

VM CONSULTING ENGINEERS, LLC Victoria A. Masone, P.E. Founder & Principal Engineer

Office: 99 Essex Street | Salem, MA 01970 Ph: (978) 853-5112 Email: victoria@vmconsultingllc.com Website: www.vmconsultingllc.com

October 13, 2021

Robert Dever DPW Director Town of Marblehead 3 Tower Way Marblehead MA. 01945

RE: Letter Report Marblehead Fall 2021 Outfall Screening and Sampling Results, MS4 General Permit

Dear Rob:

The Town of Marblehead (Town) received authorization to discharge stormwater from its Small Municipal Separate Storm Sewer System (MS4) in accordance with the corresponding MS4 General Permit effective July 1, 2018. The Town developed an Illicit Discharge Detection and Elimination Program Manual (IDDE Plan) in June 2019 to satisfy the requirement in Section 2.3.4 of the MS4 General Permit and support the Best Management Practices (BMPs) identified in the Town's Stormwater Management Plan (SWMP). The work described in this letter report supports BMP 3.4 in the SWMP and section 2.3.4.7 b. of the permit, which mandate that the Town conduct dry weather outfall/interconnection screening and sampling of all outfalls/interconnections in Town over a period of three permit years.

This letter report includes results of the second phase of dry weather outfall screening and sampling performed on three separate days in the spring of 2021 (5/17/21, 6/24/21 and 6/25/21), and constitutes Permit Year 3 screening and sampling efforts. A letter report by VM Consulting Engineers dated January 10, 2020 summarized the results of the first phase of outfall/interconnection screening and sampling (Permit Year 1 and 2).

During Permit Year 1, 2 and 3, a total of 77 outfalls were successfully screened and sampled during dry weather. Three of these 77 outfalls were sampled by Haley & Ward Engineers on August 6, 2019.

Appendix A includes an outfall inspection index that lists each outfall in numeric order and gives the date each was inspected. The outfall inspection reports are organized by date in the appendices of this letter report, and in the previous letter report by VM Consulting Engineers dated January 10, 2020. The inspection date from Appendix A can be used to cross-reference the inspection report for each outfall.

Program Background

The U.S. Environmental Protection Agency (EPA) established the National Pollution Discharge Elimination System (NPDES) program as part of the Clean Water Act (CWA) to regulate discharges to surface water. The EPA and Massachusetts Department of Environmental Protection (MassDEP) are the co-permitting authorities that regulate stormwater runoff that enter local water bodies through MS4's in Massachusetts within "Urbanized Areas." The Town is an automatically designated MS4 area based on the 2000 and 2010 census data. Therefore, the Town is required to obtain a permit for stormwater discharges from the EPA and MassDEP.

The Town is currently covered under a NPDES General Permit for Stormwater Discharges for MS4's in Massachusetts (the MS4 General Permit). There are six minimum control measures in the MS4 General Permit that will result in a reduction in pollutants discharging into receiving waters. The Town developed an IDDE Plan to satisfy the third minimum control measure of its MS4 General Permit.

The IDDE Plan establishes a strategic, written program to address illicit discharges to the MS4 or to waters of the state. Outfall screening and sampling assessments, during wet weather and dry weather, are part of the IDDE Plan to help identify drainage areas with illicit discharge indicators and/or to verify that illicit discharges previously abated have been eliminated. The following section describes the process and analysis methods used to perform the Permit Year 3 dry weather outfall screening and sampling assessments.

Outfall Screening and Sampling Assessments

Outfall screening and sampling assessments will be used to help identify drainage areas with illicit discharge indicators. The screening included a visual and olfactory inspection of each outfall, and the condition of each outfall was observed and recorded using the Outfall Inspection Form in the IDDE Plan. Copies of the inspection forms and photographs of each outfall, sorted by date inspected, are included in Appendix B.

Analysis Methods Used

If flow was not observed during screening, the non-flowing condition was noted on the Outfall Inspection Form and no sample was collected.

If flow was observed during screening, two (2) samples were collected from the outfall. If the outfall was inaccessible, the nearest accessible upstream drainage structure was used, in accordance with EPA's Draft Bacterial Source Tracking Protocol (2012).

The first sample was analyzed in the field for ammonia, chlorine, surfactants, conductivity, salinity and temperature. Ammonia was measured with HACH Ammonia test strips. Total Chlorine was measured with a CHEMetrics K-2504 Field Kit. Surfactants were measured with a CHEMetrics K-9400 Field Kit. Conductivity, salinity and temperature were measured with an Oakton PCTSTestr[™] 5 Waterproof Pocket Tester.

The second sample was submitted to Northeast Environmental Lab, Inc. (Danvers, MA) and analyzed for Enterococci utilizing the Enterolert method. The testing results were measured in Most Probable Number (MPN) per 100mL. The benchmark concentration from MassDEP for Enterococci is 61 Colony Forming Unit (CFU) per 100mL, however, one MPN is equivalent to one CFU. Both units measure the estimated number of bacteria in a water sample; the difference is how the measurement is obtained. MPN uses a liquid medium to grow bacteria colonies and CFU uses a solid medium.

Field Test Results

The screening results tables are separated by sampling day and included in Appendix C. The tables summarize the observations and testing results of the outfall screening and sampling. Each table includes the ID number for the outfall screened, screening date, sample location and field notes. The table also includes the average air temperature on the day of the sampling and inches of rainfall that occurred within 24 and 48 hours of the sampling. If there was flow at the outfall location, the water was tested for the following indicators: ammonia, surfactants, chlorine, enterococci, conductivity, salinity and temperature.

NOAA precipitation data for May and June from Marblehead Station 0.8 SW, MA US US1MAES0008 is presented in Appendix D.

The Laboratory reports from Northeast Environmental Laboratories are presented in Appendix E.

Benchmark concentrations for each measured parameter were established as part of the IDDE Plan. Table 1 lists the outfalls with results that exceeded a benchmark concentration. The result(s) that exceeded the benchmark is highlighted.

Outfall Unique ID Benchmark	Screening Date	Ammonia (mg/L) ≥0.5	Salinity (ppt)	Surfactants (mg/L) ≥0.25	Chlorine (mg/L) ≥0.05	Enterococci per 100mL 61
2880	6/25/2021	0.0	2.8	2.0	0.0	>2,420
2808	6/25/2021	0.0	7.3	2.0	0.0	>2,420
3583	6/25/2021	0.0	8.3	2.0	0.0	>2,420
2683	5/17/2021	1.0	0.4	0.75	0	>2,420
1997	5/17/2021	0.25	0.3	0.25	0	135
2002	5/17/2021	0.25	0.4	0.50	0	130
2014	5/17/2021	0	0.6	0.25	0	16.8
2630	5/17/2021	0	0.3	0.25	0	1

Table 1 – Samples Exceeding Benchmark

Outfall Inspections by Others

Outfall 2677, Outfall 3703 and Outfall 10398 were inspected by Haley & Ward Engineers on August 6, 2019.

Unlocated and Inaccessible Outfalls

There are 11 outfalls identified in the Town's GIS that could not be inspected. Six of these outfalls were found to be catch basins, an inlet, no longer in use or did not exist. Five outfalls were inaccessible, could not be located or were surcharged. The following Table 2 lists these outfalls with each corresponding observation. Photos are included in Appendix F when applicable.

Outfall ID (GIS)	Observation
1209	Not an outfall. This is a catch basin.
1973	This is an inlet, not an outfall.
3197	There is no Outfall 3197. It is a catch basin numbered 3198. Catch basin 3198 flows to Outfall 3200 which was inspected on 10/15/19.
3202	There is no Outfall 3202. It is a catch basin numbered 3201. Catch basin 3201 flows to Outfall 3206 which was inspected on 10/15/19.
3346	Full of sand and inaccessible for sampling on 6/25/21. See photo in Appendix F.
3521	Could not access. Pipe expected to be buried in debris/vegetation on beach. Grate over opening. Could not determine flow. Inspection attempted on 9/26/19. See photo in Appendix F.
3605	No longer in use.
3729	Could not locate, even at extreme low tide. See photos in Appendix F.
3792	Could not locate. Overgrown vegetation and dangerous slope. See photos in Appendix F.
3842	This outfall does not exist. It is in the same location as Outfall 2964 and there is only one outfall at this location. Outfall 2964 was inspected on 10/15/19.
3845	Could not locate on 11/26/19, submerged in pond. Only manhole is visible and it is surcharged. Water level in the manhole is at the same level as the pond. See photo in Appendix F.

Table 2 – Outfalls Inspections Not Possible

Page 6

Next Steps

The work summarized in this report comprises the Permit Year 3 dry weather sampling effort. This completes the dry weather sampling. Wet weather screening of selected outfalls will commence after the dry weather results have been evaluated and catchments reprioritized using updated System Vulnerability Factors. This work is expected to be completed by others. The Town has until the end of the permit term to complete wet weather screening.

Please do not hesitate to contact me directly to discuss the materials presented in this letter report. I can be reached at 978-853-5112 or <u>victoria@vmconsultingllc.com</u>.

Sincerely,

humatmuse

Victoria A. Masone, P.E. VM Consulting Engineers LLC

APPENDIX A

OUTFALL INSPECTION INDEX

Outfall Inspection Index (Permit Year 1, 2 and 3)

Outfall ID	IL 2014 Receiving Water	Date of Inspection or Inspection Attempt	Comments
outfall ID listed in O	GIS but not in field. (GIS should be updated)		
1209		6/24/2021	Not an outfall - this is a catch basin per MW in DPW on 6/24/21
1973 3197	Intermediate Marblehead Harbor	N/A N/A	This is an inlet, not an outfall. This is a catch basin, numbered 3198 (not 3197). It flows to Outfall 3200.
3197	Marblehead Harbor	N/A N/A	This is a catch basin, numbered 3198 (hot 5197). It flows to Outlan 3200. This is a catch basin, numbered 3201 (not 3202). It flows to Outlan 3206.
3605	Marblehead Harbor	N/A	No longer in use.
3842	Marblehead Harbor	N/A	Does not exist. Adjacent to 2964 which was inspected on 10/15/19.
accessible Outfalls		1	
3346	Atlantic Ocean (not an IL 2014 waterbody)	6/25/2021	Full of cobble & inaccessible for sampling. See photos. Could not access. Pipe expected to be buried in debris/vegetation on beach. Gra
3521	Marblehead Harbor	9/26/2019	over opening. Could not determine flow. Inspection attempted on 9/26/19. See
			photos.
3729	Salem Sound	6/25/2021	Could not locate, even at extreme low tide. See photos.
3792	Intermediate	6/24/2021	Could not locate - overgrown vegetation and dangerous slope. See photo. Could not locate. Outfall is submerged in pond.
3845	Intermediate	11/26/2019	Only manhole visible and it is surcharged. See photos.
umpled by Haley &		1	
2677	Salem Sound	8/16/2019	Grace Oliver. Sampled by Haley & Ward on 8/6/19.
3703	Intermediate	8/16/2019	Inspected by Haley & Ward on 8/6/19, DRY Sampled by Haley & Ward on 8/6/19. This is also shown in Town GIS mappin
10398	Marblehead Harbor	8/16/2019	Outfall 1, and named "Riverhead."
omplete Inspection	IS	1	1
1963	Intermediate	11/26/2019	Inspected 11/26/19, DRY
1964	Intermediate	6/24/2021	Inspected on 6/24/21, DRY
1966	Atlantic Ocean (not an IL 2014 waterbody) Atlantic Ocean (not an IL 2014 waterbody)	9/17/2019	Inspected 9/17/19, DRY Sampled on 9/17/19
1968 1969	Atlantic Ocean (not an IL 2014 waterbody) Atlantic Ocean (not an IL 2014 waterbody)	9/17/2019 9/17/2019	Sampled on 9/17/19 Inspected 9/17/19, DRY
1969	Atlantic Ocean (not an IL 2014 waterbody) Atlantic Ocean (not an IL 2014 waterbody)	9/17/2019	Crown Way. Sampled on 9/17/19.
1971	Intermediate	6/24/2021	Inspected on 6/24/21, DRY
1978	Forest River	6/24/2021	Inspected on 6/24/21, DRY
1979	Forest River	6/24/2021	Inspected on 6/24/21, DRY
1985	Salem Harbor	11/26/2019	Sampled on 11/26/19
1986	Salem Harbor	11/26/2019	Sampled on 11/26/19
1987	Salem Harbor	11/26/2019	Inspected on 11/26/19, DRY
1988 1990	Salem Harbor Salem Harbor	11/26/2019 11/26/2019	Inspected on 11/26/19, DRY Sampled on 11/26/19
1990	Salem Harbor	11/26/2019	Sampled on 11/20/19 Sampled on 11/26/19
1994	Salem Harbor	11/26/2019	Inspected on 11/26/19, DRY
1997	Salem Harbor	5/17/2021	Sampled on 5/17/21
1999	Salem Harbor	11/26/2019	Sampled on 11/26/19
2002	Intermediate	5/17/2021	Sampled on 5/17/21
2004	Intermediate	5/17/2021	Inspected on 5/17/21, DRY
2005	Salem Harbor	11/26/2019	Inspected on 11/26/19, DRY
2011		5/17/2021	Inspected on 5/17/21, DRY
2013 2014	Salem Harbor Salem Harbor	5/17/2021	Sampled on 11/26/19 Sampled on 5/17/21
2575	Salem Harbor	5/17/2021	Inspected on 5/17/21, DRY
2580	Salem Harbor	10/15/2019	Inspected 10/15/19, DRY
2630	Salem Harbor	5/17/2021	Sampled on 5/17/21
2638	Salem Sound	10/15/2019	Inspected 10/15/19, DRY
2648	Salem Sound	10/15/2019	Inspected 10/15/19, DRY
2663	Intermediate	5/17/2021	Inspected on 5/17/21, DRY
2670 2679	Salem Sound Salem Sound	10/15/2019 10/15/2019	Sampled on 10/15/19 Inspected 10/15/19, DRY
2682	Salem Sound Salem Sound	10/15/2019	Inspected 10/15/19, DRY
2683	Salem Sound	5/17/2021	Sampled on 5/17/21
2808	Salem Sound	6/25/2021	Sampled on 6/25/21
2880	Salem Sound	6/25/2021	Sampled on 6/25/21
2961	Marblehead Harbor	10/15/2019	Inspected 10/15/19, DRY
2964		10/15/2019	Inspected 10/15/19, DRY
3001	Marblehead Harbor	9/17/2019	The Landing. Sampled on 9/17/19
3110 3182	Marblehead Harbor Marblehead Harbor	9/17/2019 10/15/2019	Boston Yacht Club. Sampled one MH up at 3108 on 9/17/19 Sampled on 10/15/19
3182	Marblehead Harbor	10/15/2019	Sampled on 10/15/19 Sampled on 10/15/19
3200	Marbienead Harbor Marblehead Harbor	10/15/2019	Inspected 10/15/19, DRY
3206	Marblehead Harbor	10/15/2019	Inspected 10/15/19, DRY
3207		10/15/2019	Inspected 10/15/19, DRY
3213	Marblehead Harbor	10/15/2019	Inspected 10/15/19, DRY
3278	Intermediate	5/17/2021	Inspected on 5/17/21, DRY
3356	Atlantic Ocean (not an IL 2014 waterbody)	9/26/2019	Sampled on 9/26/19
3418 3426	Atlantic Ocean (not an IL 2014 waterbody) Atlantic Ocean (not an IL 2014 waterbody)	9/17/2019 9/26/2019	Inspected 9/17/19, DRY Sampled on 9/26/19
3426 3457A		9/26/2019	Sampled on 9/26/19 Sampled on 9/26/19
3457B		9/26/2019	Sampled on 9/26/19
3457C		9/26/2019	Inspected on 9/26/19, DRY
3468A		9/26/2019	Sampled on 9/26/19
3468B		9/26/2019	Sampled on 9/26/19
3471A 3474	Atlantic Ocean (not an IL 2014 waterbody) Marblehead Harbor	9/26/2019	Inspected 9/26/19, DRY Inspected 9/26/19, DRY
3474 3486	Marblehead Harbor Marblehead Harbor	9/26/2019 9/26/2019	Inspected 9/26/19, DRY Inspected 9/26/19, DRY
3480	Atlantic Ocean (not an IL 2014 waterbody)	9/26/2019	Sampled on 9/26/19
3503	Atlantic Ocean (not an IL 2014 waterbody)	9/26/2019	Inspected 9/26/19, DRY
3508	Marblehead Harbor	9/26/2019	Inspected 9/26/19, DRY
3516	Marblehead Harbor	9/26/2019	Inspected 9/26/19, DRY
3569	Marblehead Harbor	9/26/2019	Sampled on 9/26/19
3583	Marblehead Harbor	6/25/2021	Sampled on 6/25/21
3718	Salem Harbor	11/26/2019	Inspected on 11/26/19, DRY Sompled on 10/15/10
3735 3742	Salem Sound Marblehead Harbor	10/15/2019 9/26/2019	Sampled on 10/15/19 Inspected 9/26/19, DRY
3742	Marblehead Harbor	9/26/2019	Red Steps. Sampled per AM's request on 9/17/19
3785	Salem Harbor	10/15/2019	Sampled on 10/15/19
3841	Marblehead Harbor	10/15/2019	Inspected 10/15/19, DRY
3844	Intermediate	5/17/2021	Inspected on 5/17/21, DRY
2071	Intermediate	5/17/2021	Inspected on 5/17/21, DRY
3971			
4043	Intermediate	6/24/2021	Inspected on 6/24/21, DRY Manhole upstream of combination with Swampscott and discharge to Preston

