

# 2022 NPDES Wastewater Report

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## *Lowell Regional Wastewater Utility*



*NPDES Permit Number: MA0100633*

*Report Date: March 31, 2023*

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## 1. Introduction

Lowell Wastewater is a public utility located in Lowell, Massachusetts that owns, maintains and operates Duck Island Wastewater Treatment Facility; an extensive stormwater drainage system; a flood protection system; and a wastewater collection system comprised by a large combined sewer system dating to the 1800s, newer separated conveyance systems, and a multi-modal wastewater treatment works that delivers efficient secondary-level treatment of dry-weather sewage flows as well as wet-weather flows up to 112 million gallons per day (MGD).

Lowell Wastewater's mission is to effectively manage wastewater and stormwater transport and treatment systems in a professional manner. LRWWU strives to provide reliable, cost-effective, high-quality services that protect public health, promote environmental stewardship, and deliver outstanding service to our customers.

This Annual Report documents and summarizes the performance of the Utility in complying with its National Pollutant Discharge Elimination System (NPDES) permit under the Clean Water Act during the current reporting year. The report is inclusive of programs implemented to maintain, repair and replace the sewerage network and CSO diversion structures as well as operation and maintenance of the Duck Island Wastewater Treatment Facility (Duck Island), which operates in accordance with its NPDES permit, its voluntary ISO 14001 Environmental Management System, and all applicable state and Federal regulations.

Lowell Wastewater's sewer system consists of approximately 226 miles of gravity sewers and 14 sewage pumping stations. Ten miles of large-diameter (48-inch to 120-inch) interceptors located along the banks of the Merrimack and Concord Rivers collect wastewater from the sewer system and convey it to Duck Island. Duck Island was designed to provide biological (activated sludge) treatment for a design flow of 32 million gallons per day (MGD), with a peak capacity of 48 MGD. A plan view of Duck Island and the interceptor system is provided in [Figure 1](#).

During wet-weather conditions, a maximum flow of approximately 110 MGD is processed at Duck Island. Flow exceeding the capacity of the biological and secondary clarifier systems (secondary systems) causes activation of the high-flow treatment mode: high-flow treatment receives screening and primary clarification, which is followed by pre-chlorination before being mixed with secondary treatment effluent. This mixture is then disinfected and discharged into the Merrimack River in compliance with Lowell's NPDES effluent permit requirements.

Flow in excess of the high-flow treatment capacity is stored in the interceptor system through an automated network of gates controlled by computational algorithms designed for the purpose, and implemented in a Supervisory Control and Data Acquisition (SCADA) system. Flows to the collection system that exceed this interceptor storage capacity are diverted as combined sewer overflows (CSOs) to the Merrimack River, the Concord River and Beaver Brook, as necessary to prevent sewer system surcharges that may cause sewage back-ups into homes and streets.

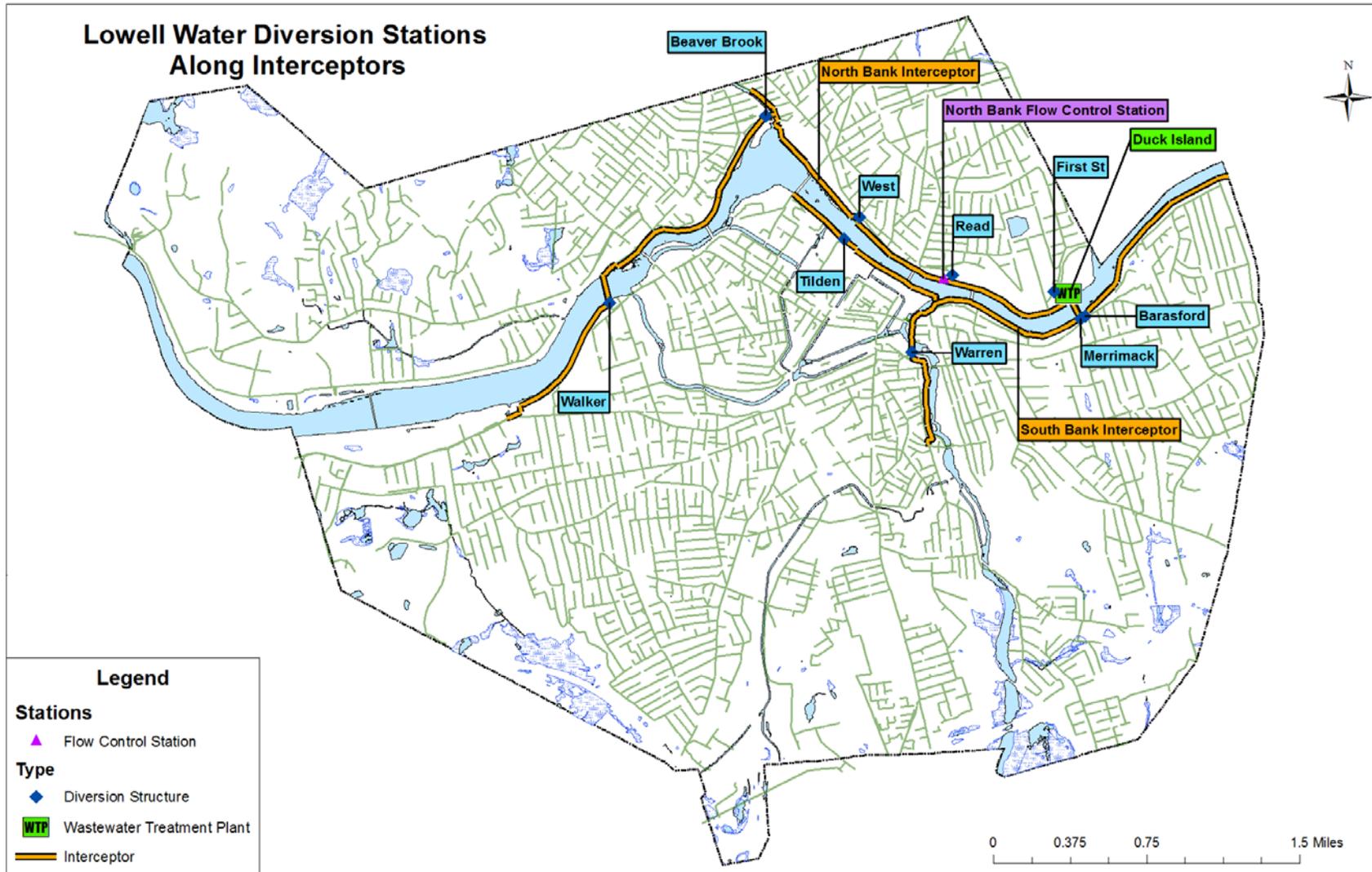


Figure 1. Lowell Wastewater Collection and Treatment Systems Overview

Lowell Wastewater actively manages several programs vital to maintaining and operating the collection system and Duck Island effectively to implement CSO control, following the requirements outlined in its NPDES Permit at Attachment E: Nine Minimum Controls (NMC). These programs include the following:

1. Capital Improvement Program (CIP)
2. Collection System Capacity, Management, Operations and Maintenance Program (CMOM)
3. Combined Sewer System High-Flow Management (HFM) Program
4. Infiltration and Inflow (I/I) Control Program

This report serves as an annual summary of the core components of these programs and highlights actions taken in 2022 to actively maintain and implement the NMC.

## 1.1 Executive Summary

As part of the NPDES permit, Lowell Wastewater is required to submit an annual report that summarizes Capacity, Management, Operation, and Maintenance (CMOM) corrective actions and other activities ([Section 2](#)), an update on infiltration and inflow control (I/I) activities in its sewer collection system ([Section 2.6](#)), CSO activity and wet-weather data ([Section 3.4](#)), certify adequate recording of CSOs ([Section 3.1](#)) and inspections of CSO facilities ([Section 3.3](#)), and reports on Lowell Wastewater's Nine Minimum Controls (NMC) program ([Section 4](#)).

This annual report is designed to meet the requirements described above, and to provide an annual record of relevant revisions to high-level planning and management of the Utility. It is worth noting, this report references publicly available documentation containing detailed and supplemental overviews of the Utility's core operational programs related to the operation and maintenance of its collection system. Links to these documents, hosted on the City's website, can be found in [Appendix A](#).

Lowell Wastewater has continued to commit substantial resources toward reduction of CSOs, identification of inflow and infiltration, and maintenance and operation of its sewage collection and treatment systems.

## 2. CMOM Program Plan and Annual Report

Lowell Wastewater funded its CMOM program at a rate of \$5.3M in FY2022; this accounts for 22.6% of the Utility's overall budget for the year. This funding supported a variety of ongoing maintenance programs, including cleaning, inspection and repair work performed in last year:

- Replacement of 529 feet of sewer and drain line
- Repair of 10,159 feet of sewer and drain line with cured-in-place-pipe (CIPP)
- Repair and replacement of 67 catch basins
- Repair and replacement of 5 manholes
- Associated paving, test pits, and sidewalk repairs
- Cleaning of 13,221 feet of sewer and drain lines
- Video inspection of 28.8 miles (152,289 feet) of sewer and drain lines
- Handling of 380 collection-system work-order requests
- Handling of 369 catch basin, residential sewer-backup and street-flooding reports
- Bi-annual street sweeping yielding removal of 425 tons of sediment and debris prior to entering the collection system
- Cleaning of 1,659 catch basins

The City conducted a CMOM self-assessment update as part of its National Pollutant Discharge Elimination System (NPDES) requirement to properly operate and maintain its sewer system. This CMOM Self-Assessment was completed and submitted the regulatory agencies in December 2022, and serves as a thorough account and summary of the current status and performance of Lowell's collection system. Response to future actions identified within the Self-Assessment will be provided as part of the City of Lowell's CMOM Corrective Action plan (CMOM CAP), which is slated for submission in March 2023.

The following subsections include a more detailed presentation of sewer rehabilitation work performed in 2022.

### 2.1 Collection System Management

The purpose of Lowell's collection system is to protect public health and the environment by conveying sewage wastes to the Duck Island for treatment, and to prevent unnecessary property damage from flooding or sewer surcharging. The primary objectives of the CMOM program are to ensure that all work necessary to provide maximum conveyance of wastewater to the treatment plant is performed in a timely manner and to industry standards.

To this end, Lowell's collection system is managed by the Maintenance Manager and Collection System Supervisor, who works in coordination with other Maintenance, Operations and Engineering staff to plan, perform and document the physical and operational states of the assets that make up the collection system: catch basins and manholes; sewer laterals, mains, trunk lines and interceptors; pump stations; communications networks, sensors and associated automated equipment.

The Collection System Supervisor also responds actively to customer requests regarding sewage back-ups and surcharges, and participates in bi-weekly collection-system meetings to identify, discuss and address performance issues related to the CMOM program.

### 2.1.1 Organizational Structure

An organizational chart depicting authorities and positions of all staff at Lowell Wastewater is provided as *Figure 2*. Positions that have responsibilities related to collection systems operations are shown in green, with a gradient shading reflective of the percentage of time dedicated to the collection system. Below is a breakdown of the position title and number of positions assigned to the collection system. The percentage indicated next to the position indicates the percent of time dedicated to the collection system:

- Maintenance Manager (1) – 50%
- Collection System Supervisor (1) – 100%
- Mechanic I (4) – 100%
- Mechanic I (2) – 50%
- TV Inspector (2) – 100%
- Pretreatment Coordinator (1) – 100%
- Engineering Manager (1) – 60%
- Engineering Supervisor (1) – 90%
- Staff Engineers (3) – 100%

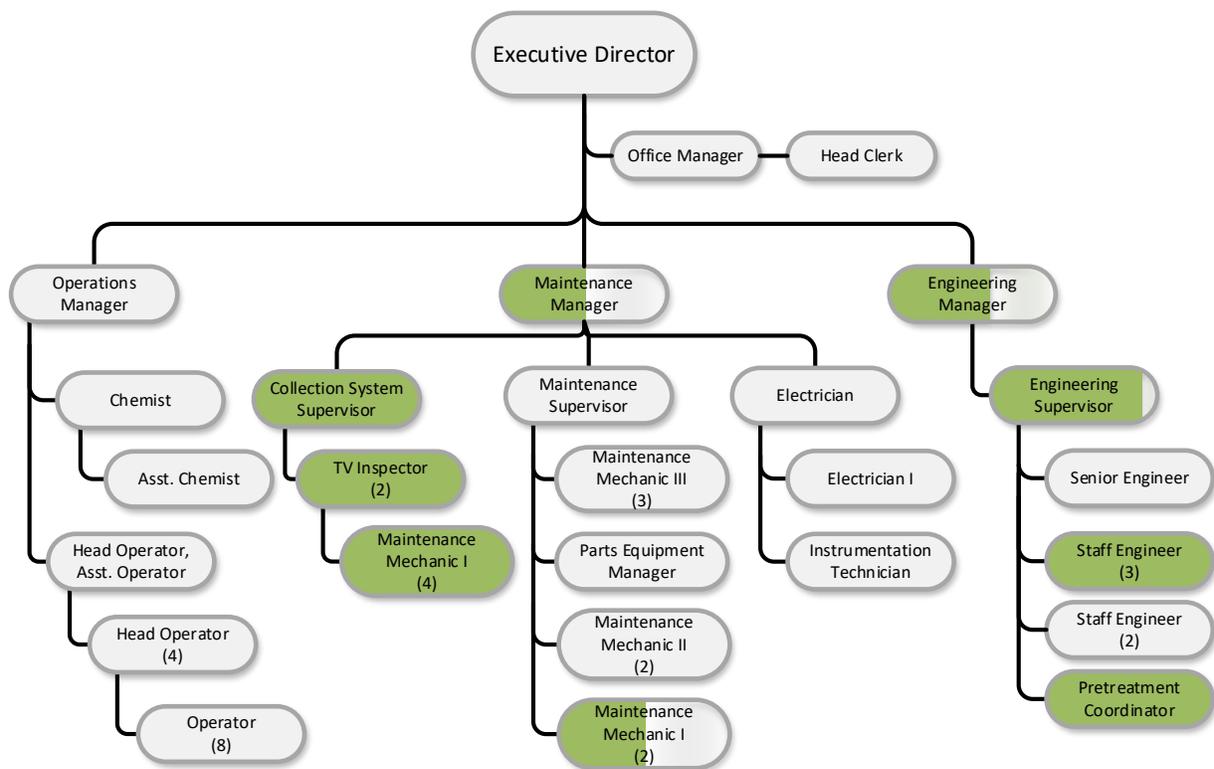


Figure 2. Lowell Wastewater Organizational Chart

Job descriptions are maintained by the Office Manager and include the nature of the work performed, minimum requirements for the position, special qualifications and certifications or licenses that are required. Advancement through the ranks is encouraged through multiple practices, including: educational reimbursement for advanced degrees; annual stipends for certifications achieved and maintained; and preferential consideration for open positions. Such practices allow Lowell to retain talented workers with critical system knowledge and experience, and to place high-performing individuals in charge of critical programs like CMOM. Copies of these job descriptions can be found in [Appendix B](#).

