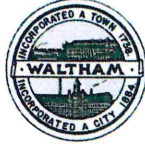


CITY OF WALTHAM
Engineering Department



Robert S. Winn, P.E.
City Engineer

August 27, 2021

Mr. Todd Borci
Office of Environmental Stewardship
US EPA New England
5 Post Office Square, Suite 100
Boston, MA 02109-3912

RE: City of Waltham
EPA Clean Water Act Administrative Docket No. 05-06
IDDE Program – Semi-Annual Report No. 26

Dear Mr. Borci:

Included in this package is the City of Waltham's IDDE Program Report No. 26 for your review. This package describes our progress with the IDDE over the past six (6) months.

In addition to the summary report, this package contains a project schedule for the next six (6) months.

Should you have any questions, please contact me at (781) 314-3831 or rwinn@city.waltham.ma.us.

Sincerely,

Robert S. Winn, P.E.
City Engineer

cc: Honorable Jeannette A. McCarthy, Mayor
Patricia A. Azadi, Assistant City Solicitor

City of Waltham, MA

Illicit Discharge Detection and Elimination (IDDE) Program

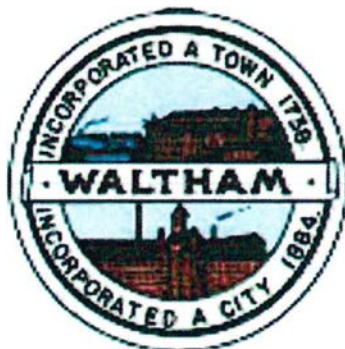
EPA IDDE Program Progress Report No. 26

August 27, 2021

Prepared by:

Robert S. Winn, PE

City Engineer



City of Waltham
Illicit Discharge Detection and Elimination Program
IDDE Program Progress Report No. 26
August 27, 2021

1. Introduction and Program Approach

This document serves as the City of Waltham's Semi-Annual IDDE Progress Report of July, 2021. It contains a description of program achievements since submission of the Semi-Annual IDDE Progress Report #25 dated January 2021.

The City of Waltham is under a United States Environmental Protection Agency (EPA) Administrative Order (dated November 9, 2004) to implement an Illicit Discharge Detection and Elimination (IDDE) Program. The IDDE Program's main goal is to progressively eliminate illicit connections or flows into the City's stormwater system in order to minimize contamination in the receiving water bodies within the City of Waltham. This is being accomplished through systematic water quality sampling and detailed investigations of the outfalls and contributing areas to locate the sources of illicit connections and eliminate by sewer repair or discharge removal.

Our program consultant Pare Engineering is implementing the IDDE Program using a phased approach to investigate prioritized outfalls from the June 2019 IDDE Plan.

IDDE Program Tasks are further described below:

2. Completed and On-Going Work

Work completed between January 30, 2021 and July 31, 2021 is presented below.

2.1. Work Completed to Date

2.1.1 Outfall Inspections and Sampling

- Inspections, sampling, and CCTV of drainage system in Cedarwood Avenue Area – See Attachment A report

2.2. On-Going Work

2.2.1 Jennings Road Sewer Replacement and Drain Replacement Project

- The bidding of this project was delayed while waiting for National Grid to complete gas main relocations in the area. National Grid completed the gas main relocations in December 2020.
- The City never received as-built information from National Grid. We have proceeded to develop our own as-built information, we are updating the contract drawings so we can bid the project. Bidding is expecting to take place in September 2021.

3. Work Scheduled to be Completed over the Next Six Months

3.1 See Schedule – Attachment B

3.1.1 Additional assessments as outlined in draft scope of work included in Attachment C.

3.1.2 Jennings Road – Sewer/Drain Separation Project

The City will bid this project and construction is expected to start during the late fall/winter of 2021.

Attachment A

Inspections, Sampling and CCTV of Drainage System in Cedarwood Area

Summary of Work Complete to Date (Jan 2021 – July 2021)

1. Inspection Plans

- Pare completed visual inspection of the drainage manholes along Cedarwood Avenue, Villa Street and Weston Street.
- Sampling was conducted at six locations for E.Coli:
 - DM-18450 (Cedarwood Avenue)
 - DM-18435 (Villa Street)
 - DM-18505, 18505A, 18510, 18425 (Weston Street)
- CCTV inspection was also conducted at
 - DM-18450 (Cedarwood Avenue)
 - DM-18450A (Cedarwood Avenue)
 - DM-1 (Cedarwood Avenue)
 - DM-18435 (Villa Street)
 - DM-18505A (Weston Street)
- Sampling/CCTV locations and the CCTV Inspection Technical Memorandum, along with the sampling laboratory results are attached.
- Alpha Analytical of Westborough, MA performed the sample analysis that could not be conducted in the field.