APPENDIX B

PHOTOS AND SAMPLING

Outfall 2683, Inspected on 5/17/21

Closed, ~36-inch RCP, Singular, Circular, not submerged, partial sediment, moderate flow. Seaweed at bottom of pipe.



Section 1: Background Data				i	
Subwatershed:		Outfall ID: 2683			
Today's date: 5 17121		Time (Military): 1330		No.	
Investigators: 12195		Form completed by: Vm			
Temperature (°F): 20 °	Rainfall (in.): Last 24 hours:	& Last 48 hours: &			
Latitutde:	Longitude:	GPS Unit:	GPS LMK	#:	
Camera:		Photo #s:			
Land Use in Drainage Area (Check all th	at apply):				
Industrial		Open Space		19 - SA	
Ultra-Urban Residential		Institutional		n Ser Ser	
🗴 Suburban Residential		Other:			
		Known Industries:			
Notes (e.g., origin of outfall, if known):					

Section 2: Outfall Description

LOCATION	MAT	ERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED
Closed Pipe	KRCP PVC Steel Other:	CMP	Circular Eliptical Box Other:	Single Double Triple Other:	Diameter/Dimensions:	In Water: Partially Fully With Sediment: No Partially Fully
🗌 Open drainage	Concrete Earthen rip-rap Other:		Trapezoid Parabolic Other:		Depth: Top Width: Botton: Width:	
In-Stream	(applicable	when collecting	g samples)			
Flow Present?	Yes		o If No.	, Skip to Section 5		
Flow Description (If present)	Trickle	Modera	te 🔲 Substantial		2	

FIELD DATA FOR FLOWING OUTFALLS						
P	RAMETER	RESULT	UNIT	EQUIPMENT		
en statutet.	Volume		Liter	Bottle		
Flow #1	Time to fill		Sec			
I	emperature	16.7	CA	Probe		
Conductivity		294	µS/cm	Probe		
		0.4	ppt	Probe		
Salinity (as Applicable) Ammonia		1.0	mg/L	Field test kit		
	Surfactants	0.25	mg/L	Field test kit		
Chlorine		A 10	mg/L	Field test kit		

2683

Outfall Reconnaissance Inventory Field Sheet

Are Any Physical Indicators Present in the flow? Yes No (If No, Skip to Section 5) CHECK IF DESCRIPTION **RELATIVE SEVERITY INDEX (1-3)** INDICATOR Present Rancid/sour Petroleum/gas Sewage $\square 3$ – Noticeable from a 1 - Faint 2 - Easily detected Odor distance Other: □ Sulfide Brown Gray Yellow Clear □ 1 – Faint colors in \Box 2 – Clearly visible in □ 3 – Clearly visible in Color sample bottle outfall flow sample bottle **Green** Orange Red Other: See severity □ 1 - Slight cloudiness $\Box 2 - Cloudy$ \Box 3 – Opaque Turbidity 2 – Some; indications 3 - Some; origin clear Floatables Sewage (Toilet Paper, etc.) Suds □ 1 - Few/slight; origin of origin (e.g., (e.g., obvious oil -Does Not Include not obvious possible suds or oil sheen, suds, or floating Petroleum (oil sheen) Other: Trash!! sanitary materials) sheen)

Section 4: Physical Indicators for Flowing Outfalls Only

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators t	hat are not related to flow	present? Yes X No (If No, Skip to Section 6)	
INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion Corrosion	
Deposits/Stains		Oily Flow Line Paint Other:	
Abnormal Vegetation		Excessive Inhibited	2
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:	2°
Pipe benthic growth		Brown Orange Green Other:	· •

Section 6: Overall Outfall Characterization

🗹 Unlikely	Potential (presence of two or more indicators)	Suspect (one or more indicators with a severity of 3)	Obvious
------------	--	---	---------

Section 7: Data Collection

1.	Sample for the lab?	X Yes	🗌 No		e
2.	If yes, collected from:	Flow	Devol		
3.	Intermittent flow trap set?	🗌 Yes	🗌 No	If Yes, type: 🗌 OBM	Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

have influence sample.

Outfall 2663, Inspected on 5/17/21

Closed, ~24-inch RCP, Singular, Circular, not submerged, partial sediment. Outlet obstructed (about 75%) with organic yard debris. Can only see crown of pipe.



Subwatershed:		Outfall ID: 2663				
Today's date: 511712)		Time (Military): 131	Time (Military): 1310			
Investigators: Nm1P		Form completed by:	\sim			
Temperature (°F): 70 Rainfall (in.): Last 24 hours:		ours: & Last 48 hours: &	Last 48 hours: B			
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:			
Camera:		Photo #s:	Photo #s:			
Land Use in Drainage Area (Che	ck all that apply):					
Industrial		Open Space				
Ultra-Urban Residential		Institutional				
Suburban Residential		Other:				
		Known Industries:				

Section 2: Outfall Description

l

LOCATION	MAT	ERIAL	S	HAPE	DIMENSIONS (IN.)	SUBMERGED
Closed Pipe	RCP PVC Steel Other:		Circular Eliptical Box Other:	Single Double Triple Other:	Diameter/Dimensions:	In Water: No Partially Fully With Sediment: No Partially Fully
🗌 Open drainage	Concrete Earthen rip-rap Other:		Trapezoid Parabolic Other:		Depth: Top Width: Botton: Width:	
In-Stream	(applicable)	when collecting	samples)			
Flow Present?	Yes	No	If No,	Skip to Section 5	and the second	
Flow Description (If present)	Trickle	Moderat	te 🗌 Substantial		22	

FIELD DATA FOR FLOWING OUTFALLS						
P	ARAMETER	RESULT	UNIT	EQUIPMENT		
	Volume		Liter	Bottle		
Flow #1	Time to fill		Sec			
Temperature			°F	Probe		
Conductivity			μS/cm	Probe		
Salinity (as Applicable)			ppt	Probe		
Ammonia			mg/L	Field test kit		
Surfactants			mg/L	Field test kit		
	Chlorine		mg/L	Field test kit		

Outfall Reconnaissance Inventory Field Sheet

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? Yes No (If No, Skip to Section 5)

INDICATOR	CHECK If Present	DESCRIPTION			RELATIVE SEVERITY INDEX (1-3)			
Odor		Sewage Sulfide	Rancid/so	ur 🗌 Petroleur	n/gas	🗖 1 – Faint	2 – Easily detected	□ 3 – Noticeable from a distance
Color		Clear Green	Brown Orange	Gray	Yellow Other:	□ 1 – Faint colors in sample bottle	2 – Clearly visible in sample bottle	□ 3 – Clearly visible in outfall flow
Turbidity				See severity		□ 1 – Slight cloudiness	2 – Cloudy	□ 3 – Opaque
Floatables -Does Not Include Trash!!		Sewage (1	foilet Paper, etc.) (oil sheen)) 🗌 Suds		□ 1 – Few/slight; origin not obvious	2 – Some; indications of origin (e.g., possible suds or oil sheen)	□ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators th	hat are not related to flow	present? Yes Yoo (If No, Skip to Section 6)
INDICATOR	CHECK if Present	DESCRIPTION
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion Corrosion
Deposits/Stains		Oily Flow Line Paint Other:
Abnormal Vegetation		
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:
Pipe benthic growth		Brown Orange Green Other:

Section 6: Overall Outfall Characterization

Unlikely Detential (presence of tw	wo or more indicators)	Suspect (one or more indicators with a severity of 3)	Obvious
------------------------------------	------------------------	---	---------

Section 7: Data Collection

1.	Sample for the lab?	🗌 Yes	No		· · · · · · · · · · · · · · · · · · ·
2.	If yes, collected from:	Flow	D Pool		
3.	Intermittent flow trap set?	🗌 Yes	🗌 No	If Yes, type: 🗌 OBM	Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

outlet obstructed ~ 7570 with organic ford debris can just see cours of pipe.

Outfall 3971, Inspected on 5/17/21

Closed, Unknown pipe diameter and pipe material, Singular, Circular, not submerged, partial sediment. Outfall clogged with branches/yard waste. Cannot see pipe. Can only see pipe opening.



Section 1: Background Data				
Subwatershed:		Outfall ID: 3971		
Today's date: 51721		Time (Military): 1255		
Investigators: In-1P5		Form completed by:		
Temperature (°F): 70	Rainfall (in.): Last 24 hours:	Last 48 hours:		
Lațitutde:	Longitude:	GPS Unit:	GPS LMK #:	
Camera:	8	Photo #s:		
Land Use in Drainage Area (Check all the	at apply):			
🗋 Industrial		Open Space		
🗌 Ultra-Urban Residential				
Suburban Residential		Other:		
		Known Industries:		
Notes (e.g., origin of outfall, if known):				

Section 2: Outfall Description

LOCATION	MA	TERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED
Service Closed Pipe	RCP RVC Steel Other:	□ CMP □ HDPE	Circular Eliptical Box Other:	Single Double Triple Other:	Diameter/Dimensions:	In Water: Partially Fully With Sediment: No Partially Fully
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:		Depth: Top Width: Botton: Width:	
🗌 In-Stream	(applicable	when collecting	samples)			
Flow Present?	🛛 Yes	No	If No,	Skip to Section 5		
Flow Description (If present)	Trickle	Moderate	e 🔲 Substantial			

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS						
PARAMETER		RESULT	UNIT	EQUIPMENT		
DE1 #	Volume		Liter	Bottle		
Flow #1	Time to fill		Sec			
Temperature			°F	Probē		
	Conductivity		μS/cm	Probe		
Salin	nity (as Applicable)		ppt	Probe		
	Ammonia		mg/L	Field test kit		
Surfactants			mg/L	Field test kit		
	Chlorine		mg/L	Field test kit		

63

Outfall Reconnaissance Inventory Field Sheet

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? Yes No (If No, Skip to Section 5)

INDICATOR	CHECK if Present	DESCRIPTION			RELATIVE SEVERITY INDEX (1-3)			
Odor		Sewage Rancid/sour Petroleum/gas Sulfide Other:			🗖 1 – Faint	2 – Easily detected	☐ 3 – Noticeable from a distance	
Color		Clear	Brown Orange	Gray	☐ Yellow ☐Other:	□ 1 – Faint colors in sample bottle	□ 2 – Clearly visible in sample bottle	3 – Clearly visible in outfall flow
Turbidity				See severity		□ 1 – Slight cloudiness	2 – Cloudy	□ 3 – Opaque
Floatables -Does Not Include Trash!!		Sewage (7 Petroleum	Foilet Paper, etc.) n (oil sheen)) 🗌 Suds		□ 1 – Few/slight; origin not obvious	2 - Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? Yes X No (If No, Skip to Section 6)

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint	
Deposits/Stains		Oily Flow Line Paint Other:	
Abnormal Vegetation		Excessive Inhibited	
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:	1
Pipe benthic growth		Brown Orange Green Other:	

Section 6: Overall Outfall Characterization

Unlikely	Detential (presence of two or more indicators)	Suspect (one or more indicators with a severity of 3)	Obvious

Section 7: Data Collection

1.	Sample for the lab?	🗌 Yes	No		. · · · · · · · · · · · · · · · · · · ·	
2.	If yes, collected from:	Flow	Devol			
3.	Intermittent flow trap set?	🗌 Yes	🗌 No	If Yes, type: 🗌 OBM	Caulk dam	

ean't see pipe, just opening.

Outfall 2002, Inspected on 5/17/21 Closed, ~36-inch RCP, Singular, Circular, not submerged, no sediment.



