

# IDDE Dry Weather Catchment Investigation

## Catchment 4 Overview

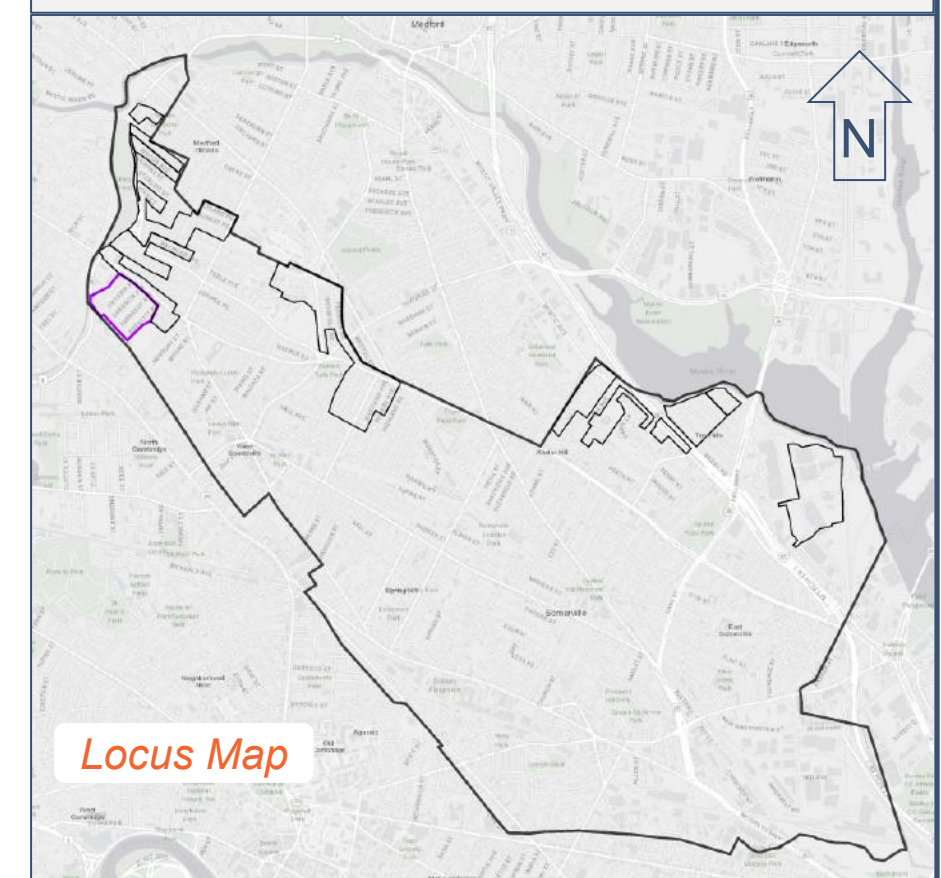
Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082  
AO Docket#CWA-AO-R01-FY19-27

### Catchment 4 Characteristics

- Evidence of Illicit Discharge: No**
- Number of Follow Up Pipe Segments: 0**
- Catchment Delineation Area: 23 acres**
- Receiving Water: Alewife Brook (MA71-04)**
- Approximate Storm Sewer Length: 2,200 LF**
- Approximate Number of Manholes: 27**



Locus Map

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

Dry Weather Screening and Sampling	
MS4 Outfall	4
Sample Taken	No, Dry
Date	10/16/2020
Flow	No
Velocity <sup>1</sup>	
Flow Color	
Depth of Flow (Inches)	
Sediment	No
Sediment (%)	
Floatables	None
Odor	None
pH	
Temperature (°C)	
Specific Conductivity (µs/cm)	
Salinity (µg/L or ppt)	
Ammonia (mg/L)	
Surfactants (mg/L)	
Chlorine (mg/L)	
E. Coli (MPN/100mL)	
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	No
BOD <sub>5</sub> (mg/L)	
Dissolved Oxygen (mg/L)	
Total Suspended Solids (TSS) (mg/L)	
Phosphorus (Total) (µg/L)	
Total Lead (mg/L)	
Total Arsenic (mg/L)	
Total Copper (mg/L)	
Oil and Grease (mg/L)	
Fecal Coliform (CFU/100mL)	

# Catchment Investigation Results

No contamination found that meets likely sewer indicators during Catchment Investigation conducted in the Fall 2020.

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



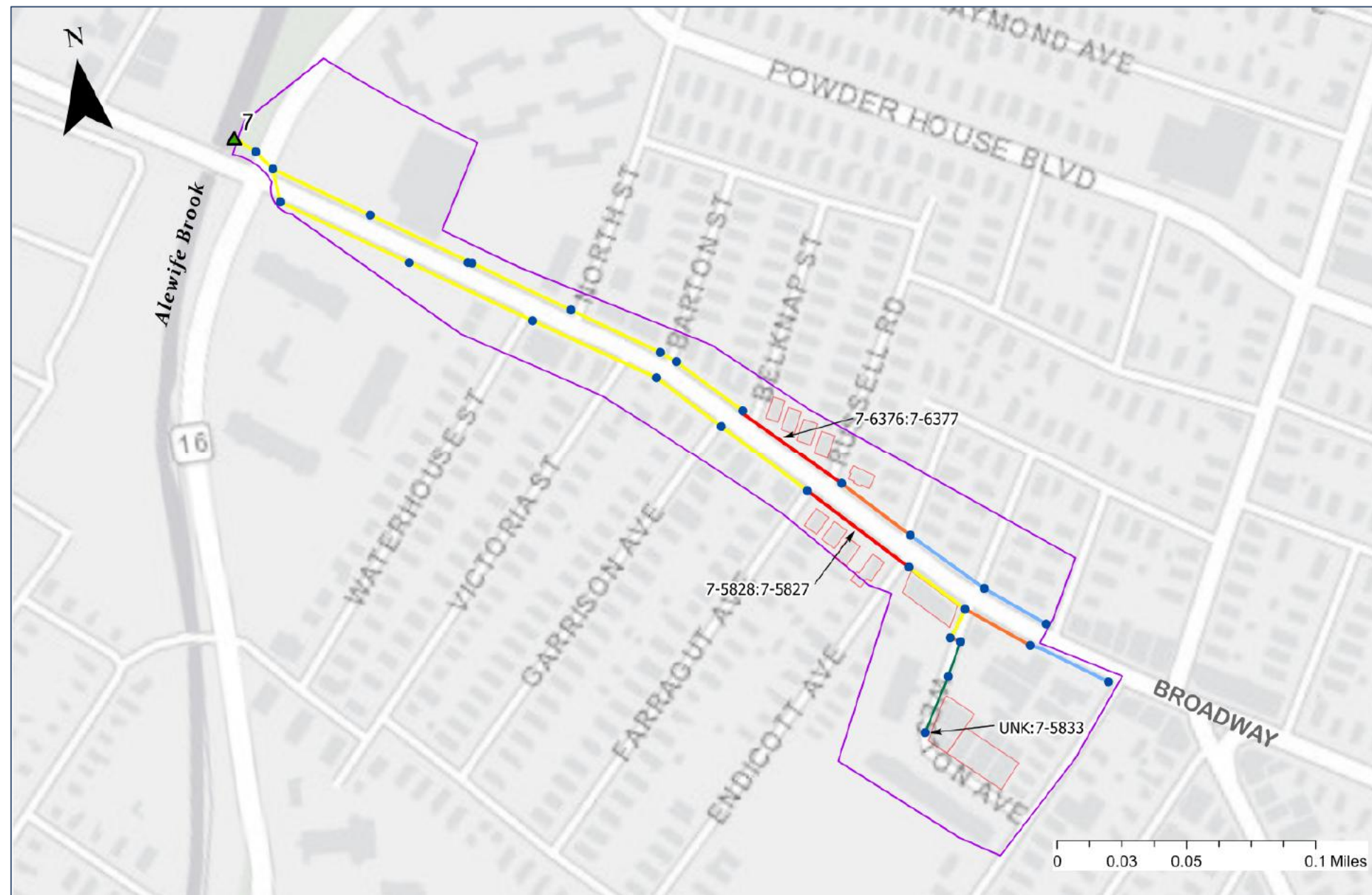
**Hazen**



# IDDE Dry Weather Catchment Investigation

## Catchment 7 Overview

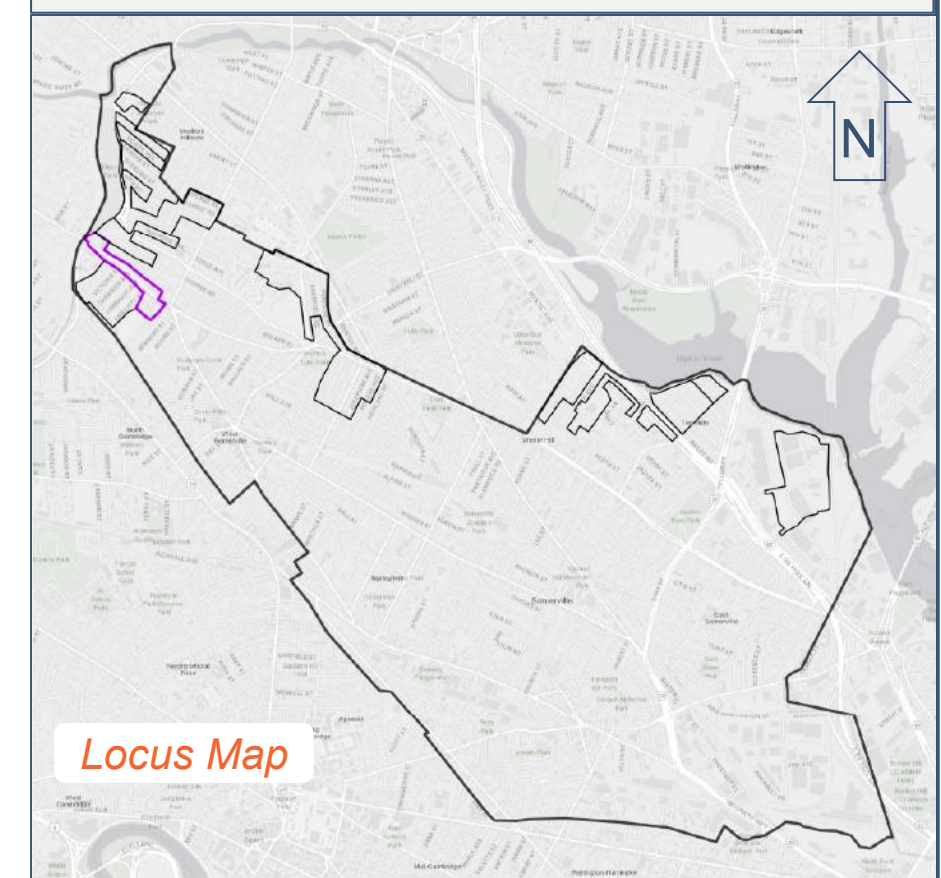
Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082  
AO Docket#CWA-AO-R01-FY19-27

### Catchment 7 Characteristics

- Evidence of Illicit Discharge: Yes**
- Number of Follow Up Pipe Segments: 3**
- Catchment Delineation Area: 14 acres**
- Receiving Water: Alewife Brook (MA71-04)**
- Approximate Storm Sewer Length: 3,900 LF**
- Approximate Number of Manholes: 27**



Locus Map

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

Dry Weather Screening and Sampling	
MS4 Outfall	7
Sample Taken	Yes
Date	10/15/2020
Flow	Yes
Velocity <sup>1</sup>	Medium
Flow Color	Clear
Depth of Flow (Inches)	0.5
Sediment	No
Sediment (%)	
Floatables	None
Odor	None
pH	8.02
Temperature (°C)	17
Specific Conductivity (µs/cm)	1,772
Salinity (µg/L or ppt)	0.9
Ammonia (mg/L)	0
Surfactants (mg/L)	0.25
Chlorine (mg/L)	0.11
E. Coli (MPN/100mL)	1,607
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	No
BOD <sub>5</sub> (mg/L)	<3.0
Dissolved Oxygen (mg/L)	8.01
Total Suspended Solids (TSS) (mg/L)	3.7
Phosphorus (Total) (µg/L)	80
Total Lead (mg/L)	<0.025
Total Arsenic (mg/L)	n/a <sup>3</sup>
Total Copper (mg/L)	<0.025
Oil and Grease (mg/L)	0.6
Fecal Coliform (CFU/100mL)	n/a

# Catchment Investigation Results

Manhole ID	7-6377	7-5827	7-5833
Pipe ID	7-6376:7-6377	7-5828:7-5827	UNK:7-5833
Date	10/20/2020	10/19/2020	10/20/2020
Standing Water	No	No	No
Flow	Yes	Yes	No
Velocity <sup>1</sup>	Slow	Slow	
Flow Color	Clear	Clear	
Depth of Flow (Inches)	0.25	1	
Blockage	No	No	No
Sediment	Yes	No	No
Sediment (%)	1		
Floatables	Other	None	Other
Odor	None	None	None
pH	7.73	7.78	7.8
Temperature (°C)	17.9	18.2	18.3
Specific Conductivity (µs/cm)	1,246	1,995	126.3
Salinity (µg/L or ppt)	0.6	1	0
Ammonia (mg/L)	10	1	2
Surfactants (mg/L)	0.25	0.25	3
Chlorine (mg/L)	0.8		0.61
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	Yes	Yes	Yes
Comments	In GIS, Pipe ID is 7-6376:FIT-1340 and FIT-1340:7-6377. No access at FIT-1340, listed Pipe ID here as 7-6376:7-6377. Floatables are orange flecks.		Unidentified white floatables in sample. This is the unmapped bottom inlet. Further field investigation required to determine upstream structure.

