA1118	8	

Appendix C SEWER WORK NOTICE November 1, 2017

Appendix C SEWER WORK NOTICE





OFFICE OF COMMUNITY DEVELOPMENT

TOWN OF BELMONT 19 MOORE STREET HOMER MUNICIPAL BUILDING BELMONT, MASSACHUSETTS 02478-0900

Telephone: (617) 993-2650 Fax: (617) 993-2651

BUILDING DIVISION (617) 993-2664 PLANNING DIVISION (617) 993-2666 ENGINEERING DIVISION (617) 993-2665

SEWER WORK NOTICE Building Inspection & Dyed-Water Testing

October 2017

Dear Property Owner/Resident,

In April 2017, the Town received an ORDER ON CONSENT (Order) from the United States Environmental Protection Agency (EPA) for high levels of contamination .at various storm water outfalls. The Town of Belmont has contracted the engineering firm Stantec Consulting Services, Inc. to conduct extensive investigations to determine the source(s) of contamination.

The investigations include building plumbing inspections and dyed-water testing in selected neighborhoods. Dyed-water testing involves applying dyed-water into a toilet or sink. The dyed-water flows through the piping to the street where it can be observed from an opened manhole. The dye is non-toxic and will not cause any damage to your property. The investigation takes approximately 30 minutes to complete and will not impact your property in any way.

Technicians will need to enter your home. For your security, the Belmont Police Department will supply an officer to accompany the technicians performing the work.

Technicians will be conducting dyed-water testing Monday through Friday from 8:00 A.M. to 5:00P.M. If you are generally not home during this period please contact Leanne Fierro at the Office of Community Development to make an appointment (617) 993-2650.

This work is required even if your home has been previously inspected and/or dyedwater tested. The Town thanks you for your continued cooperation in order that meaningful and useful data regarding the Town's sanitary sewer and storm drain systems is obtained. If you have any questions please contact the Office of Community Development at (617) 993-2650.

Sincerely,

Glenn R. Clancy P.E. Director Town Engineer