In addition to these positions, Lowell Wastewater hires outside contractors for various collection system maintenance activities; this work includes small-to-medium sized replacement and repair work, catch basin cleaning, sewer line cleaning, CIPP lining, and street sweeping. Furthermore, Lowell Wastewater also utilizes year round part- and full-time interns to help meet the demands of our CMOM program.

During FY2022, the Utility contracted DeFelice Construction for on-call repair services, Rapid Flow for heavy cleaning and emergency on-call response work, National Water Main for CIPP lining projects, and BMC for catch basin cleaning. Bi-annual street sweeping is coordinated with the City's DPW department.

## 2.2 Summary of Collection System Maintenance in 2022

Lowell Wastewater utilizes Esri's ArcGIS Online applications, namely Collector and Survey123 to document CMOM related repair and cleaning activities in real time. [Figure 3](#) presents a map of documented collection system sewer repairs and replacements undertaken in 2022. These projects include: 529 feet of new sewer pipe installed; 10,159 feet of cured-in-place-pipe repairs; repair and replacement of 67 catch basins; repair and replacement of 5 manholes. Also included in this total are 1,659 sewer and drainage system catch-basins cleaned; and associated miscellaneous items like test pits, paving and sidewalk repairs. Documentation detailing the processes by which Lowell Wastewater performs CMOM maintenance can be found online following the appropriate link in [Appendix A](#), CMOM Self-Assessment

### 2022 CMOM Annual Summary Map

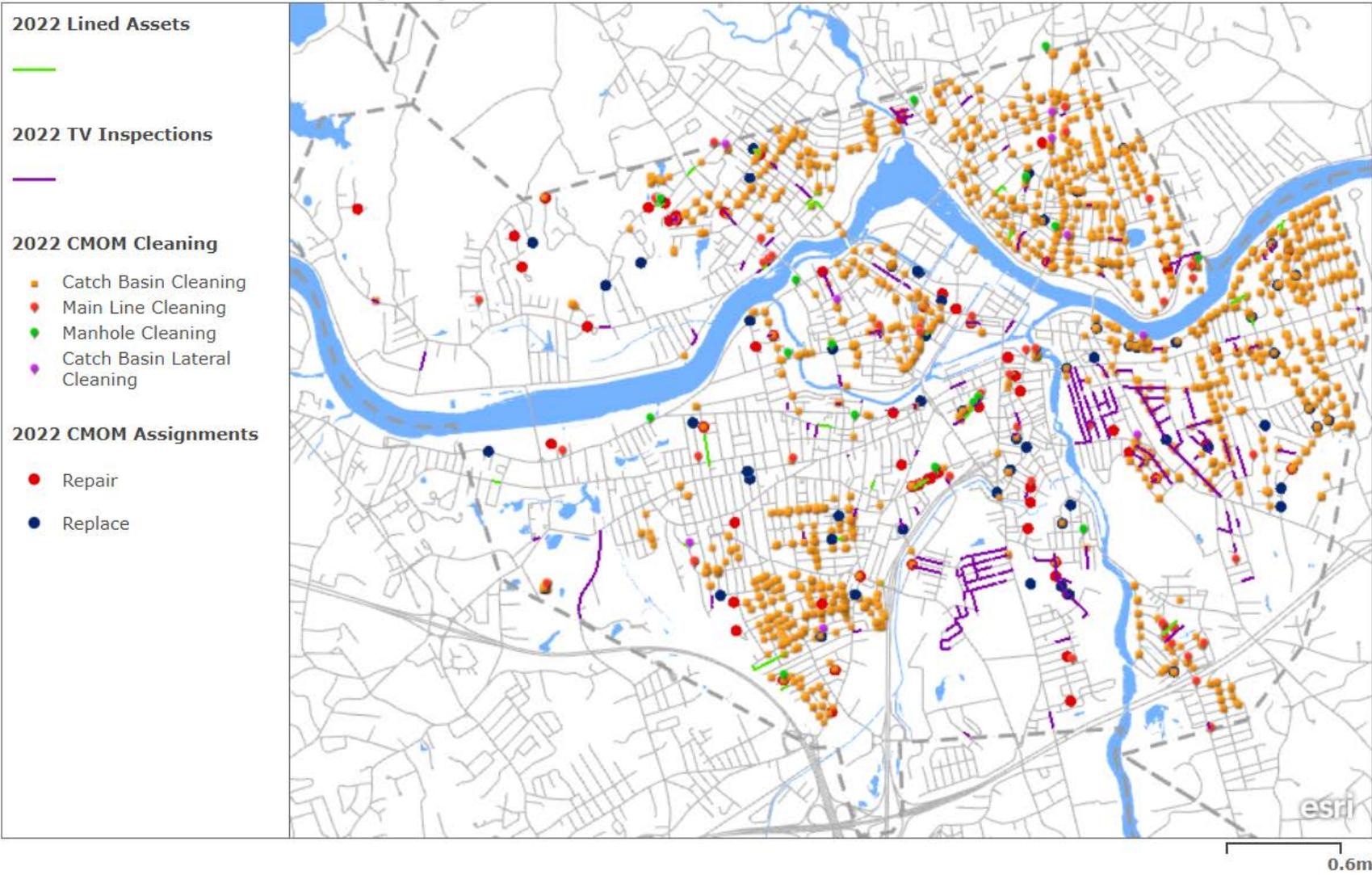


Figure 3. 2022 CMOM Work Map

### 2.3 Collection System Expenditures

Lowell Wastewater's FY2022 operating budget totaled \$23.4 million. This included funds for capital improvements and operation and maintenance of the sewerage-drainage collection systems at \$5.3 million: 22.6% of the total operating budget. Each of these values includes direct costs such as salaries, wages, professional services and utilities, and indirect costs for services provided by other City of Lowell departments and employee overhead costs. It is worth noting, that this budget also includes debt services on prior work performed under capital improvement projects and Long-Term Control Plan (LTCP) projects directed toward high-flow management and CSO control.

*Table 1* below summarizes the expenditures for collection system maintenance activities in 2022. Budgeting for supported collection system maintenance services is pulled from this total operating cost.

FY 2022 CMOM Line-Item	Cost
Street Sweeping	\$ 109,319.00
Catch Basin Cleaning	\$ 118,891.81
Heavy Cleaning	\$ 5,200.00
CIPP Lining	\$ 350,000.00
On-call Repairs: Defelice	\$ 977,437.50
Direct Costs (salary, engineering consultants, station upkeep, etc.)	\$ 1,601,616.56
Debt Services	\$ 1,859,745.00
Indirect Costs	\$ 273,951.30
<b>FY22 Overall CMOM Budget</b>	<b>\$ 5,296,161.17</b>

**Table 1. FY2022 CMOM Budget**

### 2.4 Planned Collection System Investigation/Actions in 2023

Traditionally, Lowell Wastewater plans future system investigation and maintenance activities following the City's paving schedule in an effort to identify and complete sewer repairs ahead of new paving projects. Sewer lines that fall within the extents of any proposed paving areas are video inspected, assessed for repair and CIPP lined ahead of the scheduled paving. It is crucial that this work be completed before any actual paving takes place, as a five-year road work moratorium exists on allpaved roads in the City.

*Figure 4* shows a map showing areas identified for planned investigations, collection system maintenance, repairs and lining projects to be completed in 2023.

As discussed in greater detail in *Section 2.6*, Lowell Wastewater contracted with Kleinfelder to develop an Infiltration/Inflow Abatement Plan to provide a comprehensive approach and schedule to identify and investigate locations of excessive infiltration and inflow (I/I) within the LRWWU's sewer system. After an extensive review of available data, past reports, existing conditions of the sewer system, and an I/I analysis of LRWWU's available sewer system meter data. Based on the information and recommendation from Kleinfelder the Utility will proceed with a comprehensive City-wide Flow Metering Program in 2023.

Planned investigations and actions based on this analysis include: CCTV and manhole inspections in subareas with significant infiltration and with known and suspected inflow sources; CCTV inspections of 10,000 ft. of river-front interceptor; the inspection and clean of one of LRWWU's six siphons crossing waterways; and the design and, if time permissible, implementation of a solution pertaining to a known source of major inflow along the Kearney Square sewer line.

*Figure 5* provides an overview of the collection system divided into metering areas. Additional maps detailing the scope and sub-areas to be investigated as part of this effort can be found in *Appendix C*.

In addition to the aforementioned work, Lowell Wastewater has contracted with CDM Smith to assist in the planning, development, and execution of future sewer separation projects throughout Lowell's collection system. In 2023, Lowell and CDM Smith will begin the sewer separation planning and design efforts in the Centerville Neighborhood, which includes a known inflow source from Humphrey's Brook. The collection system. The planned work for 2023 will include: CCTV inspections, borings, site survey, public input, building inspections, and SWMM model updates. Preliminary documentation related to this project can be found in *Appendix D*.