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

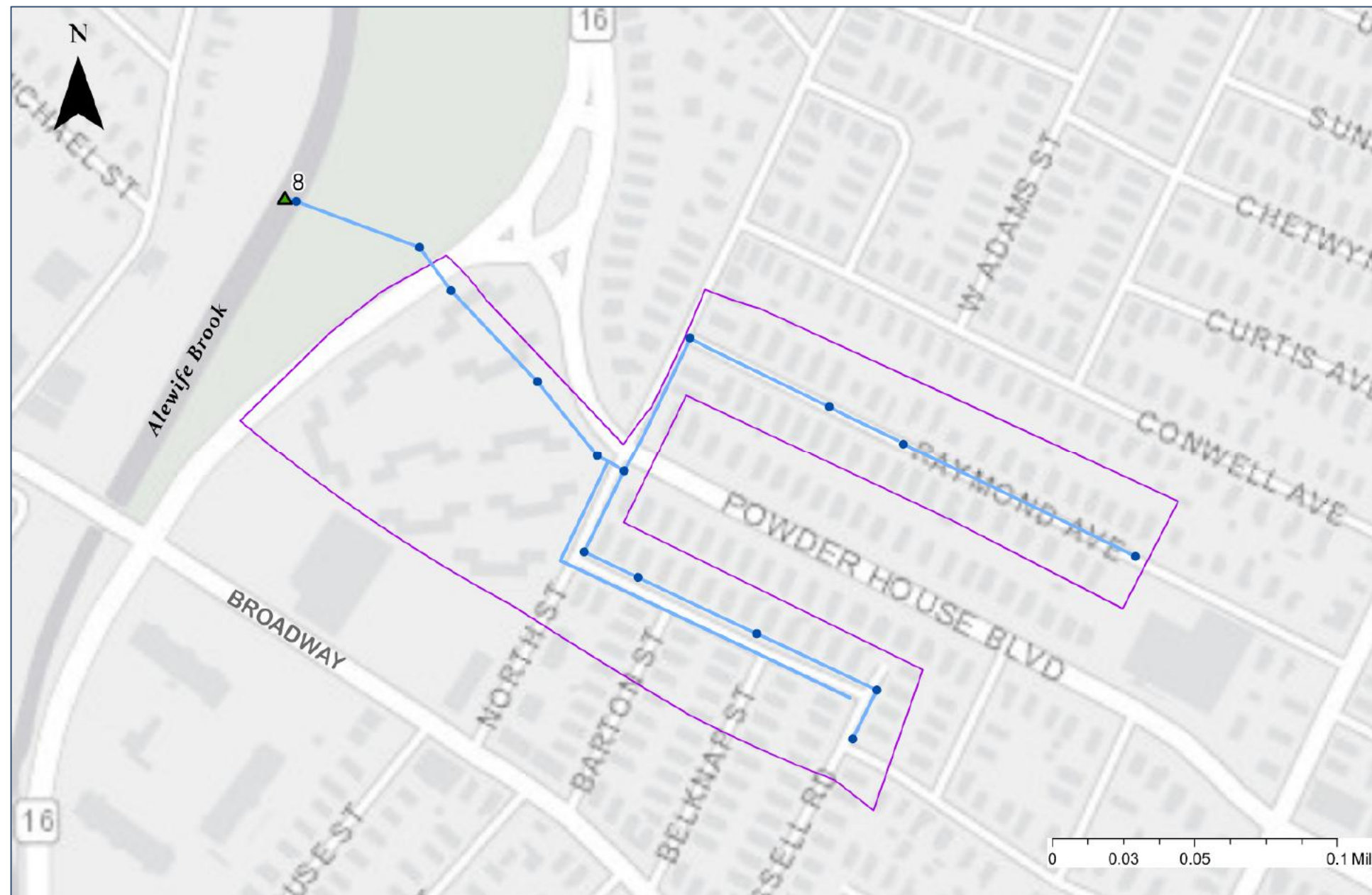
<sup>3</sup> Indicates the parameter was not a pollutant of concern at the outfall where the sample was taken.



# IDDE Dry Weather Catchment Investigation

## Catchment 8 Overview

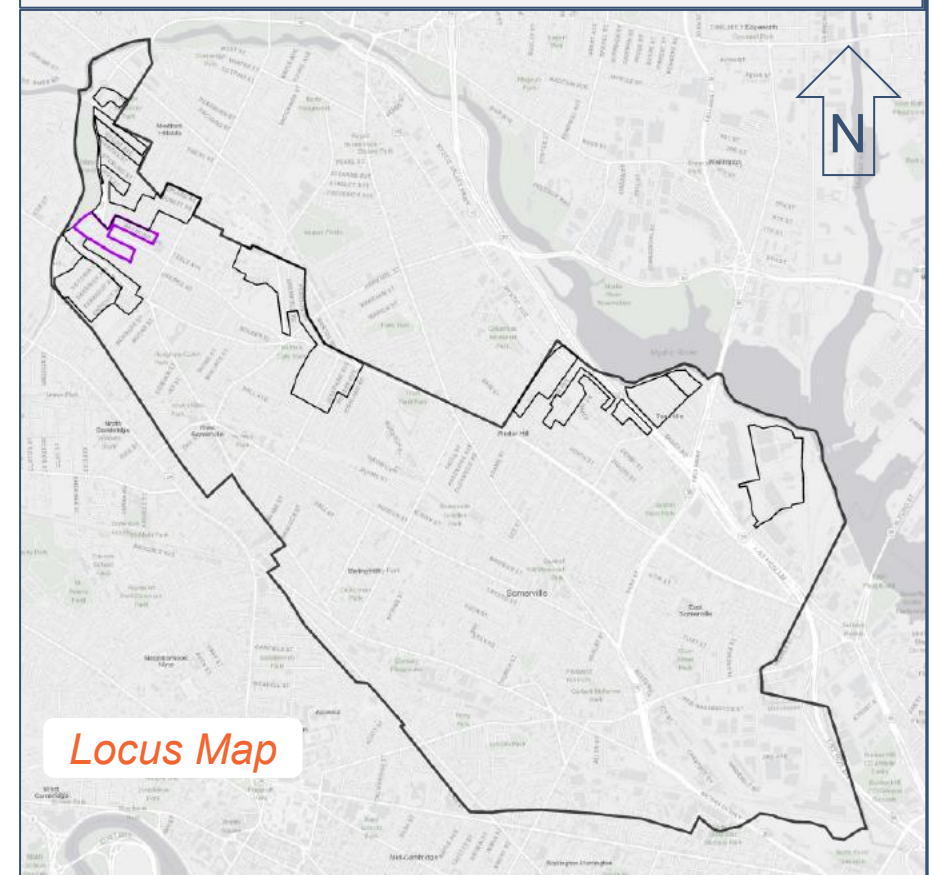
Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082  
AO Docket#CWA-AO-R01-FY19-27

### Catchment 8 Characteristics

- Evidence of Illicit Discharge: No**
- Number of Follow Up Pipe Segments: 0**
- Catchment Delineation Area: 15 acres**
- Receiving Water: Alewife Brook (MA71-04)**
- Approximate Storm Sewer Length: 3,700 LF**
- Approximate Number of Manholes: 15**



City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

## Dry Weather Screening and Sampling

MS4 Outfall	8
Sample Taken	Yes
Date	10/15/2020
Flow	Yes
Velocity <sup>1</sup>	Medium
Flow Color	Clear
Depth of Flow (Inches)	0.5
Sediment	No
Sediment (%)	
Floatables	None
Odor	None
pH	8.06
Temperature (°C)	16
Specific Conductivity (µs/cm)	2
Salinity (µg/L or ppt)	1
Ammonia (mg/L)	0.1
Surfactants (mg/L)	<b>0.5</b>
Chlorine (mg/L)	0
E. Coli (MPN/100mL)	<b>4,106</b>
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	No
BOD <sub>5</sub> (mg/L)	<3.0
Dissolved Oxygen (mg/L)	7.92
Total Suspended Solids (TSS) (mg/L)	4.7
Phosphorus (Total) (µg/L)	50
Total Lead (mg/L)	<0.025
Total Arsenic (mg/L)	n/a <sup>3</sup>
Total Copper (mg/L)	<0.025
Oil and Grease (mg/L)	2
Fecal Coliform (CFU/100mL)	n/a

# Catchment Investigation Results

No contamination found that meets likely sewer indicators during Catchment Investigation conducted in the Fall 2020.

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

<sup>3</sup> Indicates the parameter was not a pollutant of concern at the outfall where the sample was taken.

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

Sheet 2 of 2

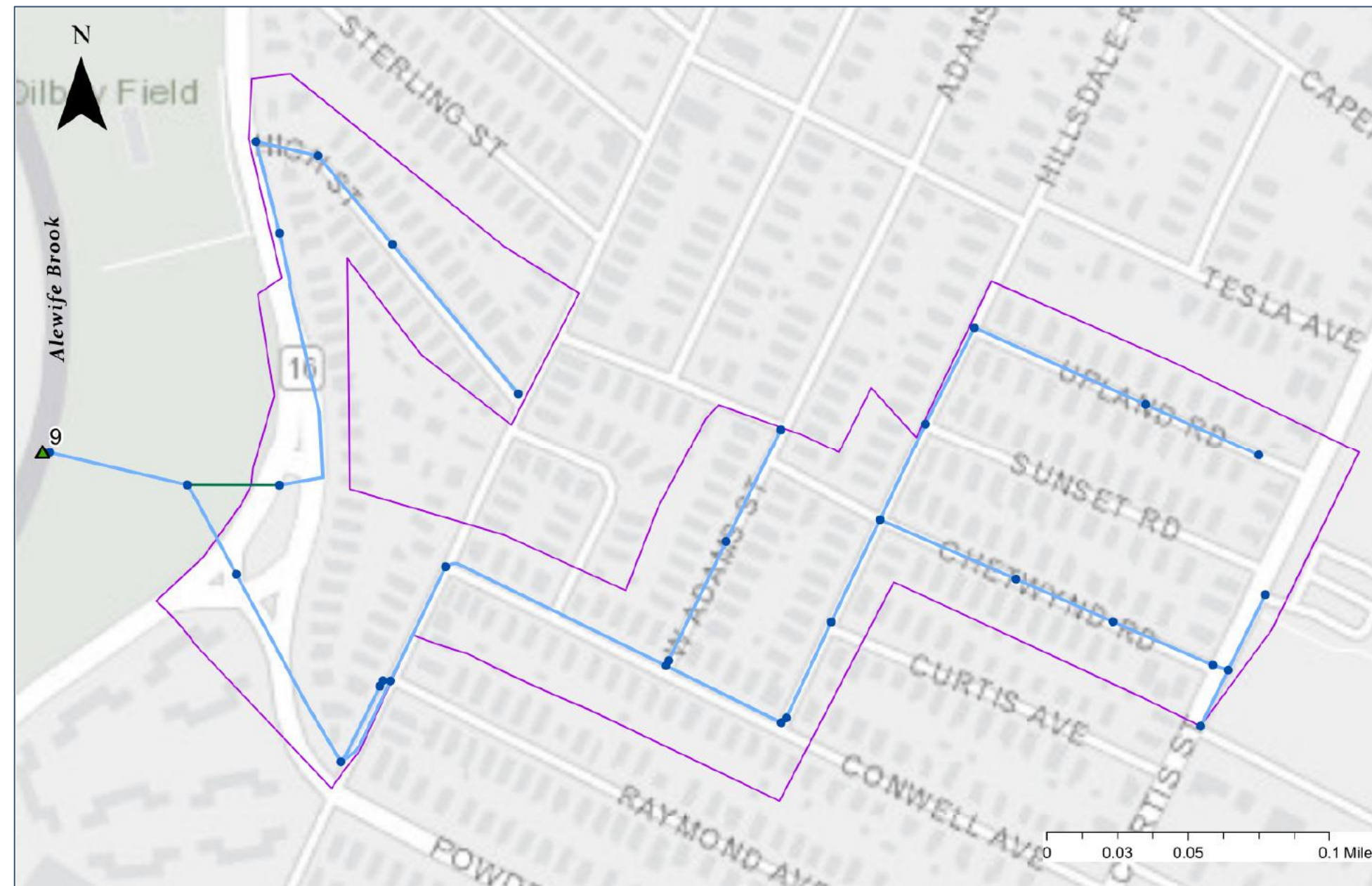
May 2021



# IDDE Dry Weather Catchment Investigation

## Catchment 9 Overview

Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082

AO Docket#CWA-AO-R01-FY19-27

### Catchment 9 Characteristics

**Evidence of Illicit Discharge: No**

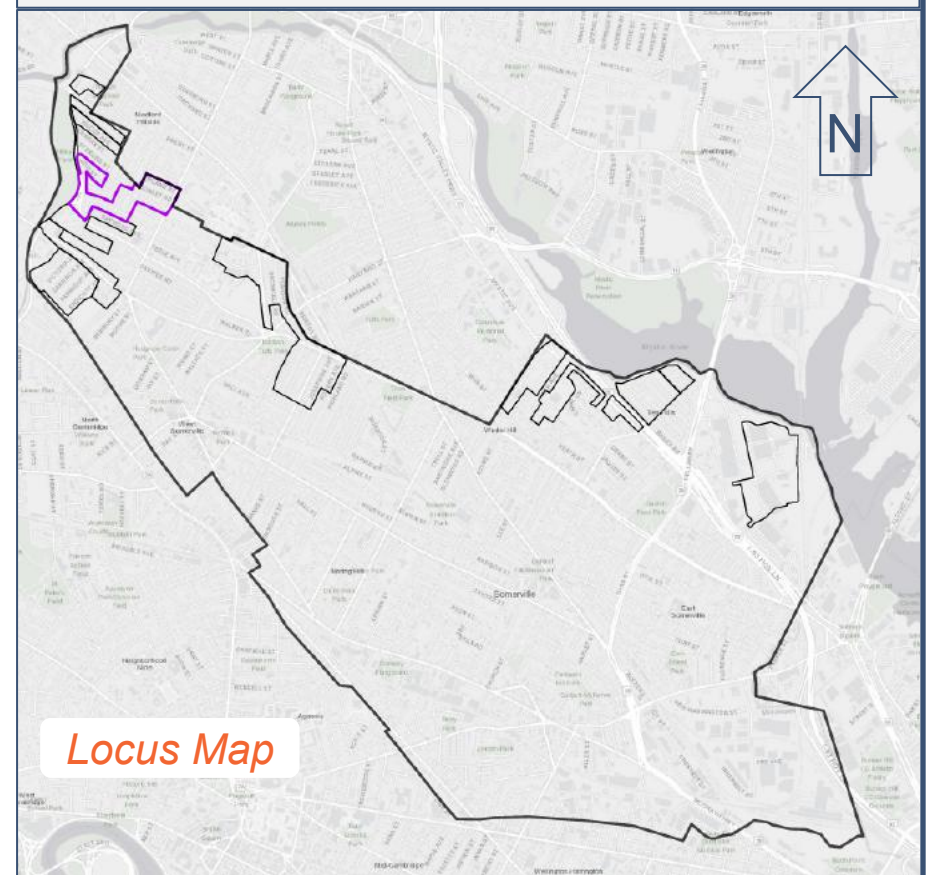
**Number of Follow Up Pipe Segments: 0**

**Catchment Delineation Area: 28 acres**

**Receiving Water: Alewife Brook (MA71-04)**

**Approximate Storm Sewer Length: 6,900 LF**

**Approximate Number of Manholes: 32**



Locus Map

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

## Dry Weather Screening and Sampling

<b>MS4 Outfall</b>	<b>9</b>
<b>Sample Taken</b>	No, Dry
<b>Date</b>	10/15/2020
<b>Flow</b>	No
<b>Velocity<sup>1</sup></b>	
<b>Flow Color</b>	
<b>Depth of Flow (Inches)</b>	
<b>Sediment</b>	No
<b>Sediment (%)</b>	
<b>Floatables</b>	None
<b>Odor</b>	None
<b>pH</b>	
<b>Temperature (°C)</b>	
<b>Specific Conductivity (µs/cm)</b>	
<b>Salinity (µg/L or ppt)</b>	
<b>Ammonia (mg/L)</b>	
<b>Surfactants (mg/L)</b>	
<b>Chlorine (mg/L)</b>	
<b>E. Coli (MPN/100mL)</b>	
<b>Meets Likely Sewer Indicators? (Yes/No)<sup>2</sup></b>	No
<b>BOD<sub>5</sub> (mg/L)</b>	
<b>Dissolved Oxygen (mg/L)</b>	
<b>Total Suspended Solids (TSS) (mg/L)</b>	
<b>Phosphorus (Total) (µg/L)</b>	
<b>Total Lead (mg/L)</b>	
<b>Total Arsenic (mg/L)</b>	
<b>Total Copper (mg/L)</b>	
<b>Oil and Grease (mg/L)</b>	
<b>Fecal Coliform (CFU/100mL)</b>	

# Catchment Investigation Results

No contamination found that meets likely sewer indicators during Catchment Investigation conducted in the Fall 2020.