2. Sampling Plans

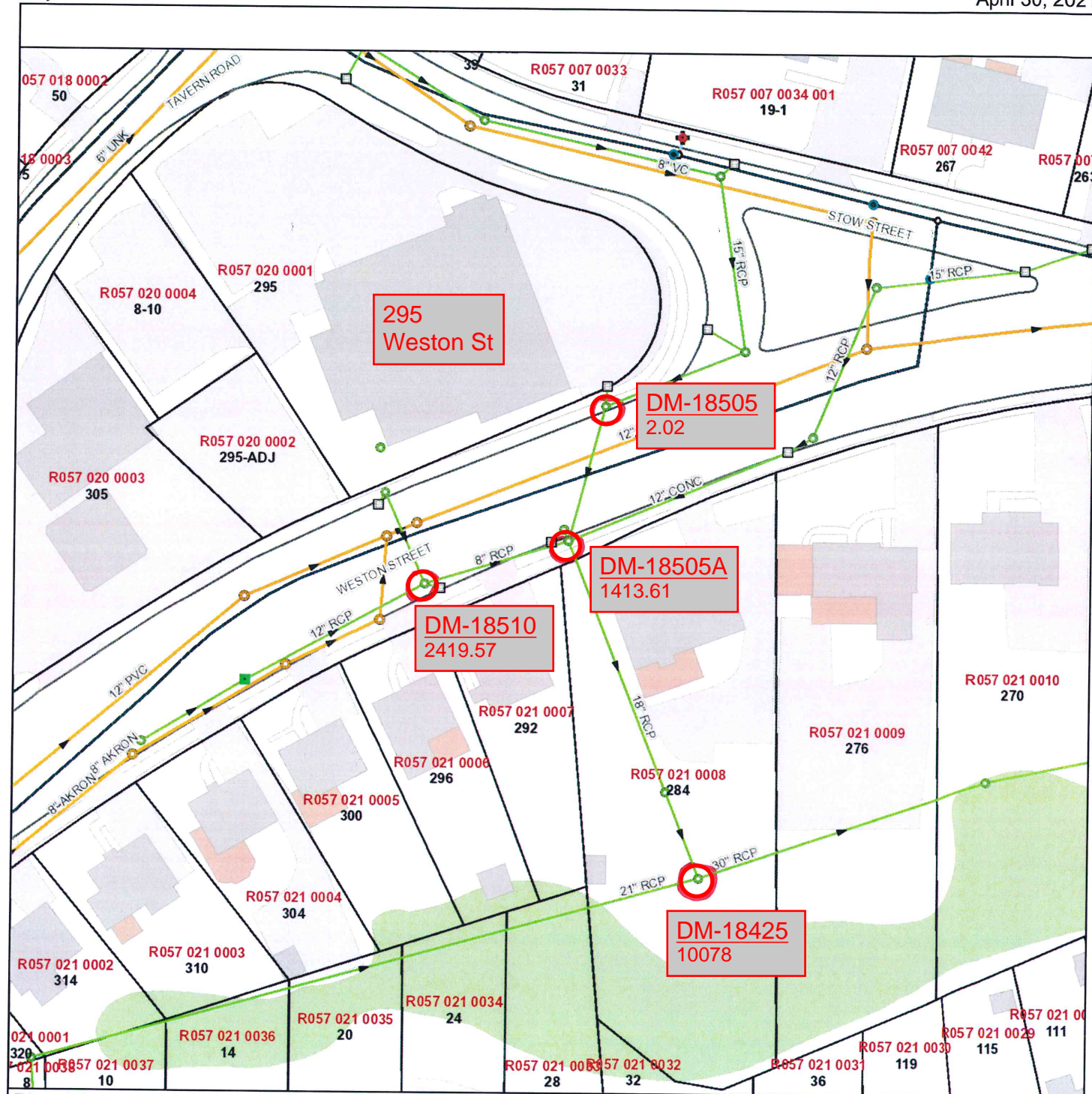
- During visual inspections, locations where dry-weather flow was observed and illicit discharge was suspected were documented, including information regarding the City's identification number for that location, a visual description of the discharge to the extent feasible, the date on which the discharge was observed, and weather conditions within the past 72-hours of the observation.
- Upon completion of visual inspections, Pare returned to locations where the abovementioned conditions were met to collect samples of discharge for field characterization and laboratory analysis for parameters specified in the June 2019 IDDE plan, which included several nutrient pollutants such as nitrogen, phosphorus, and ammonia as well as total surfactants, Enterococcus coli and fecal coliform, among others.
- Pare collected samples from six manholes over the course of one day, separate from the visual inspections, due to the allowable hold time for coliform analysis (must be dropped off within 6-hours of collection and analyzed within 24-hours). CCTV inspection was also completed over the course of one day after sampling results were received.

4. Additional Discharge Verification Methods

- For the storm sewer shed identified in SIB-6, the identified illicit discharge, and excessive concentrations of E.Coli, will be further evaluated to determine their source. Evaluation methods include smoke testing to pinpoint sources along Cedarwood Avenue.
- Pare will work closely and coordinate the priority Sampling Plan with the City's Engineering Department.

Attachments

Attachment 1 – Sampling Locations/E.Coli Concentrations



This map is for reference and planning purposes only. It is prepared for the inventory of real property within the City of Waltham and is compiled from tax maps, recorded deeds and plats. Users of this tax map are hereby notified that the aforementioned public primary information sources should be consulted for the verification of the information contained on this map. The City of Waltham and its mapping contractors assume no legal responsibility for the information contained herein.