### 2023 Planned Investigation/Actions

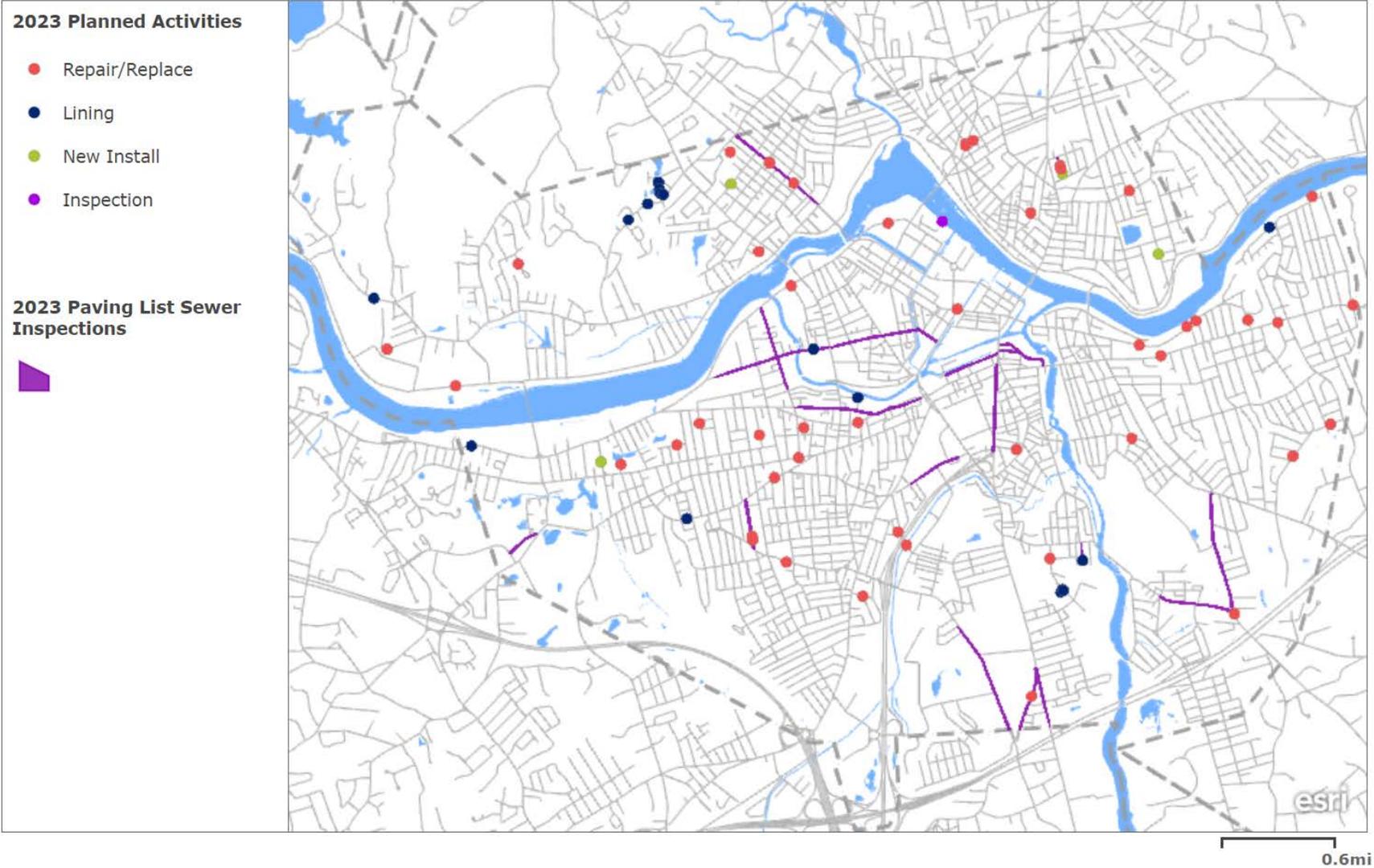


Figure 4. 2023 Planned CMOM Investigation/Action Areas

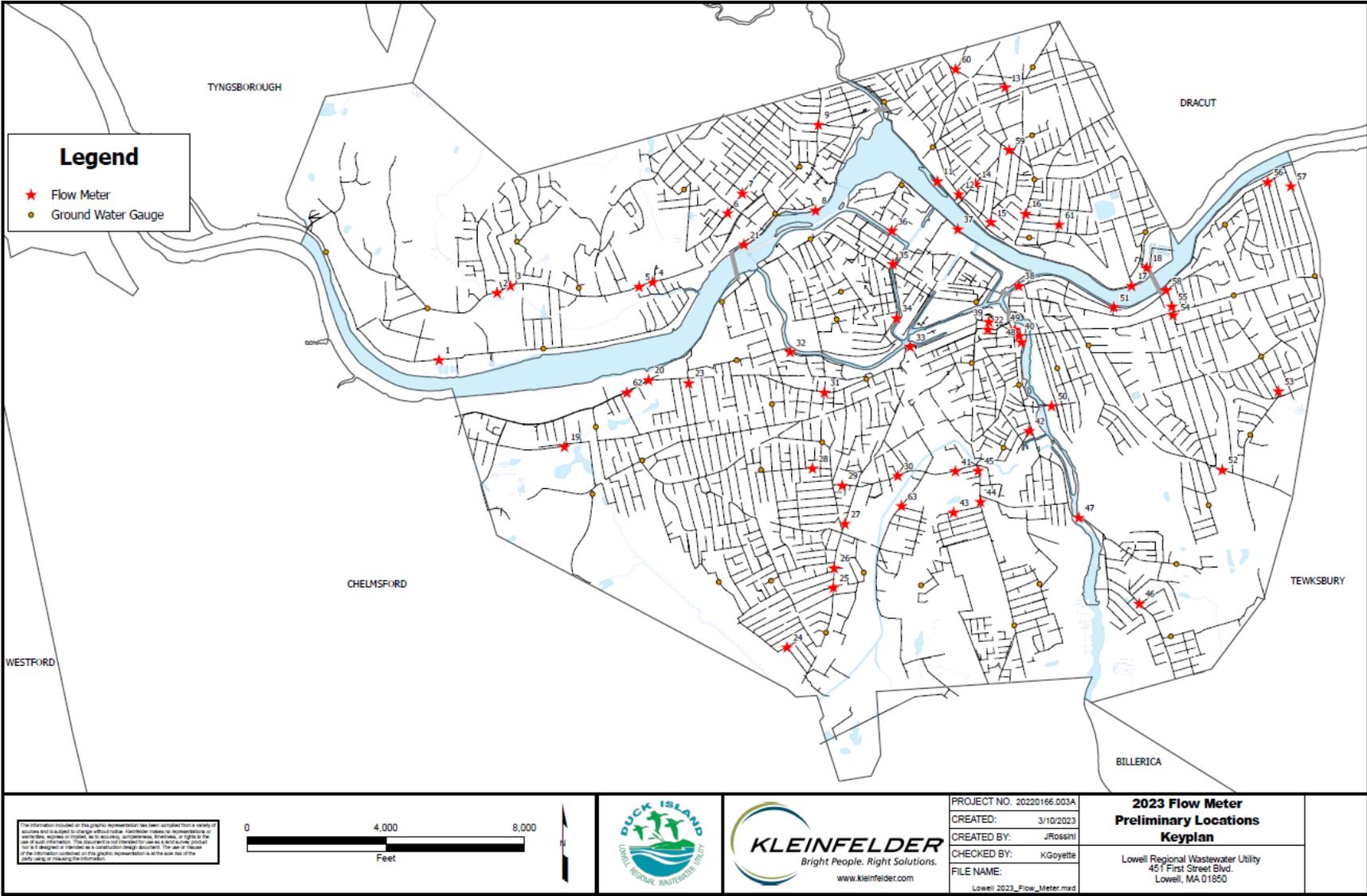


Figure 5. 2023 City-wide Flow Metering Program Monitoring Areas

## 2.5 Unauthorized Discharges Summary 2022

The following section details and summarizes the unauthorized discharges (i.e. sewer surcharges and overflows) to have occurred in Lowell's collection system in 2022. It is worth noting, beginning in July 2022, Lowell Wastewater adopted reporting procedures outlined in 314 CMR 16.00. These notification procedures are effective for regulated CSOs, treated bypass, and unauthorized SSOs, provided that the unauthorized discharge is to a waterbody. The following section is specific to unauthorized discharges: SSOs/overflows; information pertaining to regulated discharges, (i.e. CSOs and treated bypass), can be found in [Section 3](#) of this report.

### 2.5.1 Sewer Surcharge Notification Program

Lowell Wastewater follows the reporting procedures outlined in the newly passed 314 CMR 16.00. For unauthorized discharges that directly impact a waterbody, initial notification to the public is made via email and text alert within two hours of the overflow start time or discovery. Downstream waterway users and regulatory authorities are required to be recipients of this notification.

Update notifications are issued every eight hours to inform whether or not the overflow event is still ongoing, or if it has ceased. Lowell Wastewater sends additional updates within two hours when there is a change in overflow activity at one of the regulated outfalls.

These notifications are created and distributed using Everbridge software. Wastewater engineering staff developed template messages specific for the aforementioned overflow scenarios, which Operations staff populate with the relevant information pertaining to each event. Once input, Everbridge software compiles the information, populates the template and distributes the notification alert.

The City website is updated within one business day detailing the overflow event. An initial overflow report is uploaded to MassDEP's website within eighteen hours of the start of the event. Detailed reports summarizing the overflow are uploaded to MassDEP's website on a monthly basis.

In the event that an SSO does not discharge to a waterbody, and 314 CMR 16.00 regulations are not in effect, Lowell Wastewater will notify MassDEP and EPA of this type of overflow within 24 hours of discovery. A follow-up email detailing the overflow, including a completed copy of MassDEP's Sanitary Sewer Overflow (SSO)/Bypass Notification Form is submitted within 10 days of the initial notice.

Templates for all reporting forms can be found in [Appendix E](#). Sewer Surcharges & Overflows in Lowell (2022)

A review of Lowell's SSO Notification reports was conducted in 2022. [Table 2](#), below, presents these events and associated details including type of overflow (combined (CSO) or separate (SSO)), date, estimated volume, where the sewage was discharged to (e.g., residential property/basement, ground/street surface, receiving water), root cause, and corrective actions taken to resolve the cause of the surcharge/overflow. Surcharges assessed to be the result of inadequate system capacity are shaded orange for emphasis.

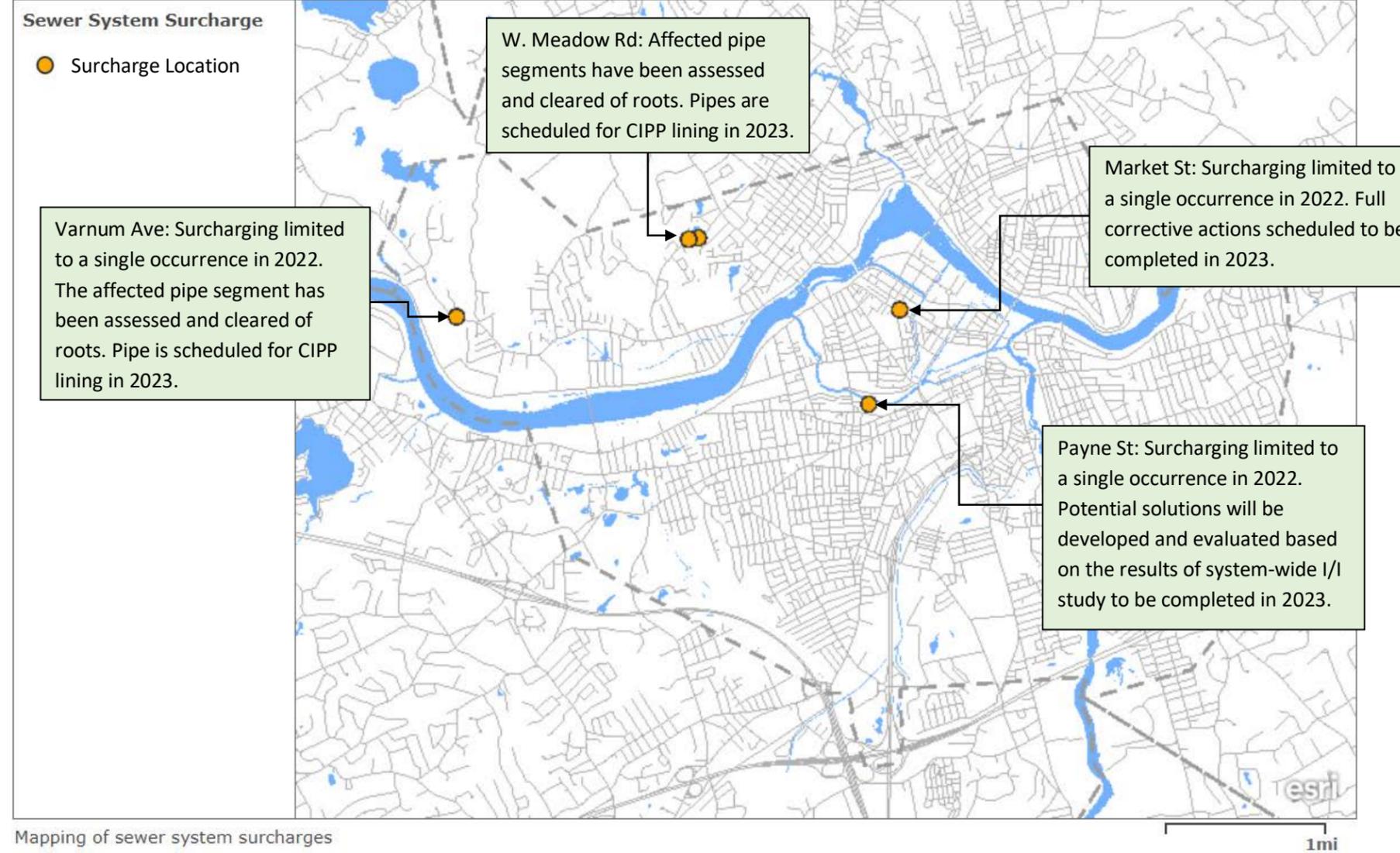
*Figure 6* displays these events on a map of Lowell. Callout boxes identify those locations listed in *Table 2* and the corresponding corrective actions taken. Lowell experienced five (5) sewer surcharges in 2022; all of which occurred in combined areas of the collection system.

It should be noted that only one sewer surcharge was related to the inadequate capacity of the collection system, and is highlighted orange in *Table 2*. Lowell Wastewater is actively working with an engineering consultant to evaluate alternatives that most effectively and efficiently resolve any capacity related surcharges in the collection system. The impacted area will begin to be actively monitored as part of a system wide I/I assessment study slated to begin in Spring 2023.

Surcharge Type	Date	Discharge From	Discharge To	Associated Address	Estimated Volume (Gal)	Cause	Comments	Corrective Actions Taken
SSO	5/28/2022	Combined Sewer Manhole	Ground	130 W. Meadow Rd.	Unknown	Root Intrusion	Pipe blockage due to root intrusion	Initial assessment determined that the 10-inch sewer line was blocked. A vacuum truck was dispatched, the blockage was successfully removed, and the affected area was cleaned and disinfected. Follow-up video inspection concluded that root intrusion caused the blockage and surcharge; the root intrusion was removed via jetter. The impacted pipe segment is scheduled for CIPP lining.
SSO	7/19/2022	Combined Sewer Manhole	Ground	67 Payne St.	100	Inadequate Capacity	Known systemic capacity issue	The affected area was cleaned and disinfected. Lowell Wastewater is evaluating alternatives to resolve the insufficient capacity within this local sewer trunk line. The area sewer is subject to a planned I/I assessment study slated for Spring 2023. Results from this study will be used to evaluate potential solutions.
SSO	10/27/2022	Backup into Property	Backup into Property	1255 Varnum Ave.	Unknown	Root Intrusion	Pipe blockage due to root intrusion	Initial assessment determined that the 8-inch sewer line was blocked. A vacuum truck was dispatched, the blockage was successfully removed, and the affected area was cleaned and disinfected. Follow-up video inspection concluded that root intrusion caused the blockage and surcharge; the root intrusion was removed via jetter. The impacted pipe segment is scheduled for CIPP lining.
SSO	11/10/2022	Backup into Property	Ground	617 Market St.	Unknown	Debris Blockage	Property owner responsible for cleaning/disinfection of site	Initial assessment determined that the 14x18-inch sewer line was blocked. A vacuum truck was dispatched and the blockage was successfully removed. A new upstream manhole is scheduled to be installed in 2023, and the impacted pipe segment is scheduled for CIPP lining.
SSO	12/29/2022	Combined Sewer Manhole	Unnamed Wetland	151 W. Meadow Rd.	Unknown	Root Intrusion	Pipe blockage due to root intrusion	Initial assessment determined that the 10-inch sewer line was blocked. A vacuum truck was dispatched, the blockage was successfully removed, nearby catch basin was cleaned, and the affected area was cleaned and disinfected. Follow-up video inspection of the main line running down W. Meadow Road concluded that root intrusion caused the blockage and surcharge; all identified root intrusions were removed via jetter. The impacted pipe segments are scheduled for CIPP lining.

Table 2. Sewer Surcharges &amp; Overflows (2022)

### Sewer System Surcharges



Planned corrective actions are noted at all locations where the root cause was determined to be systemic capacity constraints.

Figure 6. Sewer Surcharges & Overflows (2022)

## 2.6 Infiltration/Inflow Summary for Reporting Year 2022

The Utility contracted with Kleinfelder to develop an Infiltration/Inflow Abatement Plan to provide a comprehensive approach and schedule to identify and investigate locations of excessive infiltration and inflow (I/I) within the LRWWU's sewer system compliant with MassDEP regulation 314 CMR 12.04(2). In 2022, Kleinfelder performed a review of LRWWU's available data, past reports, existing conditions of sewer system, and an I/I analysis of LRWWU's available sewer system meter data collected in 2018 in support of Lowell's 2019 Integrated Capital Plan.