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



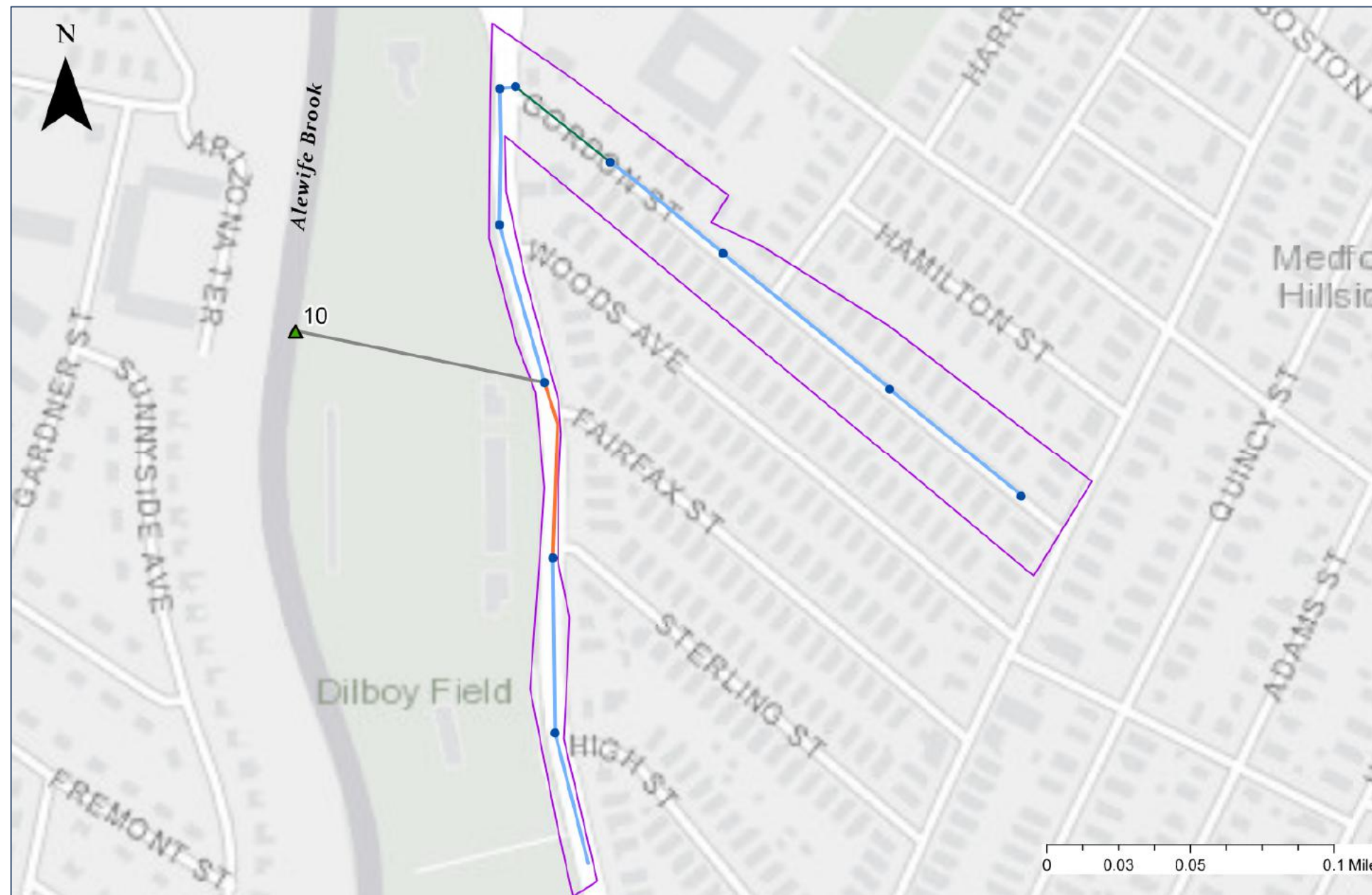
**Hazen**



# IDDE Dry Weather Catchment Investigation

## Catchment 10 Overview

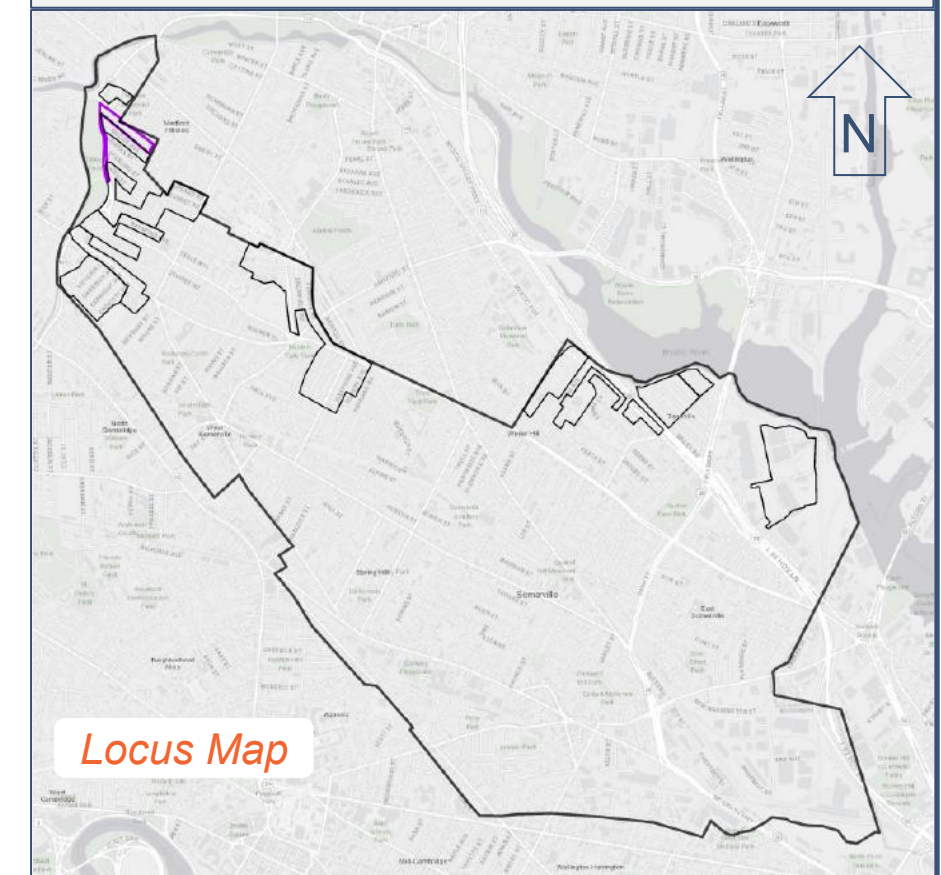
Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082  
AO Docket#CWA-AO-R01-FY19-27

### Catchment 10 Characteristics

- Evidence of Illicit Discharge: No**
- Number of Follow Up Pipe Segments: 0**
- Catchment Delineation Area: 7 acres**
- Receiving Water: Alewife Brook (MA71-04)**
- Approximate Storm Sewer Length: 3,600 LF**
- Approximate Number of Manholes: 10**



Locus Map

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

# Catchment Investigation Results

## Dry Weather Screening and Sampling

MS4 Outfall	10
Sample Taken	Yes
Date	10/15/2020
Flow	Yes
Velocity <sup>1</sup>	Slow
Flow Color	Clear
Depth of Flow (Inches)	0.1
Sediment	No
Sediment (%)	
Floatables	None
Odor	None
pH	8.21
Temperature (°C)	18
Specific Conductivity (µs/cm)	688
Salinity (µg/L or ppt)	0.3
Ammonia (mg/L)	0.1
Surfactants (mg/L)	0
Chlorine (mg/L)	0.06
E. Coli (MPN/100mL)	8,164
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	No
BOD <sub>5</sub> (mg/L)	<3.0
Dissolved Oxygen (mg/L)	8.14
Total Suspended Solids (TSS) (mg/L)	9
Phosphorus (Total) (µg/L)	110
Total Lead (mg/L)	<0.025
Total Arsenic (mg/L)	n/a <sup>3</sup>
Total Copper (mg/L)	<0.025
Oil and Grease (mg/L)	≤0.5
Fecal Coliform (CFU/100mL)	n/a

No contamination found that meets likely sewer indicators during Catchment Investigation conducted in the Fall 2020.

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

<sup>3</sup> Indicates the parameter was not a pollutant of concern at the outfall where the sample was taken.