→ Rail Line

Drain Structures

- Area Drain
- Drain Manhole
- Pipe End, Cap
- Catch Basin
- Catch Basin - Round
- Clean-out
- Concentration Tank
- Control Structure
- Buried Manhole
- Outfall, Outlet
- Headwall
- Inlet
- Junction
- Leach Pit
- Separator
- Slope Change
- Stormceptor
- Treatment
- Unknown
- Water Quality Indic

Sewer Structures

- Pipe End or Plug
- Chimney
- Clean-out
- Flow Eq. Chamber
- Grease Trap
- Lamp Hole
- Lift Station
- Sewer Meter
- Separator
- Overflow Tank
- Pump
- Pump Station
- Regulator
- Sewer Manhole
- Sewer Manhole (A)
- Trap
- Valve
- Wet Well
- Treatment Plant





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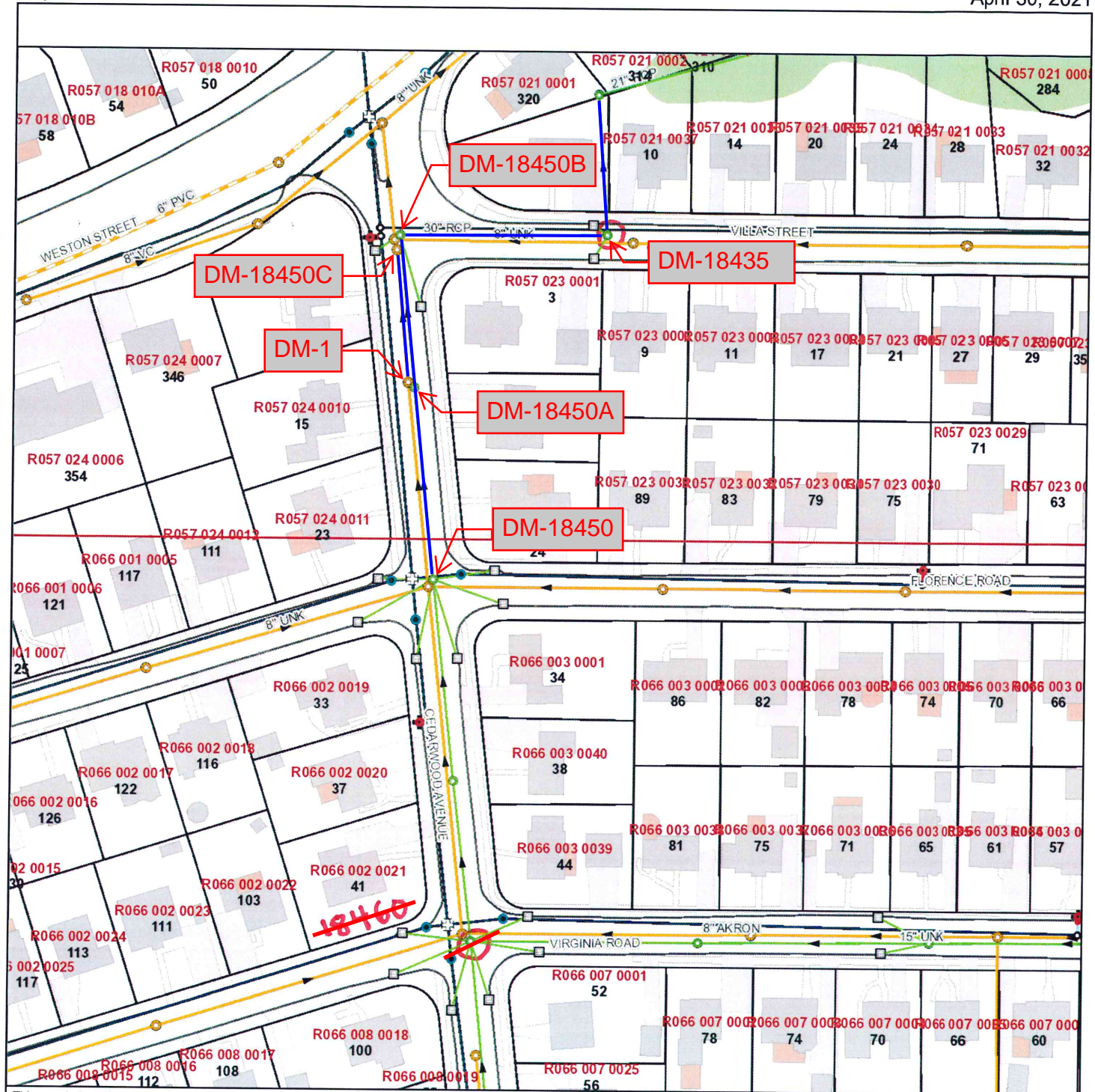
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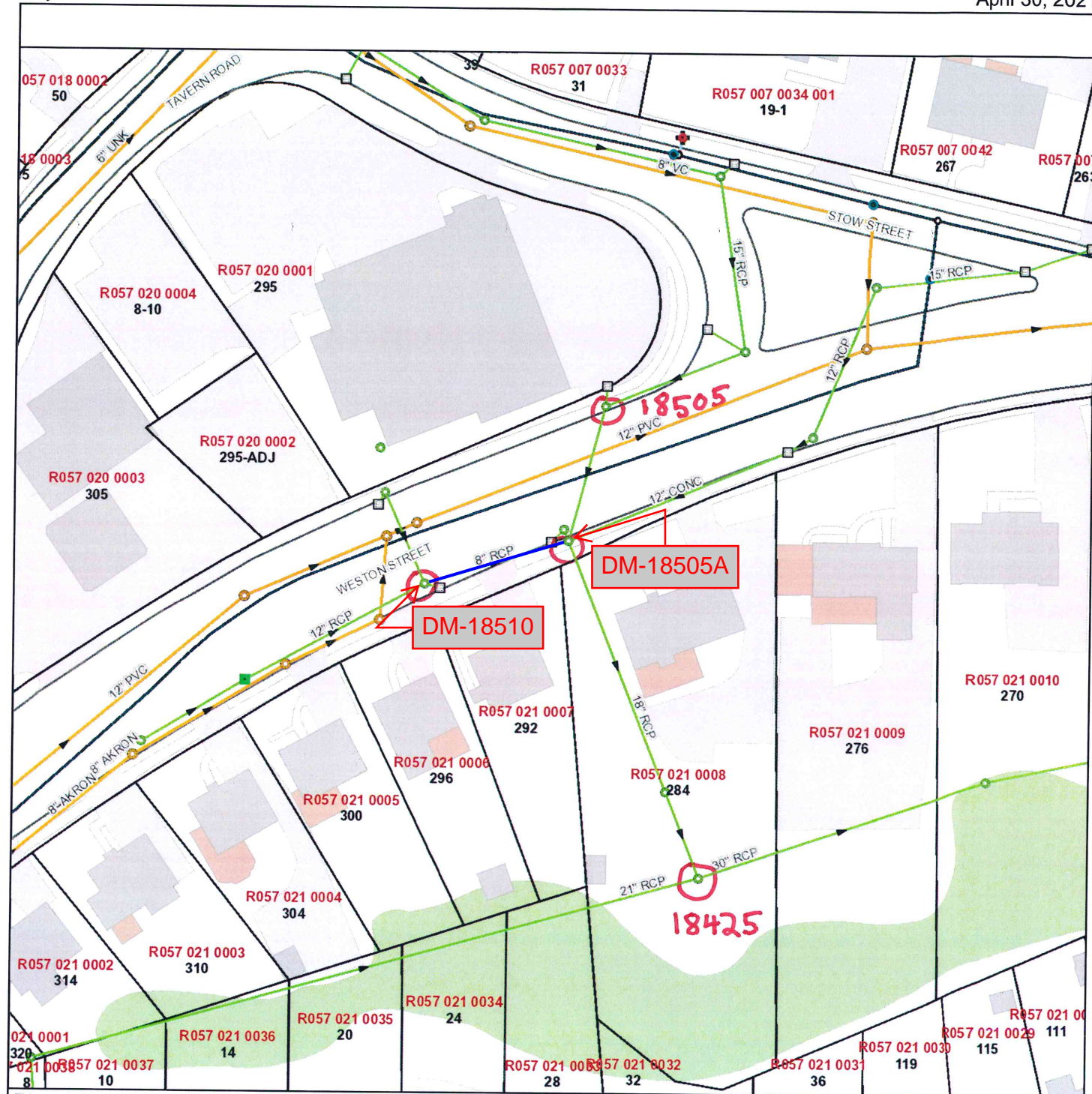
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CCTV Inspection Technical Memorandum