Subwatershed:		Outfall ID: 2000	Outfall ID: 2002		
Today's date: SIR12		Time (Military): \2Ĺ			
Investigators: 1m1P	5	Form completed by:	/		
Temperature (°F): 70	Rainfall (in.): Last 24 hou	rs: A Last 48 hours: &	A Last 48 hours: O		
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:		
Camera:		Photo #s:			
Land Use in Drainage Area (Cheo	k all that apply):				
Industrial		Open Space	Open Space		
Ultra-Urban Residential		Institutional	Institutional		
Suburban Residential		Other:	Other:		
Commercial		Known Industries:			
	nown):				

Section 2: Outfall Description

I

LOCATION	MAT	ERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED
🛃 Closed Pipe	RCP PVC Steel Other:	CMP	Circular Eliptical Box Other:	Gringle Double Triple Other:	Diameter/Dimensions:	In Water: Partially Fully With Sediment: No Partially Fully
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:	2	Depth: Top Width: Botton: Width:	
In-Stream	(applicable v	hen collecting	samples)			
Flow Present?	Yes		If No,	Skip to Section 5		
Flow Description (If present)	Trickle	Moderat	e Substantial		n ¹⁸	24 E

FIELD DATA FOR FLOWING OUTFALLS						
PA	RAMETER	RESULT	UNIT	EQUIPMENT		
	Volume		Liter	Bottle		
Flow #1	Time to fill	-	Sec			
Temperature		15.0	r e	Probe		
С	Conductivity	961	μS/cm	Probe		
Salinity (as Applicable)		0.40	ppt	Probe		
Ammonia		0.25	mg/L	Field test kit		
Surfactants		0.5	mg/L	Field test kit		
	Chlorine	B	mg/L	Field test kit		

Outfall Reconnaissance Inventory Field Sheet

2002

Section 4: Physical Indicators for Flowing Outfalls Only Are Any Physical Indicators Present in the flow? Yes

No (If No, Skip to Section 5)

INDICATOR	CHECK If Present			DESCRIPTION	•	RELATIVE SEVERITY INDEX (1-3)			
Odor		Sewage	Rancid/so	ur 🗌 Petroleur	m/gas	🔲 I – Faint	2 – Easily detected	☐ 3 – Noticeable from a distance	
Color		Clear	Brown Orange	☐ Gray ☐ Red	Yellow	□ 1 – Faint colors in sample bottle	2 – Clearly visible in sample bottle	3 – Clearly visible in outfall flow	
Turbidity	X			See severity		▶1 – Slight cloudiness	2 – Cloudy	□ 3 – Opaque	
Floatables -Does Not Include Trash!!			Sewage (Toilet Paper, etc.) Suds Petroleum (oil sheen) Other:			□ 1 – Few/slight; origin not obvious	2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)	

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint	
Deposits/Stains		Oily Flow Line Paint Other:	
Abnormal Vegetation		Excessive Inhibited	
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:	
Pipe benthic growth		Brown Orange Green Other:	r.

(If No Chin to Section 6)

Section 6: Overall Outfall Characterization

Unlikely Detential (presence of two or more indicators) Suspect (one or more indicators with a severity of 3) Obvious	Unlikely	Potential (presence of two or more indicators)	Suspect (one or more indicators with a severity of 3)	Obvious
---	----------	--	---	---------

Section 7: Data Collection

1.	Sample for the lab?	2 Yes	🗆 No		
2.	If yes, collected from:	Flow	Devel Pool		
3.	Intermittent flow trap set?	🗌 Yes	D rN₀	If Yes, type: 🗌 OBM	Caulk dam

Outfall 2004, Inspected on 5/17/21 Closed, ~10-inch CMP, Singular, Circular, not submerged, no sediment.



Subwatershed:		Outfall ID: 2004	Outfall ID: 2004		
Today's date: 5/17/2	1	Time (Military): 111			
Investigators: 11-10	5	Form completed by:	~		
Temperature (°F): 70		ours: 1 Last 48 hours: 1			
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:		
Camera:		Photo #s:	Photo #s:		
Land Use in Drainage Area (Check	all that apply):				
Industrial		Open Space	Open Space		
Ultra-Urban Residential		Institutional			
Suburban Residential		Other:	Other:		
		Known Industries:	Known Industries:		
Notes (e.g., origin of outfall, if kn	own):				

Section 2: Outfall Description

LOCATION	MAT	ERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED
X Closed Pipe	RCP PVC Steel Other:		Circular Eliptical Box Other:	Single Double Triple Other:	Diameter/Dimensions:	In Water: Partially Fully With Sediment: No Partially Fully
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:		Depth: Top Width: Botton: Width:	
🗌 In-Stream	(applicable	when collecting	samples)			
Flow Present?	Yes		If No.	o, Skip to Section 5		
Flow Description (If present)	Trickle	Moderat	te 🗌 Substantial	3		4

		FIELD DATA FOR FLOWING OUT	IFALLS	
P	ARAMETER	RESULT	UNIT	EQUIPMENT
	Volume		Liter	Bottle
Flow #1 Time t	Time to fill		Sec	
Temperature			°F	Probe
Conductivity			μS/cm	Probe
Salinit	ty (as Applicable)		ppt	Probe
Ammonia			mg/L	Field test kit
Surfactants			mg/L	Field test kit
	Chlorine		mg/L	Field test kit

Outfall Reconnaissance Inventory Field Sheet

(If No, Skip to Section 5)

2004

CHECK IF DESCRIPTION **RELATIVE SEVERITY INDEX (1-3)** INDICATOR Present Rancid/sour Petroleum/gas Sewage \square 3 – Noticeable from a 1 - Faint 2 - Easily detected Odor distance □ Sulfide Other: Yellow Clear Brown Gray □ 1 - Faint colors in \Box 2 – Clearly visible in 3 - Clearly visible in Color sample bottle sample bottle outfall flow Green Orange Red Other: See severity □ 1 – Slight cloudiness □ 3 – Opaque $\Box 2 - Cloudy$ Turbidity 2 - Some; indications 3 - Some; origin clear Sewage (Toilet Paper, etc.) Suds Floatables I – Few/slight; origin (e.g., obvious oil of origin (e.g., -Does Not Include not obvious possible suds or oil sheen, suds, or floating Petroleum (oil sheen) Other: Trash!! sheen) sanitary materials)

Section 4: Physical Indicators for Flowing Outfalls Only Are Any Physical Indicators Present in the flow? Yes No

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators	that are not related to flow	present? Yes X No (If No, Skip to Section 6)
INDICATOR	CHECK If Present	DESCRIPTION
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion Corrosion
Deposits/Stains		Oily Flow Line Paint Other:
Abnormal Vegetation		
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:
Pipe benthic growth		Brown Orange Green Other:

Section 6: Overall Outfall Characterization

🔁 Unlikely 🗌 Potential (presence of two or more indicators) 🗌 Suspect (one or more indicators with a severity of 3) 🗌 Obvious	
---	--

Section 7: Data Collection

1.	Sample for the lab?	🗌 Yes	No		
2.	If yes, collected from:	Flow	Devol		
3.	Intermittent flow trap set?	🗌 Yes	🗌 No	If Yes, type: 🗌 OBM	Caulk dam

Outfall 3278, Inspected on 5/17/21 Closed, 8-inch RCP, Singular, Circular, partially submerged, partial sediment.



Section 1: Background Data				
Subwatershed:	R-	Outfall ID: 3278		
Today's date: 511721		Time (Military): 1155		
Investigators: VMIPS		Form completed by:		
Temperature (°F): 70	Rainfall (in.): Last 24 hours:	A Last 48 hours:		
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:	
Camera:		Photo #s:		
Land Use in Drainage Area (Check all the	at apply):			
Industrial		Open Space		
Ultra-Urban Residential		BInstitutional - K.JSCHOOL		
Suburban Residential		Other:		
		Known Industries:		
Notes (e.g, origin of outfall, if known):		and and a second second state of the second		

Section 2: Outfall Description

_

LOCATION	MA	TERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED
🔀 Closed Pipe	RCP PVC Steel Other:		Circular Eliptical Box Other:	Single Double Triple Other:	Diameter/Dimensions:	In Water: No Partially Fully With Sediment: No Partially Fully
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:	5	Depth: Top Width: Botton: Width:	
In-Stream	(applicable	when collecting	samples)			
Flow Present?	Yes	No	If No.	o, Skip to Section 5		
Flow Description (If present)	Trickle	Moderate	e 🗌 Substantial		ж С	50 10

FIELD DATA FOR FLOWING OUTFALLS					
P	ARAMETER	RESULT	UNIT	EQUIPMENT	
Flow #1	Volume		Liter	Bottle	
LIFIOW #1	Time to fill		Sec		
Т	Temperature		°F	Probe	
Conductivity			μS/cm	Probe	
Salinity (as Applicable)			ppt	Probe	
Ammonia			mg/L	Field test kit	
Surfactants			mg/L	Field test kit	
Chlorine		<u>6</u>	mg/L	Field test kit	

Outfall Reconnaissance Inventory Field Sheet

Section 4: Physical Indicators for Flowing Outfalls Only

No Are Any Physical Indicators Present in the flow? (If No, Skip to Section 5) **RELATIVE SEVERITY INDEX (1-3)** CHECK If DESCRIPTION INDICATOR Present C Rancid/sour Petroleum/gas □ 3 – Noticeable from a Sewage 1 - Faint □ 2 – Easily detected distance Odor Other: □ Sulfide Gray Yellow Brown □ 3 – Clearly visible in Clear \square 2 – Clearly visible in □ 1 – Faint colors in outfall flow sample bottle sample bottle Color Red Other: Orange Green 3 - Opaque □ 1 - Slight cloudiness $\Box 2 - Cloudy$ See severity Turbidity 3 - Some; origin clear 2 - Some; indications Sewage (Toilet Paper, etc.) Suds (e.g., obvious oil Floatables □ 1 - Few/slight; origin of origin (e.g., -Does Not Include possible suds or oil sheen, suds, or floating not obvious Other: Petroleum (oil sheen) sanitary materials) Trash!! sheen)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? Yes X No (If No, Skip to Section 6)

INDICATOR	CHECK if Present		MENTS
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion	
Deposits/Stains		Oily Flow Line Paint Other:	
Abnormal Vegetation		Excessive Inhibited	
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:	
Pipe benthic growth		Brown Orange Green Other:	

Section 6: Overall Outfall Characterization

X	Unlikely	Potential (presence of	two or more indicators)	Suspect (one or more indicators with a severity of 3)	Obvious

Se	ction 7: Data Collection				
1.	Sample for the lab?	🗌 Yes	No		
2.	If yes, collected from:	Flow	Devol		
3.	Intermittent flow trap set?	🗌 Yes	🗌 No	If Yes, type: 🗌 OBM	Caulk dam

Outfall 2011, Inspected on 5/17/21 Closed, ~24-inch RCP, Singular, Circular, not submerged, partial sediment.



Subwatershed: Outfall ID: 2011 Today's dat.: SIIFI21 Today's dat.: SIIFI21 Investigators: SiiFi22 Temperature (°F): PO Rainfall (in.): Last 24 hours: Latitutde: Lorgitude: Latitutde: Lorgitude: GPS Unit: GPS LMK #: Camera: Photo #s: Land Use in Drainage Area (Check all that apply: Open Space Industrial Institutional Ultra-Urban Residential Other: Suburban Residential Other: Commercial Known Industries: Notes (e.g, origin of outfall, if known): Known Industries:	Section 1: Background Data	1				
Investigators: Form completed by: Temperature (°F): Rainfall (in.): Last 24 hours: Last 48 hours: Description Latitutde: Long GPS Unit: GPS Unit: GPS LMK #: Camera: Long Photo #s: Commercial Photo #s: Land Use in Drainage Area (Check all tarper): Image: Compercial Ima	Subwatershed:		Outfall ID: 2011	Outfall ID: 2011		
Investigators: Form completed by: Form complete	Today's date: SII712		Time (Military):	6		
Temperature (°F): Yo Rainfall (in.): Last 24 hours: Ye Last 48 hours: Ye Latitutde: Longitude: GPS Unit: GPS LMK #: GPS LMK #: Camera: Photo #s: Photo #s: Photo #s: Land Use in Drainage Area (Check all tarppl): Open Space Institutional Institutional Other: Commercial Yene: Known Industries: 	Investigators: 1m1PS	S				
Camera: Photo #s: Land Use in Drainage Area (Check all that apply): Industrial Open Space Institutional Institutional Suburban Residential Other: Commercial Known Industries: Institutional Institutional			ours: A Last 48 hours: D	•		
Land Use in Drainage Area (Check all that apply): Industrial Open Space Ultra-Urban Residential Institutional Suburban Residential Other:	Latitutde:	Longitude:	GPS Unit:	GPS LMK #:		
Industrial Open Space Ultra-Urban Residential Institutional Suburban Residential Other:	Camera:		Photo #s:	Photo #s:		
Ultra-Urban Residential Institutional Suburban Residential Other:	Land Use in Drainage Area (Check	all that apply):				
Suburban Residential Other:	Industrial		Open Space	Open Space		
Commercial Known Industries:	Ultra-Urban Residential		Institutional	Institutional		
	Suburban Residential		Other:			
Notes (e.g, origin of outfall, if known):	Commercial		Known Industries:			
	Notes (e.g., origin of outfall, if kno	own):				
	5					

Section 2: Outfall Description

. .

LOCATION	MATE	RIAL	S	НАРЕ	DIMENSIONS (IN.)	SUBMERGED
Closed Pipe	RCP PVC Steel Other:	CMP	Circular Eliptical Box Other:	Single Double Triple Other:	Diameter/Dimensions:	In Water: Partially Fully With Sediment: No Partially Fully
🗌 Open drainage	Concrete Earthen rip-rap Other:	_	Trapezoid Parabolic Other:		Depth: Top Width: Bottom Width:	
🔲 In-Stream	(applicable wh	en collecting	samples)			- Contraction Contraction
Flow Present?	TYes	No	If No, S	kip to Section 5		
Flow Description (If present)	Trickle	Moderate	e 🔲 Substantial			

FIELD DATA FOR FLOWING OUTFALLS					
PA	ARAMETER	RESULT	UNIT	EQUIPMENT	
Flow #1	Volume		Liter	Bottle	
	Time to fill		Sec		
Т	emperature		°F	Probe	
Conductivity			μS/cm	Probe	
Salinity	y (as Applicable)		ppt	Probe	
	Ammonia		mg/L	Field test kit	
Surfactants			mg/L	Field test kit	
Chlorine			mg/L	Field test kit	

2011

Outfall Reconnaissance Inventory Field Sheet

Are Any Physical Indica	ators Present in the	flow? Yes No (If No, Skip to Section 5)	and the second sec			
INDICATOR	CHECK if Present	DESCRIPTION	RE	RELATIVE SEVERITY INDEX (1-3)		
Odor		Sewage Rancid/sour Petroleum/gas Sulfide Other:	🔲 1 – Faint	2 – Easily detected	☐ 3 – Noticeable from a distance	
Color		Clear Brown Gray Yellow Green Orange Red Other:	☐ 1 – Faint colors in sample bottle	2 – Clearly visible in sample bottle	3 – Clearly visible in outfall flow	
Turbidity		See severity	□ 1 – Slight cloudiness	2 – Cloudy	3 – Opaque	
Floatables -Does Not Include Trash!!		Sewage (Toilet Paper, etc.) Suds Petroleum (oil sheen) Other:	☐ 1 – Few/slight; origin not obvious	2 – Some; indications of origin (e.g., possible suds or oil sheen)	3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)	

Section 4: Physical Indicators for Flowing Outfalls Only

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? Yes X No (If No, Skip to Section 6)

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage		 Spalling, Cracking or Chipping Peeling Paint Corrosion 	
Deposits/Stains		Oily Flow Line Paint Other:	
Abnormal Vegetation		Excessive Inhibited	
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:	
Pipe benthic growth		Brown Orange Green Other:	

Section 6: Overall Outfall Characterization

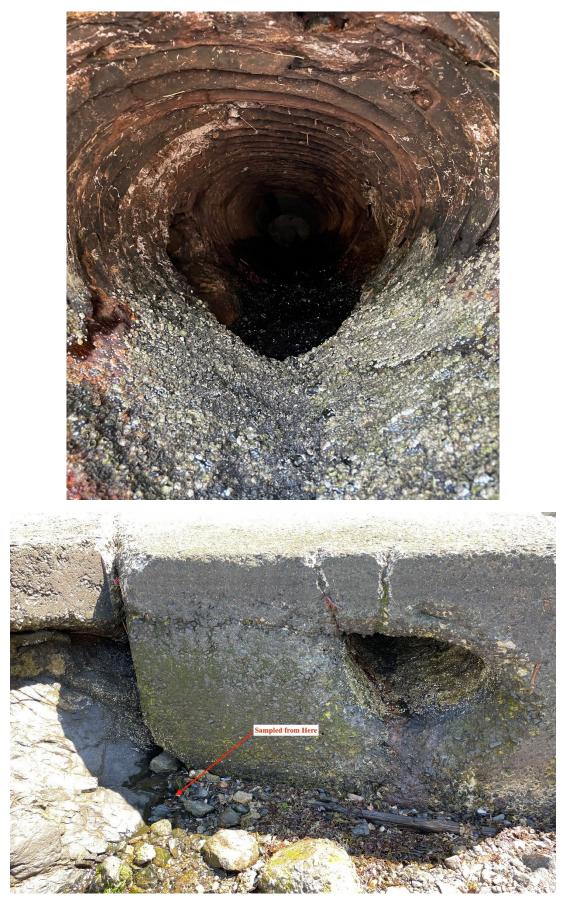
🔀 Unlikely	Potential (presence of two or more indicators)	Suspect (one or more indicators with a severity of 3)	☐ Obvious
------------	--	---	-----------

Section 7: Data Collection

1.	Sample for the lab?	🗌 Yes	No		
2.	If yes, collected from:	Flow	🗌 Pool		
3.	Intermittent flow trap set?	🗌 Yes	🗌 No	If Yes, type: 🗌 OBM	Caulk dam

Outfall 2014, Inspected on 5/17/21

Closed, CMP inside RCP, Singular, Circular, not submerged, partial sediment. Outfall is obstructed. CMP broken inside.