Through comprehensive review, the LRWWU experiences significant I/I in several areas and will proceed with the following work in 2023:

1. Conduct a City-wide Flow Metering Program and summarize findings and recommendations in an I/I Analysis Report in accordance with MassDEP Guidelines.
2. Conduct CCTV and manhole inspections during high groundwater periods in designated subareas with known and suspected sources of inflow.
3. CCTV inspections of River-front interceptors and siphons.
4. Repair of Kearney Square sewer.

Additionally in 2022, Lowell Wastewater engineering staff continued to implement conductance surveying and tracing of the collection system. Lowell Wastewater utilizes conductance surveying as a low-cost and effective means for identifying areas of the collection system experiencing infiltration. A thorough overview of this program can be found in supporting documentation online, following the appropriate link in [Appendix A](#), Inflow and Infiltration Control Plan

The average daily flow through Lowell's Duck Island Wastewater Treatment Facility was 24.6 MGD in 2022. As such, the Duck Island WWTF average daily flow did not exceed 80 percent of the facility's 32 MGD design flow (25.6 MGD). Through efforts led as part of the aforementioned City-wide Flow Metering Program slated for 2023, the Utility is expecting to obtain and develop a foundational understanding of infiltration and inflow within the collection system.

### 3. CSO Reporting and Certification Summary 2022

Over the course of 2022, Lowell experienced 126 days of precipitation, as measured by the Duck Island gauge. Total precipitation for 2022 was 33.5 inches. Monthly High Flow and CSO data summaries are provided in [Section 3.3](#).

This precipitation required activation of Lowell's High-Flow Treatment mode 47 times throughout the year, resulting in the successful capture and treatment of 349.4 MG of flow in excess of the biological-treatment system capacity. CSO diversions related to these events occurred concurrently during 23 of these activations, resulting in totaled 228.8 MG in 2022. The 'capture rate', a key performance indicator defined as the ratio of treated high-flow divided by the sum of CSO discharge volume and treated high-flow, was 60% for 2022.

#### 3.1 CSO Records Certification

All data from High-Flow Treatment and CSO events are reviewed by Lowell Wastewater staff prior to data being uploaded to the City website, or reported to regulatory authorities. This review process is critical to ensuring accurate representation to the public regarding collection system and treatment plant performance during high-flow events. Electronic instruments are installed at key points throughout the collection system, and calculations are automated via Lowell's SCADA system to streamline this process; however, the recorded data is still reviewed by trained staff members in an effort to ensure that any potential miscalculations are corrected, ensuring that only correct and accurate data is reported. Fluctuations in levels at points in the collection system have the potential to trigger a false notification of an overflow, and need to be reviewed to ensure details are correct before data is uploaded.

As part of the review process, a member of the Lowell Wastewater's engineering group will review the calculated volumes and conditions that caused the high flow event to ensure data is consistent with the set parameters of high flow operation, and that the data is within expected ranges. This review process entails a detailed review of SCADA instrument records and, where necessary, recalculation of discharge volumes using external programs developed to consider infrequent but relevant flow conditions such as backwater effects from high river levels. SCADA instrument records may be used to compare levels, flows, or volumes at remote stations as well as rain volumes and river elevation.

Following this review process, detailed reports are uploaded to the City's website, and are reported to relevant agencies.

The final record of CSO discharge volumes is presented in [Section 3.4](#) and is hereby certified by Lowell Engineering staff as a true and accurate estimation of all CSO discharges from Lowell's permitted outfalls in 2022; a signed certification statement can be found in [Appendix F](#). These records are stored at Duck Island in Lowell's Water Information Management System (WIMS).

#### 3.2 CSO Public Notification and Reporting Plan

Lowell Wastewater adopted the reporting procedures outlined in the newly passed 314 CMR 16.00 in July 2022. Initial notification for all CSOs, Bypass Events, and SSOs impacting a public waterway are sent to the

public via email and text alert within two hours of the overflow start time or discovery. Downstream users and regulatory authorities are required to be recipients of this notification.

Update notifications are issued every eight hours to inform if the overflow event is ongoing, or if it has ceased. Lowell Wastewater sends additional updates within two hours when there is a change in overflow activity at one of the regulated outfalls.

These notifications are created and distributed using Everbridge software. Wastewater engineering staff developed template messages specific for the aforementioned overflow scenarios, which Operations staff update with the relevant information pertaining to each event. Once input, Everbridge software compiles the information, populates the template and distributes the notification alert.

The City website is updated within one business day detailing the overflow event. The details uploaded to the website are consistent with the initial public notification. This includes start times of the event, broken down by each outfall, as well as information on the outfalls like their location and receiving waters.

An initial overflow report, known as the public notification report, is uploaded to MassDEP's website within eighteen hours of the start of the event. Detailed reports, known as verified data reports, summarizing the overflow are uploaded to MassDEP's website on a monthly basis. Both the public notification report and the verified data report include information broken down by outfall for the event, including the time the overflow started. The verified data report is updated only after staff have reviewed the details of the event. The verified data report includes additional details for the event including volume, rainfall, and duration of overflow. The verified data report may also include updated start times if needed.

The City website is also updated on a monthly basis to provide details on the high flow event including volume, rainfall, and duration of overflow. This data is verified by engineering staff and is available on the website, for every storm, for a minimum of three years.

### 3.3 CSO Station Inspection Certification

CSO structures are inspected regularly by maintenance personnel on the Structures Crew. The Structures Crew visits all pump stations on a daily basis, all inspection records are collected digitally and managed by Lowell Wastewater's engineering staff.

CSO diversion stations are inspected weekly by the same personnel. Structures are inspected to verify that the grounds are clear and accessible, including any need for landscaping services; record wet-well conditions (normal, flooded, evidence of flooding, high wet-well level); HVAC systems, lighting, and SCADA systems are functional; and perform basic cleaning tasks. Additionally, as part of each inspection, visual inspections of each associated CSO outfall for evidence of any dry-weather discharges are performed.

Records of these visual inspections are documented using do-Form checklists unique to each station. The do-Forms are designed to host streamlined single-choice questions that guide recording personnel through the inspection. If a submitted inspection form contains any anomalous or concerning answers, an automatic alert is triggered and distributed to the Operations Manager, Maintenance Manager and Engineering Manager for review.

In 2022, all CSO structures were routinely inspected; observed issues are logged into the MP2 work-order system and/or discussed at the bi-weekly collection system meetings, as necessary. A signed certification statement can be found in [Appendix F](#).

## 3.4 Precipitation, High Flow Treatment &amp; CSO Data

Date	Clean Water Discharge		Duck Island Rain		Treated High Flow			All Diversions		
	Flow (MG)	Peak Hour (MGD)	Rain Days	Rain Inches	Event (No.)	Duration (Hours)	Volume (MG)	Event (No.)	Duration (Hours)	Volume (MG)
Jan 2022	773	64.0	9	2.1	1	9.9	3.1	1	7.2	51.40
Feb 2022	984	107.6	11	3.5	7	57.1	79.6	2	5.2	18.54
Mar 2022	964	89.6	12	2.4	5	14.3	12.3	-	-	-
Apr 2022	879	107.0	13	3.3	4	19.9	26.0	2	2.7	15.00
May 2022	748	105.4	10	1.6	2	8.6	15.8	2	2.0	11.09
Jun 2022	638	94.6	10	1.9	4	16.0	18.8	3	1.8	8.18
Jul 2022	588	86.0	7	1.9	3	8.9	12.9	2	1.6	20.40
Aug 2022	526	88.3	8	0.7	1	2.7	3.0	-	-	-
Sep 2022	709	109.9	10	5.1	7	36.4	68.6	4	7.4	52.81
Oct 2022	674	99.1	13	3.1	4	16.5	23.6	3	1.9	11.77
Nov 2022	614	91.1	11	2.7	4	9.6	7.7	2	4.4	11.11
Dec 2022	876	110.0	12	5.2	5	49.1	78.2	2	11.9	28.51
Total	8,972	1,152.4	126	33.5	47	249.0	349.4	23	46.0	228.8
Max	984	110.0	13	5.2	7	57.1	79.6	4	11.9	52.8

Table 3. 2022 Monthly HFM Data

Date	Barasford Street			Beaver Brook			Merrimack Street			Read Street			Tilden Street			Walker Street			Warren Street			West Street		
	Event	Duration	Volume	Event	Duration	Volume	Event	Duration	Volume	Event	Duration	Volume	Event	Duration	Volume	Event	Duration	Volume	Event	Duration	Volume	Event	Duration	Volume
	(No.)	(Hours)	(MG)	(No.)	(Hours)	(MG)	(No.)	(Hours)	(MG)	(No.)	(Hours)	(MG)	(No.)	(Hours)	(MG)	(No.)	(Hours)	(MG)	(No.)	(Hours)	(MG)	(No.)	(Hours)	(MG)
Jan 2022	1	5.7	7.87	1	2.7	2.39	1	5.2	15.16	-	-	-	1	2.9	1.72	1	1.9	0.54	1	2.5	5.32	1	7.2	18.40
Feb 2022	1	4.0	5.37	1	0.3	0.02	2	4.9	4.85	-	-	-	-	-	-	-	-	-	-	-	-	1	5.2	8.30
Mar 2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apr 2022	1	1.9	2.67	1	1.1	0.80	1	2.0	2.54	-	-	-	2	2.2	1.01	1	0.3	0.02	1	1.4	2.26	1	2.7	5.70
May 2022	-	-	-	2	1.0	0.54	1	2.0	2.34	-	-	-	2	1.1	1.43	1	0.4	0.13	2	1.2	4.55	1	1.0	2.10
Jun 2022	1	0.6	1.01	2	1.2	0.89	2	1.4	1.86	-	-	-	2	1.8	0.76	-	-	-	2	1.1	1.56	1	1.1	2.10
Jul 2022	2	1.0	1.28	2	1.3	1.14	2	1.6	3.96	2	0.2	0.02	2	1.5	2.32	2	1.0	0.89	2	1.4	7.69	2	1.0	3.10
Aug 2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sep 2022	3	7.4	11.53	3	3.4	4.11	3	4.7	5.58	-	-	-	4	6.4	5.85	2	2.8	5.66	3	3.9	11.38	3	3.0	8.70
Oct 2022	2	0.9	1.21	3	1.0	0.64	2	1.4	2.64	-	-	-	3	1.8	1.17	2	0.7	0.23	3	1.2	2.58	2	1.9	3.30
Nov 2022	2	4.4	6.72	-	-	-	2	4.2	3.50	-	-	-	1	0.7	0.09	-	-	-	-	-	-	1	0.4	0.80
Dec 2022	1	3.4	5.99	1	0.3	0.02	2	11.9	8.13	-	-	-	1	2.7	0.42	-	-	-	1	0.4	0.45	1	7.9	13.50
Total	14	29.2	43.65	16	12.1	10.55	18	39.2	50.56	2	0.2	0.02	18	21.2	14.77	9	7.0	7.47	15	13.0	35.79	14	31.2	66.00
Max	3	7.4	11.53	3	3.4	4.11	3	11.9	15.16	2	0.2	0.02	4	6.4	5.85	2	2.8	5.66	3	3.9	11.38	3	7.9	18.40

Table 4. 2022 Monthly CSO Data

#### 4. Nine Minimum Controls Report

The Nine Minimum Controls (NMC) are stipulated in Lowell's 2019 NPDES permit (at Part I.F.3.(a)). EPA states therein that EPA has made a Best Professional Judgment (BPJ) determination that adequate implementation of these nine minimum control measures satisfies technology based requirements (Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT)) to control and abate conventional pollutants and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional toxic pollutants.

Given this BPJ on the part of EPA, Lowell Wastewater has invested heavily in the NMC technologies, as detailed in this section and elsewhere in this report. [Table 5](#) details the documentation required by EPA to demonstrate the following:

- 1) that alternatives were considered for each of the nine minimum control measures,
- 2) the reasoning for the alternatives selected,
- 3) that the selected alternatives have been implemented,
- 4) and that the permittee has developed a schedule for actions that have been selected but not yet fully implemented.

The remainder of this section discusses Lowell's work to date toward implementing the NMCs as practicable. Where a particular control is covered in detail in another section of this report, the reader is referred to that section for more information.