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



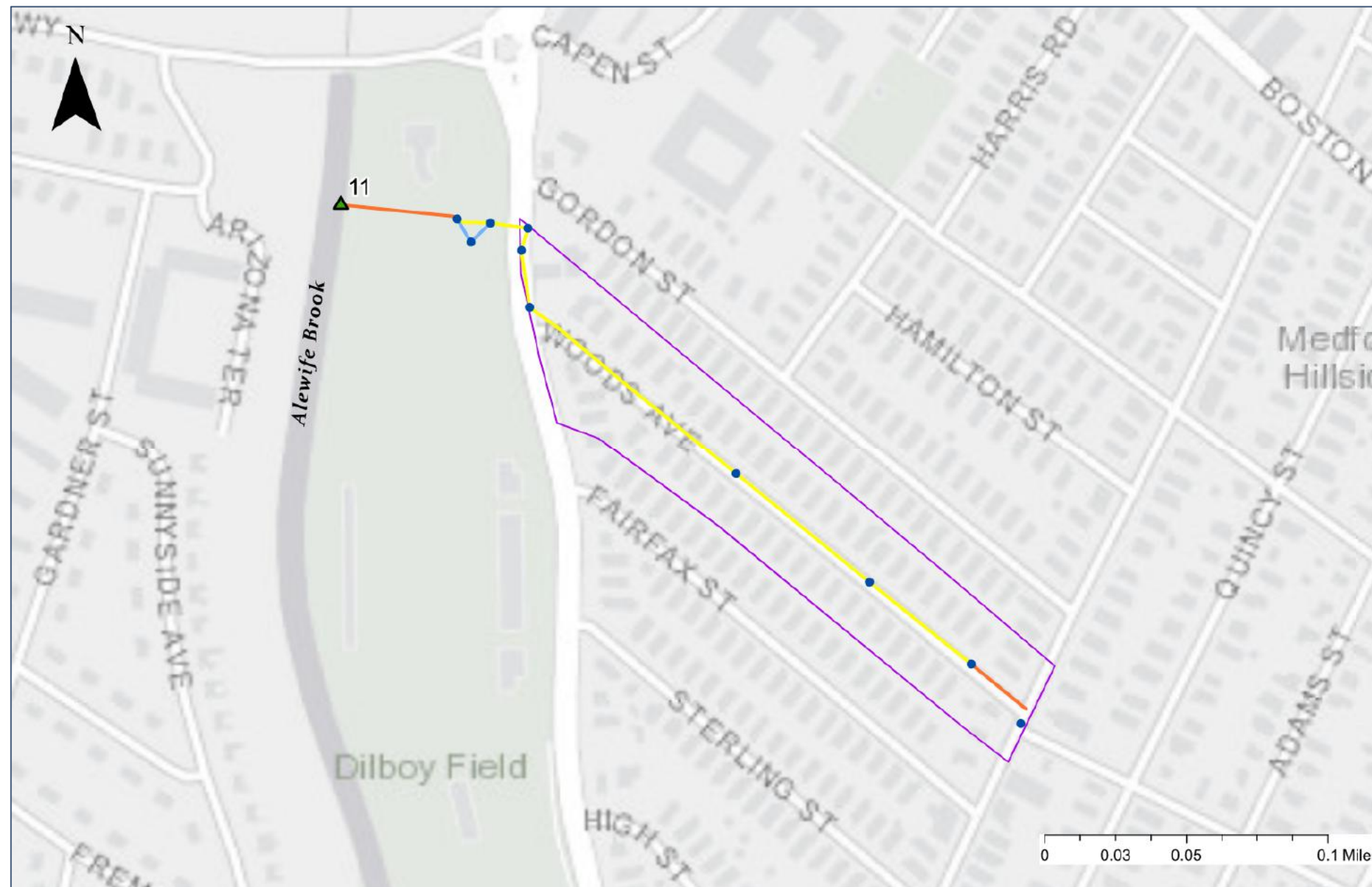
**Hazen**



# IDDE Dry Weather Catchment Investigation

## Catchment 11 Overview

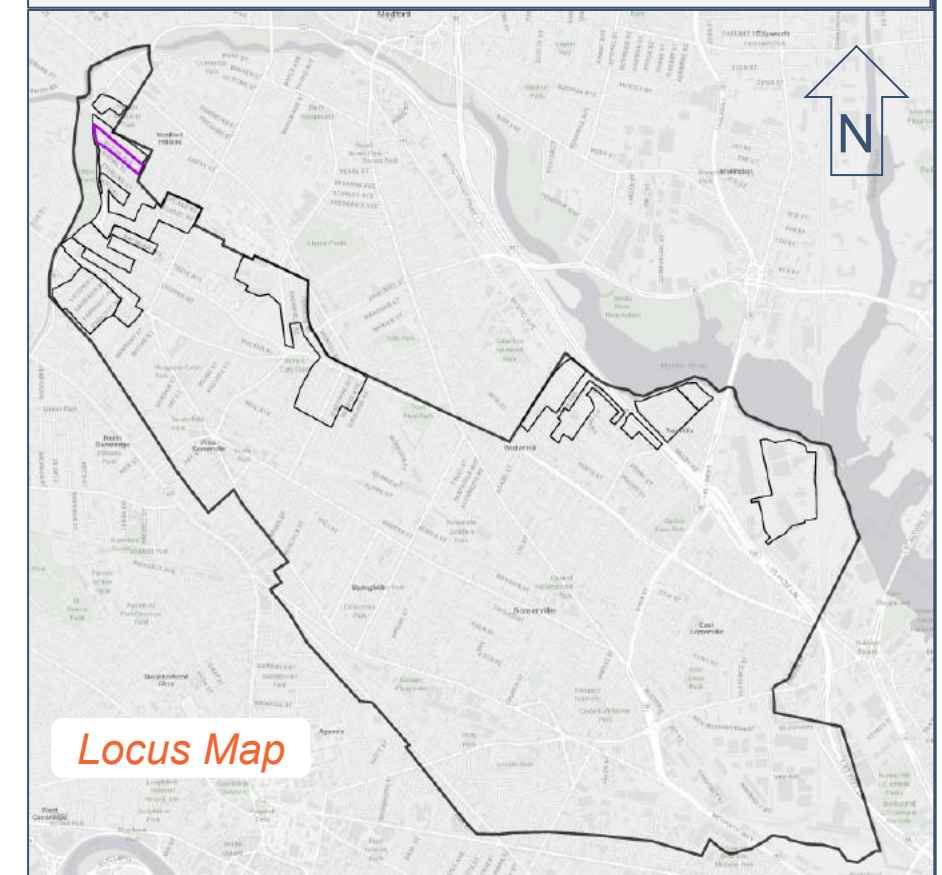
Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082  
AO Docket#CWA-AO-R01-FY19-27

### Catchment 11 Characteristics

- Evidence of Illicit Discharge: No**
- Number of Follow Up Pipe Segments: 0**
- Catchment Delineation Area: 6 acres**
- Receiving Water: Alewife Brook (MA71-04)**
- Approximate Storm Sewer Length: 1,800 LF**
- Approximate Number of Manholes: 10**



Locus Map

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

Dry Weather Screening and Sampling	
MS4 Outfall	11
Sample Taken	Yes
Date	10/15/2020
Flow	Yes
Velocity <sup>1</sup>	Slow
Flow Color	Clear
Depth of Flow (Inches)	0.5
Sediment	No
Sediment (%)	
Floatables	None
Odor	Musty
pH	6.97
Temperature (°C)	20
Specific Conductivity (µs/cm)	393
Salinity (µg/L or ppt)	0.2
Ammonia (mg/L)	0
Surfactants (mg/L)	0.25
Chlorine (mg/L)	0
E. Coli (MPN/100mL)	985
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	No
BOD <sub>5</sub> (mg/L)	<3.0
Dissolved Oxygen (mg/L)	5.79
Total Suspended Solids (TSS) (mg/L)	16
Phosphorus (Total) (µg/L)	90
Total Lead (mg/L)	<0.025
Total Arsenic (mg/L)	n/a <sup>3</sup>
Total Copper (mg/L)	<0.025
Oil and Grease (mg/L)	≤0.5
Fecal Coliform (CFU/100mL)	n/a

# Catchment Investigation Results

No contamination found that meets likely sewer indicators during Catchment Investigation conducted in the Fall 2020.

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

<sup>3</sup> Indicates the parameter was not a pollutant of concern at the outfall where the sample was taken.

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



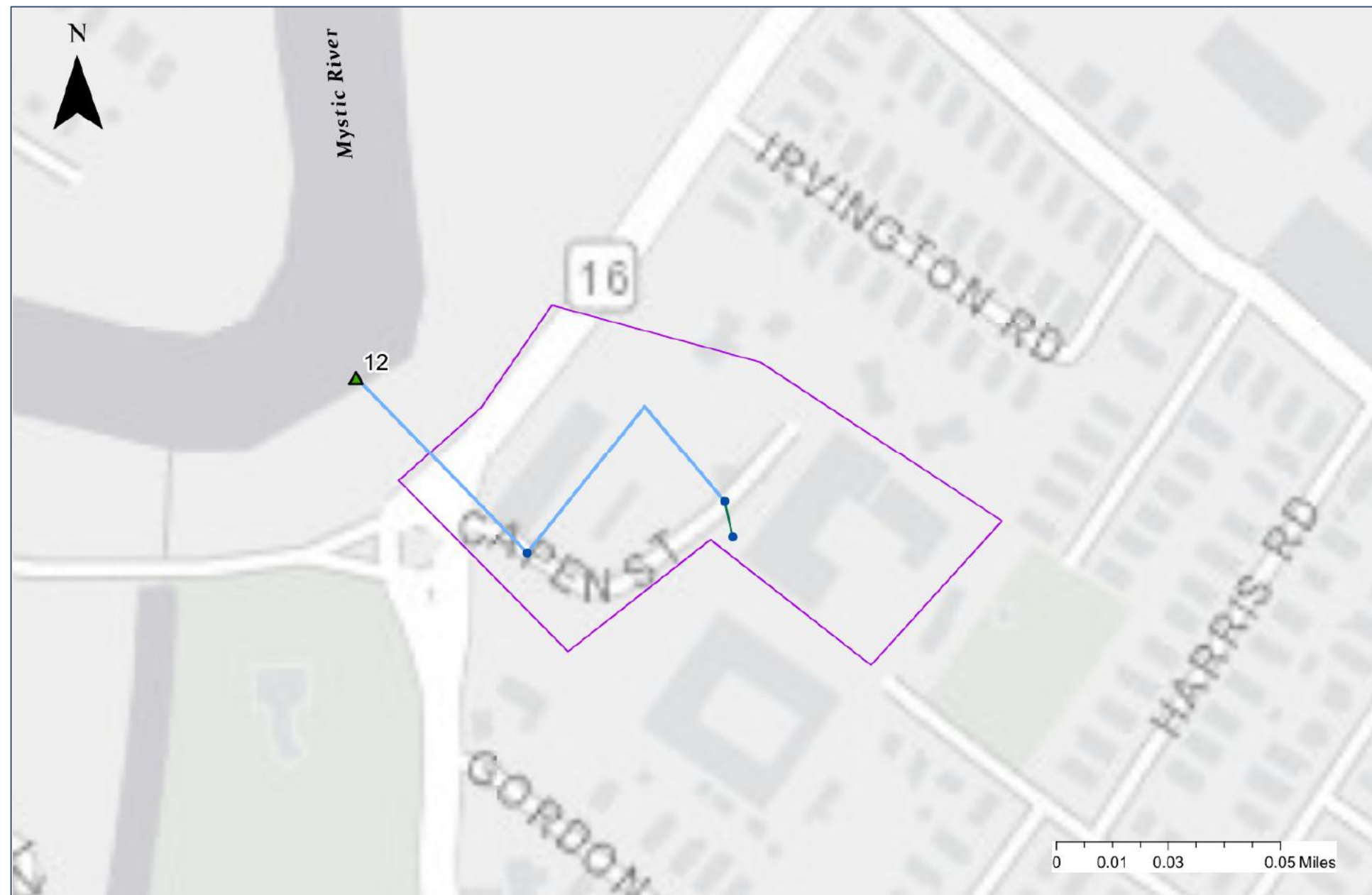
**Hazen**



# IDDE Dry Weather Catchment Investigation

## Catchment 12 Overview

Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082

AO Docket#CWA-AO-R01-FY19-27

### Catchment 12 Characteristics

**Evidence of Illicit Discharge: No**

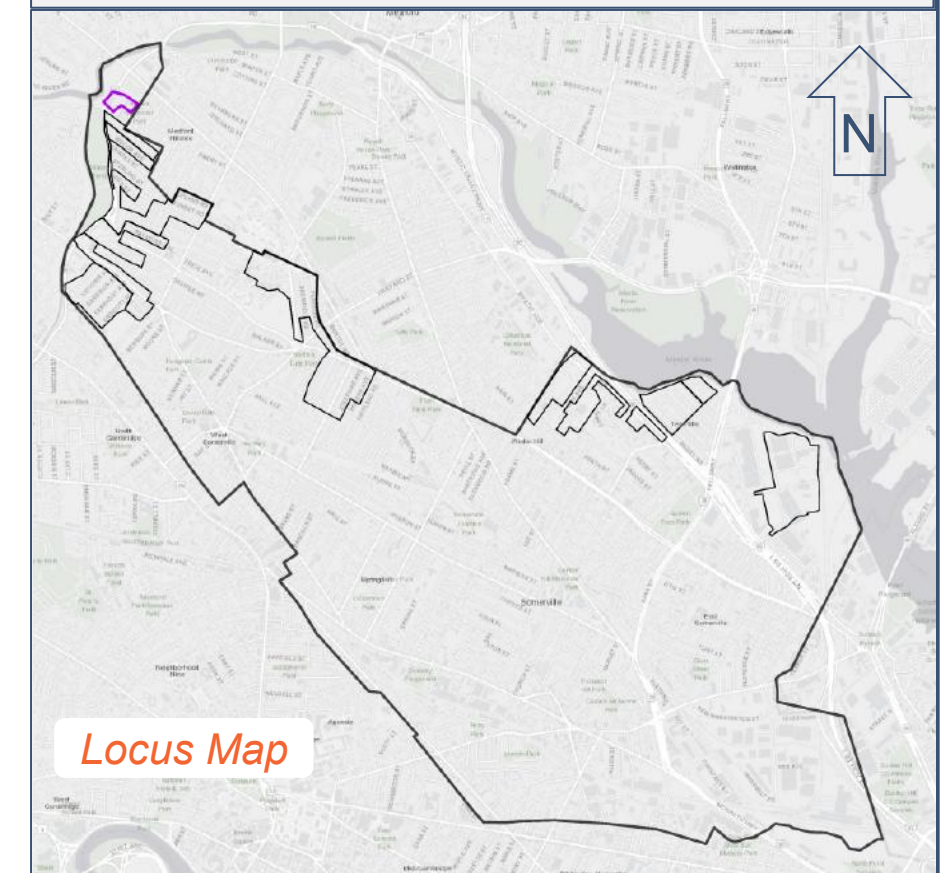
**Number of Follow Up Pipe Segments: 0**

**Catchment Delineation Area: 4 acres**

**Receiving Water: Mystic River (MA71-02)**

**Approximate Storm Sewer Length: 700 LF**

**Approximate Number of Manholes: 3**



Locus Map

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

Dry Weather Screening and Sampling	
MS4 Outfall	12
Sample Taken	No, Dry
Date	11/4/2020
Flow	No
Velocity <sup>1</sup>	
Flow Color	
Depth of Flow (Inches)	
Sediment	No
Sediment (%)	
Floatables	None
Odor	None
pH	
Temperature (°C)	
Specific Conductivity (µs/cm)	
Salinity (µg/L or ppt)	
Ammonia (mg/L)	
Surfactants (mg/L)	
Chlorine (mg/L)	
E. Coli (MPN/100mL)	
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	No
BOD <sub>5</sub> (mg/L)	
Dissolved Oxygen (mg/L)	
Total Suspended Solids (TSS) (mg/L)	
Phosphorus (Total) (µg/L)	
Total Lead (mg/L)	
Total Arsenic (mg/L)	
Total Copper (mg/L)	
Oil and Grease (mg/L)	
Fecal Coliform (CFU/100mL)	

# Catchment Investigation Results

No contamination found that meets likely sewer indicators during Catchment Investigation conducted in the Fall 2020.

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

<sup>3</sup> Indicates the parameter was not a pollutant of concern at the outfall where the sample was taken.