Subwatershed:		Outfall ID: 2014	Outfall ID: Zoiy Time (Military): 1100 Form completed by: 1100		
Today's date: 5121	121				
Investigators: NnjP		Form completed by:			
Temperature (°F): 70	Rainfall (in.): Last 24 tou	rs: Last 48 hours:			
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:		
Camera:		Photo #s:			
Land Use in Drainage Area (Chec	k all that apply):		21		
Industrial		Open Space			
Ultra-Urban Residential		Institutional	Institutional		
Suburban Residential		Other:	Other:		
Commercial		Known Industries:			
Notes (e.g., origin of outfall, if kr					

Section 2: Outfall Description

LOCATION	MAT	ERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED
Closed Pipe			Circular Eliptical Box Other: 	Single Double Triple Other:	Diameter/Dimensions:	In Water: Partially Fully With Sediment: No Partially Fully
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:		Depth: Top Width: Bottom Width:	
In-Stream	(applicable v	when collecting	samples)			
Flow Present?	Yes		If No.	o, Skip to Section 5		
Flow Description (If present)	Trickle	Moderat	te 🔲 Substantial			

Section 3: Quan arre Characterization

FIELD DATA FOR FLOWING OUTFALLS						
P/	ARAMETER	RESULT	UNIT	EQUIPMENT		
Flow #1	Volume		Liter	Bottle		
	Time to fill		Sec			
Temperature		15.7	× C	Probe		
C	Conductivity	1101	μS/cm	Probe		
Salinit	Salinity (as Applicable) 0.50		ppt	Probe		
Ammonia		ð -	mg/L	Field test kit		
Surfactants		0.25	mg/L	Field test kit		
	Chlorine 🖌		mg/L	Field test kit		

2014

Outfall Reconnaissance Inventory Field Sheet

.....

INDICATOR	CHECK if Present	DESCRIPTION			(1-3)
Odor		Sewage Rancid/sour Petroleum/gas Sulfide Other:	🗖 1 – Faint	□ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color		Clear Brown Gray Yel Green Orange Red Other	/ I – Faint colors in sample bottle	\Box 2 – Clearly visible in sample bottle	3 – Clearly visible in outfall flow
Turbidity		See severity	□ 1 – Slight cloudiness	2 – Cloudy	3 – Opaque
Floatables -Does Not Include Trash!!		Sewage (Toilet Paper, etc.) Suds Petroleum (oil sheen) Other:	☐ 1 – Few/slight; origin not obvious	2 – Some; indications of origin (e.g., possible suds or oil sheen)	3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 4: Physical Indicators for Flowing Outfalls Only Are Any Physical Indicators Present in the flow?

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls Are physical indicators that are not related to flow present? Yes INO

(If No, Skip to Section 6)

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	R	 Spalling, Cracking or Chipping Peeling Paint Corrosion 	broken inside. Le pics
Deposits/Stains		Oily Flow Line Paint Other:	preserve pres
Abnormal Vegetation		Excessive Inhibited	
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:	
Pipe benthic growth		Brown Orange Green Other:	

Section 6: Overall Outfall Characterization

M Unlikely	Potential (presence of two or more indicators)	Suspect (one or more indicators with a severity of 3)	Obvious
		Suspect (one of more indicators with a seventy of 5)	L Obvious

Se	ction 7: Data Collection				
1.	Sample for the lab?	🔁 Yes	🗌 No		
2.	If yes, collected from:	X Flow	D Pool		
3.	Intermittent flow trap set?	🗌 Yes	No	If Yes, type: 🗌 OBM	Caulk dam

Outfall 2630, Inspected on 5/17/21

Closed, RCP, Singular, Circular, not submerged, partial sediment.



Section 1: Background Data					
Subwatershed:		Outfall ID: 2638	Outfall ID: 2630 Time (Military): 1035 Form completed by: 107-		
Today's date: 517121		Time (Military):			
Investigators: Nn-1PS		Form completed by:			
Temperature (°F): 70 Rainfall (in.): Last 24 hours:		hours: A Last 48 hours:	Last 48 hours:		
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:		
Camera:		Photo #s:	Photo #s:		
Land Use in Drainage Area (Check al	d that apply):	×			
Industrial		Open Space	Open Space		
Ultra-Urban Residential		Institutional			
Suburban Residential		Other:	Other:		
Commercial		Known Industries:	Known Industries:		
Notes (e.g, origin of outfall, if know	n):	1			

Section 2: Outfall Description

LOCATION	MAT	ERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED
Closed Pipe	RCP PVC Steel Other:	CMP	Circular Eliptical Box Other:	Single Double Triple Other:	Diameter/Dimensions:	In Water: Partially Fully With Sediment: No Partially Fully
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:		Depth: Top Width: Bottom Width:	
In-Stream	(applicable w	when collecting	samples)			
Flow Present?	Yes Yes	No	If No,	Skip to Section 5		
Flow Description (If present)	Trickle	Moderat	e 🗌 Substantial	-04		

FIELD DATA FOR FLOWING OUTFALLS							
P/	ARAMETER	RESULT	UNIT	EQUIPMENT			
Flow #1	Volume		Liter	Bottle			
	Time to fill	and the second	Sec				
Temperature		13.1	20	Probe			
C	Conductivity	709	μS/cm	Probe			
Salinit	Salinity (as Applicable) 0.30		ppt	Probe			
· · · · · · · · · · · · · · · · · · ·	Ammonia 💋		mg/L	Field test kit			
Surfactants		0.25	mg/L	Field test kit			
1	Chlorine	Ø	mg/L	Field test kit			

2630

Outfall Reconnaissance Inventory Field Sheet

Are Any Physical Indica	ators Present in the f	low? Yes Yo (If No, Skip to Section 5)				
INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)			
Odor		Sewage Rancid/sour Petroleum/gas Sulfide Other:	🔲 1 – Faint	2 – Easily detected	☐ 3 – Noticeable from a distance	
Color		Clear Brown Gray Yellow Green Orange Red Other:	□ 1 – Faint colors in sample bottle	2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow	
Turbidity		See severity	□ 1 – Slight cloudiness	2 – Cloudy	3 – Opaque	
Floatables -Does Not Include Trash!!		Sewage (Toilet Paper, etc.) Suds Petroleum (oil sheen) Other:	□ 1 – Few/slight; origin not obvious	2 – Some; indications of origin (e.g., possible suds or oil sheen)	3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)	

Section 4: Physical Indicators for Flowing Outfalls Only Are Any Physical Indicators Present in the flow?

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? Yes XNo (If No, Skip to Section 6)

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS		
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion Corrosion			
Deposits/Stains		Oily Flow Line Paint Other:			
Abnormal Vegetation		Excessive Inhibited			
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:			
Pipe benthic growth		Brown Orange Green Other:			

Section 6: Overall Outfall Characterization

5	Unlikely Detential (presence of two or more indicators)			Suspect (one or more indicators with a severity of 3)		Dbvious		
Sec	ection 7: Data	Collection			 			
1.	Sample for the	e lab?	Yes	🗌 No				
2.	If yes, collecte	ed from:	Flow	De Pool				
3.	Intermittent flo	low trap set?	🗌 Yes	De	If Yes, type: 🗌 OBM	Caulk dam		

Outfall 2575, Inspected on 5/17/21

Closed, 8-inch clay, Singular, Circular, not submerged, no sediment.



Section 1: Background Data				
Subwatershed:		Outfall ID: 2575		
Today's date: 5/17) U		Time (Military): 1015		
Investigators: Np-1PS		Form completed by:		
Temperature (°F): 70 Rainfall (in.): Last 24 hours: 1 Last 48 hours:				
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:	
Camera:		Photo #s:		
Land Use in Drainage Area (Check all th	nat apply):	The second read		
Industrial		Open Space		
Ultra-Urban Residential		Institutional		
Suburban Residential		Other:		
Commercial		Known Industries:		
Notes (e.g, origin of outfall, if known):				
			A second s	

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE	DIMENSIONS (IN.)	SUBMERGED
Closed Pipe	RCP CMP PVC HDPE Steel Other: ()	Eliptical	Single Diameter/Dimensions: Double 42.8 ^N Triple Other:	In Water: Partially Fully With Sediment: Partially Fully
Open drainage	Concrete Earthen rip-rap Other:	Trapezoid Parabolic Other:	Depth: Top Width: Bottom Width:	
In-Stream	(applicable when collecting	samples)		AULUUUUUUUUUUUUUUUUU
Flow Present?	Yes Sevio	If No, Skip to S	Section 5	
Flow Description (If present)	Trickle Moderat	Sec. 1		

FIELD DATA FOR FLOWING OUTFALLS					
PA	ARAMETER	RESULT	UNIT	EQUIPMENT	
Flow #1	Volume		Liter	Bottle	
Time to fill			Sec	Dottie	
	emperature		°F	Probe	
Conductivity			μS/cm	Probe	
	y (as Applicable)		ppt	Probe	
Ammonia			mg/L	Field test kit	
Surfactants			mg/L	Field test kit	
	Chlorine		mg/L	Field test kit	

2575

Are Any Physical Indicators Present in the flow? No No (If No. Skip to Section 5) **CHECK** if INDICATOR DESCRIPTION **RELATIVE SEVERITY INDEX (1-3)** Present Rancid/sour Petroleum/gas Sewage \square 3 – Noticeable from a Odor 1 - Faint \Box 2 – Easily detected □ Sulfide Other: distance Clear Brown Gray □ Yellow □ 1 – Faint colors in 2 - Clearly visible in \Box 3 – Clearly visible in Color Green Orange Red Other: sample bottle sample bottle outfall flow Turbidity See severity □ 1 - Slight cloudiness $\Box 2 - Cloudy$ \Box 3 – Opaque 2 - Some; indications 3 - Some; origin clear Floatables Sewage (Toilet Paper, etc.) Suds □ 1 - Few/slight; origin of origin (e.g., (e.g., obvious oil -Does Not Include Petroleum (oil sheen) Other: not obvious possible suds or oil sheen, suds, or floating Trash!! sheen) sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Section 4: Physical Indicators for Flowing Outfalls Only

Are physical indicators that are not related to flow present? Yes No (If No, Skip to Section 6)

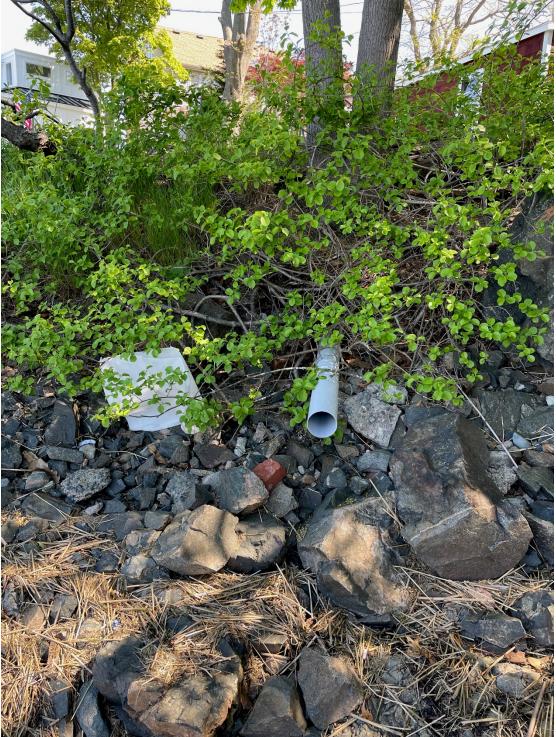
INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage		 Spalling, Cracking or Chipping Peeling Paint Corrosion 	
Deposits/Stains		Oily Flow Line Paint Other:	
Abnormal Vegetation		Excessive Inhibited	
Poor pool quality		Odors - Colors Floatables Oil Sheen Suds Excessive Algae Other:	
Pipe benthic growth		Brown Orange Green Other:	

Section 6: Overall Outfall Characterization

Unlikely	Potential (presence of two or more indicators)	Suspect (one or more indicators with a severity of 3)	Obvious
----------	--	---	---------

Sec	ction 7: Data Collection					
1.	Sample for the lab?	🗌 Yes	M No			
2.	If yes, collected from:	Flow	D Pool		194 - 194	
3.	Intermittent flow trap set?	🗌 Yes	🗌 No	If Yes, type: 🗌 OBM	Caulk dam	

Outfall 3844, Inspected on 5/17/21 Closed, 4-inch PVC, Singular, Circular, not submerged, no sediment.