Table 5. Nine Minimum Controls

Control	Documentation Requirements	Reported At/Details
1. Proper operation and regular maintenance programs for the sewer system and combined sewer overflow points	<ul style="list-style-type: none"> <li>a. Organizational O&amp;M responsibilities chart</li> <li>b. Funding allocated for O&amp;M</li> <li>c. List of critical facilities and structures (regulators, tide gates, pumping stations, sections of sewer lines prone to sedimentation or obstruction) and inspection plan (locations, frequency, procedures, documentation, reporting of periodic and emergency inspections and maintenance)</li> </ul>	<ul style="list-style-type: none"> <li>a. Section 2.1.1</li> <li>b. Section 2.3</li> <li>c. Appendix A</li> </ul>
2. Maximize Use of the Collection System for Storage	<ul style="list-style-type: none"> <li>a. Identification of maintenance or design deficiencies that restrict the use of otherwise available system capacity</li> <li>b. Adequacy of tide gate maintenance and repair procedures</li> <li>c. Document the method for optimal setting of regulators</li> <li>d. Document procedures for identification and removal of obstructions to flow. Include a summary of the locations where sediment is removed, the number of times each year the sediment is removed and the total quantity of material removed each year</li> </ul>	Appendix A, Combined Sewer Overflow Plan, for details pertaining to the Utility's High Flow Management plan and CMOM procedures.
3. Review and modification of the Industrial Pretreatment Program (IPP) to assure CSO impacts are minimized	<ul style="list-style-type: none"> <li>a. Review legal authority and identify those activities for which the community has or can obtain authority to address CSO induced water quality violations (e.g., authority to require non-domestic dischargers to store wastewater during precipitation events or require them to implement runoff controls)</li> <li>b. Inventory non-domestic dischargers that may contribute to CSO induced water-quality violations</li> <li>c. Assess whether identified dischargers cause or contribute to CSO induced water-quality violations by using monitoring, dilution calculations or other reasonable methods</li> <li>d. Evaluate and propose feasible site-specific modifications to address non-domestic dischargers identified as significant</li> </ul>	See Annual Pretreatment Report by following the link in Appendix A, This document is submitted separately by Lowell Wastewater's Pretreatment Coordinator.
4. Maximization of flow to the treatment facility	<p>Evaluate and implement where possible:</p> <ul style="list-style-type: none"> <li>a. Use of off-line or unused POTW capacity for storage of wet-weather flows</li> <li>b. Use of excess primary treatment for treatment of wet-weather flows. If the use of excess primary capacity will result in violations of the NPDES permit limits, the community shall get approval from the permitting authority prior to implementation</li> </ul>	<p>Lowell Wastewater developed and implemented a Supervisory Control and Data Acquisition (SCADA) network, which allows operators to remotely control and monitor gates, valves, and pumps directly from the Operations Center at Duck Island. In addition to equipment at Duck Island, remote monitoring and control was enabled at eight CSO diversion stations along the interceptor system. Lowell Wastewater has developed automated wet-weather protocols implemented through algorithms.</p> <p>The HFM protocol follows the logic:</p> <ul style="list-style-type: none"> <li>1. Maximize flow to the Duck Island treatment facility</li> <li>2. Maximize use of available storage in the collection system's interceptors upstream of flow-control gates</li> </ul>

Control	Documentation Requirements	Reported At/Details
		3. Prevent sewer surcharging by diverting flow through CSO stations
		Lowell Wastewater will be conducting a City-wide Flow Metering Program in 2023. The data collected as part of this study will be used to evaluate future collection system work.
5. Prohibition of CSO discharges during dry weather	<ul style="list-style-type: none"> <li>a. Document that monitoring and inspections are adequate to detect and correct dry-weather overflows (DWOs) in a timely manner</li> <li>b. Document that inadequate DWOs due to inadequate sewer system capacity have been eliminated</li> <li>c. Document that DWOs due to clogging of pipes and regulators or other maintenance problems have been eliminated to the maximum extent practicable</li> </ul>	<ul style="list-style-type: none"> <li>a. Section 3.3</li> <li>b. Section 2.5</li> <li>c. Section 2.5</li> </ul>
6. Control of solid and floatable material in CSO Discharges	<p>Document that low-cost control measures to reduce solids and floatables discharged from CSOs have been implemented to the maximum extent practicable. Alternatives shall include:</p> <ul style="list-style-type: none"> <li>a. Baffles in regulators or overflow structures</li> <li>b. Trash racks in CSO discharge structures</li> <li>c. Static screens in CSO discharge structures</li> <li>d. Catch basin modifications</li> </ul>	<p>Street sweeping is implemented bi-annually throughout Lowell, which serves to reduce the amount of litter washed into the collection system. Catch basins have hoods to minimize the amount of floatables leaving the basin, and are deep-sumped to minimize the amount of solids leaving the basin. Further opportunities will be explored to further reduce discharge of solids and floatables from CSO outfalls in Lowell.</p> <p>More details at Appendix A</p>
7. Pollution prevention programs that focus on contaminant reduction activities	<ul style="list-style-type: none"> <li>a. Prevention through increased public education and awareness</li> <li>b. Control of disposal (garbage receptacles, collection and education)</li> <li>c. Control of illegal dumping (law enforcement, public education, disposal programs)</li> <li>d. Street cleaning</li> <li>e. Hazardous waste collection days</li> </ul>	<ul style="list-style-type: none"> <li>a. Lowell's website was revised in 2019 to include visual graphics depicting how the <i>collection</i> and <i>treatment</i> systems operate, and how they can take actions to reduce impacts on operations and maintenance.</li> <li>b. Hazardous waste collection days are held regularly at Duck Island and other programs are actively managed by the City's Solid Waste and Recycling Office.</li> <li>c. Lowell Wastewater supports a catch basin labeling program to notify residents not to dispose of wastes in these receptacles.</li> <li>d. Bi-annual street sweeping, which is coordinated with the City's DPW, saw to the prevention of 425 tons of debris from entering the collection system.</li> <li>e. Addressed at (b)</li> </ul>
8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts	<ul style="list-style-type: none"> <li>a. Ensure that the public receives adequate notification of CSO impacts on pertinent water use areas, particularly beach and recreational areas affected</li> <li>b. Where applicable, provide users of these types of areas with a reasonable opportunity to inform themselves of the potential health risks</li> </ul>	A description of Lowell Wastewater's CSO Public Notification and Reporting Plan can be found in Section 3.2 of this document.

Control	Documentation Requirements	Reported At/Details
c. The minimum control level, found in Section C.2.e. of the permit, is posting of CSO discharge points		
9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls	<ul style="list-style-type: none"> <li>a. If possible, initiate monitoring and/or inspection activities above and beyond the minimum control levels specified in this permit</li> <li>b. Examples include CSO monitoring or receiving water monitoring for pollutants of particular concern to better characterize quality of the CSOs and their impacts on all receiving waters</li> </ul>	<p>As part of the Utility’s aforementioned 2022 adoption of 314 CMR 16.00 reporting procedures, an affected area was determined for CSO, treatment plant bypass, and SSO discharges from the combined sewer system to potential receiving waterbodies. An Excel-based tool was developed and used to determine the affected area of these discharges.</p> <p>It was determined that the affected area due to a CSO release from Lowell’s regulator(s) extends approximately 12.3 miles downstream. The affected areas for treatment plant bypass and SSO discharges were estimated to be 591 feet and 222 feet respectively; however, for the purpose of notification distribution, the CSO area of affect is used.</p> <p>More details are provided in Appendix A, Combined Sewer Overflow Plan</p>

## Appendix A: Lowell Wastewater Online Webpage

Lowell Wastewater makes electronic copies of all submissions to the regulatory agencies publicly available on the City's website. This includes supporting documentation to this Annual Report. This page is accessible via the following [link](https://www.lowellma.gov/1076/): <https://www.lowellma.gov/1076/>

The reader is encouraged to review the posted documentation, referenced within this report, for a more detailed overview of the Utility's core operational programs related to the operation and maintenance of its collection system.

## Appendix B: Lowell Wastewater Job Descriptions

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**JOB TITLE:           MAINTENANCE MANAGER**

**SECTION:           WASTEWATER**

**REPORTS TO (JOB TITLE): EXECUTIVE DIRECTOR**

**JOB TITLES SUPERVISED: MAINTENANCE SUPERVISOR**

**HEAD ELECTRICIAN**

**INSTRUMENTATION ELECTRICIAN**

**MECHANIC IIIs**

**MECHANIC IIs**

**MECHANIC Is**

**TV INSPECTION OPERATOR**

**COLLECTION SYSTEM SUPERVISOR**

**JOB TITLE: MAINTENANCE MANAGER**

## **JOB PURPOSE:**

Efficiently maintain the Wastewater Treatment Facility and Collection System in a cost effective manner and comply with all Federal, State and Local Regulations and Laws Training, scheduling, and monitoring staff; enforcing standards and procedures.

## **ESSENTIAL JOB RESULTS:**

1. OVERSEE MAINTENANCE DEPT
  - Supervising all maintenance personnel
  - Scheduling and assigning employees and following up on work results
2. MAINTAINS THE MAINTENANCE DEPT
  - Initiating, coordinating, and enforcing standards and procedures
3. COMPLY WITH FEDERAL, STATE, AND LOCAL LEGAL REQUIREMENTS
  - Studying existing and new legislation
  - Enforcing adherence to requirements
  - Advising upper management on needed action
4. ENSURES OPERATION OF PLANT AND COLLECTION EQUIPMENT
  - Developing and enforcing preventive maintenance programs
  - Studying manufacturers instructions
  - Establishing repair and installation policies and procedures
  - Troubleshooting malfunctions
  - Coordinating trades people
  - Maintaining equipment and parts inventory
  - Evaluating new equipment and techniques
  - Recommending equipment purchases and replacements
  - Maintains integrity and safety of the Utility's vehicle fleet
5. IDENTIFIES MANAGEMENT AND EMPLOYEE CONCERNS
  - Surveying environmental, operations, and occupational conditions
  - Holding and attending Staff Meetings
  - Surveying and interfacing with employees
6. DETERMINES SERVICE EQUIPMENT, AND PERSONNEL REQUIREMENTS
  - Conducting inspections
7. MAINTAINS CLEAN WORKING ENVIRONMENT
  - Assigning housekeeping, custodial and landscaping duties
8. ACHIEVES FINANCIAL OBJECTIVES
  - Working within and monitoring the maintenance budget
  - Scheduling and analyzing for cost effectiveness

- Writes specifications for contracts to be bid
- Participates in the City's procurement process

#### 9. MAINTAINS MAINTENANCE DEPARTMENT COHESIVENESS

- Setting policy and goals for collection system work, maintenance work, and preventive maintenance
- Enforcing policies and procedures

#### 10. MAINTAINS MAINTENANCE STAFF

- Recruiting, interviewing, selecting orientating and training employees

#### 11. MAINTAINS MAINTENANCE STAFF JOB RESULTS

- Coaching, counseling and disciplining employees
- Participates in the disciplinary process
- Planning, monitoring, and appraising job results

#### 12. MAINTAINS PROFESSIONAL AND TECHNICAL KNOWLEDGE

- Attending educational workshops, seminars, courses or conferences
- Reviewing professional publications and establishing personal networks

#### 13. COORDINATE FACILITY EFFORTS

- Interfacing with Operations and Engineering Divisions
- Exchanging information and scheduling mutual projects
- Managing assigned contractor activities

#### 14. MAINTAINS MAINTENANCE EFFECTIVENESS

- Setting department goals
- Coordinating department functions
- Evaluating department functions for effectiveness

#### 15. COORDINATE WITH OTHER CITY DEPARTMENTS

- Interfacing with other City Departments
- Availing needed resources

#### 16. ORDER AND TRACK SUPPLIES AND SPARE PARTS

- Maintaining records and usages
- Conferring with Maintenance Supervisor, Head Electrician, Instrumentation Electrician and Collection System Supervisor
- Tracking amounts used

#### 17. KEEPS EXECUTIVE DIRECTOR INFORMED

- Reviewing, analyzing and summarizing information
- Identifying trends
- Submitting written reports

#### 18. MAINTAINS SAFE WORKING ENVIRONMENT

- Establishing and enforcing safety rules, regulations, and procedures
- Attending safety seminars
- Acting on reported safety concerns
- Member of the Utility's Safety Group
- Following Safety Group recommendations

**19. MAINTAINS HISTORICAL RECORDS**

- Filing and compiling logs, reports, records, charts and related documents
- Managing Utility's CMMS Program

**20. CONTRIBUTES TO TEAM EFFORT**

- Accomplishing related results as needed.

**ENVIRONMENT**

**PHYSICAL DEMANDS**

Balancing  Crouching  Hearing  Seeing  Sitting  Carrying  Feeling  Kneeling  Close  
 Standing  Climbing  Fingering  Lifting  Far  Stooping  Crawling  Grasping  Pulling  
 Color  Talking  Depth  Walking

**EXPOSURES**

Airborne Particles  Explosives  Muscular strain  Temperatures  Caustics  Fumes  
 Noise  Toxicants  Chemicals  High places  Odors  Vibrations  Electrical  
 Moving parts  Vision strain  Weather

**SUPERVISORY-MANAGEMENT RESPONSIBILITY**

Hire/discipline/terminate  Assign and check work  Train  Plan/appraise job results

Number of employees supervised 1 - 20

**CITY OF LOWELL**  
**Job Posting**  
**Please Post: June 11, 2019**  
**Deadline: June 25, 2019**  
**Wastewater Utility**  
**Collection Systems Supervisor**

**Job Title:** Collection Systems Supervisor (2900-05, 2661)  
**Department:** WWTP  
**Reports To:** Maintenance Superintendent  
**May Report to:** Maintenance Supervisor, Head Electrician  
**Union:** MVEA Waste Water Unit II  
**Salary:** \$1,234.70 (min) to \$1,396.78 (max) per week; 40hrs/week  
**FLSA Status:** Non Exempt

**SUMMARY**

Ensures proper maintenance of entire sewer system in a safe, cost effective and efficient manner complying with all regulations

**ESSENTIAL DUTIES AND RESPONSIBILITIES** include the following. Other duties may be assigned.

1. SUPERVISE SUBORDINATES, MAINTAINS STAFF JOB RESULTS

By

- Assigning and delegating tasks
- Coordinating work activities
- Inspection and check of subordinates (Mechanics and TV Inspection Operators) work and job performance
- Coaching and counseling subordinates
- Recommends disciplinary action
- Participates in the disciplinary process

2. MAINTAINS SEWER SYSTEM

By

- Coordinating all activities
- Installation of new equipment
- Maintenance inspection and repair of all existing systems

3. MAINTAINS COLLECTION SYSTEM

By

- Training subordinates
- Having a thorough knowledge of the collection system, structures, policies and procedures
- Following policies and procedures
- Carrying out assignments
- Ensuring working order of equipment
- Ensure subordinates perform requirements
- Reporting and recording abnormalities
- Taking corrective action

- Reporting needed changes
- Responsible for TV Inspection Crew
- Responsible for Wastewater related street sweeping program
- Responsible for catch basin cleaning program
- Responsible for root treatment program
- Responsible for sewer line heavy cleaning program
- Responsible for sewer lining program
- Required to carry a cell phone

4. ENSURES PROPER OPERATION OF SEWER SYSTEM

By

- Performing preventative maintenance requirements
- If needed, follow manuals, schematic diagrams, blueprints, and other specifications
- Investigates illegal entry and discharges into the sewer system
- Troubleshooting

5. MAY INSTALL NEW EQUIPMENT/MAKE REPAIRS TO EXISTING EQUIPMENT

By

- Using all equipment available
- Managers and coordinates wastewater contractors