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



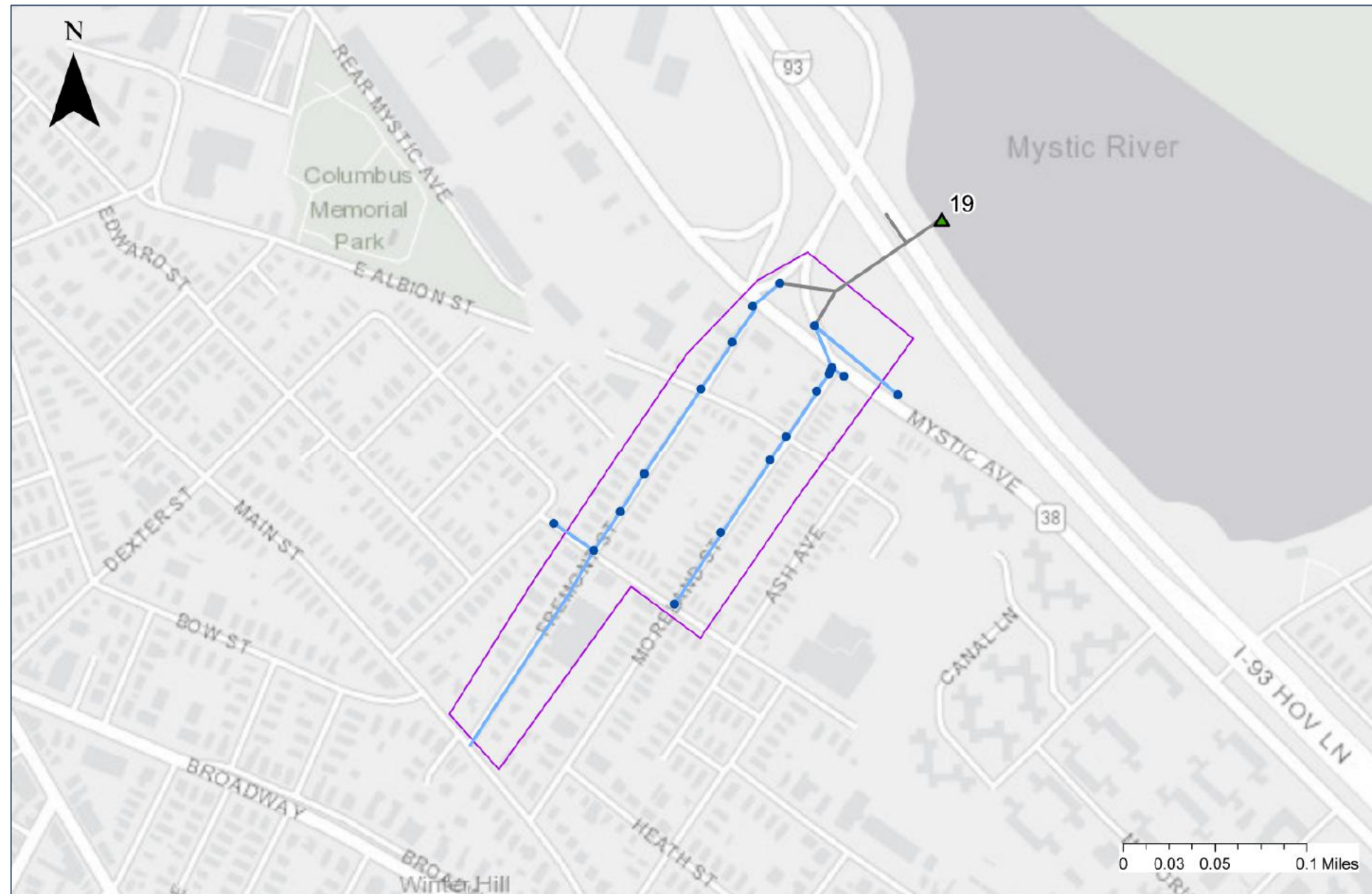
**Hazen**



# IDDE Dry Weather Catchment Investigation

## Catchment 19 Overview

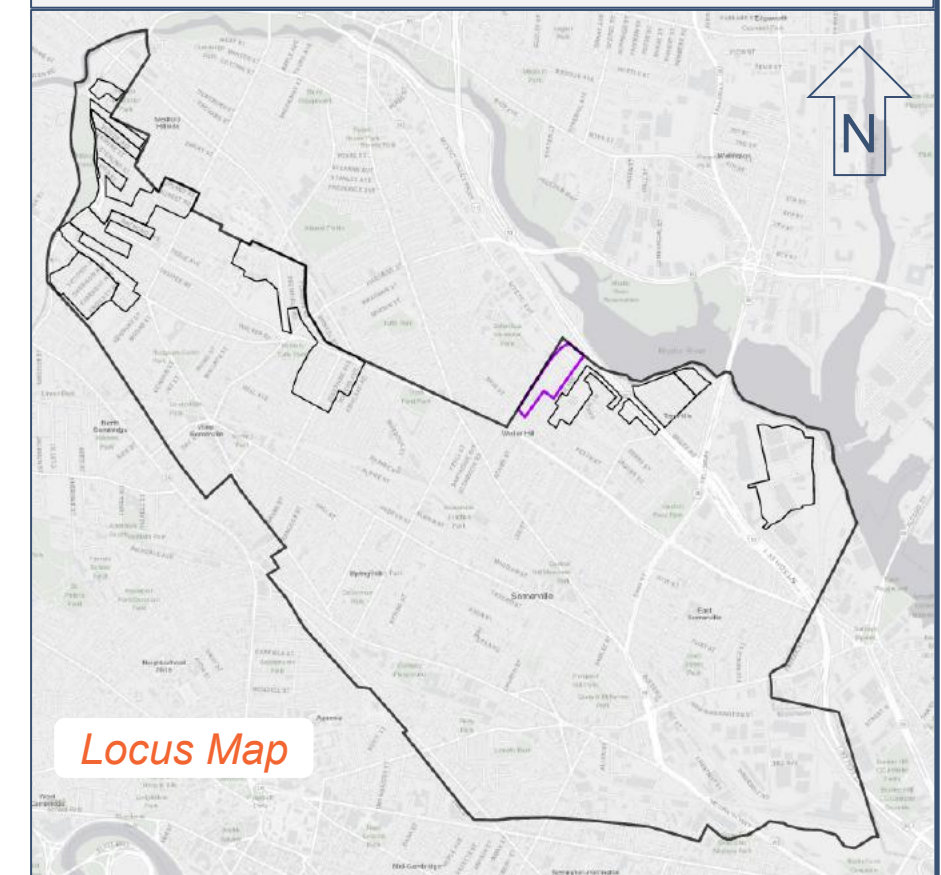
Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082  
AO Docket#CWA-AO-R01-FY19-27

### Catchment 19 Characteristics

- Evidence of Illicit Discharge: No**
- Number of Follow Up Pipe Segments: 0**
- Catchment Delineation Area: 15 acres**
- Receiving Water: Mystic River (MA71-02)**
- Approximate Storm Sewer Length: 5,100 LF**
- Approximate Number of Manholes: 19**



City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

# Catchment Investigation Results

## Dry Weather Screening and Sampling

MS4 Outfall	19
Sample Taken	Yes
Date	10/15/2020
Flow	Yes
Velocity <sup>1</sup>	Medium
Flow Color	Clear
Depth of Flow (Inches)	0.1
Sediment	No
Sediment (%)	
Floatables	None
Odor	None
pH	8.59
Temperature (°C)	19
Specific Conductivity (µs/cm)	1,846
Salinity (µg/L or ppt)	0.9
Ammonia (mg/L)	0.1
Surfactants (mg/L)	0
Chlorine (mg/L)	0.04
E. Coli (MPN/100mL)	168
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	No
BOD <sub>5</sub> (mg/L)	<3.0
Dissolved Oxygen (mg/L)	6.48
Total Suspended Solids (TSS) (mg/L)	8.3
Phosphorus (Total) (µg/L)	110
Total Lead (mg/L)	n/a <sup>3</sup>
Total Arsenic (mg/L)	<0.05
Total Copper (mg/L)	n/a
Oil and Grease (mg/L)	n/a
Fecal Coliform (CFU/100mL)	n/a

No contamination found that meets likely sewer indicators during Catchment Investigation conducted in the Fall 2020.

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

<sup>3</sup> Indicates the parameter was not a pollutant of concern at the outfall where the sample was taken.

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



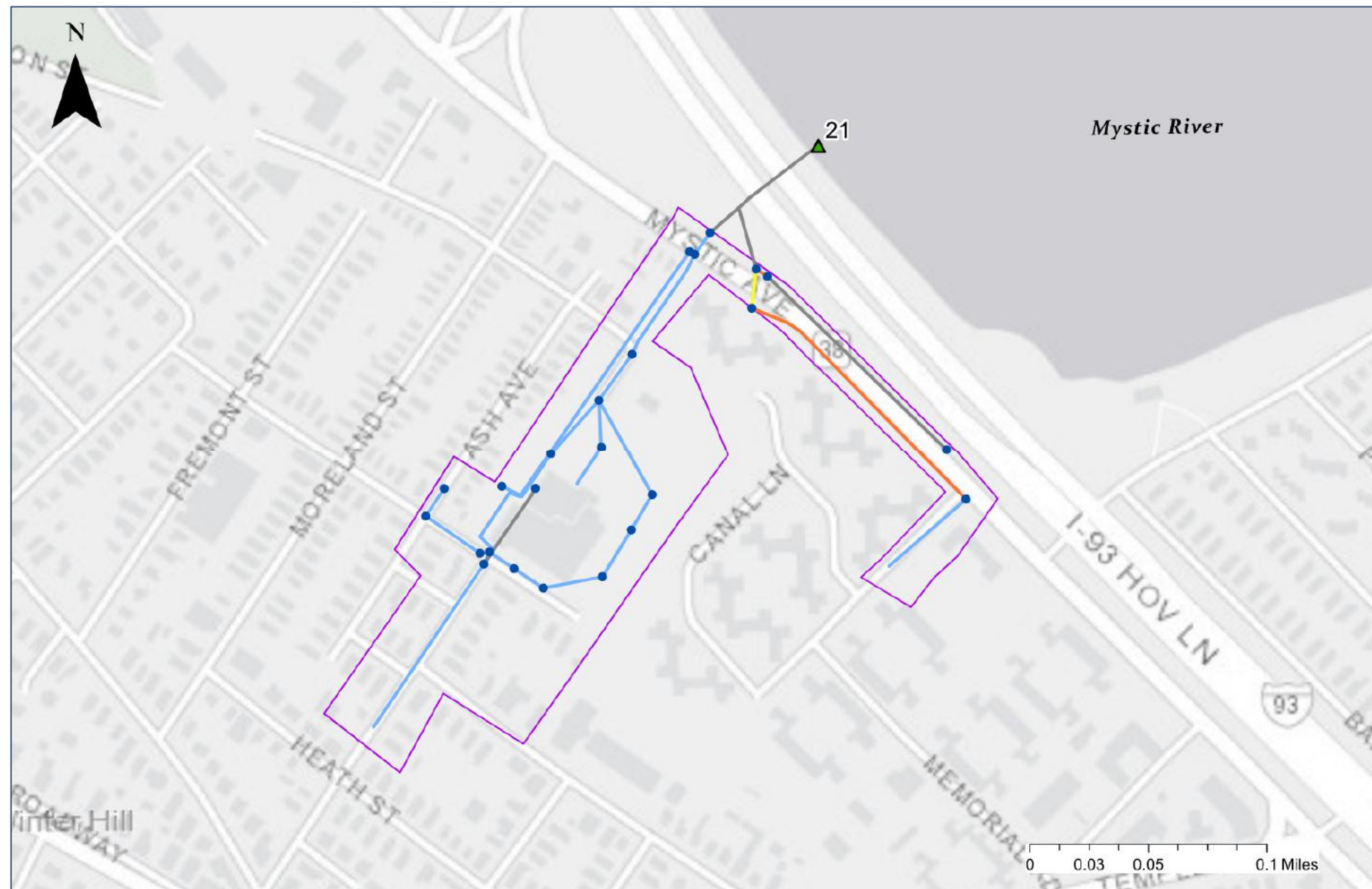
**Hazen**



# IDDE Dry Weather Catchment Investigation

## Catchment 21 Overview

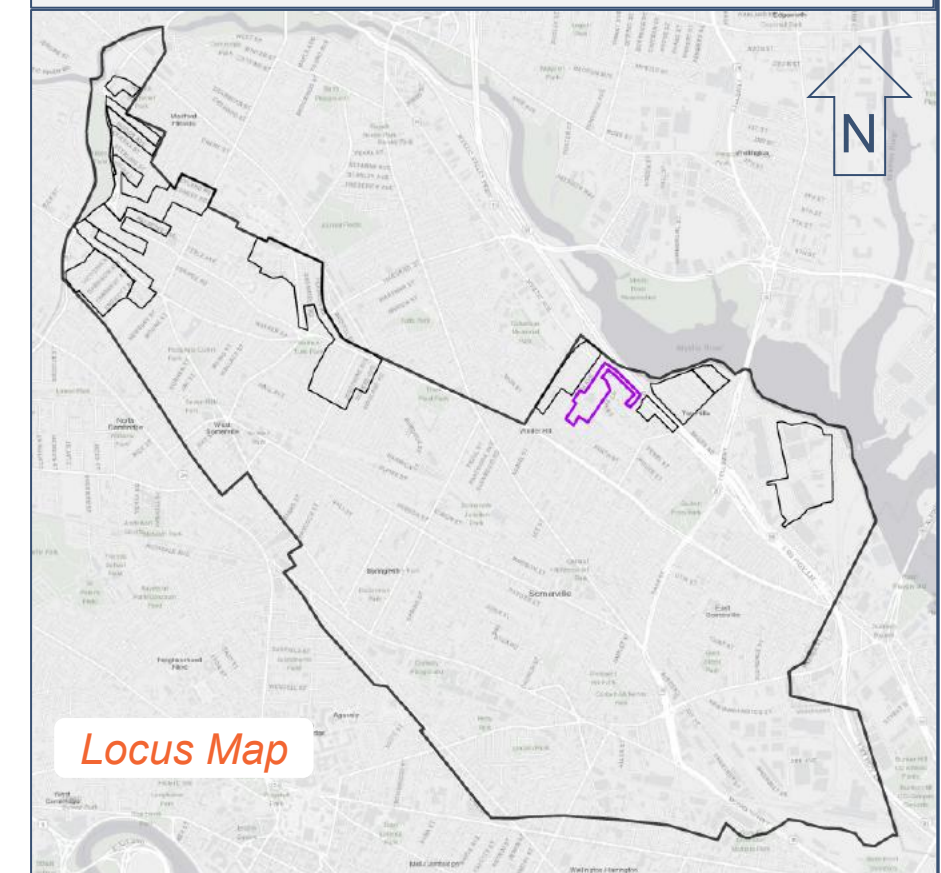
Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082  
AO Docket#CWA-AO-R01-FY19-27

### Catchment 21 Characteristics

- Evidence of Illicit Discharge: No**
- Number of Follow Up Pipe Segments: 0**
- Catchment Delineation Area: 13 acres**
- Receiving Water: Mystic River (MA71-02)**
- Approximate Storm Sewer Length: 6,000 LF**
- Approximate Number of Manholes: 24**



Locus Map

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

# Catchment Investigation Results

## Dry Weather Screening and Sampling

MS4 Outfall	21
Sample Taken	Yes
Date	10/15/2020
Flow	Yes
Velocity <sup>1</sup>	Medium
Flow Color	Clear
Depth of Flow (Inches)	0.1
Sediment	No
Sediment (%)	
Floatables	None
Odor	None
pH	8.38
Temperature (°C)	19
Specific Conductivity (µs/cm)	1,681
Salinity (µg/L or ppt)	0.8
Ammonia (mg/L)	0
Surfactants (mg/L)	0
Chlorine (mg/L)	0.16
E. Coli (MPN/100mL)	<10
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	No
BOD <sub>5</sub> (mg/L)	<3.0
Dissolved Oxygen (mg/L)	6.45
Total Suspended Solids (TSS) (mg/L)	3.3
Phosphorus (Total) (µg/L)	Below Detection Limit
Total Lead (mg/L)	n/a <sup>3</sup>
Total Arsenic (mg/L)	<0.05
Total Copper (mg/L)	n/a
Oil and Grease (mg/L)	n/a
Fecal Coliform (CFU/100mL)	n/a

No contamination found that meets likely sewer indicators during Catchment Investigation conducted in the Fall 2020.