To: John Martino, City of Waltham **Date:** June 17, 2021
From: S. Lakshminarayanan, Pare **CC:**
Michael Moulico, Pare
Reviewed by:
Subject: 20104.00 – Waltham IDDE Program
CCTV Inspection

This memorandum provides a summary of the closed-circuit television (CCTV) and analysis performed by Pare Corporation (Pare) for the City of Waltham, Massachusetts (the City) – on Cedarwood Avenue, Villa Street, and Weston Street. The purpose of this work was to investigate the existing drainage system for illegal sewer lateral connections. Described herein is our methodology, CCTV locations, conditions noted during inspections, the conclusions drawn from this work, and recommendations.

CCTV Inspections and Procedures

Truax Corporation performed the CCTV inspections on June 14, 2021. Inspections were performed as a means of identifying the presence of illegal sewer lateral connections. CCTV locations were determined based on bacteria sampling results where drainage manholes had concentrations significantly greater than 2 MPN/100 ml. Samples were analyzed for E.coli using EPA method 9223B and *Table 1 – Bacteria Sampling Results* presents the concentrations found at each manhole.

Table 1 – Bacteria Sampling Results

Bacteria Sampling Results			
Date Sampled	Manhole ID	E.coli (MPN/100 ml)	CCTV Inspected
5/14/2021	DM-18435	35,780	•
5/14/2021	DM-18450	7.45	
5/14/2021	DM-18505	2.02	
5/14/2021	DM-18505A	1,413.61	•
5/14/2021	DM-18425	10,078	
5/14/2021	DM-18510	2,419.57	

Additional drainage lines/manholes were inspected that were not included in the bacteria sampling round. A location figure is attached as *Figure 1 – CCTV Inspection Locations*, which shows the areas where the work was performed.

Inspection priority was given to lines on Cedarwood Avenue, followed by lines on Weston street, with the least priority given to the lines within the easement located between Villa and Weston Street. Due to inclement weather and time restraints, inspections occurred on Cedarwood Avenue and Weston Street. *Table 2 – CCTV Inspection information* presents a breakdown of each inspection.

Table 2 – Additional CCTV Inspection Information.

CCTV Inspection Information					
Date Inspected	Street	Manhole ID (1)	Manhole ID (2)	Length Inspected (ft)	Sewer Connection
6/14/2021	Cedarwood Ave	DM-18450	DM-18450A	135.1	No
6/14/2021	Cedarwood Ave	DM-18450	DM-18450B	28.1	No
6/14/2021	Cedarwood Ave	DM-18450A	CB-1	95.2	No
6/14/2021	Cedarwood Ave	DM-1	DM-18450C	90.5	No
6/14/2021	Villa Street	DM-18435	DM-18435A	91.2	No
6/14/2021	Villa Street	DM-18435	DM-18450B	144.2	No
6/14/2021	Weston St	DM-18505A	DM-18510	71.8	No

Conditions Noted

Field observations were performed by Pare Corporation of Lincoln, Rhode Island and the CCTV footage was provided to the City of Waltham on June 14, 2021. The following conditions were observed:

- *Cedarwood Avenue:*

CCTV inspections along Cedarwood Avenue focused on the drainage line between DM-18450 (E.coli concentration = 7.45 MPN/100 ml) and DM-18435 (E.coli concentration = 35,780 MPN/100 ml). No illegal sewer lateral connections were encountered. After drainage CCTV was completed along Cedarwood Avenue, the City opened (2) sewer manholes on Cedarwood – labeled as DM-18450C and DM-1. DM-18450C is marked as a sewer manhole but connects to the drainage system at DM-18450B. DM-18450C had toilet paper, excessive sediment accumulation, and gray/murky water along the bottom of the manhole. Truax cleaned and jetted the inlet line prior to CCTV inspection. DM-1 is also labeled as sewer, but has an underdrain running through the manhole parallel to the sewer line. The interior of the manhole is coated in epoxy. A CCTV inspection was performed from DM-1 to DM-18450C – the line had multiple fractures along the top of pipe and there was evidence of paper fibers in the water along the bottom of the pipe. Photos 1-3 present the conditions encountered at the (2) manholes.



Photo 1 – DM-18450C prior to cleaning.



Photo 2 – DM-1 w/ underdrain and sewer main.



Photo 3 – Paper accumulation in pipe between DM-1 and DM-18450C.

- **Weston Street:**

CCTV inspections along Weston Street focused on the drainage line between DM-18505A (E.coli concentration = 1,413.61 MPN/100 ml) and DM-18510 (E.coli concentration = 2,419.57 MPN/100 ml). No illegal sewer lateral connections were encountered. Plans provided by the City show DM-18510 with an inlet coming from a drainage line further west on Weston Street. CCTV Inspection confirmed that this line does not exist. DM-18510 also has a culvert that crosses under Weston Street to the north (towards 295 Weston Street). The culvert could not be CCTV'd – debris/rock accumulation. Due to rainfall, DM-18505A could not be used as an access point to inspect the easement drainage line ending at DM-18425 (E.coli concentration = 10,078 MPN/100 ml). Heavy stormwater flow prevented Truax from utilizing the CCTV camera in this area – CCTV inspection along the easement was abandoned.

Conclusions

Based on the sampling results and observations made during the CCTV inspections, the following conclusions are made:

- There was no direct evidence of illegal sewer lateral connections for the drainage lines CCTV'd – Cedarwood Avenue, Villa Street and Weston Street.
- An underdrain was located on Cedarwood Avenue. The underdrain enters DM-18450C and connects to DM-18450B (drainage system).
- DM-1 is upstream to DM-18450C. DM-1 contains the underdrain, flowing parallel to the sewer main (approx. 12-in separation). The sewer main (vitrified clay pipe) is encapsulated in epoxy, but underdrain showed evidence of lateral flow away from sewer main (no direct evidence – possibly groundwater).
- DM-18450C had graywater, toilet paper, and an odor similar to that of a sewer manhole (more severe when manhole was cleaned).

Recommendations

Based on the sampling results and observations made during CCTV inspections, the following recommendations are made:

- It is evident, through laboratory analysis, that there is an exceedance of E.coli within the drainage system along Cedarwood Avenue, Villa Street, and through the easement located between Villa and Weston Street. Further investigations are needed for the sewer main on Cedarwood Avenue – sewer manhole at intersection of Cedarwood Avenue and Florence Road to sewer manhole at intersections of Cedarwood Avenue and Villa Street. This section of the sewer should undergo a condition assessment, specifically

the area passing through DM-1, where cross-contamination could be occurring between the sewer main and underdrain.

- Pare suggests additional dye testing at all residential homes that have an existing connection to the sewer main on Cedarwood Avenue, between Florence Road and Villa Street. Dye testing should also be performed at the sewer manhole at the Cedarwood Avenue and Florence Road while observing DM-1 and DM-18450C.
- The City can also perform smoke testing on all sewer and drainage mains on Cedarwood Avenue, between Florence Road and Vila Street.



ANALYTICAL REPORT

Lab Number:	L2125375
Client:	Pare Engineering Corporation 10 Lincoln Road Suite 210 Foxboro, MA 02035
ATTN:	Sunder Lakshminarayanan
Phone:	(508) 543-1755
Project Name:	IDDE PROGRAM
Project Number:	20104.00
Report Date:	05/25/21

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: IDDE PROGRAM
Project Number: 20104.00

Lab Number: L2125375
Report Date: 05/25/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2125375-01	DM-18435	WATER	WALTHAM, MA	05/14/21 08:25	05/14/21
L2125375-02	DM-18450	WATER	WALTHAM, MA	05/14/21 08:45	05/14/21
L2125375-03	DM-18505	WATER	WALTHAM, MA	05/14/21 09:15	05/14/21
L2125375-04	DM-18500A	WATER	WALTHAM, MA	05/14/21 09:35	05/14/21
L2125375-05	DM-18425	WATER	WALTHAM, MA	05/14/21 10:00	05/14/21
L2125375-06	DM-18510	WATER	WALTHAM, MA	05/14/21 10:30	05/14/21

Project Name: IDDE PROGRAM
Project Number: 20104.00

Lab Number: L2125375
Report Date: 05/25/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: IDDE PROGRAM
Project Number: 20104.00

Lab Number: L2125375
Report Date: 05/25/21

Case Narrative (continued)

Sample Receipt

The samples were received at the laboratory above the required temperature range. The samples were transported to the laboratory in a cooler with ice and delivered directly from the sampling site. This is considered acceptable since the samples were in the process of cooling.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Caitlin Walukevich