6. REPAIR AND MAINTAIN SEWER SYSTEM AND ALL ASSOCIATED STRUCTURES

By

- Diagnosing problems
- Informing user (s) if necessary
- Informing Maintenance Superintendent and/or Maintenance Supervisor
- Coordinating repairs with outside contractors and/or City Engineer and/or related City departments

7. CONTROLS DOWNTIME OF SEWER SYSTEM

By

- Expediting needed repairs and/or cleaning in a timely manner

8. COORDINATES ROUTINE AND EMERGENCY WORK

By

- Informing outside contractors of needs Directs and operates equipment and personnel where required

9. MAINTAINS SEWER COLLECTION EQUIPMENT, PARTS AND SUPPLY INVENTORIES

By

- Checking stock to determine inventory level
- Anticipating needed equipment, parts, and supplies
- Reporting needs

10. CONSERVES SEWER SYSTEM RESOURCES

By

- Using equipment and supplies as needed to accomplish job results

11. MAINTAINS SEWER COLLECTION EQUIPMENT

By

- Performing minor repairs to all associated equipment

- Report any malfunctioning equipment

12. PROVIDES SEWER SYSTEM INFORMATION

By

- Answering questions and requests
- Enters collection system information into computer data base
- Enters collection system calls into computer data base

13. PREPARES SEWER SYSTEM REPORTS

By

- Collecting, analyzing, and summarizing information and trends
- Submitting written reports

14. MAINTAIN PROFESSIONAL AND TECHNICAL KNOWLEDGE

By

- Attending educational workshops
- Reviewing technical publications
- Establishing personal networks
- Maintain required licenses

15. MAINTAINS CONTINUITY AMONG WORK TEAMS

By

- Documenting and communicating actions, irregularities and continuing needs

16. WORK SAFTLY

By

- Knowing and following facility safety rules and regulations
- Attending in plant and outside safety seminars and courses
- Reporting unsafe conditions
- Consider safety aspects of jobs before assigning or performing
- Issues confined space entry permits for collection system jobs
- Keep subordinates informed and updated of safety procedure changes and updates

17. COORDINATE WITH OTHER CITY DEPARTMENT PERSONNEL

By

- Availing needed resources
- Represents the Utility at applicable Conservation Commission hearings
- Represents the Utility at DPD Projects Meetings
- Represents the Utility on litigation involving the collection system
- Determines and obtains police details as needed
- Obtains necessary permits for collection system work
- Provides City Engineers and Utility Engineers with as built of sewer repairs

18. MAINTAINS CLEAN WORKING ENVIRONMENT

By

- Assigning and performing housekeeping, custodial, and landscaping duties

19. HELPS THE PUBLIC

By

- Being courteous
- Investigate complaints promptly

- Investigates claims of damage caused by the collection system
- Assure prompt action

#### 20. CONTRIBUTES TO TEAM EFFORT

By

- Being courteous
- Investigate complaints promptly
- Investigates claims of damage caused by the collection system
- Assure prompt action

#### **SUPERVISORY RESPONSIBILITIES**

Supervise between 1-15 employees. Assign and check work of subordinates. Train subordinates and plan/appraise job results.

#### **EDUCATION and/or EXPERIENCE**

Required to have a high school education or GED due to the nature of the equipment and system mechanics working with and within;

The variety of duties will require experience in at least one of several fields involved in plant maintenance;

#### **QUALIFICATIONS**

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

#### **LANGUAGE SKILLS**

Ability to read and comprehend simple instructions, short correspondence, and memos. Ability to write simple correspondence. Ability to effectively present information in one-on-one and small group situations to customers, clients, and other employees of the organization.

#### **MATHEMATICAL SKILLS**

Ability to add, subtract, multiply, and divide in all units of measure, using whole numbers, common fractions, and decimals. Ability to compute rate, ratio, and percent and to draw and interpret bar graphs.

#### **REASONING ABILITY**

Ability to apply common sense understanding to carry out detailed but uninvolved written or oral instructions. Ability to deal with problems involving a few concrete variables in standardized situations.

#### **CERTIFICATES, LICENSES, REGISTRATIONS**

CDL with hoisting engineer's license required.

#### **PHYSICAL DEMANDS**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Must meet physical requirements for Commercial Drivers as set forth under 49 CFR 391.41; samples are listed below:

While performing the duties of this job, the employee is frequently required to stand; walk; sit; use hands to finger, handle, or feel; reach with hands and arms; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; taste or smell, climb, carry objects, crouch, grasp, lift, and pull. The employee must occasionally

lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, depth perception, and ability to adjust focus.

### **WORK ENVIRONMENT**

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is frequently exposed to moving mechanical parts, fumes or airborne particles, toxic or caustic chemicals, outside weather conditions, extreme cold, extreme heat, risk of electrical shock, explosives, toxicants, risk of radiation, and vibration. The employee is occasionally exposed to wet and/or humid conditions and high, precarious places. The noise level in the work environment is usually loud.

The City of Lowell is a smoke and drug free employer and requires a physical with drug screen and CORI, post offer.

***Qualified individuals may send application/resume with cover letter to the Human Relations Office, Mary Callery, HR Director Room 19 - City Hall, Lowell, MA 01852 by 8:00 PM on the deadline of June 25, 2019. Applicants may also send application/resume with cover letter to fax 978-446-7102 or email to [cityjobs@lowellma.gov](mailto:cityjobs@lowellma.gov)***

**EOE/AA/504 Employer**

**CITY OF LOWELL**  
**Job Description**  
**Please Post: January 13, 2021**  
**Deadline: Open Until Filled**  
**Waste Water Treatment Plant**  
**Television Inspection Operator**

**Job Title:** Television Inspection Operator (2600- 28, 2848)  
**Department:** WWTP  
**Reports To:** Maintenance Superintendent; Head Collection System Operator  
**May Report To:** Maint. Supervisor; Plant Electrician; Instrumentation Electrician  
**Union:** MVEA WWTP, Unit I  
**FLSA Status:** Non Exempt  
**Salary:** \$23.1653 (min) to \$26.5265 (max) per hour (40 hours per week)

**SUMMARY**

Set up and operation of TV Inspection equipment, including cameras, winches and all related equipment. Perform video inspection of wastewater utility collection system infrastructure.

**ESSENTIAL DUTIES AND RESPONSIBILITIES**

include the following. Other duties may be assigned.

- Operates the TV camera and video related equipment associated with internal pipeline inspections.
- Participates in precision shop and field work calibrating, troubleshooting, installing, repairing and maintaining internal pipeline inspection equipment.
- Performs preventive maintenance on all related equipment to insure its dependability and readiness.
- Insures the vehicle is fully stocked at all times to insure immediate response.
- Insures all equipment is secured daily, or when left unattended.
- Orders and maintains inventory of necessary supplies.
- Insures vehicle and all related equipment is always presented in a clean and workmanlike condition.
- Locates sources of problems with all equipment by observing all equipment in operation; Observes and listens for problems during equipment operation; Making Necessary repairs.
- Removes defective equipment by dismantling device; Using necessary tools available
- Controls Downtime by performing preventive maintenance: Making repairs, adjustments, or new installation as expeditiously as possible; Performing Mechanic I duties that may include, but not limited to, operating the Vaccon trucks, CSO and pump station inspections, screenings removal and other duties, etc. Performing all other duties assigned.
- Provides television information by Answering questions; Passing on information; Maintaining video library for work performed

- Performs required television equipment maintenance by performing repairs to television equipment; Troubleshooting and making recommendations to accomplish job results; Operate television equipment and vehicle
- Installs new equipment by using hand and power tools and measuring devices
- Performs preventive maintenance by knowing lubrication and adjustment requirements on related equipment; Maintaining a clean work environment
- Maintains professional and technical knowledge by attending educational workshops, seminars, and courses; reviewing professional publication; Maintaining required licenses
- Helps the public by being courteous; Investigating complaints promptly; Assuring prompt action
- Works Safely by knowing facility rules and regulations; Attending in-house and outside safety seminars and courses; Reporting unsafe conditions
- Maintains clean work environment by performing housekeeping and custodial duties
- Contributes to team effort By: Accomplishing related results as needed

### **QUALIFICATIONS**

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

### **EDUCATION and/or EXPERIENCE**

Required to have a high school education or GED due to the nature of the equipment and system mechanics working with and within;

The variety of duties will require experience in at least one of several fields involved in plant maintenance; At least five years experience required in associated field.

### **CERTIFICATES, LICENSES, REGISTRATIONS**

Commercial Driver's License from Registry of Motor vehicles. Good driving record.

License commensurate with equipment repairing. Hoisting License required.

### **LANGUAGE SKILLS**

Ability to read and interpret documents such as safety rules, operating and maintenance instructions, and procedure manuals. Ability to write routine reports and correspondence.

Ability to speak effectively before groups of customers or employees of organization.

### **MATHEMATICAL SKILLS**

Ability to add, subtract, multiply, and divide in all units of measure, using whole numbers, common fractions, and decimals. Ability to compute rate, ratio, and percent and to draw and interpret bar graphs.

### **REASONING ABILITY**

Ability to apply common sense understanding to carry out instructions furnished in written, oral, or diagram form. Ability to deal with problems involving several concrete variables in standardized situations.

## **PHYSICAL DEMANDS**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, or feel or operate objects, tools, or controls and reach with hands and arms. The employee frequently is required to stand and talk or hear. The employee is occasionally required to walk; sit; climb or balance; stoop, kneel, crouch, or crawl; and taste or smell. The employee must frequently lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and ability to adjust focus.

## **WORK ENVIRONMENT**

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is regularly exposed to moving mechanical parts. The employee is frequently exposed to vibration. The noise level in the work environment is usually moderately loud office setting.

The City of Lowell is a smoke and drug free employer and requires a physical with drug screen and CORI, post offer.

*Qualified individuals should send application/resume with cover letter to the Human Relations Office, Mary Callery, HR Director, Room 19 - City Hall, Lowell, MA 01852 by the Deadline, Open Until Filled. Applicants may also send application/resume with cover letter to fax 978-446-7102 or email to [cityjobs@lowellma.gov](mailto:cityjobs@lowellma.gov)*

*EOE/AA/504 Employer*

**City of Lowell**  
**Job Posting**  
**Please Post: March 24, 2021**  
**Deadline: Open Until Filled**  
**Wastewater Utility**  
**Maintenance Mechanic I**

**Job Title:** Maintenance Mechanic I (2600-23, 2880)  
**Department:** Wastewater Utility  
**Reports To:** Maint. Supt; Plant Engineer; Head Mechanic & Skilled Mechanic  
**Union:** MVEA WWTP Unit I  
**Salary:** \$806.96 (min) to \$977.53 (max) weekly; 40 hours/week  
**FLSA Status:** Non-exempt

**SUMMARY**

Performs equipment maintenance, installation and repair work on process and domestic equipment and piping systems found in a large complex wastewater treatment plant and outlying structures both in existence and to be added in the future. Must be able to perform work at a lower grade.

**ESSENTIAL DUTIES AND RESPONSIBILITIES** include the following. Other duties may be assigned.

Responsible for routine maintenance tasks as well as working under mechanics in repair and installation of domestic and process piping and equipment systems.

Must be capable of a wide variety of physical tasks in carrying out instructions received from the head mechanic and mechanic.

Typical duties may include but are not limited to assisting in removal or breakdown of equipment for maintenance or repair, cleaning and unplugging line process lines, preventative maintenance including greasing and oil requirements of various equipment items.

Repair and maintenance of both on and off plant vehicles are part of the maintenance mechanic's normal duties.

Also included in duties are the maintenance of buildings, tanks and wet well structures in site and outlying structures.

Due to the nature of the installation, these tasks are sometimes difficult and unpleasant.

Driving a dump truck, pick-up truck, van or mack sludge vehicle is also included in this position for on plant site use and between plant and outlying structures.

**SUPERVISORY RESPONSIBILITIES**

May exercise working supervision over a small group comprised of laborers and at times operations personnel on loan to the maintenance department.

**QUALIFICATIONS**

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or

ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

### **EDUCATION and/or EXPERIENCE**

Required to have a high school education or GED due to the nature of the equipment and system mechanics working with and within; Knowledge of plant and equipment maintenance is required as well as experience in wastewater treatment of a similar application. A minimum of five years experience in building and machine maintenance is required. Education and training should indicate ability to function well in machine and building maintenance environment.

### **LANGUAGE SKILLS**

Ability to read and interpret documents such as safety rules, operating and maintenance instructions, and procedure manuals. Ability to write routine reports and correspondence. Ability to speak effectively before groups of customers or employees of organization.

### **MATHEMATICAL SKILLS**

Ability to add, subtract, multiply, and divide in all units of measure, using whole numbers, common fractions, and decimals. Ability to compute rate, ratio, and percent and to draw and interpret bar graphs.

### **REASONING ABILITY**

Ability to apply common sense understanding to carry out instructions furnished in written, oral, or diagram form. Ability to deal with problems involving several concrete variables in standardized situations.

### **CERTIFICATES, LICENSES, REGISTRATIONS**

*Current and valid Commercial Driver's and Hoisting license required, must be obtained within 1 year of appointment. Good driving record.*

### **PHYSICAL DEMANDS**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. Must meet physical requirements for Commercial Drivers as set forth under 49 CFR 391.41; samples are listed below: While performing the duties of this job, the employee is frequently required to stand. The employee is occasionally required to walk; sit; use hands to finger, handle, or feel; reach with hands and arms; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; and taste or smell. The employee must occasionally lift and/or move up to 100 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and ability to adjust focus.

### **WORK ENVIRONMENT**

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is frequently exposed to moving mechanical parts. The employee is occasionally exposed to wet and/or humid conditions; high, precarious

places; fumes or airborne particles; toxic or caustic chemicals; outside weather conditions; risk of electrical shock; risk of radiation; and vibration. The noise level in the work environment is usually loud.

The City of Lowell is a smoke and drug free employer and requires a physical with drug screen and CORI, post offer.