Subwatershed:		Outfall ID: 3844	4		
Today's date: 511712		Time (Military): 095	5		
Investigators:		Form completed by:	2		
Temperature (°F): 70 Rainfall (in.): Last 24 hours: Last 48 hours:					
Latitutde:	Longitude: GPS Unit: GPS LMK #:		GPS LMK #:		
Camera:		Photo #s:	Photo #s:		
Land Use in Drainage Area (Check a	ll that apply):				
Industrial		Open Space	Open Space		
Ultra-Urban Residential		Institutional	Institutional		
冠 Suburban Residential		Other:			
		Known Industries:	Known Industries:		

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE	DIMENSIONS (IN.)	SUBMERGED
Closed Pipe		Scircular Eliptical Box Other: Other:	Diameter/Dimensions:	In Water: No Partially Fully With Sediment: No Partially Fully
🗌 Open drainage	Concrete Earthen rip-rap Other:	Trapezoid Parabolic Other:	Depth: Top Width: Bottom Width:	
In-Stream	(applicable when collecting	samples)	Charles and the second	ARARARARARAR
Flow Present?	🗆 Yes 🔹 🕅	If No, Skip to Section 5	5	
Flow Description (If present)	Trickle Moderat			

		FIELD DATA FOR FLOWIN	G OUTFALLS	
P/	ARAMETER	RESULT	UNIT	FOUTPMENT
Flow #1	Volume		Liter	EQUIPMENT
Time to fill			Sec	Bottle
	Temperature		°F	Probe
	Conductivity		μS/cm	Probe
	y (as Applicable)		ppt	Probe
	Ammonia		mg/L	Field test kit
Surfactants			mg/L	Field test kit
	Chlorine		mg/L	Field test kit

Section 4: Physical In Are Any Physical Indica	ction 4: Physical Indicators for Flowing Outfalls Only e Any Physical Indicators Present in the flow? Yes No (If No, Skip to Section 5)								
INDICATOR	CHECK if Present	DESCRIPTION	RE	ATIVE SEVERITY INDEX	(1-3)				
Odor		Sewage Rancid/sour Petroleum/gas Sulfide Other:	1 – Faint	2 – Easily detected	3 – Noticeable from a distance				
Color		Clear Brown Gray Yellow Green Orange Red Other:	1 – Faint colors in sample bottle	2 - Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow				
Turbidity		See severity	□ 1 – Slight cloudiness	2 – Cloudy	3 – Opaque				
Floatables -Does Not Include Trash!!		Sewage (Toilet Paper, etc.) Suds Petroleum (oil sheen) Other:	□ 1 – Few/slight; origin not obvious	2 – Some; indications of origin (e.g., possible suds or oil sheen)	3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)				

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls Are physical indicators that are not related to flow present? Yes XNO

(If No, Skip to Section 6)

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion	
Deposits/Stains		Oily Flow Line Paint Other:	
Abnormal Vegetation		Excessive Inhibited	
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other: *	
Pipe benthic growth		Brown Orange Green Other:	

Section 6: Overall Outfall Characterization

Se	ction 7: Data Collection				
1.	Sample for the lab?	🗌 Yes	No		
2.	If yes, collected from:	Flow	D Pool		
3.	Intermittent flow trap set?	🗌 Yes	🗌 No	If Yes, type: 🗌 OBM	🗖 Caulk dam

Outfall 1997, Inspected on 5/17/21 Closed, 24-inch RCP, Singular, Circular, not submerged.



Subwatershed:		Outfall ID: 1197	Outfall ID: 1147			
Today's date: 511	7121	Time (Military): 69	25			
Investigators:	\$	Form completed by:				
Temperature (°F):	Rainfall (in.): Last 24	hours: D Last 48 hours: D				
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:			
Camera:		Photo #s:	Photo #s:			
Land Use in Drainage Area (Check	all that apply):	9 V				
Industrial		Copen Space	Dpen Space			
Ultra-Urban Residential		Institutional				
Suburban Residential		Other:	Other:			
Commercial		Known Industries:				
the second s	own):					

Section 2: Outfall Description

LOCATION	MAT	MATERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED	
Closed Pipe	RCP PVC Steel Other:	CMP	 Circular Eliptical Box Other: 	Single Double Triple Other:	Diameter/Dimensions:	In Water: No Partially Fully With Sediment: No Partially Fully	
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:		Depth: Top Width: Bottom Width:		
In-Stream	(applicable w	hen collecting	samples)			AAAAAAAAAAAAAAAAAA	
Flow Present?	🔀 Yes	🗆 No	If N	o, Skip to Section 5			
Flow Description (If present)	Trickle	Moderat					

FIELD DATA FOR FLOWING OUTFALLS								
P/	ARAMETER	RESULT	UNIT	EQUIPMENT				
Flow #1	Volume		Liter	Bottle				
	Time to fill	and a second	Sec	Dottle				
Temperature		15.1	×U	Probe				
	Conductivity	579	μS/cm	Probe				
	y (as Applicable)	0.000.25	ppt	Probe				
Ammonia		0.0000.25	mg/L	Field test kit				
Surfactants		0.25	mg/L	Field test kit				
	Chlorine	Ø	mg/L	Field test kit				

INDICATOR	CHECK if Present	DESCRIPTION	RI	RELATIVE SEVERITY INDEX (1-3)			
Odor		Sewage Rancid/sour Petroleum/gas Sulfide Other:	🔲 1 – Faint	2 – Easily detected	☐ 3 – Noticeable from a distance		
Color		Clear Brown Gray Yellow Green Orange Red Other:	□ 1 – Faint colors in sample bottle	2 – Clearly visible in sample bottle	3 – Clearly visible in outfall flow		
Turbidity		See severity	□ 1 – Slight cloudiness	2 – Cloudy	3 - Opaque		
Floatables -Does Not Include Trash!!		Sewage (Toilet Paper, etc.) I Suds Petroleum (oil sheen) Other:	□ 1 – Few/slight; origin not obvious	2 – Some; indications of origin (e.g., possible suds or oil sheen)	3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)		

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls Are physical indicators that are not related to flow present? Yes Yes

(If No, Skip to Section 6)

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion Corrosion	
Deposits/Stains		Oily Flow Line Paint Other:	
Abnormal Vegetation		Excessive Inhibited	
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:	
Pipe benthic growth		Brown Orange Green Other:	

Section 6: Overall Outfall Characterization

🖌 Unlikely	Detential (presence of two or more indicators)	Suspect (one or more indicators with a severity of 3)	Obvious
Statement of the statem			

Se	ction 7: Data Collection					Sec. Sec. Sec.
1.	Sample for the lab?	Yes	🗌 No			
2.	If yes, collected from:	Flow	D Pool			
3.	Intermittent flow trap set?	🗌 Yes	No	If Yes, type: 🗌 OBM	Caulk dam	. 3.24

Outfall 1979, Inspected on 6/24/21

Closed, 12-inch RCP, Singular, Circular, not submerged, no sediment, no flow.



Subwatershed:			Outfall ID: 1979		
Today's date: 6124121		10000 ¹	Time (Military): 0930		
Investigators: Vn PS			Form completed by:	•	
Temperature (°F): 70		Rainfall (in.): Last 24 hours:	S Last 48 hours: 6.88		
Latitutde:	Long	itude:	GPS Unit:	GPS LMK #:	
Camera:			Photo #s:		
Land Use in Drainage Area (Check all	that apply	<i>y</i>):			
Industrial			Open Space		
Ultra-Urban Residential			Institutional		
Subiurban Residential			Other:		
			Known Industries:		

Section 2: Outfall Description

LOCATION	MA	ERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED
Closed Pipe	RCP PVC Steel Other:		Circular Eliptical Box Other:	Double	Diameter/Dimensions:	In Water: No Partially Fully With Sediment: No Partially Fully
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:		Depth: Top Width: Botton: Width:	
In-Stream	(applicable	when collecting	samples,			
Flow Present?	TYes	X No	If No	o, Skip to Section 5		
Flow Description (If present)	Trickle	Moderat	e 🗌 Substantial			8

		FIELD DATA FOR FLOWING	OUTFALLS	
	RAMETER	RESULT	UNIT	EQUIPMENT
Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
Temperature			°F	Probe
	Conductivity		μS/cm	Probe
Salinit	ty (as Applicable)		ppt	Probe
Ammonia			mg/L	Field test kit
Surfactants			mg/L	Field test kit
	Chlorine		mg/L	Field test kit

Are Any Physical Indica	tors Present in the f.	low? Yes	3 LINO	(<i>If No</i> ,)	Skip to Section 5)			a a con a far such a chuir an tha chuire bha a a' fuidh such a far a shear su su
INDICATOR	CHECK If Present		15 21 - 15 - 17 - 17 - 17 - 17 - 17 - 17 - 1	escription		R6	ATIVE SEVERITY INDEX	(4-3)
Odor		Sewage Sulfide	Rancid/so	ur 🗌 Petroleur	m/gas	🔲 I – Faint	2 – Easily detected	☐ 3 – Noticeable from a distance
Color		Clear Green	Brown Orange	Gray 🗌 Gray	Yellow	□ 1 – Faint colors in sample bottle	$ \square 2 - Clearly visible in sample bottle $	3 – Clearly visible in outfall flow
Turbidity				See severity		□ 1 – Slight cloudiness	2 – Cloudy	□ 3 – Opaque
Floatables -Does Not Include Trash!!		Sewage (7	Foilet Paper, etc.) (oil sheen)) 🗌 Suds 🗌 Other:		□ 1 – Few/slight; origin not obvious	2 – Some; indications of origin (e.g., possible suds or oil sheen)	3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 4: Physical Indicators for Flowing Outfalls Only

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls Are physical indicators that are not related to flow present? Yes X No

(If No, Skip to Section 6)

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion	
Deposits/Stains		Oily Flow Line Paint Other:	
Abnormal Vegetation		Excessive Inhibited	
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:	
Pipe benthic growth		Brown Orange Green Other:	

Section 6: Overall Outfall Characterization

.

🕅 Unlikely	Potential (presence of two or more indicators)	Suspect (one or more indicators with a severity of 3)	Obvious
------------	--	---	---------

Section 7: Data Collection

1.	Sample for the lab?	🗆 Yes	No		B B
2.	If yes, collected from:	Flow	D Pool		
3.	Intermittent flow trap set?	Yes	🗌 No	If Yes, type: 🗌 OBM	Caulk dam

Outfall 1978, Inspected on 6/24/21

Closed, 36-inch RCP, Singular, Circular, crescent opening, partially submerged (tidal), partial sediment.



ection 1: Background Data		102.0			
Subwatershed:		Outfall ID: 1978	Outfall ID: 1978		
Today's date: 6124121	e (Cateles W) 17	Time (Military): 0950			
Investigators: VM-1PS		Form completed by:	~		
Temperature (°F): 20	Rainfall (in.): Last 24 ho	ours: Ø Last 48 hours: 6.88	3		
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:		
Camera:		Photo #s:			
Land Use in Drainage Area (Check	all that apply):				
Industrial		Open Space	Open Space		
Ultra-Urban Residential		Institutional			
Suburban Residential		Other:	Other:		
Commercial		Known Industries:	Known Industries:		
Notes (e.g., origin of outfall, if know	nwn):				
Hotes (e.g., organ of outant, a last					

Section 2: Outfall Description

LOCATION	MAT	RIAL	S	HAPE	DIMENSIONS (IN.)	SUBMERGED	
Closed Pipe	RCP PVC Steel	CMP	Eliptical Box Other:	Single Double Triple Other:	Diameter/Dimensions:	In Water: No Partially (K) Fully With Sediment: No Partially Fully	
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:		Depth: Top Width: Botton: Width:		
In-Stream	(applicable w	hen collecting	samples)				
Flow Present?	TYes	No No	If No, S	kip to Section 5			
Flow Description (If present)	Trickle Moderate Substantial						

		FIELD DATA FOR FLOWING	OUTFALLS	
P	RAMETER	RESULT	UNIT	EQUIPMENT
	Volume		Liter	Bottle
Flow #1 Time to fi	Time to fill		Sec	
. 1	emperature		°F	Probe
	Conductivity		μS/cm	Probe
Salinit	y (as Applicable)		ppt	Probe
	Ammonia		mg/L	Field test kit
Surfactants			mg/L	Field test kit
Chlorine			mg/L	Field test kit

Section 4: Physical Indicators for Flowing Outfalls Only Are Any Physical Indicators Present in the flow? Yes No (If No, Skip to Section 5)									
INDICATOR	CHECK If Present		D	ESCRIPTION			REL	ATIVE SEVERITY INDEX	(1-3)
Odor		Sewage Sulfide	Rancid/sou	ar 🗌 Petroleur	n/gas		🗋 1 – Faint	□ 2 – Easily detected	□ 3 – Noticeable from a distance
Color		Clear	Brown Orange	Gray Gray	Yellow		□ 1 - Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	□ 3 – Clearly visible in outfall flow
Turbidity				See severity			□ 1 – Slight cloudiness	2 – Cloudy	□ 3 – Opaque
Floatables -Does Not Include Trash!!		Sewage (7	Foilet Paper, etc.) n (oil sheen)	Suds			☐ I – Few/slight; origin not obvious	2 Some; indications of origin (e.g., possible suds or oil sheen)	3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? Yes XNo (If No, Skip to Section 6)

INDICATOR	CHECK If Present	DESCRIPTION
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion Corrosion
Deposits/Stains		Oily Flow Line Paint Other:
Abnormal Vegetation		Excessive Inhibited
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:
Pipe benthic growth		Brown Orange Green Other:

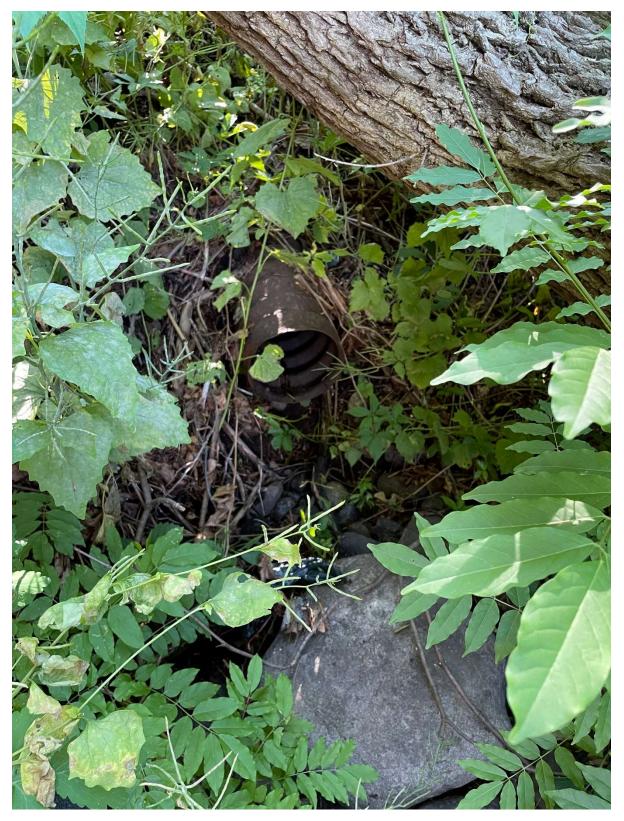
Section 6: Overall Outfall Characterization

Unlikely	Potential (presence of two or more indicators)	Suspect (one or more indicators with a severity of 3)	Obvious

Section 7: Data Collection

1. Sample for the lab?	🗌 Yes	No		-	
2. If yes, collected from:	Flow	D Pool			
3. Intermittent flow trap set?] Yes	🗌 No	If Yes, type: 🗌 OBM	Caulk dam	

Outfall 1977, Inspected on 6/24/21 Closed, 8-inch CMP, Singular, Circular, not submerged, no flow.