Title: Technical Director/Representative

Date: 05/25/21

INORGANICS & MISCELLANEOUS

Project Name: IDDE PROGRAM
Project Number: 20104.00

Lab Number: L2125375
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2125375-01
Client ID: DM-18435
Sample Location: WALTHAM, MA

Date Collected: 05/14/21 08:25
Date Received: 05/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
E. Coli (MPN)	35780		MPN/100ml	200	NA	200	-	05/14/21 15:20	121,9223B	JT



Project Name: IDDE PROGRAM
Project Number: 20104.00

Lab Number: L2125375
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2125375-02
Client ID: DM-18450
Sample Location: WALTHAM, MA

Date Collected: 05/14/21 08:45
Date Received: 05/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
E. Coli (MPN)	7.45		MPN/100ml	1	NA	1	-	05/14/21 15:20	121,9223B	JT



Project Name: IDDE PROGRAM
Project Number: 20104.00

Lab Number: L2125375
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2125375-03
Client ID: DM-18505
Sample Location: WALTHAM, MA

Date Collected: 05/14/21 09:15
Date Received: 05/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
E. Coli (MPN)	2.02		MPN/100ml	1	NA	1	-	05/14/21 15:20	121,9223B	JT



Project Name: IDDE PROGRAM
Project Number: 20104.00

Lab Number: L2125375
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2125375-04
Client ID: DM-18500A
Sample Location: WALTHAM, MA

Date Collected: 05/14/21 09:35
Date Received: 05/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
E. Coli (MPN)	1413.61		MPN/100ml	1	NA	1	-	05/14/21 15:20	121,9223B	JT



Project Name: IDDE PROGRAM

Project Number: 20104.00

Lab Number: L2125375

Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2125375-05

Client ID: DM-18425

Sample Location: WALTHAM, MA

Date Collected: 05/14/21 10:00

Date Received: 05/14/21

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
E. Coli (MPN)	10078		MPN/100ml	200	NA	200	-	05/14/21 15:20	121,9223B	JT



Project Name: IDDE PROGRAM
Project Number: 20104.00

Lab Number: L2125375
Report Date: 05/25/21

SAMPLE RESULTS

Lab ID: L2125375-06
Client ID: DM-18510
Sample Location: WALTHAM, MA

Date Collected: 05/14/21 10:30
Date Received: 05/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
E. Coli (MPN)	2419.57		MPN/100ml	1	NA	1	-	05/14/21 15:20	121,9223B	JT



Project Name: IDDE PROGRAM

Lab Number: L2125375

Project Number: 20104.00

Report Date: 05/25/21

Method Blank Analysis

Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab for sample(s): 01-06 Batch: WG1499257-1										
E. Coli (MPN)	<1		MPN/100ml	1	NA	1	-	05/14/21 15:20	121,9223B	JT

Project Name: IDDE PROGRAM**Lab Number:** L2125375**Project Number:** 20104.00**Report Date:** 05/25/21**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2125375-01A	Bacteria Cup Na2S2O3 preserved	A	NA		17.1	Y	Absent		E-COLI-QT(.33)
L2125375-01B	Bacteria Cup Na2S2O3 preserved	A	NA		17.1	Y	Absent		E-COLI-QT(.33)
L2125375-02A	Bacteria Cup Na2S2O3 preserved	A	NA		17.1	Y	Absent		E-COLI-QT(.33)
L2125375-02B	Bacteria Cup Na2S2O3 preserved	A	NA		17.1	Y	Absent		E-COLI-QT(.33)
L2125375-03A	Bacteria Cup Na2S2O3 preserved	A	NA		17.1	Y	Absent		E-COLI-QT(.33)
L2125375-03B	Bacteria Cup Na2S2O3 preserved	A	NA		17.1	Y	Absent		E-COLI-QT(.33)
L2125375-04A	Bacteria Cup Na2S2O3 preserved	A	NA		17.1	Y	Absent		E-COLI-QT(.33)
L2125375-04B	Bacteria Cup Na2S2O3 preserved	A	NA		17.1	Y	Absent		E-COLI-QT(.33)
L2125375-05A	Bacteria Cup Na2S2O3 preserved	A	NA		17.1	Y	Absent		E-COLI-QT(.33)
L2125375-05B	Bacteria Cup Na2S2O3 preserved	A	NA		17.1	Y	Absent		E-COLI-QT(.33)
L2125375-06A	Bacteria Cup Na2S2O3 preserved	A	NA		17.1	Y	Absent		E-COLI-QT(.33)
L2125375-06B	Bacteria Cup Na2S2O3 preserved	A	NA		17.1	Y	Absent		E-COLI-QT(.33)

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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report



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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. (Note: 'PFAS, Total (6)' is applicable to MassDEP DW compliance analysis only.). If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where

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Data Qualifiers

the identification is based on a mass spectral library search.

- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

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REFERENCES

- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Attachment B

Work Schedule

City of Waltham, MA

EPA IDDE Program Six Month Look-Ahead Schedule

August 2021

[illegible]

Notes: Follow-up sampling will continue as needed to identify IDDE sources

Attachment C

Scope of Work

Basic Services: Scope of Work

TASK 1: Group I – Outfalls that have exceedances on multiple parameters

Group I outfalls which have exceeded allowable limits on multiple parameters are prone to cross connection risk. These outfalls are: OF 145, OF 203, OF 731, OF 9 and IMC 10. These would be categorized as high priority outfalls for further upstream testing to identify the source of cross-connection. Pare will perform the dry weather field screening and sampling program for outfalls located upstream of this list. For every outfall upstream of the ones noted above, Pare will sample and analyze for the following parameters: pH, Conductivity, Total Dissolved Solids, Temperature, E. Coli (fecal coliform), Total residual chlorine, Nitrogen (Ammonia), Total Phosphorus and Surfactants. Once sampling is done, based on the results smoke testing and/or dye testing shall be used to isolate the point-sources. It is assumed that Pare will sample six (6) outfalls upstream for each in the above list and a total of 30 are anticipated. If required by the City, Pare will conduct further investigations based on the costs given below.

Pare will work with the City to develop the list of upstream outfalls. Each outfall will be GPS located via Trimble GeoXH (sub-foot horizontal accuracy) as part of the City-wide drainage system mapping initiative (City is calling tablet GPS running ArcPad software).

As part of this proposal, it is anticipated that Pare will field screen and sample, if necessary, 10 - 12 outfall locations per day.

TASK 2: Group II – Outfalls that have high Chlorine residuals

Group II outfalls which contain higher residual chlorine would indicate potential leaks in the water system which may end up in the storm sewer. The outfalls are: OF 128, OF 155 and OF 190. Leak detection testing of the adjacent water distribution networks shall be performed to evaluate the condition of the infrastructure.

Leak Detection

Through our sub consultant, Vital Leak Detection (VLD), a leak detection survey of the water system will be performed to verify leaks that exist within the pipe network associated with areas of outfalls as indicated above. The leak survey will utilize state-of-the-art digital leak detection equipment including digital correlators and correlating loggers; and digital ground and contact microphones. Deployment of the equipment will be determined by the site conditions. Site conditions such as ground surface, pipe material and diameter, soil type and depth, system pressure and ambient noise would be considered to select the appropriate tools. VLD will utilize this data and determine listening points and intervals. During the initial phase, high-sensitivity ground and contact microphones will be used to detect possible leakage. After developing the initial list of leak sites, those will be re-checked to rule out usage or other non-leak sounds. The second phase will be used to pin-point the exact location of the leaks, and for this a digital correlator and/or multiple digital correlating loggers will be deployed, as necessary. Default or excessive noises will be eliminated by using overnight correlative logging. VLD will also use ground microphones to confirm results as required. In cases where ground microphony is not possible or leads to unreliability, in-depth analysis of digital data will be used to evaluate and identify the exact leak locations in the system.

VLD's digital equipment has a longer reach than analog equipment, and the table (pictured below) will be used as a 'rule-of-thumb'.

These distances are subject to variation considering the soil characteristics, pressure, types of joints, gaskets etc., and because many factors affect sound amortization in the pipe, pipes can vary widely in their sound carrying characteristics. To further eliminate any doubts, VLD will opt to simulate small leaks by using a slightly opened hydrant or attaching a mild, vibrating device to the pipe, hydrant or fitting and check the distance of travel.

Pipe Material and Diameter	Distance Sounds Travel for 2 GPM Leak at 60 PSI
Cast Iron Pipe (6-inch)	600 to 1000 feet
Cast Iron Pipe (12-inch)	400 to 800 feet
Cast Iron Pipe (24-inch)	200 to 400 feet
AC Pipe (6-inch)	400 to 800 feet
AC Pipe (12-inch)	300 to 500 feet
AC Pipe (24-inch)	100 to 300 feet
PVC Pipe (6-inch)	200 to 300 feet
PVC Pipe (12-inch)	100 to 200 feet
PVC Pipe (24-inch)	50 to 100 feet

VLD uses digital equipment as it provides several advantages over analog equipment such as higher sensitivity, longer reach, better accuracy and simultaneous pinpointing of multiple leaks. Some of the equipment that VLD will use in the project will be digital contact microphones, digital ground microphones, digital leak correlators with leak management software, and digital correlating loggers with leak management software.

Post survey, VLD will develop a detailed report which will include a unique leak identifier with the street address of the leak and GPS coordinates, photo of the leak site with leak position marked and rotated, the source type, pipe information, ground cover, estimated loss rate, a table of leakage by source, and a table of estimated annualized losses. Pare will incorporate these tables and data to develop the final condition database.

During the leak detection phase, VLD will be in communication with the water system staff to minimize the impact of the survey on everyday operations. Also, VLD would require part-time assistance from one water system operation's employee who possesses a good knowledge of the system.

TASK 3: Group V – Outfalls that have high coliform (E. Coli) exceedances

Group V outfall have exhibited bacterial (E.Coli) concentrations higher than the thresholds is recommended that upstream flow tracking be conducted to identify the source of contamination. The outfalls are: OF -111, OF-126, OF-145, OF-159, OF-528, OF-176, OF-625, OF-652, OF -73, OF-732, OF-735, OF-793, OF-799, OF-81 will fall under the high priority list. IMC-8 sampling indicates E. coli concentrations which are way above tolerance. Also, DCR Structure ID, 23903 was identified by the Mass DCR and this outfall will be included as part this study. Based on the test results, if needed, tests such as dye-testing and/or smoke testing shall be conducted to isolate the point source.

Pare will undertake dry weather sampling of the junction upstream of these listed outfalls following a minimum 72-hour period of no rainfall or snow melt. During the sampling, Pare will obtain field measurements at the SIB for temperature, chlorine, and pH. Pare will also obtain field measurements in the upstream and downstream of SIB-6 for comparison. In addition, samples will be sent to a certified analytical laboratory and analyzed for fecal coliform. These parameters can be used to identify the type of contamination that may be impacting SIB-6 (e.g., grey water, sewerage, etc.).