***Qualified individuals should send application/resume with cover letter to the Human Relations Office, Mary Callery, HR Director Room 19 - City Hall, Lowell, MA 01852 by the Deadline: Open Until Filled. Applicants may also send application/resume with cover letter to fax 978-446-7102 or email to [cityjobs@lowellma.gov](mailto:cityjobs@lowellma.gov)***

**EOE/AA/504 Employer**

**POSITION:           ENGINEERING MANAGER**

**REPORTS TO:       EXECUTIVE DIRECTOR**

**SUPERVISION**

**EXERCISED:**     Engineering Supervisor  
                      Staff Engineers  
                      Pretreatment Coordinator

**JOB PURPOSE:**   Supervises and directs the engineering and pretreatment activities of the utility. Supervises and directs activities of contractors and consulting engineers working for the Utility. Supports, assists, and advises operation, lab, and maintenance departments in operating and maintaining the utility in the best interest of the City. Develops and maintains plans, records, and files of engineering and pretreatment activities.

**ESSENTIAL JOB RESULTS**

**1. OVERSEE ENGINEERING DIVISION:**

- Supervising Staff Engineers, Pretreatment Coordinator and Engineering Supervisor
- Scheduling and assigning employees and follow up on work results

**2. MAINTAINS ENGINEERING DIVISION:**

- Initiating, coordinating, and enforcing standards and procedures

**3. COMPLIES WITH FEDERAL, STATE, AND LOCAL LEGAL REQUIREMENTS**

- Studying existing and new legislation
- Enforcing adherence to requirements
- Advising management on needed actions
- Maintains communication with regulatory agencies regarding engineering, pretreatment and inter-municipal activities
- Confers with municipal, state, and federal officials and with outside consultants on technical and administrative matters

**4. MAINTAINS ENGINEERING STAFF JOB RESULTS:**

- Coaching, counseling, and disciplining employees
- Participates in the disciplinary process
- Planning, monitoring and appraising job results

**5. ACHIEVES FINANCIAL OBJECTIVES:**

- Assists Executive Director on financial grant and loan programs and applications, filing for grants, and adherence to conditions set forth in such grants/loans.
- Scheduling expenditures
- Analyzing variances
- Initiating corrective actions

**6. COORDINATE FACILITY EFFORTS:**

- Participating in plant wide projects aimed at the improvement of operations, maintenance, and management
- Consulting with operations and maintenance supervisors to provide engineering and technical advice and assistance in the solution of new, complex, or unusual problems of an engineering nature in the design operation and maintenance of the utility and related facilities
- Interfacing with maintenance and operations
- Exchanging information
- Scheduling mutual projects

7. MAINTAINS ENGINEERING EFFECTIVENESS:

- Setting Division goals
- Coordinating department functions
- Evaluating department functions for effectiveness
- Responsible for developing specifications, plans, contracts, and bidding documents for work the Utility desires to let out to contract or purchase.
- Responsible for the proper supervision and inspection of contracted work to insure conformance to specifications.
- Reviews and advises on change orders that occur during the progress of construction.
- Reviews and approves payment requests for contracted work.

8. COORDINATE WITH OTHER CITY DEPARTMENTS:

- Interfacing with other city department heads
- Availing needed resources

9. OVERSEE PRETREATMENT AND INTERMUNICIPAL ACTIVITIES:

- Meeting daily with Pretreatment Coordinator
- Coordinating pretreatment program requirements
- Coordinating intermunicipal requirements
- Oversees the intermunicipal agreements and adherence to the intermunicipal agreements
- Review inspections, sampling, test results, work schedules and reports
- Review results

10. MAINTAIN ENGINEERING COHESIVENESS:

- Setting policy and goals
- Enforcing policies and procedures

11. KEEPS EXECUTIVE DIRECTOR INFORMED:

- Advising Executive Director on all matters pertaining to engineering, pretreatment and intermunicipal functions
- Reviewing, analyzing and summarizing information
- Identifying trends
- Submitting written reports

12. HELPS THE PUBLIC:

- Being courteous, assessable and prompt
- Investigates complaints promptly, assuring prompt action

13. MAINTAINS ENGINEERING STAFF

- Recruiting, interviewing, selecting orienting, and training Employees
- Preparing personnel schedules and enforcing work rules in accordance with established utility policies
- Responsible for staffing, training, resolution of personnel problems, grievances and related issues for the Engineering Division
- Directing and supervising the performance of duties and tasks of personnel assigned to work under his direction

14. MAINTAINS HISTORICAL RECORDS:

- Filling and compiling logs, reports, records, charts, and related documents

15. MAINTAINS PROFESSIONAL AND TECHNICAL KNOWLEDGE:

- Attending educational workshops, seminars, courses or conferences
- Reviewing professional publications
- Establishing personal networks
- Maintaining required licenses

16. IDENTIFIES MANAGEMENT AND EMPLOYEE CONCERNS:

- Surveying environmental, operational and occupational conditions
- Holding and attending staff meetings
- Surveying and interfacing with employees
- Developing, recommending and executing new or improved current or long range plans, policies, procedures, and practices relative to the utility

17. MAINTAINS SAFE WORKING ENVIRONMENT:

- Establishing and enforcing safety rules, regulations, and procedures
- Attending safety seminars
- Acting on reported safety concerns
- Follow safety committee recommendations

18. MAINTAINS CLEAN WORKING ENVIRONMENT:

- Assigns housekeeping, custodial and landscaping duties

19. CONTRIBUTES TO TEAM EFFORT

- Accomplishing related results as needed
- Performing administrative and technical duties as assigned
- Performing other duties as assigned
- Subject to call for emergency work during any given 24-hour period
- Required to carry a beeper

### **REQUIREMENTS AND QUALIFICATIONS**

- A college bachelors degree in sanitary, civil, environmental or mechanical engineering. A Masters Degree is preferred.
- Engineer In Training (EIT) certification preferred

- Possession of a Massachusetts Grade 6 Operator certification
- Thorough knowledge of the principles, practices and procedures of modern professional, environmental engineering, particularly as applied to wastewater treatment
- Thorough knowledge of the principles, methods, procedures, systems, equipment and materials used in designing, construction, operating and maintaining a large, activated sludge wastewater treatment plant and associated facilities
- Thorough knowledge of the occupational hazards and safety precautions involved in the work
- Considerable knowledge of industrial wastes and their effect on wastewater processes and equipment
- Considerable knowledge of standard laboratory methods in the examination of wastewater
- Ability to plan, administer, coordinate and direct the engineering, pretreatment and intermunicipal activities of a large activated sludge wastewater treatment plant
- Ability to plan, assign, supervise and review the work of subordinates
- Ability to establish and maintain effective working relationships with subordinates, government officials, consultants, industrial officials, and the general public
- Ability to express oneself clearly and concisely, orally and in writing
- Must be reliable, thorough, dependable with the ability to work both independently and as head of a team
- Provide positive leadership and management control to the engineering personnel by his/her actions and examples
- Must be able to accept instruction, formulate plans of action, implementation changes, and ensure their compliance
- Must present a neat, courteous and professional appearance and attitude at all times

**POSITION: ENGINEERING SUPERVISOR**

**REPORTS TO: ENGINEERING MANAGER  
EXECUTIVE DIRECTOR**

**SUPERVISION**

**EXERCISED:** Staff Engineers  
Pretreatment Coordinator

**JOB PURPOSE:** Supervises and directs the engineering and pretreatment activities of the utility. Supervises and directs activities of contractors and consulting engineers working for the Utility. Supports, assists, and advises operation, lab, and maintenance departments in operating and maintaining the utility in the best interest of the City. Develops and maintains plans, records, and files of engineering and pretreatment activities.

**ESSENTIAL JOB RESULTS**

**1. OVERSEE ENGINEERING DIVISION:**

- Supervising Staff Engineers and Pretreatment
- Scheduling and assigning employees and follow up on work results

**2. MAINTAINS ENGINEERING DIVISION:**

- Initiating, coordinating, and enforcing standards and procedures

**3. COMPLIES WITH FEDERAL, STATE, AND LOCAL LEGAL REQUIREMENTS**

By

- Studying existing and new legislation
- Enforcing adherence to requirements
- Advising management on needed actions
- Maintains communication with regulatory agencies regarding engineering, pretreatment and inter-municipal activities
- Confers with municipal, state, and federal official and with outside consultants on technical and administrative matters

**4. MAINTAINS ENGINEERING STAFF JOB RESULTS:**

- Coaching, counseling, and disciplining employees
- Participates in the disciplinary process
- Planning, monitoring and appraising job results

**5. ACHIEVES FINANCIAL OBJECTIVES:**

- Assists Executive Director on financial grant and loan programs and applications, filing for grants, and adherence to conditions set forth in such grants/loans.
- Scheduling expenditures
- Analyzing variances
- Initiating corrective actions

**6. COORDINATE FACILITY EFFORTS:**

- Participating in plant wide projects aimed at the improvement of operations, maintenance, and management
  - Consulting with operations and maintenance supervisors to provide engineering and technical advice and assistance in the solution of new, complex, or unusual problems of an engineering nature in the design operation and maintenance of the utility and related facilities
  - Interfacing with maintenance and operations
  - Exchanging information
  - Scheduling mutual projects
7. MAINTAINS ENGINEERING EFFECTIVENESS:
- Setting Division goals
  - Coordinating department functions
  - Evaluating department functions for effectiveness
  - Responsible for developing specifications, plans, contracts, and bidding documents for work the Utility desires to let out to contract or purchase.
  - Responsible for the proper supervision and inspection of contracted work to insure conformance to specifications.
  - Reviews and advises on change orders that occur during the progress of construction.
  - Reviews and approves payment requests for contracted work.
8. COORDINATE WITH OTHER CITY DEPARTMENTS:
- Interfacing with other city department heads
  - Availing needed resources
9. OVERSEE PRETREATMENT AND INTERMUNICIPAL ACTIVITIES:
- Meeting daily with Pretreatment Coordinator
  - Coordinating pretreatment program requirements
  - Coordinating intermunicipal requirements
  - Oversees the intermunicipal agreements and adherence to the intermunicipal agreements
  - Review inspections, sampling, test results, work schedules and reports
  - Review results
10. MAINTAIN ENGINEERING COHESIVENESS:
- Setting policy and goals
  - Enforcing policies and procedures
11. KEEPS EXECUTIVE DIRECTOR INFORMED:
- Advising Executive Director on all matters pertaining to engineering, pretreatment and intermunicipal functions
  - Reviewing, analyzing and summarizing information
  - Identifying trends
  - Submitting written reports
12. HELPS THE PUBLIC:
- Being courteous, assessable and prompt
  - Investigates complaints promptly, assuring prompt action

13. MAINTAINS ENGINEERING STAFF:

- Recruiting, interviewing, selecting orienting, and training Employees
- Preparing personnel schedules and enforcing work rules in accordance with established utility policies
- Responsible for staffing, training, resolution of personnel problems, grievances and related issues for the Engineering Division
- Directing and supervising the performance of duties and tasks of personnel assigned to work under his direction

14. MAINTAINS HISTORICAL RECORDS:

- Filing and compiling logs, reports, records, charts, and related documents

15. MAINTAINS PROFESSIONAL AND TECHNICAL KNOWLEDGE:

- Attending educational workshops, seminars, courses or conferences
- Reviewing professional publications
- Establishing personal networks
- Maintaining required licenses

16. IDENTIFIES MANAGEMENT AND EMPLOYEE CONCERNS:

- Surveying environmental, operational and occupational conditions
- Holding and attending staff meetings
- Surveying and interfacing with employees
- Developing, recommending and executing new or improved current or long range plans, policies, procedures, and practices relative to the utility

17. MAINTAINS SAFE WORKING ENVIRONMENT:

- Establishing and enforcing safety rules, regulations, and procedures
- Attending safety seminars
- Acting on reported safety concerns
- Follow safety committee recommendations

18. MAINTAINS CLEAN WORKING ENVIRONMENT:

- Assigns housekeeping, custodial and landscaping duties

19. CONTRIBUTES TO TEAM EFFORT:

- Accomplishing related results as needed
- Performing administrative and technical duties as assigned
- Performing other duties as assigned
- Subject to call for emergency work during any given 24-hour period
- Required to carry a beeper

## **REQUIREMENTS AND QUALIFICATIONS**

- A college bachelors degree in sanitary, civil, environmental or mechanical engineering. A Masters Degree is preferred.
- Engineer In Training (EIT) certification preferred

- Possession of a Massachusetts Grade 6 Operator certification
- Thorough knowledge of the principles, practices and procedures of modern professional, environmental engineering, particularly as applied to wastewater treatment
- Thorough knowledge of the principles, methods, procedures, systems, equipment and materials used in designing, construction, operating and maintaining a large, activated sludge wastewater treatment plant and associated facilities
- Thorough knowledge of the occupational hazards and safety precautions involved in the work
- Considerable knowledge of industrial wastes and their effect on wastewater processes and equipment
- Considerable knowledge of standard laboratory methods in the examination of wastewater
- Ability to plan, administer, coordinate and direct the engineering, pretreatment and intermunicipal activities of a large activated sludge wastewater treatment plant
- Ability to plan, assign, supervise and review the work of subordinates
- Ability to establish and maintain effective working relationships with subordinates, government officials, consultants, industrial officials, and the general public
- Ability to express oneself clearly and concisely, orally and in writing
- Must be reliable, thorough, dependable with the ability to work both independently and as head of a team
- Provide positive leadership and management control to the engineering personnel by his/her actions and examples
- Must be able to accept instruction, formulate plans of action, implementation changes, and ensure their compliance
- Must present a neat, courteous and professional appearance and attitude at all times

**City of Lowell**  
**Job Posting**  
**Please Post: December 15, 2020**  
**Deadline: Open Until Filled**  
**Staff Engineer**  
**Lowell Regional Wastewater Utility**  
*Anticipated Vacancy*

**Job Title:** Staff Engineer (2300-08, INC, 2840)  
**Department:** Lowell Regional Wastewater Utility (LRWWU)  
**Reports To:** Wastewater Engineering Supervisor; Executive Director  
**Union:** MVEA - WWTP Unit IIP  
**FLSA Status:** Non Exempt  
**Salary:** \$1,087.45 (min) to \$1,246.48 (max) per week; 40hrs/week

**SUMMARY**

A Wastewater Engineer is responsible for management and administration of various tasks and programs within the LRWWU Engineering Division. A Wastewater Engineer provides technical support and project management assistance to the Wastewater Engineering Manager, the Wastewater Engineering Supervisor, and other division staff.