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

<sup>3</sup> Indicates the parameter was not a pollutant of concern at the outfall where the sample was taken.

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

Sheet 2 of 2

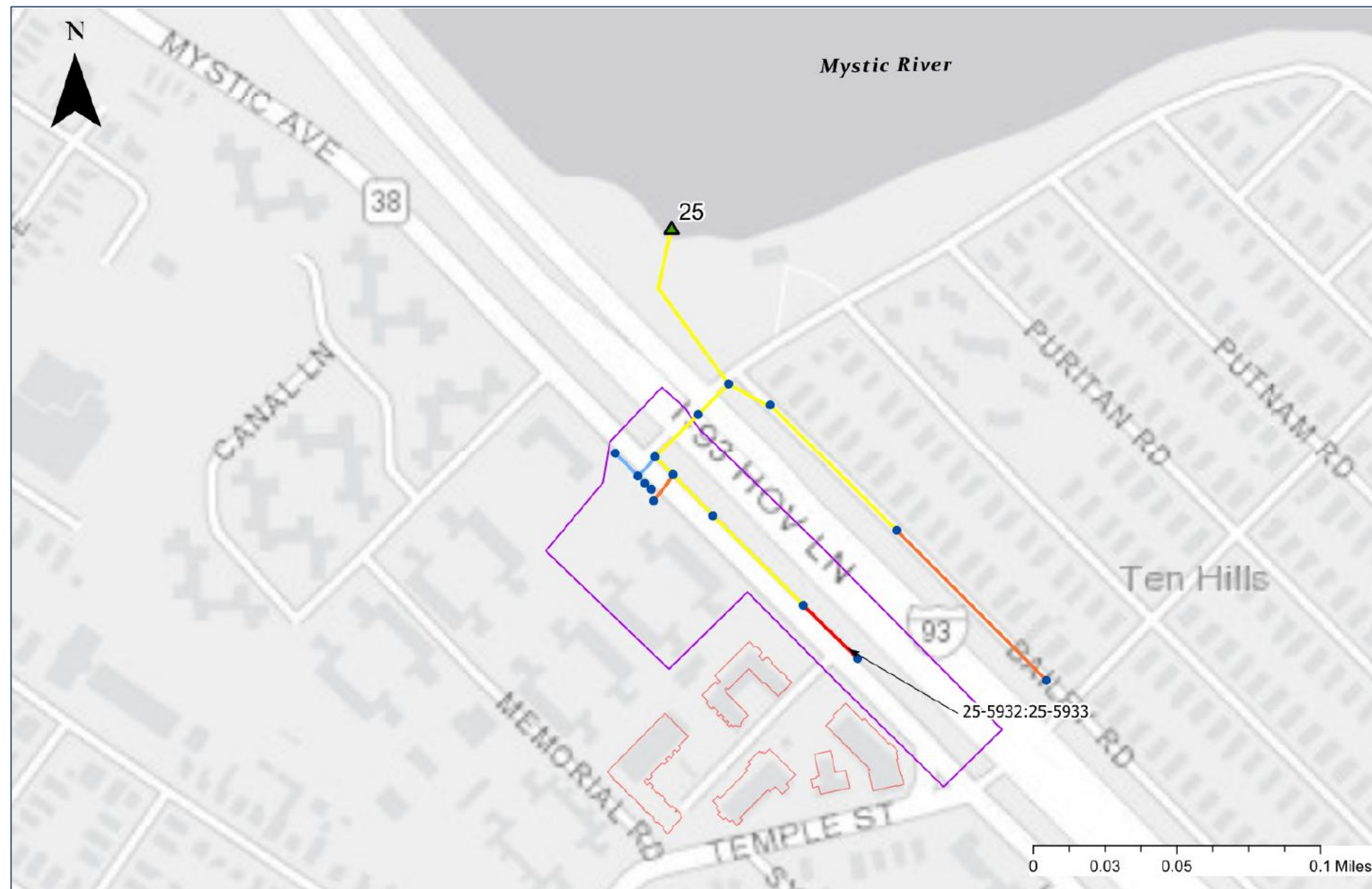
May 2021



# IDDE Dry Weather Catchment Investigation

## Catchment 25 Overview

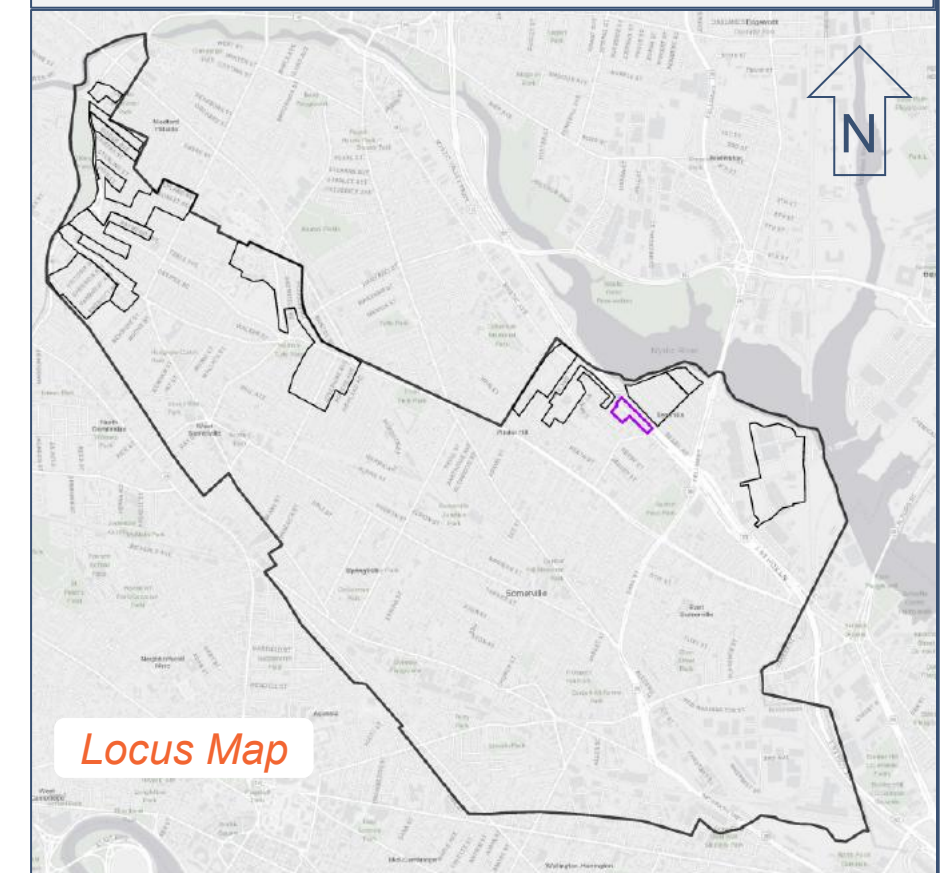
Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082  
AO Docket#CWA-AO-R01-FY19-27

### Catchment 25 Characteristics

- Evidence of Illicit Discharge: Yes**
- Number of Follow Up Pipe Segments: 1**
- Catchment Delineation Area: 5 acres**
- Receiving Water: Mystic River (MA71-02)**
- Approximate Storm Sewer Length: 2,900 LF**
- Approximate Number of Manholes: 15**



Locus Map

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

Dry Weather Screening and Sampling	
MS4 Outfall	25
Sample Taken	Yes
Date	10/15/2020
Flow	Yes
Velocity <sup>1</sup>	Medium
Flow Color	Yellow
Depth of Flow (Inches)	0.2
Sediment	Yes
Sediment (%)	5
Floatables	Oily Sheen
Odor	None
pH	7.95
Temperature (°C)	19
Specific Conductivity (µs/cm)	6,300
Salinity (µg/L or ppt)	3.4
Ammonia (mg/L)	2
Surfactants (mg/L)	1
Chlorine (mg/L)	0.17
E. Coli (MPN/100mL)	63
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	Yes
BOD <sub>5</sub> (mg/L)	<10
Dissolved Oxygen (mg/L)	5.53
Total Suspended Solids (TSS) (mg/L)	28
Phosphorus (Total) (µg/L)	30
Total Lead (mg/L)	n/a <sup>3</sup>
Total Arsenic (mg/L)	<0.05
Total Copper (mg/L)	n/a
Oil and Grease (mg/L)	n/a
Fecal Coliform (CFU/100mL)	n/a

# Catchment Investigation Results

Manhole ID	25-5933
Pipe ID	25-5932:25-5933
Date	1/13/2021
Standing Water	No
Flow	Yes
Velocity <sup>1</sup>	Slow
Flow Color	Cloudy
Depth of Flow (Inches)	1
Blockage	No
Sediment	Yes
Sediment (%)	1
Floatables	Other
Odor	None
pH	7.49
Temperature (°C)	10.1
Specific Conductivity (µs/cm)	6,680
Salinity (µg/L or ppt)	3.6
Ammonia (mg/L)	4
Surfactants (mg/L)	1.5
Chlorine (mg/L)	
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	Yes
Comments	Orange buildup on bottom of pipe and in flow

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

<sup>3</sup> Indicates the parameter was not a pollutant of concern at the outfall where the sample was taken.

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



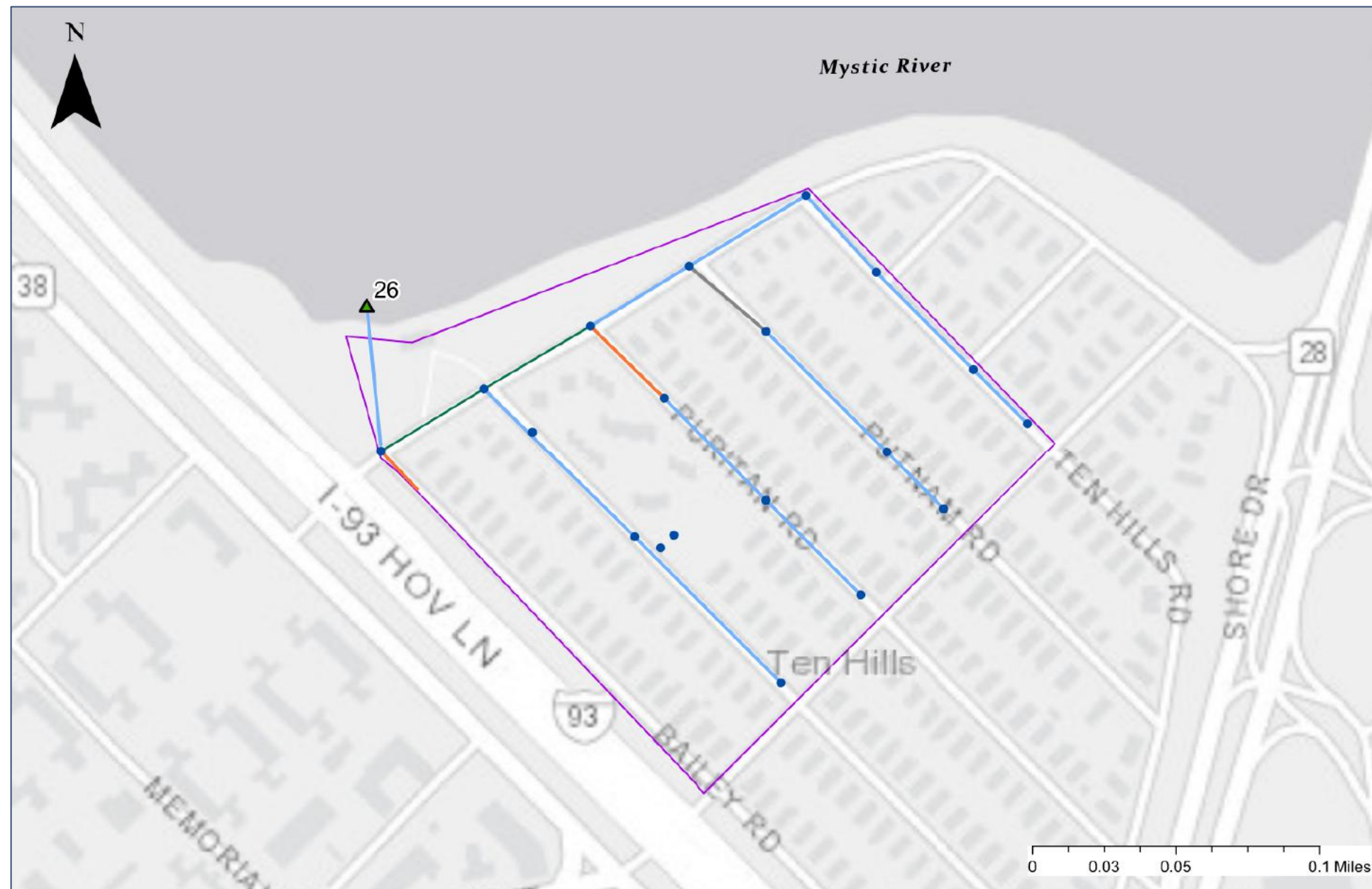
**Hazen**



# IDDE Dry Weather Catchment Investigation

## Catchment 26 Overview

Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082

AO Docket#CWA-AO-R01-FY19-27

### Catchment 26 Characteristics

**Evidence of Illicit Discharge: No**

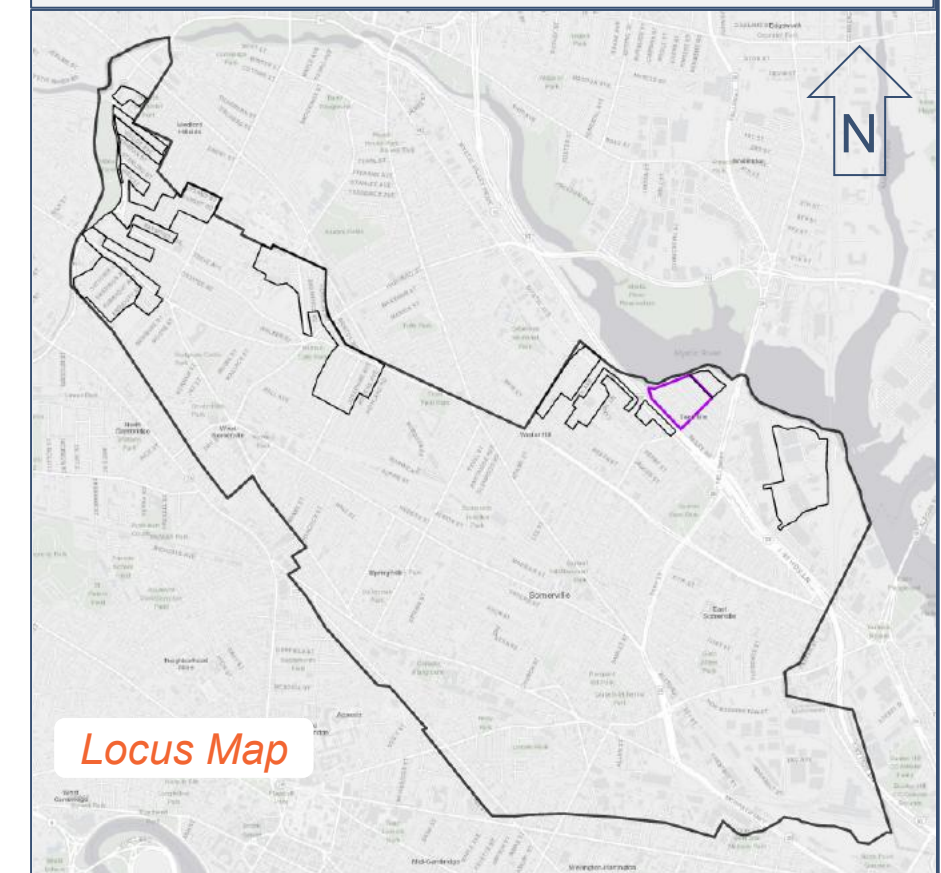
**Number of Follow Up Pipe Segments: 0**