The assessment will begin with the immediately preceding junction and proceed upstream. Pare will work with the City to develop the list of upstream outfalls. The purpose of this assessment will be to follow dry-weather flows upstream along the conveyance system in order to bracket the location of source. Once a dry structure (i.e., manhole, catch basin, etc.) is identified, the source of the discharge is typically between the dry structure and the next downstream structure. However, there may be more than one connection in each line. Therefore, Pare will make note of certain field observations that may indicate more than one connection in a basin, such as apparent increases in flow from one manhole to the next, changes in color,

turbidity, odor, temperature, waste products, etc. Standard pipe related information will also be collected and confirmed and will include information such as pipe size, material type, etc.

Task 4: Smoke and/or Dye Testing

Pare will assist the City with smoke testing the outfalls for the purpose of identifying potential illicit connections to the underdrain. At this time, the exact nature of each inspection cannot be determined as it will be based on the results of Pare's initial assessment. However, Pare anticipates that inspections will begin with smoke testing from the street. Pare will utilize a non-toxic smoke that will be applied at suspect catch basins or drainage manholes. While smoke is blown into the storm drain system, Pare personnel will make observations about where the smoke comes to the surface, with particular attention paid to roof vents of nearby homes. Any smoke coming out of a roof vent would represent a confirmed connection to the property sewer connection. However, the absence of smoke does not necessarily indicate that there is not an illicit connection from that particular home, it may indicate that smoke was unable to make it to the roof vent, either due to a trap in the plumbing or faulty plumbing in the house. Further investigation may be warranted at individual homes.

If the smoke testing is inconclusive, Pare, with assistance from the City, will conduct dye testing of the sewer collection system in the contributing drainage area. Dye testing will be conducted at the manholes closest to the suspected outfall. Dye testing at individual homeowner properties will be conducted only if the results of the smoke testing or sampling and analysis indicates a strong likelihood of individual connections to the underdrain. Any such testing will be coordinated with the homeowner through the City prior to commencement.

No entry will take place less than seven (7) days after written notice of intent to enter and inspect the property, as provided by the City. Please note that Pare personnel will present appropriate credentials to the homeowner prior to entering individual homes. Those credentials will include two forms of identification (e.g., Pare ID and driver's license) and a copy of the notice of intent signed by a City official. Pare personnel will also observe any COVID-19 related protections/protocols in effect at the time.

Pare shall utilize a non-toxic dye during the dye tests. Two distinct colors will be utilized to differentiate between different sources. Pare will have at least two staff members present during each test, equipped with two-way radios, one stationed in the home and one stationed in the street.

Pare assumes that the City will provide access (i.e., open and close) manholes for the purpose of dye testing. In addition, the City will provide a police detail or other means of traffic protection, if needed. Finally, the City will notify any individual homeowner whose property, based on the results of the smoke testing, has a strong likelihood of a direct connection to the underdrain system.

The combination of smoke testing and dye testing should provide substantial evidence of direct illicit tie-ins to the storm drain system; however, the smoke testing and dye testing will not provide definitive information on groundwater seepage into the storm drain system. Video inspection of the storm drain system may be required.

Task 5: Video Inspection

Pare will conduct one day of video inspections of select storm drains. The video inspections may be coordinated with the dye testing and home inspections in order to provide definitive information relative to specific suspected tie-ins. However, the primary purpose of the video inspections will be to identify groundwater seepage in the storm drain system and previously unidentified connections. Pare will look for cracks, offset joints, leaks, etc. that may be allowing polluted groundwater to enter the storm drain system.

At the conclusion of the task, Pare will prepare a technical memorandum that will outline the scope of the project, our methodology, and the results of our investigation along with recommendations for future action. Pare will identify areas where the information was conclusive and areas where the information obtained was inconclusive. For areas where we are able to identify specific illicit discharges, In areas where the information obtained was inconclusive, Pare will make recommendations for additional investigation. Pare will also make recommendations for confirmatory sampling once specific measures have been taken to eliminate illicit discharges.

TASK 6: Project Updates

Using the information and technical memorandums developed from earlier tasks, Pare will prepare and submit status report to the City and will work with the City to provide relevant project updates for the City's website, project management and general coordination. As part of this activity, Pare will submit the deliverables as indicated below.

TASK 7: Training

Pare will provide a 4-hour training for the City employees related to implementing best management practices associated with dealing with IDDE management and outfalls identified as having higher Nitrogen and Phosphorus concentrations. Pare will develop the draft training module and submit for review to the City. Upon review and incorporation of City's comments, Pare will finalize the training module and conduct an in-person or a virtual session based on the State and City's social distancing norms and requirements relating to the pandemic.

TASK 8: Police Details

Pare will coordinate with the City of Waltham's Police Department for regulating traffic as required during periods of lane/road shutdowns associated with any field work. Any fees associated with police traffic details shall be reimbursed to Pare and this is included as an allowance item.

DELIVERABLES:

Pare will submit an updated geodatabase depicting updated attribute data associated with each of the outfalls surveyed, coordinate updates to the Stormwater GIS database, and summarize the results of this program in a memorandum for the City's records Pare will create a series of summary reports and ArcPad GPS maps of the Dry Weather Field screening & Sampling Program results. In general, the reports and maps will include location, size and type of outfall, flow, samples collected sample results, temperature, conductivity, pH, and sample analysis methods.