Subwatershed:			Outfall ID: 1977	Outfall ID: 1977		
Today's date: 6129121		20	Time (Military): 100	0		
Investigators: Yn 185			Form completed by:	~		
Temperature (°F): 70		Rainfall (in.): Last 24 ho	urs: 🖉 Last 48 hours: 0.	18		
Latitutde:	Long	itude:	GPS Unit:	GPS LMK #:		
Camera:			Photo #s:	Photo #s:		
Land Use in Drainage Area (Check	all that apply	r):				
Industrial			Open Space	Open Space		
Ultra-Urban Residential			Institutional	Institutional		
Suburban Residential			Other:	Other:		
			Known Industries:	Known Industries:		
	own):		100-000 A			

Section 2: Outfall Description

LOCATION	MA	ERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED
DerClosed Pipe	RCP PVC Steel Other:		Circular Eliptical Box Other:	Double Triple Other:	Diameter/Dimensions:	In Water: Partially Fully With Sediment: No Partially Fully
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:		Depth: Top Width: Botton: Width:	
🗌 In-Stream	(applicable)	when collecting	samples)			
Flow Present?	Yes	No	If No,	Skip to Section 5		
Flow Description (If present)	Trickle	Moderat	e 🔲 Substantial			

		FIELD DATA FOR FLOWING	OUTFALLS	
2	ARAMETER	RESULT	UNIT	EQUIPMENT
Flow #1	Volume		Liter	Bottle
Time to fill			Sec	
]	Temperature		°F	Probe
Conductivity			μS/cm	Probe
Salinit	ty (as Applicable)		ppt	Probe
Ammonia			mg/L	Field test kit
Surfactants			mg/L	Field test kit
	Chlorine		mg/L	Field test kit

Section 4: Physical Indicators for Flowing Outfalls Only Are Any Physical Indicators Present in the flow? Yes No (If No, Skip to Section 5)								
INDICATOR	CHECK If Present		A CONTRACTOR OF A CONTRACT OF	ESCRIPTION		R	ELATIVE SEVERITY INDEX	(1-3)
Odor		Sewage	Rancid/son Other:	ur 🗌 Petroleur	n/gas	🔲 I – Faint	□ 2 – Easily detected	□ 3 – Noticeable from a distance
Color		Clear Green	Brown Orange	Gray Gray	Yellow Other:	□ 1 – Faint colors in sample bottle	\square 2 – Clearly visible in sample bottle	3 - Clearly visible in outfall flow
Turbidity			See severity			□ 1 – Slight cloudiness	2 – Cloudy	3 - Opaque
Floatables -Does Not Include Trash!!			Sewage (Toilet Paper, etc.) Suds Petroleum (oil sheen) Other:		☐ 1 – Few/slight; origin not obvious	2 - Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)	

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls Are physical indicators that are not related to flow present? Yes Xo

(If No, Skip to Section 6)

INDICATOR	CHECK If Present	DESCRIPTION
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion Corrosion
Deposits/Stains		Oily Flow Line Paint Other:
Abnormal Vegetation		Excessive Inhibited
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:
Pipe benthic growth		Brown Orange Green Other:

Section 6: Overall Outfall Characterization

Unlikely	D Potential	(presence of two or more indicators)	Suspect (one or more indicators with a severity of 3)	Obvious
-				

Section 7: Data Collection

1. Sample for the lab?	🗌 Yes	No			
2. If yes, collected from:	☐ Flow	De Pool			
3. Intermittent flow trap set?	🗌 Yes	🗌 No	If Yes, type: 🗌 OBM	Caulk dam	

Outfall 1964 Inspected on 6/24/21 Closed, 18-inch RCP, Circular, partially submerged (50%), no flow.



Section 1: Background Data			j	
Subwatershed:		Outfall ID: 964		
Today's date: 6174121	8	Time (Military): 015		
Investigators: No-195		Form completed by: Vw		
Temperature (°F): 70	Rainfall (in.): Last 24 hours:	Last 48 hours: 0.88		
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:	
Camera:		Photo #s:		
Land Use in Drainage Area (Check all the	at apply):			
🗌 Industrial		Open Space		
Ultra-Urban Residential				
Suburban Residential		Other:		
Commercial		Known Industries:		
Notes (e.g, origin of outfall, if known):				

Section 2: Outfall Description

LOCATION	MA	ERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED
Closed Pipe		CMP	Circular Eliptical Box Other:	Single Double Triple Other:	Diameter/Dimensions:	In Water: No Partially (50%) With Sediment: No Partially Fully
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:		Depth: Top Width: Botton: Width:	
🗌 In-Stream	(applicable	when collecting	samples)			
Flow Present?	TYes	No.	If No,	Skip to Section 5		
Flow Description (If present)	Trickle	Moderat	e 🗌 Substantial			

		FIELD DATA FOR FLOWING	OUTFALLS	
PA	RAMETER	RESULT	UNIT	EQUIPMENT
Flow #1	Volume		Liter	Bottle
Time to fill			Sec	
Т	emperature		°F	Probe
Conductivity			μS/cm	Probe
Salinity	y (as Applicable)		ppt	Probe
Ammonia			mg/L	Field test kit
Surfactants			mg/L	Field test kit
	Chlorine		mg/L	Field test kit

1964

Section 4: Phys	ical Indicators for	· Flowing (Outfalls On	ly
	Indicators Present in	the flow?	Yes	No

(If No, Skip to Section 5) No No

INDICATOR	CHECK If Present		D	ESCRIPTION		Rel	ATIVE SEVERITY INDEX	(1-3)
Odor		Sewage Sulfide	Rancid/sou	ur 🗌 Petroleur	n/gas	🔲 1 – Faint	2 – Easily detected	□ 3 – Noticeable from a distance
Color		Clear	Brown Orange	Gray 🗋 Red	Yellow Other:	I – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	3 – Clearly visible in outfall flow
Turbidity				See severity		□ 1 – Slight cloudiness	2 – Cloudy	□ 3 – Opaque
Floatables -Does Not Include Trash!!		Sewage (Toilet Paper, etc.) Suds Petroleum (oil sheen) Other:			☐ 1 – Few/slight; origin not obvious	2 - Some; indications of origin (e.g., possible suds or oil sheen)	3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)	

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls Are physical indicators that are not related to flow present? Yes X No

(If No, Skip to Section 6)

INDICATOR	CHECK if Present	DESCRIPTION
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion Corrosion
Deposits/Stains		Oily Flow Line Paint Other:
Abnormal Vegetation		Excessive Inhibited
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:
Pipe benthic growth		Brown Orange Green Other:

Section 6: Overall Outfall Characterization

Unlikely Detential (presence of two or more indicators)	ct (one or more indicators with a severity of 3) 🔲 Obvious
---	--

Section 7: Data Collection

1.	Sample for the lab?	Yes	No		
2.	If yes, collected from:	Flow	🗌 Pool		
3.	Intermittent flow trap set?	Yes	🗌 No	If Yes, type: 🗌 OBM	Caulk dam

Outfall 4043 Inspected on 6/24/21 Closed, 8-inch RCP, Circular, singular, no flow.



ection 1: Background Data Subwatershed:		Outfall ID: 4043			
Today's date: 6124121		Time (Military): 125			
Investigators: Vm 195		Form completed by:			
Temperature (°F): 70	Rainfall (in.): Last 24 hours:	Last 48 hours: 0.88			
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:		
Camera:		Photo #s:	Photo #s:		
Land Use in Drainage Area (Check all the	at apply):				
Industrial		Open Space	Open Space		
Ultra-Urban Residential		Institutional			
Suburban Residential		Other:			
Commercial		Known Industries:			
Notes (e.g., origin of outfall, if known):		N			
Notes (e.g., origin of outlan, it known).					

Section 2: Outfall Description

LOCATION	MA	ERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED
Closed Pipe	RCP PVC Steel Other:		Circular Eliptical Box Other:	EstSingle	Diameter/Dimensions:	In Water: Partially Pully With Sediment: No Partially Fully
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:		Depth: Top Width: Botton: Width:	
In-Stream	(applicable	when collecting	samples)			
Flow Present?	🗆 Yes	No	If No	o, Skip to Section 5		
Flow Description (If present)	Trickle	Moderat	e 🗌 Substantial			38

		FIELD DATA FOR FLOWING	OUTFALLS	
P	RAMETER	RESULT	UNIT	EQUIPMENT
DE1#1	Volume		Liter	Bottle
Flow #1	Time to fill		Sec	
Т	Temperature		°F	Probe
C	Conductivity		μS/cm	Probe
Salinit	ty (as Applicable)		ppt	Probe
	Ammonia		mg/L	Field test kit
Surfactants			mg/L	Field test kit
Chlorine			mg/L	Field test kit

Are Any Physical Indica	tors Present in the fl	ow? Yes	D No	(If No, .	Skip to Section 5)			e ango topi a la sangata ki kanga kangangan kangangan kangangan
INDICATOR	CHECK If Present		D	ESCRIPTION		REL	ATIVE SEVERITY INDEX	(4-3)
Odor		Sewage Sulfide	Rancid/sou Other:	ur 🗌 Petroleur	n/gas	🔲 1 – Faint	2 – Easily detected	□ 3 – Noticeable from a distance
Color		Clear	Brown Orange	Gray	Yellow	☐ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	3 - Clearly visible in outfall flow
Turbidity				See severity		□ 1 – Slight cloudiness	2 – Cloudy	□ 3 – Opaque
Floatables -Does Not Include Trash!!		Sewage (T	foilet Paper, etc.) (oil sheen)) 🗌 Suds 🗌 Other:		☐ I – Few/slight; origin not obvious	2 - Some; indications of origin (e.g., possible suds or oil sheen)	□ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 4: Physical Indicators for Flowing Outfalls Only

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators the	hat are not related to flow	present? Yes X No (If No, Skip to Section 6)
INDICATOR	CHECK If Present	DESCRIPTION
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion Corrosion
Deposits/Stains		Oily Flow Line Paint Other:
Abnormal Vegetation		
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:
Pipe benthic growth		Brown Crange Green Other:

Section 6: Overall Outfall Characterization

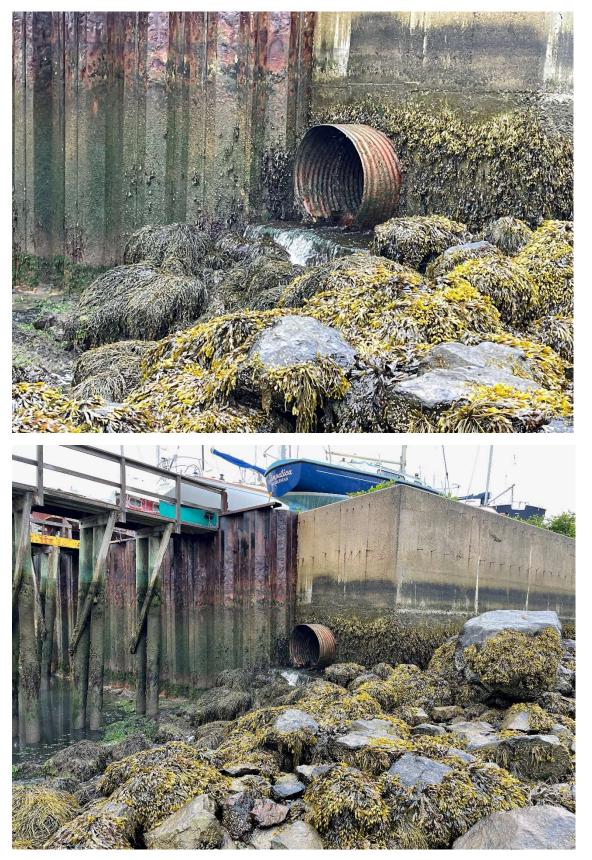
Unlikely	Potential (presence of two or more indicators)	Suspect (one or more indicators with a severity of 3)	Obvious

Section 7: Data Collection

1. Sample for the lab?	🗌 Yes	No			
2. If yes, collected from:	Flow	D Pool		Viet	
3. Intermittent flow trap set?	[] Yes	🗌 No	If Yes, type: 🗌 OBM	Caulk dam	

Outfall 2880, Inspected on 6/25/21

Closed, 48-inch CMP, Singular, Circular, not submerged, no flow, no sediment, substantial flow, cloudy (turbidity), potential source of contamination.



Subwatershed:		Outfall ID: 2880	Outfall ID: 2880		
Today's date: 6/25/21		Time (Military): 072	0		
Investigators: 1m1PS		Form completed by: $\sqrt[n]{v}$	~		
Temperature (°F):	Rainfall (in.): Last 24 h	ours: Lo. Last 48 hours: LO.	1		
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:		
Camera:		Photo #s:			
Land Use in Drainage Area (Check all t	that apply):				
Industrial		Open Space			
Ultra-Urban Residential		Institutional	Institutional		
Suburban Residential		Other:	Other:		
Commercial		Known Industries:	Known Industries:		
Notes (e.g., origin of outfall, if known	\ \				

Section 2: Outfall Description

LOCATION	MAT	ERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED
Ø Closed Pipe	RCP RCP VC Steel Other:		Circular Eliptical Box Other:	Dessingle	Diameter/Dimensions:	In Water: No Partially Fully With Sediment: No Partially Fully
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:		Depth: Top Width: Botton: Width:	
🗌 In-Stream	(applicable)	when collecting	samples) - 200			
Flow Present?	E Yes		If No	, Skip to Section 5		
Flow Description (If present)	Trickle	Moderat	e 🛛 Substantial		8	

		FIELD DATA FOR FLOWING O	UTFALLS	
P	ARAMETER	RESULT	UNIT	EQUIPMENT
DP1	Volume		Liter	Bottle
Flow #1	Time to fill		Sec	
1	Temperature	17.4	A C	Probe
(Conductivity	5.22	μS/cm	Probe
Salinit	ty (as Applicable)	2.80	ppt	Probe
Ammonia		8	mg/L	Field test kit
Surfactants		2.0	mg/L	Field test kit
Chlorine		Ø	mg/L	Field test kit

Section 4: Physical In Are Any Physical Indica	dicators for Flow tors Present in the fl	wing Outfall	s Only	(If No, .	Skip to Section 5)			
INDICATOR	CHECK If Present		CALLER CONTRACTOR	ESCRIPTION	C. Salar		RELATIVE SEVERITY INDEX	(1+3)
Odor		Sewage Sulfide	Rancid/sou	ur 🗌 Petroleur	m/gas	🔲 1 – Faint	2 – Easily detected	☐ 3 – Noticeable from a distance
Color		Clear Green	Brown Orange	Gray	Yellow	1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	Dr.			See severity		□ 1 – Slight cloudines	s 🛃 2 – Cloudy	□ 3 – Opaque
Floatables -Does Not Include Trash!!		Sewage (1	Foilet Paper, etc.) (oil sheen)) Suds		☐ 1 – Few/slight; origi not obvious	in 2 - Some; indications of origin (e.g., possible suds or oil sheen)	3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls Are physical indicators that are not related to flow present? Yes Yes

(If No, Skip to Section 6)