**Catchment Delineation Area: 18 acres**

**Receiving Water: Mystic River (MA71-02)**

**Approximate Storm Sewer Length: 4,100 LF**

**Approximate Number of Manholes: 19**



Locus Map

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

# Catchment Investigation Results

## Dry Weather Screening and Sampling

<b>MS4 Outfall</b>	<b>26</b>
<b>Sample Taken</b>	No, Dry
<b>Date</b>	10/15/2020
<b>Flow</b>	No
<b>Velocity<sup>1</sup></b>	
<b>Flow Color</b>	
<b>Depth of Flow (Inches)</b>	
<b>Sediment</b>	No
<b>Sediment (%)</b>	
<b>Floatables</b>	None
<b>Odor</b>	None
<b>pH</b>	
<b>Temperature (°C)</b>	
<b>Specific Conductivity (µs/cm)</b>	
<b>Salinity (µg/L or ppt)</b>	
<b>Ammonia (mg/L)</b>	
<b>Surfactants (mg/L)</b>	
<b>Chlorine (mg/L)</b>	
<b>E. Coli (MPN/100mL)</b>	
<b>Meets Likely Sewer Indicators? (Yes/No)<sup>2</sup></b>	No
<b>BOD<sub>5</sub> (mg/L)</b>	
<b>Dissolved Oxygen (mg/L)</b>	
<b>Total Suspended Solids (TSS) (mg/L)</b>	
<b>Phosphorus (Total) (µg/L)</b>	
<b>Total Lead (mg/L)</b>	
<b>Total Arsenic (mg/L)</b>	
<b>Total Copper (mg/L)</b>	
<b>Oil and Grease (mg/L)</b>	
<b>Fecal Coliform (CFU/100mL)</b>	

No contamination found that meets likely sewer indicators during Catchment Investigation conducted in the Fall 2020.

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**



# IDDE Dry Weather Catchment Investigation

## Catchment 28 Overview

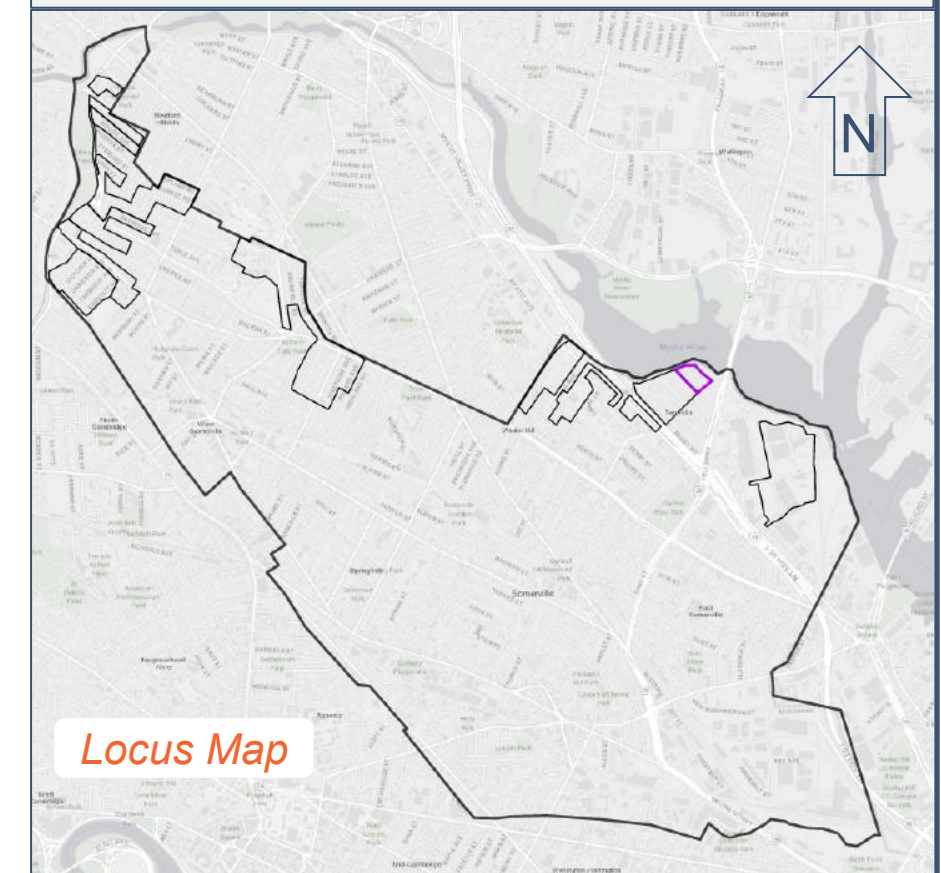
Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082  
 AO Docket#CWA-AO-R01-FY19-27

### Catchment 28 Characteristics

- Evidence of Illicit Discharge: Yes**
- Number of Follow Up Pipe Segments: 3**
- Catchment Delineation Area: 5 acres**
- Receiving Water: Mystic River (MA71-02)**
- Approximate Storm Sewer Length: 1,600 LF**
- Approximate Number of Manholes: 11**



Locus Map

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

Dry Weather Screening and Sampling	
MS4 Outfall	28
Sample Taken	Yes
Date	10/15/2020
Flow	Yes
Velocity <sup>1</sup>	Medium
Flow Color	Clear
Depth of Flow (Inches)	0.1
Sediment	Yes
Sediment (%)	10
Floatables	None
Odor	None
pH	7.05
Temperature (°C)	17
Specific Conductivity (µs/cm)	2,680
Salinity (µg/L or ppt)	1.4
Ammonia (mg/L)	2
Surfactants (mg/L)	0.5
Chlorine (mg/L)	0.17
E. Coli (MPN/100mL)	<10
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	Yes
BOD <sub>5</sub> (mg/L)	<3.0
Dissolved Oxygen (mg/L)	3.96
Total Suspended Solids (TSS) (mg/L)	18
Phosphorus (Total) (µg/L)	120
Total Lead (mg/L)	n/a <sup>3</sup>
Total Arsenic (mg/L)	<0.05
Total Copper (mg/L)	n/a
Oil and Grease (mg/L)	n/a
Fecal Coliform (CFU/100mL)	n/a

# Catchment Investigation Results

Manhole ID	28-5105	28-5105	28-5105
Pipe ID	28-5555:28-5105	28-5517:28-5105	28-5551:28-5105
Date	11/17/2020	11/17/2020	11/17/2020
Standing Water	No	No	No
Flow	Yes	Yes	Yes
Velocity <sup>1</sup>	Slow	Slow	Slow
Flow Color	Cloudy	Cloudy	Cloudy
Depth of Flow (Inches)	0.25	0.25	0.25
Blockage	No	No	No
Sediment	Yes	Yes	Yes
Sediment (%)	1	1	2
Floatables	None	None	Other
Odor	None	None	None
pH	6.78	6.97	6.63
Temperature (°C)	11.5	12.2	12.3
Specific Conductivity (µs/cm)	3,320	2,180	3,980
Salinity (µg/L or ppt)	1.7	1.1	2.1
Ammonia (mg/L)	5	0.6	4
Surfactants (mg/L)	0.5	0.25	0.5
Chlorine (mg/L)	0.81	0.04	0.41
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	Yes	Yes	Yes
Comments			Orange buildup on bottom of pipe resulting in orange floatables.

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

<sup>3</sup> Indicates the parameter was not a pollutant of concern at the outfall where the sample was taken.

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



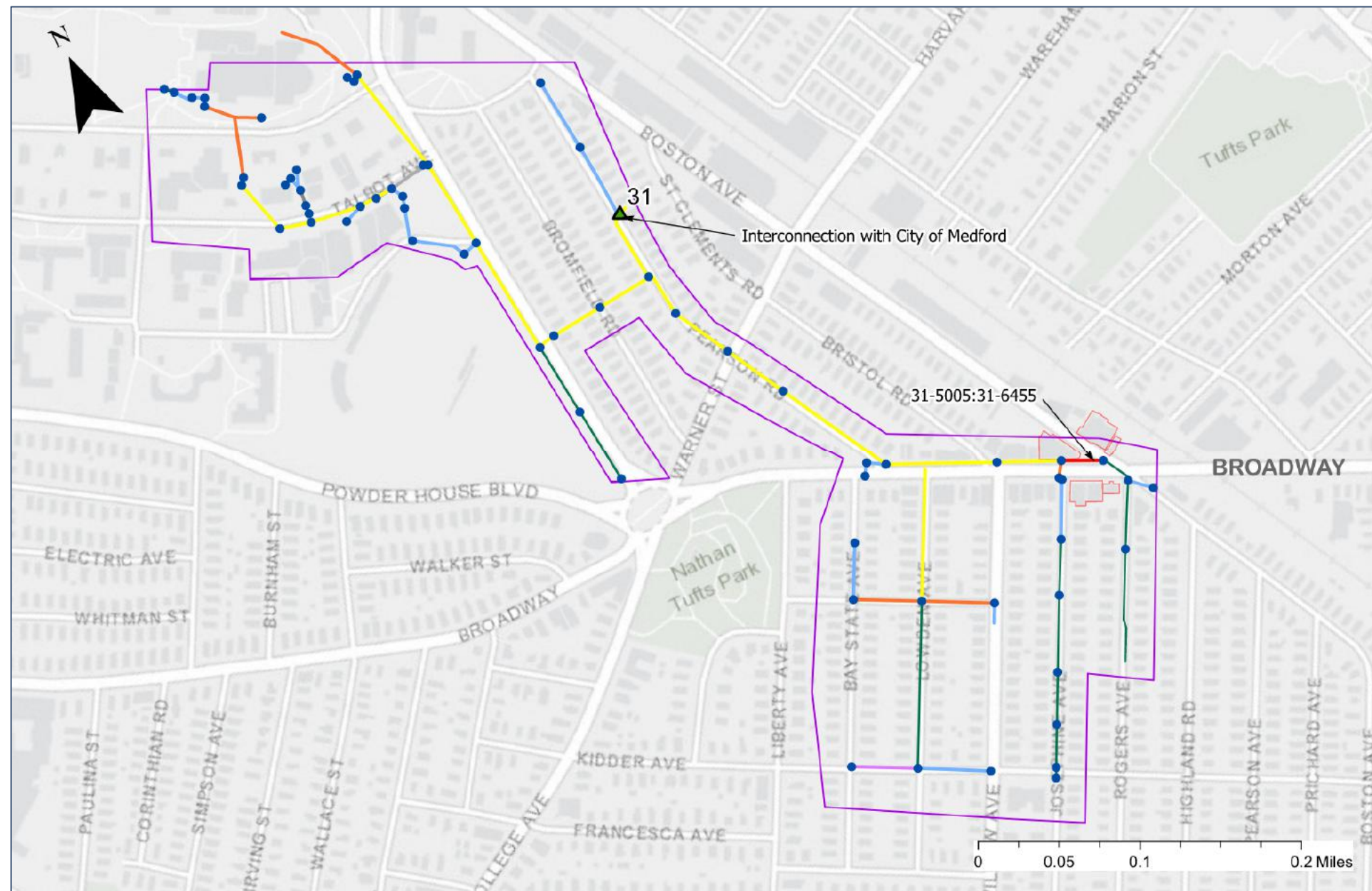
**Hazen**



# IDDE Dry Weather Catchment Investigation

## Catchment 31 Overview

Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082

AO Docket#CWA-AO-R01-FY19-27

### Catchment 31 Characteristics

**Evidence of Illicit Discharge: Yes**

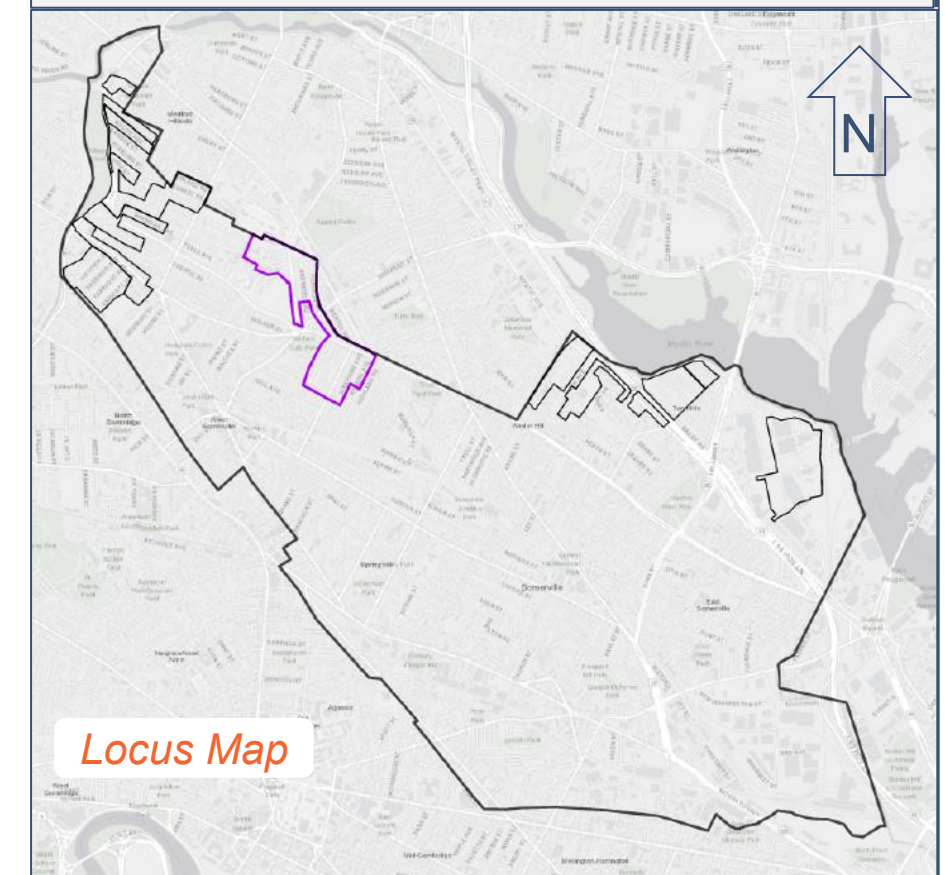
**Number of Follow Up Pipe Segments: 1**

**Catchment Delineation Area: 59 acres**

**Receiving Water: City of Medford**

**Approximate Storm Sewer Length: 12,500 LF**

**Approximate Number of Manholes: 66**



City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

Dry Weather Screening and Sampling	
MS4 Outfall	31
Sample Taken	Yes
Date	10/15/2020
Flow	Yes
Velocity <sup>1</sup>	Slow
Flow Color	Clear
Depth of Flow (Inches)	1
Sediment	No
Sediment (%)	
Floatables	None
Odor	None
pH	7.23
Temperature (°C)	20
Specific Conductivity (µs/cm)	1,475
Salinity (µg/L or ppt)	0.7
Ammonia (mg/L)	5
Surfactants (mg/L)	0.25
Chlorine (mg/L)	0.06
E. Coli (MPN/100mL)	>24,196
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	Yes
BOD <sub>5</sub> (mg/L)	<3.0
Dissolved Oxygen (mg/L)	3.01
Total Suspended Solids (TSS) (mg/L)	9.7
Phosphorus (Total) (µg/L)	300
Total Lead (mg/L)	n/a <sup>3</sup>
Total Arsenic (mg/L)	<0.05
Total Copper (mg/L)	n/a
Oil and Grease (mg/L)	n/a
Fecal Coliform (CFU/100mL)	n/a
Comments	Construction in area of interconnection.

# Catchment Investigation Results

Manhole ID	31-6455
Pipe ID	31-5005:31-6455
Date	12/2/2020
Standing Water	No
Flow	Yes
Velocity <sup>1</sup>	Slow
Flow Color	Cloudy
Depth of Flow (Inches)	3
Blockage	No
Sediment	No
Sediment (%)	
Floatables	Oily Sheen
Odor	None
pH	7.09
Temperature (°C)	12
Specific Conductivity (µs/cm)	1,714
Salinity (µg/L or ppt)	0.9
Ammonia (mg/L)	10
Surfactants (mg/L)	0.75
Chlorine (mg/L)	0.54
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	Yes
Comments	

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

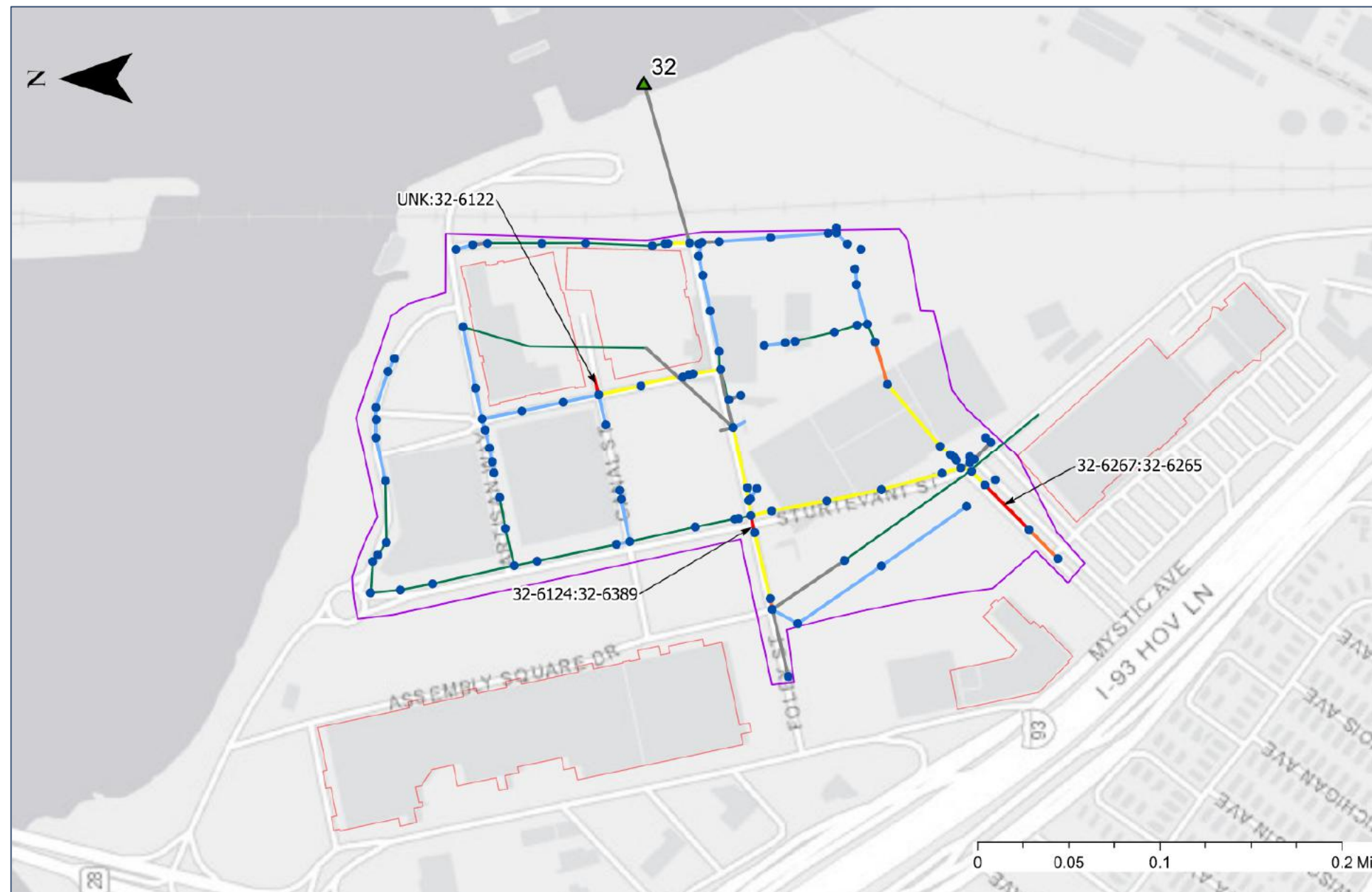
<sup>3</sup> Indicates the parameter was not a pollutant of concern at the outfall where the sample was taken.



# IDDE Dry Weather Catchment Investigation

## Catchment 32 Overview

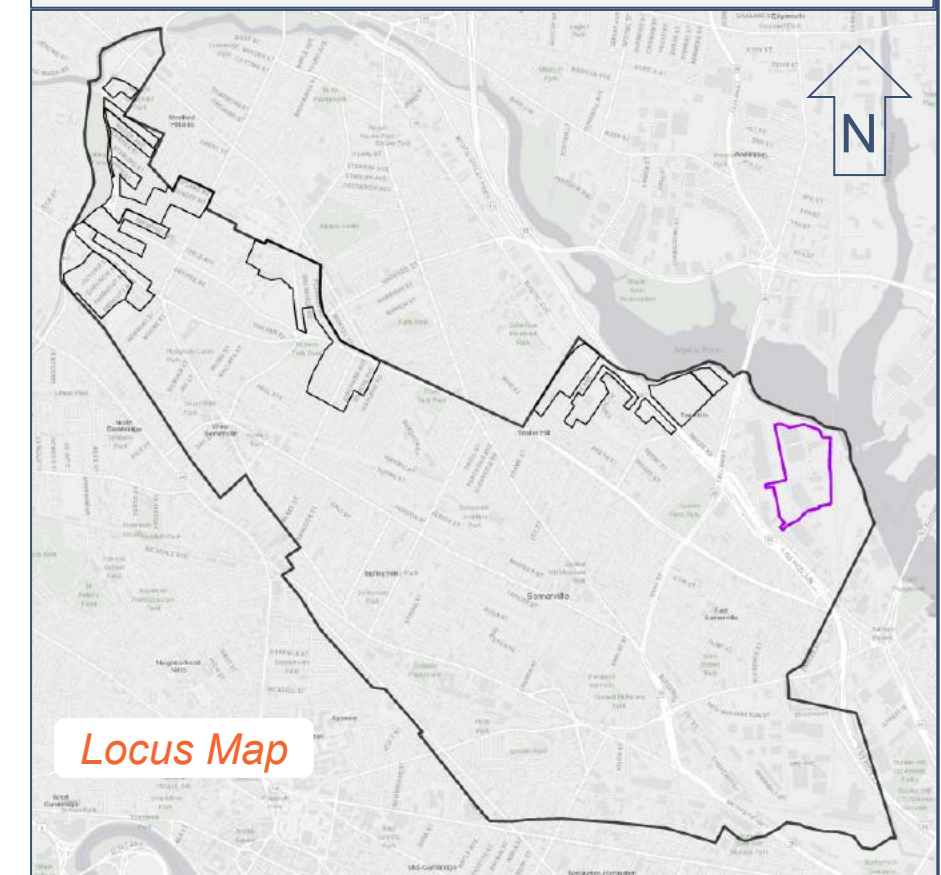
Stormwater Infrastructure	Inspection Result	Description
MS4 Outfall Delineation	Standing Water	No Sample Taken
MS4 Outfall	No Contamination Found	By Sandbag/Test Kit
Stormwater Manhole	Upstream Contamination	Ammonia, surfactants, or chlorine found. Contamination from upstream pipe.
Buildings Identified for Further Investigation	Positive Test Kit	Ammonia, surfactants, or chlorine found. Sample did not meet likely sewer indicator threshold.
	Follow Up Required	Ammonia, surfactants, or chlorine found. Sample met likely sewer indicator threshold. Pipe ID shown.
	Other, Manhole Not Found	



MS4 Permit ID#MAR041082  
AO Docket#CWA-AO-R01-FY19-27

### Catchment 32 Characteristics

- Evidence of Illicit Discharge: Yes**
- Number of Follow Up Pipe Segments: 3**
- Catchment Delineation Area: 41 acres**
- Receiving Water: Mystic River (MA71-03)**
- Approximate Storm Sewer Length: 12,300 LF**
- Approximate Number of Manholes: 106**



City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**

# Outfall Screening Results

Dry Weather Screening and Sampling	
MS4 Outfall	32
Sample Taken	Yes
Date	10/16/2020
Flow	Yes
Velocity <sup>1</sup>	Slow
Flow Color	Clear
Depth of Flow (Inches)	6
Sediment	No
Sediment (%)	
Floatables	None
Odor	Musty
pH	6.99
Temperature (°C)	20
Specific Conductivity (µs/cm)	3,570
Salinity (µg/L or ppt)	1.8
Ammonia (mg/L)	5
Surfactants (mg/L)	1.5
Chlorine (mg/L)	
E. Coli (MPN/100mL)	20
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	Yes
BOD <sub>5</sub> (mg/L)	<8.0
Dissolved Oxygen (mg/L)	2.67
Total Suspended Solids (TSS) (mg/L)	n/a
Phosphorus (Total) (µg/L)	230
Total Lead (mg/L)	n/a
Total Arsenic (mg/L)	n/a
Total Copper (mg/L)	n/a
Oil and Grease (mg/L)	1.4
Fecal Coliform (CFU/100mL)	70
Comments	Iron deposits.

# Catchment Investigation Results

Manhole ID	32-6265	32-6389	32-6122
Pipe ID	32-6267:32-6265	32-6124:32-6389	UNK:32-6122
Date	12/9/2020	12/9/2020	
Standing Water	No	No	
Flow	Yes	Yes	
Velocity <sup>1</sup>	Slow	Medium	
Flow Color	Clear	Clear	
Depth of Flow (Inches)	0.5	1	
Blockage	No	No	
Sediment	No	No	
Sediment (%)			
Floatables	None	None	
Odor	None	None	
pH	7.74	7.25	
Temperature (°C)	5.4	8.3	
Specific Conductivity (µs/cm)	2.27	3.23	
Salinity (µg/L or ppt)	1.1	1.6	
Ammonia (mg/L)	3	0.8	10
Surfactants (mg/L)	0.25	0.25	1.5
Chlorine (mg/L)	0.26	0.09	
Meets Likely Sewer Indicators? (Yes/No) <sup>2</sup>	Yes	Yes	Yes
Comments			

<sup>1</sup> Velocity ranges (visual): slow: 0 – 0.5 ft/s, medium: 0.5 – 1.75 ft/s, fast: 1.75 ft/s or above

<sup>2</sup> Per the 2016 MS4 Permit, likely sewer indicators are the following: Olfactory or visual evidence of sewage; Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water; or Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

<sup>3</sup> Indicates the parameter was not a pollutant of concern at the outfall where the sample was taken.

City of Somerville Illicit Discharge Detection and Elimination (IDDE) Program



**Hazen**