INDICATOR	CHECK If Present	DESCRIPTION
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion Corrosion
Deposits/Stains		Oily Flow Line Paint Other:
Abnormal Vegetation		
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:
Pipe benthic growth		Brown Orange Green Other:

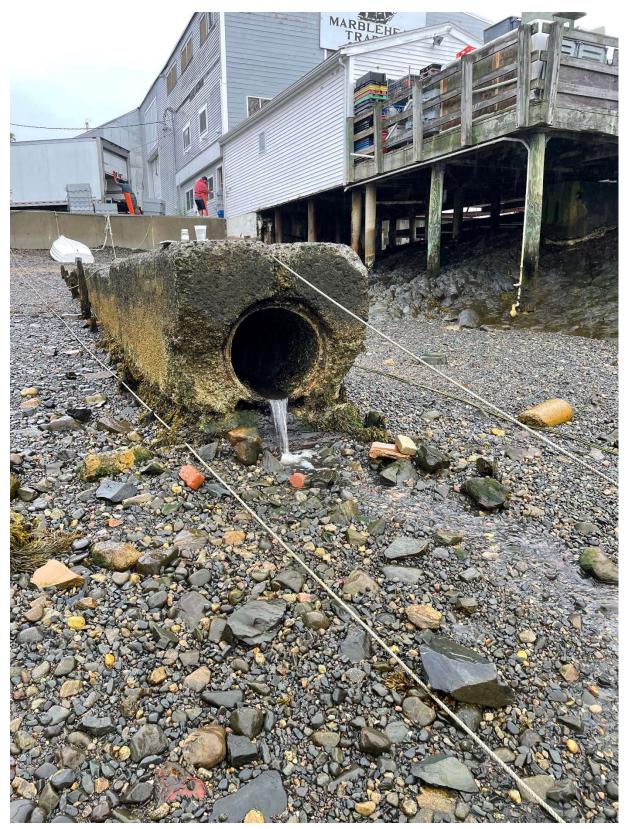
Section 6: Overall Outfall Characterization

Unlikely	Potential (preser	nce of two or more indicators)	Suspect (o	ne or more indicators with a severity of 3)	Obvious

Section 7: Data Collection

1. Sample for the lab?	Yes Yes	□ No		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
2. If yes, collected from:	T Flow	D Pool			
3. Intermittent flow trap set?	Yes	X No	If Yes, type: 🗌 OBM	Caulk dam	

Outfall 2808, Inspected on 6/25/21 Closed, 2'x4' Box Culvert, RCP, not submerged, moderate flow, slight cloudiness.



Section 1: Background Data					
Subwatershed:		Outfall ID: 2808	Outfall ID: 2808		
Today's date: 61252		Time (Military): 0735			
Investigators: Ym-1PS		Form completed by: Vn-			
Temperature (°F):	Rainfall (in.): Last 24 ho	urs: Lo. Last 48 hours: Lo.]			
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:		
Camera:		Photo #s:	Photo #s:		
Land Use in Drainage Area (Check all th	at apply):				
Industrial		Open Space	Open Space		
Ultra-Urban Residential		Institutional	Institutional		
X Suburban Residential		Other:	Other:		
Commercial	2	Known Industries:	Known Industries:		
Notes (e.g., origin of outfall, if known):					

Section 2: Outfall Description

ł

LOCATION	MAT	ERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED		
Closed Pipe	RCP PVC Steel Other:	CMP	Circular Eliptical Box Other:	Single Double Triple Other:	Diameter/Dimensions: 21 ァリ	In Water: No Partially Fully With Sediment: No Partially Fully		
🗌 Open drainage	Concrete Carthen Trip-rap Other:		Trapezoid Parabolic Other:		Depth: Top Width: Botton: Width:			
In-Stream	(applicable)	when collecting	samples)					
Flow Present?	Yes		If N	o, Skip to Section 5				
Flow Description (If present)	Trickle Moderate Substantial							

		FIELD DATA FOR FLOWING	OUTFALLS	
P	RAMETER	RESULT	UNIT	EQUIPMENT
I	Volume		Liter	Bottle
Flow #1 Time to fill			Sec	
Temperature		16.6	°F	Probe
Conductivity		12.63	μS/cm	Probe
Salinity (as Applicable)		7.30	ppt	Probe
Ammonia		Ø	mg/L	Field test kit
Surfactants		2.0	mg/L	Field test kit
Chlorine		Ø	mg/L	Field test kit



Section 4: Physical In Are Any Physical Indica	tors Present in the fl	low? Yes	No	(If No, .	Skip to Section 5)		New Jorgen and Annual Annua	e oreante of this case this saw say say in the state of the second state
INDICATOR	CHECK If Present		the rest of the first of the	ESCRIPTION		REL	ATIVE SEVERITY INDEX	(1-3)
Odor		Sewage Sulfide	Rancid/sou Other:	ur 🗌 Petroleur	n/gas	🔲 1 – Faint	□ 2 – Easily detected	□ 3 – Noticeable from a distance
Color		Clear Green	Brown Orange	Gray 🗌 Red	Yellow	□ 1 – Faint colors in sample bottle	2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	Ø			See severity		1 - Slight cloudiness	2 – Cloudy	□ 3 – Opaque
Floatables -Does Not Include Trash!!		Sewage (1	Toilet Paper, etc.) n (oil sheen)) 🗌 Suds 🗌 Other:		☐ 1 – Few/slight; origin not obvious	2 - Some; indications of origin (e.g., possible suds or oil sheen)	3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 4: Physical Indicators for Flowing Outfalls Only

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators t	hat are not related to flow p	present? Yes No (If No, Skip to Section 6)
INDICATOR	CHECK If Present	DESCRIPTION
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion Corrosion
Deposits/Stains		Oily Flow Line Paint Other:
Abnormal Vegetation		Excessive Inhibited
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:
Pipe benthic growth		Brown Orange Green Other:

Section 6: Overall Outfall Characterization

🛛 Unlikely	Potential (presence of two or more indicators)	Suspect (one or more indicators with a severity of 3)	Obvious

Section 7: Data Collection

1. Sample for the lab?	🔀 Yes	🗌 No			
2. If yes, collected from:	🕱 Flow	D Pool			
3. Intermittent flow trap set?	🗌 Yes	🗌 No	If Yes, type: 🗌 OBM	Caulk dam	

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

Outfall 3583, Inspected on 6/25/21

Closed, 48-inch RCP, Circular, Single, not submerged, no sediment, substantial flow, slight cloudiness (turbidity), white suds, potential source of contamination.





Section 1: Background Data Subwatershed:		Outfall ID: 3583			
Today's date: (125/2)		Time (Military):			
Investigators: Nn-1PS		Form completed b	y: Vm		
Temperature (°F): 60	Rainfall (in.): Last 24 hours:	-6. \ Last 48 hours	s. LO.1		
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:		
Camera:		Photo #s:			
Land Use in Drainage Area (Check all th	at apply):	Kain bearn as we were			
Industrial		Open Space	Collection This final		
Ultra-Urban Residential		Institutional	Rain began as we ver Collecting This final sample		
Suburban Residential		Other:			
Commercial		Known Industries:			
Notes (e.g., origin of outfall, if known):		25. E			

Section 2: Outfall Description

LOCATION	MAT	TERIAL		SHAPE	DIMENSIONS (IN.)	SUBMERGED
Closed Pipe	The second se		Eliptical	SrSingle	Diameter/Dimensions:	In Water: No Partially Fully With Sediment:
	Other:		Other:	Other:		No Partially Fully
🗌 Open drainage	Concrete		Trapezoid Parabolic Other:		Depth: Top Width: Botton: Width:	
In-Stream	(applicable)	when collecting	samples)		A CONTRACTOR OF A CONTRACTOR O	
Flow Present?	X Yes	🗆 No	If No.	o, Skip to Section 5		
Flow Description (If present)	Trickle	Moderat	e 🕅 Substantial		5	2

		FIELD DATA FOR FLOW	WING OUTFALLS	
P	RAMETER	RESULT	UNIT	EQUIPMENT
Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
Temperature		16.8	of C	Probe
Conductivity		14.04	μS/cm	Probe
Salinity (as Applicable)		8.30	ppt	Probe
. Ammonia		Ø	mg/L	Field test kit
Surfactants		2.0	mg/L	Field test kit
Chlorine		Ø	mg/L	Field test kit

Section 4: Physical In Are Any Physical Indicat	ors Present in the in	wing Outfalls ow? X Yes	Contract of the second		Skip to Section 5			ATIVE SEVERITY INDEX	1-3)
INDICATOR	CHECK If Present			ESCRIPTION	建国际总统和目标系统				□ 3 – Noticeable from a
TAN DA		Sewage	Rancid/sou	ar D Petroleur	n/gas		🔲 I – Faint	□ 2 – Easily detected	distance
Odor		Sulfide	Other:						Clash visible in
		Clear	Brown	Gray	Yellow		I – Faint colors in sample bottle	2 – Clearly visible in sample bottle	3 - Clearly visible in outfall flow
Color		Green	Orange	Red	Other:				3 - Opaque
	×			See severity			1 – Slight cloudiness	2 – Cloudy	
Turbidity	4							X 2 - Some; indications	3 - Some; origin clear
Floatables -Does Not Include	8	□ Sewage (Toilet Paper, etc.) Suds (white) □ Petroleum (oil sheen) □ Other:			I – Few/slight; origin not obvious	of origin (e.g., possible suds or oil sheen)	(e.g., obvious oil sheen, suds, or floating sanitary materials)		
Trash!!			Petroleum (on shoch)						

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Section 5: Physical Indi	cators for Both Flowing hat are not related to flow	oresent? Yes No (If No, Skip to Section 6)
INDICATOR	CHECK If Present	2011年4月1日,建筑14月1日,建筑14月1日,建筑14月1日,14月1日,14月1日,14月1日)。 2月1日,14月1日,14月1日,14月1日,14月1日。
Outfall Damage		Spalling, Cracking or Chipping Peeling Paint Corrosion Corrosion
Deposits/Stains		Oily Flow Line Paint Other:
Abnormal Vegetation		
Poor pool quality		Odors Colors Floatables Oil Sheen Suds Excessive Algae Other:
Pipe benthic growth		Brown Orange Green Other:

Section 6: Overall Outfall Characterization

Section 6: Overa	all Outfall Characterization	- indianter with a coverity of 2)	C Obvious
	Potential (presence of two or more indicators)	Suspect (one or more indicators with a severity of 3)	
Unlikely	S l'otentiai (presente a		

	Section	7:	Data	Col	lect	ion
--	---------	----	------	-----	------	-----

and the second se	Sample for the lab?	🔀 Yes	🗌 No			t
		Flow	Pool			ł
2.	If yes, collected from:	TYes	No No	If Yes, type: OBM	Caulk dam	1
2	Intermittent flow trap set?					

APPENDIX C

OUTFALL SCREENING RESULTS TABLE

Outfall Screening Results - May 17, 2021 (1 of 1)

Outfall Unique ID	Screening Date	Sample Location	Field Notes	Weather Conditions (at time of Sampling)	Precipitation in previous 24 hours (in.)	Precipitation in previous 48 hours (in.)	Ammonia (mg/L)	Surfactants (mg/L)	Chlorine (mg/L)	Enterococci per 100mL	Conductivity (uS/cm)	Salinity (ppt)	Temperature (°C)
2683	5/17/2021	Suburban Residential	Closed, ~36-inch RCP, Single, Circular, not submerged, partial sediment, moderate flow. Seaweed at bottom of pipe that flow passes through. May influence sample.	70 °F	0	0	1.0	0.75	0	2,420	794	0.40	16.7
2663	5/17/2021	Suburban Residential	Closed, ~24-inch RCP, Single, Circular, not submerged, partial sediment. Outlet obstructed (about 75%) with organic yard debris. Can only see crown of pipe.	70 °F	0	0	No flow. No sample taken.						
3971	5/17/2021	Suburban Residential	Closed, Unknown pipe diameter, unknown pipe material, Single, Circular, not submerged, partial sediment. Outfall clogged with branches/yard waste. Can't see pipe, Just the pipe opening.	70 °F	0	0	No flow. No sample taken.						
2002	5/17/2021	Suburban Residential	Closed, ~36-inch RCP, Single, Circular, not submerged, no sediment.	70 °F	0	0	0.25	0.50	0	130	961	0.40	15
2004	5/17/2021	Suburban Residential	Closed, ~10-inch CMP, Single, Circular, not submerged, no sediment.	70 °F	0	0	No flow. No sample taken.						
3278	5/17/2021	Institutional (K thru 5 school)	Closed, 8-inch RCP, Single, Circular, partially submerged, partial sediment.	70 °F	0	0	No flow. No sample taken.						
2011	5/17/2021	Suburban Residential	Closed, ~24-inch RCP, Single, Circular, not submerged, partial sediment.	70 °F	0	0	No flow. No sample taken.						
2014	5/17/2021	Suburban Residential	Closed, CMP inside RCP, Single, Circular, not submerged, partial sediment. Outfall is obstructed. CMP broken inside.	70 °F	0	0	0	0.25	0	16.8	1,101	0.6	15.7
2630	5/17/2021	Suburban Residential	Closed, RCP, Single, Circular, not submerged, partial sediment.	70 °F	0	0	0	0.25	0	1	709	0.3	13.1
2575	5/17/2021	Suburban Residential	Closed, 8" Clay, Single, Circular, not submerged, no sediment.	70 °F	0	0	No flow. No sample taken.						
3844	5/17/2021	Suburban Residential	Closed, 4" PVC, Single, Circular, not submerged, no sediment.	70 °F	0	0			No	flow. No samp	le taken.		
1997	5/17/2021	Open Space	Closed, 24" RCP, Single, Circular, not submerged,	70 °F	0	0	0.25	0.25	0	135	579	0.3	15.1

Outfall Screening Results - June 24, 2021 (1 of 1)

Outfall Unique ID	Screening Date	Sample Location	Field Notes	Weather Conditions (at time of Sampling)	Precipitation in previous 24 hours (in.)	Precipitation in previous 48 hours (in.)		Surfactants (mg/L)	Chlorine (mg/L)	Enterococci per 100mL	Conductivity (uS/cm)	Salinity (ppt)	Temperature (°C)
1979	6/24/2021	Suburban Residential	Closed, 12-inch RCP, Single, Circular, not submerged, no sediment, no flow.	70 °F	0	0.88	No flow. No sample taken.						
1978	6/24/2021	Suburban Residential	Closed, 36-inch RCP, Single, Circular, crescent opening, partially submerged (tidal), partial sediment.	70 °F	0	0.88	No flow. No sample taken. Outfall is located within tidal influence. Submerged during high tides. This outfall discharges to the Forest River which is tidal because it discharges immediately to Salem Sound.						~ ~ ~
1977	6/24/2021	Suburban Residential	Closed, 8-inch CMP, Single, Circular, not submerged, no flow.	70 °F	0	0.88	No flow. No sample taken.						
1964	6/24/2021	Suburban Residential	Closed, 18-inch RCP, Circular, partially submerged (50%), no flow.	70 °F	0	0.88	No flow. No sample taken.						
4043	6/24/2021	Suburban Residential	Closed, 8-inch RCP, Circular, single, no flow.	70 °F	0	0.88	No flow. No sample taken.						

Outfall Screening Results - June 25, 2021 (1 of 1)

Outfall Unique ID	Screening Date	Sample Location	Field Notes	Weather Conditions (at time of Sampling)	Precipitation in previous 24 hours (in.)	Precipitation in previous 48 hours (in.)		Surfactants (mg/L)	Chlorine (mg/L)	Enterococci per 100mL	Conductivity (uS/cm)	Salinity (ppt)	Temperature (°C)
2880	6/25/2021	Suburban Residential	Closed, 48-inch CMP, Circular, Single, not submerged, no flow, no sediment, substantial flow, cloudy (turbidity), potential source of contamination.	60 °F	<0.1	<0.1	0.0	2.0	0.0	>2,420	5.22	2.8	17.4
2808	6/25/2021	Suburban Residential	Closed, 2'x4' Box Culvert, RCP, not submerged, moderate flow, slight cloudiness (turbidity), unlikely source of contamination.	60 °F	<0.1	<0.1	0.0	2.0	0.0	>2,420	12.63	7.3	16.6
3583	6/25/2021	Suburban Residential	Closed, 48-inch RCP,Circular, Single, not submerged, no sediment, substantial flow, Slight cloudiness (turbidity), white suds, potential source of contamination.	60 °F	<0.1	<0.1	0.0	2.0	0.0	>2,420	14.04	8.3	16.8

APPENDIX D

NOAA PRECIPITATION DATA

U.S. Department of Commerce

National Oceanic & Atmospheric Administration

National Environmental Satellite, Data, and Information Service

Current Location: Elev: 38 ft. Lat: 42.4922° N Lon: -70.8758° W Station: MARBLEHEAD 0.8 SW, MA US US1MAES0008

Record of Climatological Observations These data are quality controlled and may not

National Centers for Environmental Information 151 Patton Avenue Asheville, North Carolina 28801

be identical to the original observations. Generated on 07/03/2021

Observation Time Temperature: Unknown Observation Time Precipitation: Unknown

			Те	Temperature (F)				Precipitation		011 01100/202	Evapo	ration			Soil Temp	erature (F)		
Y	M	D	24 Hrs. E Observa	Ending at tion Time		24 Ho (ur Amo Observa	unts Ending tion Time	at	At Obs. Time	24 Hour			4 in. Depth			8 in. Depth	
e a r	n t h	n a t y	Max.	Min.	At Obs.	Rain, Melted Snow, Etc. (in)	F I a g	Snow, Ice Pellets, Hail (in)	F I a g	Snow, Ice Pellets, Hail, Ice on Ground (in)		Amount of Evap. (in)	Ground Cover (see *)	Max.	Min.	Ground Cover (see *)	Max.	Min.
2021	05	01				0.09												
2021	05	02				0.00		0.0										
2021	05	03				0.00		0.0										
2021	05	04																
2021	05	05				1.04												
2021	05	06				0.20		0.0										
2021	05	07				0.00		0.0										
2021	05	08				0.00		0.0										
2021	05	09				0.00		0.0										
2021	05	10				0.36												
2021	05	11				0.00		0.0										
2021	05	12				0.00		0.0										
2021	05	13				Т												
2021	05	14				0.00		0.0										
2021	05	15				Т												
2021	05	16				0.00		0.0										
2021	05	17				Т												
2021	05	18				0.00		0.0										
2021	05	19				0.00		0.0										
2021	05	20				0.00		0.0										
2021	05	21				0.00		0.0										
2021	05	22				0.00		0.0										
2021	05	23				0.05												
2021	05	24				Т												
2021	05	25				0.00		0.0										
2021	05	26				0.00		0.0										
2021	05	27				0.41												
2021	05	28				0.00		0.0										
2021	05	29																
2021	05	30				2.45												
2021	05	31				1.10												
		Summary				5.70		0.0										7

Empty, or blank, cells indicate that a data observation was not reported.

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown

"s" This data value failed one of NCDC's quality control tests.

ontrol tests. "At Obs." = Temperature at time of observation

"T" values in the Precipitation or Snow category above indicate a "trace" value was recorded.

"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.

Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

U.S. Department of Commerce

National Oceanic & Atmospheric Administration

National Environmental Satellite, Data, and Information Service

Current Location: Elev: 38 ft. Lat: 42.4922° N Lon: -70.8758° W Station: MARBLEHEAD 0.8 SW, MA US US1MAES0008

Record of Climatological Observations These data are quality controlled and may not

be identical to the original observations. Generated on 07/03/2021

Observation Time Temperature: Unknown Observation Time Precipitation: Unknown

			Те	mperature (F	=)			Precipitation		011 01 100/202	Evapo	ration			Soil Temp	erature (F)		
Y	M	D	24 Hrs. E Observa	Ending at tion Time		24 Ho	ur Amo Observa	unts Ending	at	At Obs. Time	04 Шания			4 in. Depth			8 in. Depth	
e a r	n t h	a y	Max.	Min.	At Obs.	Rain, Melted Snow, Etc. (in)	F I a g	Snow, Ice Pellets, Hail (in)	F I a g	Snow, Ice Pellets, Hail, Ice on Ground (in)	24 Hour Wind Movement (mi)	Amount of Evap. (in)	Ground Cover (see *)	Max.	Min.	Ground Cover (see *)	Max.	Min.
2021	06	01				0.00		0.0										
2021	06	02				0.00		0.0										
2021	06	03				0.00		0.0										
2021	06	04				0.00		0.0										
2021	06	05				0.00		0.0										
2021	06	06				0.01												
2021	06	07				0.00		0.0										
2021	06	08				0.00		0.0										
2021	06	09				0.03												
2021	06	10				0.00		0.0										
2021	06	11				0.00		0.0										
2021	06	12				0.55												
2021	06	13				0.00		0.0										
2021	06	14				0.00		0.0										
2021	06	15				0.23												
2021	06	16				0.00		0.0										
2021	06	17				0.00		0.0										
2021	06	18				0.00		0.0										
2021	06	19				Т												
2021	06	20				0.00		0.0										
2021	06	21				0.00		0.0										
2021	06	22				0.00		0.0										
2021	06	23				0.88												
2021	06	24				0.00		0.0										
2021	06	25				0.13												
2021	06	26				Т			-									
2021	06	27				0.00		0.0										
2021	06	28				0.00		0.0										
2021	06	29																
2021	06	30																
		Summary				1.83		0.0										

Empty, or blank, cells indicate that a data observation was not reported.

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown

"s" This data value failed one of NCDC's quality control tests.

"At Obs." = Temperature at time of observation

"T" values in the Precipitation or Snow category above indicate a "trace" value was recorded.

"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.

Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

APPENDIX E

LABORATORY RESULTS



VM Consulting Engineers LLC 99 Essex St. Salem, MA 01970

Parameter	Result	DL	PQL	Method	Analyzed	Ву	Lab	Cert.*
Enterococci, MPN	135 /100ml	1	n/a	Enterolert	05/17/21 15:28	EP	MA123	Ν
NEL# A52506: 2630 collected	05/17/21 at 10:35 by VM and rece	eived at NE	L 05/17/	21 at 15:00	by SA.			
Parameter	Result	DL	PQL	Method	Analyzed	Ву	Lab	Cert.*
Enterococci, MPN	1 /100ml	1	n/a	Enterolert	05/17/21 15:28	EP	MA123	Ν
NEL# A52507: 2014 collected	05/17/21 at 11:00 by VM and rece	eived at NE	L 05/17/	21 at 15:00	by SA.			
Parameter	Result	DL	PQL	Method	Analyzed	Ву	Lab	Cert.*
Enterococci, MPN	16.8 /100ml	1	n/a	Enterolert	05/17/21 15:28	EP	MA123	Ν
NEL# A52508: 2002 collected	05/17/21 at 12:20 by VM and rece	eived at NE	L 05/17/	21 at 15:00	by SA.			
Parameter	Result	DL	PQL	Method	Analyzed	By	Lab	Cert.*
Enterococci, MPN	130 /100ml	1	n/a	Enterolert	05/17/21 15:28	EP	MA123	Ν
NEL# A52509: 2683 collected	05/17/21 at 13:30 by VM and rece	eived at NE	L 05/17/	21 at 15:00	by SA.			
Parameter	Result	DL	PQL	Method	Analyzed	Ву	Lab	Cert.*
					05/17/21 15:28	EP	MA123	

*Analyses conducted in accordance with MA DEP certification standards for potable water (P) or non-potable water (N) unless noted otherwise.

Not Detected (ND) indicates that if the analyte is present, the concentration is below the detection limit. Detection Limit (DL) is the method detection limit adjusted for dilutions. Practical Quantification Limit (PQL) is the lowest instrument calibration level adjusted for dilutions, below which concentrations are estimated.

tyle f. Marat

Tyler F. Marcet Laboratory Director

Northeast ENVIRONMENTAL LABORATORY, INC.	Chain c	f Custody	Required Analyses				
Client info: Vm consulting Engine For: Town of nor 99 Essue St.	ble head msy		-				
Sour nA 019	70		ENterococci				
Sample Description	Bottle	Preservation	9		NEL ID		
1002	120ml Stenle Plus	the Y°C					
1997			X				
					A 52505		
5/17/21 0925							
Date & Time Collected:							
2630	-1	" u M					
			X		1, 1		
5117121 1035					A52506		
Date & Time Collected:					1020-0		
2014	4 /	1 4 10					
2019			×		1.		
51:212:	-				A 52507		
SII7 21 1100 Date & Time Collected:					1020-1		
Date & Time Collected:		11					
2002	u /	1 11			-		
			X		A 52508		
5117121 Date & Time Collected: 1220					1 12200		
2683	V 11	1 11 11	X				
					A 52509		
5)17121 1330							
Date & Time Collected:							
Collected by: Nerting masone	5)17)21	Comments:					
Relinquished by: hut that masone	5)414 1500		ſ	Northeast Envi	ronmental Laboratory, Inc.		
Received at lab by: Date & Date &	Time: 21 15:00			41 Dayton Street Danvers, MA 0192	(978) 777-4442 3 DEP # M-MA123		



VM Consulting Engineers LLC 99 Essex St. Salem, MA 01970

NEL# A55419. 2000 collected	06/25/21 at 07:20 by VM and rece		L 00/23/	21 at 09.22	Dy SA.			
Parameter	Result	DL	PQL	Method	Analyzed	Ву	Lab	Cert.*
Enterococci, MPN	>2,420 /100ml	1	n/a	Enterolert	06/25/21 12:11	EP	MA123	Ν
NEL# A53420: 2808 collected	06/25/21 at 07:35 by VM and rece	eived at NE	L 06/25/	21 at 09:22	by SA.			
Parameter	Result	DL	PQL	Method	Analyzed	Ву	Lab	Cert.*
Enterococci, MPN	>2,420 /100ml	1	n/a	Enterolert	06/25/21 12:11	EP	MA123	Ν
NEL# A53421: 3583 collected	06/25/21 at 08:20 by VM and rece	eived at NE	L 06/25/	21 at 09:22	by SA.			
Parameter	Result	DL	PQL	Method	Analyzed	Ву	Lab	Cert.*
Enterococci, MPN	>2,420 /100ml	1	n/a	Enterolert	06/25/21 12:11	EP	MA123	Ν

*Analyses conducted in accordance with MA DEP certification standards for potable water (P) or non-potable water (N) unless noted otherwise.

Not Detected (ND) indicates that if the analyte is present, the concentration is below the detection limit. Detection Limit (DL) is the method detection limit adjusted for dilutions. Practical Quantification Limit (PQL) is the lowest instrument calibration level adjusted for dilutions, below which concentrations are estimated.

tyle f. Marat Tyler F. Marcet Laboratory Director

Northeast	Chain of	Custody		d Analyses	1
ient info: Vm Consulting Engine	ers llc		Navu		
ient info: Vm Consulting Engine For: Town of marble 99 ESSUX St. Soulern, mA 01970	uad msy		Enterococci		
ample Description	Bottle	Preservation			NEL ID
2880	120 mL Sterile Plasti	८ ५९८	X		A53419
te & Time Collected: (25)21 0720		406	X		_
2808	120ml Sterile plastic				A 53420
te & Time Collected: 6 25 4 0735 3583	120mL Sterike Plastic	400	X		A 53421
ate & Time Collected: (4) 25 21 0820					_ A 55
1					_
ate & Time Collected:					100
ate & Time Collected:					
ollected by:		Comments:			
1.1.020-	125/21 0922	-		Northeast En 41 Dayton Street	
	ime: 25/21 09:22			Danvers, MA 019	DEP # M-MA123

APPENDIX F

UNLOCATED AND INACCESSIBLE OUTFALLS

Outfall 3346, Attempted inspection on 6/25/21 Completely obstructed with cobble.



Outfall 3521, Inspected on 9/26/19

Could not access. Pipe expected to be buried in debris/vegetation on beach. Grate over opening. Could not determine flow.

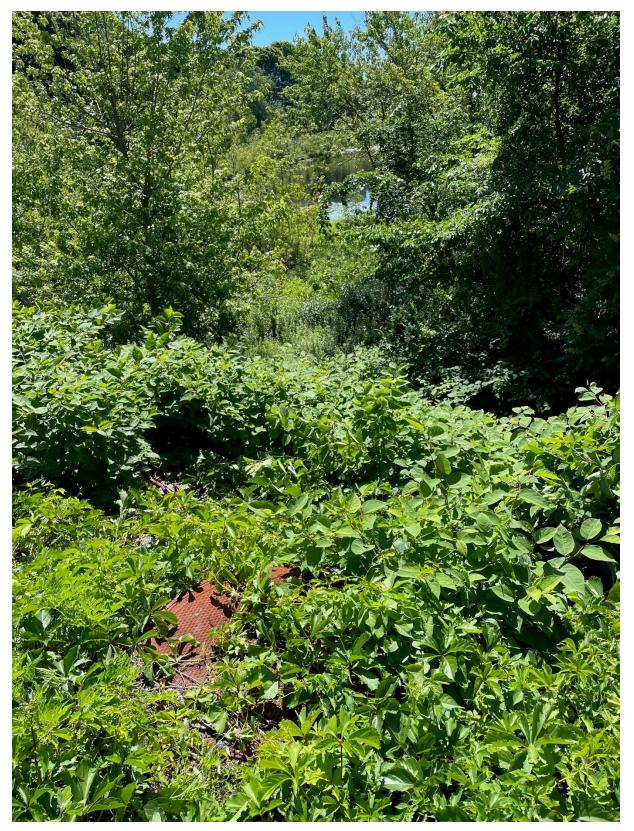




Outfall 3729, Attempted inspection on 6/25/21 Could not locate outfall, even at extreme low tide.



Outfall 3792, Attempted inspection on 6/24/21 Could not locate. Overgrown vegetation and dangerous slope.



Outfall 3845, Attempted inspection on 11/26/19

This outfall is submerged in the pond. Only a manhole is visible and it is surcharged. Water level in the manhole is at the same level as the pond.