**QUALIFICATIONS**

The requirements listed below are representative of the knowledge, skill, and ability required of the Engineering Supervisor. To perform this job successfully, an individual must meet the education and experience requirements and be able to perform each essential duty satisfactorily.

**EDUCATION AND EXPERIENCE**

- A bachelor's degree in civil/environmental engineering, environmental studies, physical sciences, or a comparable area of study is required.
- Certification as an Engineer-In-Training (EIT) is preferred.
- Experience with engineering design, project management is required and program administration, especially in the municipal wastewater treatment industry, is preferred.

**ESSENTIAL DUTIES AND RESPONSIBILITIES**

Below are some of the essential duties and responsibilities of the position. Depending upon experience, education, skills, and the needs of the LRWWU Engineering Division, the duties described below may or may not be assigned. Other duties not listed below may be assigned by the Engineering Manager as deemed necessary to fulfill the overall objectives of the department.

- Administer tasks in any of the following division programs: Inter-Municipal Program (IMP), Storm-Water Management (SWM), Utility Safety Program, Industrial Pretreatment Program (IPP), Fats, Oil & Grease (FOG) Program, Long Term Control Program (LTCP), Capital Improvements Program (CIP), Geographical Information Systems (GIS), Website Development, and Supervisory Control and Data Acquisition (SCADA) Management. Task include permitting, inspection, correspondence, billing, regulatory compliance, planning and

design, project management, environmental monitoring, program implementation and maintenance, contractor oversight, and database management.

- Participate in design review process and make recommendations for design revisions; support other members of department, including operations and maintenance personnel; supervise contractors and consultants during design, bidding, and construction of projects, as required.
- Craft reports and other documents that describe work activities; create spreadsheets, tables, charts that summarize data and convey information; maintain electronic and paper files, including design reports, meeting minutes, technical memoranda, computer programs, correspondence, databases, and other records.
- Participate in planning and implementation of program objectives; support other Wastewater Engineering staff by providing technical assistance and support; participate in team projects and support efforts of other group members as needed. This includes assistance with pretreatment and intermunicipal responsibilities, as well as engineering projects, if necessary.
- Participate in Wastewater department programs and projects as needed; provide technical assistance to the operations and maintenance divisions; respond to emergency calls outside of normal working hours; keep Executive Director and Engineering Manager informed of Wastewater Engineering functions; interact in a professional manner with city departments, other organizations, public officials, and the general public.
- Refine skills related to mathematical concepts and calculations; enhance knowledge of the principles and practices of wastewater / stormwater treatment and transport; advance proficiency in organizing technical materials and writing letters; improve knowledge of federal and state regulations related to wastewater and stormwater management.
- Obtain and maintain professional licenses and certifications; establish and utilize professional networks; attend educational workshops, conferences, and seminars; reviews technical publications and refine knowledge
- Contribute to the preparation and submittal of reports and correspondence to the United States Environmental Protection Agency and the Massachusetts Department of Environmental Protection; maintain a working knowledge of relevant rules and regulations; coordinate and communicate with other agencies as needed; comply with federal, state, and local legal requirements.
- Collaborate with the Wastewater Engineering Manager, the Wastewater Engineering Supervisor, and other staff members in the LRWWU Engineering division regarding all project work; attend staff meetings as necessary.
- Interact with supervisors in other LRWWU divisions as needed, particularly the Operations Superintendent, Maintenance Superintendent, and Executive Director.
- Foster a safe and productive work environment by engaging in effective work practices and procedures; perform housekeeping and custodial duties as needed.

### **CERTIFICATES, LICENSES, AND REGISTRATIONS**

- Engineer-In-Training certification is preferred.
- Valid motor vehicle license is required; commercial driver's license is preferred.
- Wastewater treatment operator's and wastewater collection system licenses are preferred.
- Hazwoper emergency responder training is desired.

### **LANGUAGE SKILLS**

Ability to read, analyze, and interpret general business periodicals, professional journals, technical procedures, or governmental regulations. Ability to write reports, business

correspondence, and procedure manuals. Ability to effectively present information and respond to questions from groups of managers, clients, customers, and the public.

### **MATHEMATICAL SKILLS**

Ability to work with mathematical concepts such as probability and statistical inference, and fundamentals of plane and solid geometry, trigonometry, and calculus. Ability to apply concepts such as fractions, percentages, ratios, and proportions to practical situations.

### **COMPUTER SKILLS**

Ability to utilize computer programs such as *Word*, *Excel*, *PowerPoint*, and *Access*. Ability to create tables, charts, and spreadsheets and facility with email messaging. Familiarity with *AutoCad* and *GIS* a plus.

### **REASONING ABILITY**

Ability to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists. Ability to interpret information presented in written, oral, schematic, or schedule form.

### **PHYSICAL DEMANDS**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is occasionally required to stand; walk; sit; use hands to finger, handle, or feel; reach with hands and arms; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; and taste or smell. The employee must occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and ability to adjust focus.

### **WORK ENVIRONMENT**

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is occasionally exposed to moving mechanical parts; high, precarious places; fumes or airborne particles; toxic or caustic chemicals; outside weather conditions; risk of electrical shock; and vibration. The noise level in the work environment is usually moderate.

*The city of Lowell is a smoke and drug free employer and requires a physical with drug screen and CORI, post offer.*

**Qualified applicants should send resume/application with cover letter to Mary Callery, HR Director, Human Relations Office, Room 19 City Hall, Lowell, MA 01852 by Deadline: Open Until Filled. Applicants may also send resume and /or application to fax # 978-446-7102 or email to [cityjobs@lowellma.gov](mailto:cityjobs@lowellma.gov)**

**EOE/AA/504 Employer**

**City of Lowell**  
**Job Description**  
**Please Post ~ January 8, 2008**  
**Deadline ~ January 18, 2008**  
**Pretreatment Coordinator**  
**Lowell Regional Wastewater Utility**

**Job Title:** *Pretreatment Coordinator*  
**Department:** Lowell Regional Wastewater Utility (LRWWU)  
**Reports To:** Wastewater Engineering Supervisor; other designated personnel  
**Salary:** *\$822.29 (min) to \$947.86 (max) per week*

### **SUMMARY**

The Pretreatment Coordinator implements the LRWWU Industrial Pretreatment Program (IPP) by managing the daily activities of the program and coordinating the efforts of other staff members assigned to support the program.

### **ESSENTIAL DUTIES AND RESPONSIBILITIES**

Below are the essential responsibilities of the position. Other duties not listed below may be assigned by the Wastewater Engineering Supervisor as deemed necessary to fulfill the overall objectives of the industrial pretreatment program and other LRWWU programs.

- Review industrial sewer user permit applications and craft sewer user permits.
- Conduct sewer user facility inspections and surveillance visits, and write inspection reports.
- Manage sewer user monitoring database, including data input of self monitoring and utility monitoring results.
- Assist with sewer user monitoring program, including the collection of sewer discharge samples.
- Maintain electronic and paper pretreatment program files, including sewer user database, permits, inspection reports, sampling results, and correspondence.
- Correspond with industrial sewer users regarding all aspects of the pretreatment program.
- Prepare and submit pretreatment reports and correspondence to the United States Environmental Protection Agency and the Massachusetts Department of Environmental Protection.
- Create and transmit a variety of sewer user bills and abatements.
- Implement a Fats, Oils & Grease (FOG) Program.
- Develop pretreatment program documents such as IPP enforcement response plan, IPP local limits, FOG control plan, and local sewer use ordinance.
- Coordinate a hazardous spill response program.
- Understand federal and state regulations related to sewer discharges and industrial pretreatment programs.
- Participate in team projects and support the efforts of other group members.
- Inform Wastewater Engineering Supervisor of pretreatment program activities.
- Foster a safe and productive work environment by engaging in effective work practices and procedures.

### **QUALIFICATIONS**

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and ability required for the position.

### **EDUCATION AND EXPERIENCE**

- A bachelor's degree in engineering, science, environmental studies, or a comparable degree is preferred.
- Knowledge of the principles and practices of industrial and municipal wastewater treatment is desired.
- Facility with mathematical concepts and calculations related to wastewater treatment is required.
- Proficiency in organizing technical materials, writing letters, and project management is required.

- Ability to read, interpret, and understand regulations and laws related to wastewater treatment is required.
- Familiarity with wastewater sample collection and analysis is required.

### **LANGUAGE SKILLS**

Ability to read, analyze, and interpret general business periodicals, professional journals, technical procedures, or governmental regulations. Ability to write reports, business correspondence, and procedure manuals. Ability to effectively present information and respond to questions from groups of managers, clients, customers, and the public.

### **MATHEMATICAL SKILLS**

Ability to work with mathematical concepts such as probability and statistical inference, and fundamentals of plane and solid geometry and trigonometry. Ability to apply concepts such as fractions, percentages, ratios, and proportions to practical situations.

### **REASONING ABILITY**

Ability to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists. Ability to interpret information presented in written, oral, schematic, or schedule form.

### **CERTIFICATES, LICENSES, AND REGISTRATIONS**

- Valid motor vehicle license is required.
- Wastewater treatment operator's license is preferred.
- Wastewater collection system license is preferred.
- Hazwoper emergency responder training is preferred.

### **PHYSICAL DEMANDS**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is occasionally required to stand; walk; sit; use hands to finger, handle, or feel; reach with hands and arms; climb or balance; stoop, kneel, crouch, or crawl; talk or hear; and taste or smell. The employee must occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and ability to adjust focus.

### **WORK ENVIRONMENT**

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is occasionally exposed to moving mechanical parts; high, precarious places; fumes or airborne particles; toxic or caustic chemicals; outside weather conditions; risk of electrical shock; and vibration. The noise level in the work environment is usually moderate.

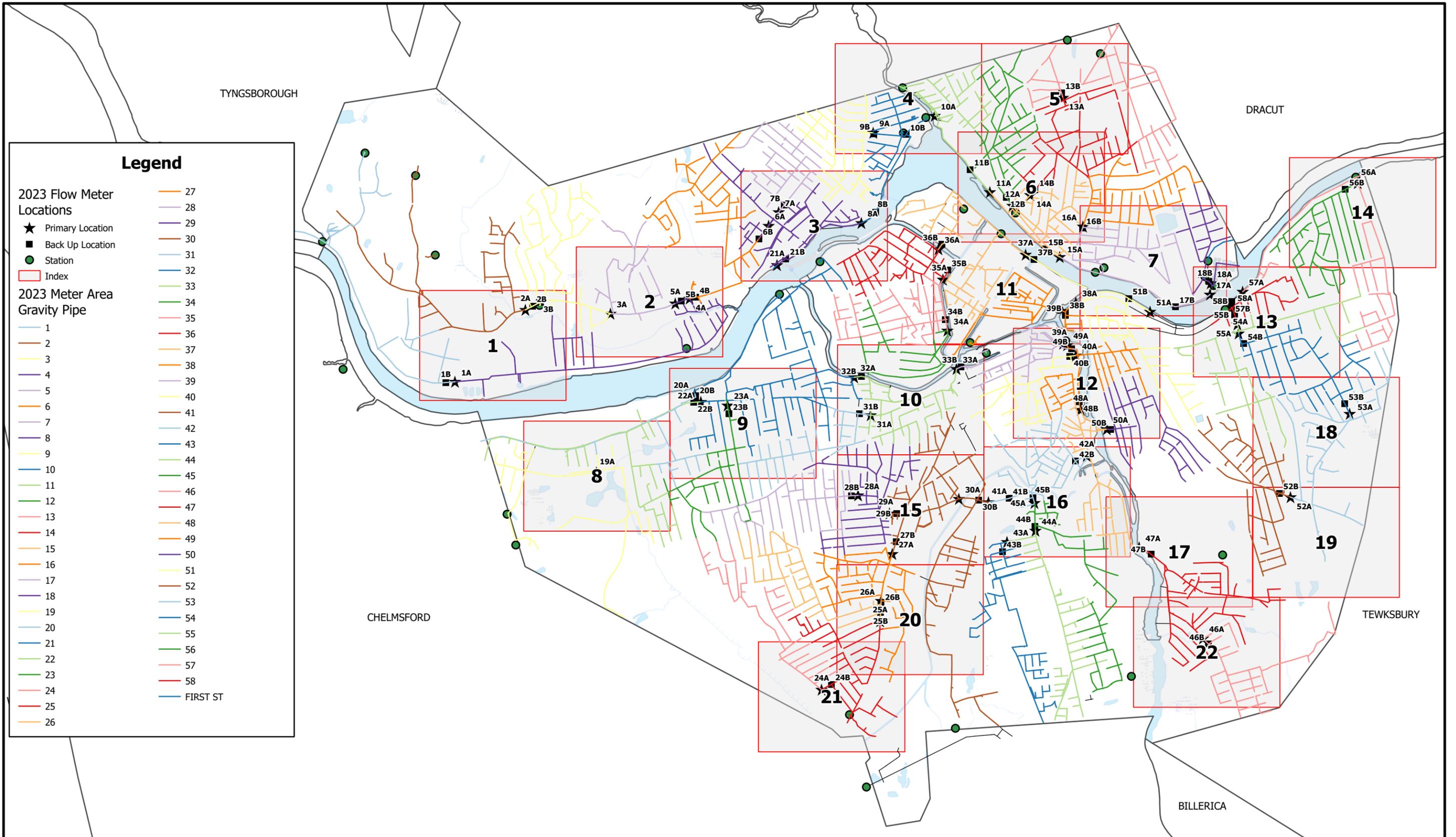
The city of Lowell is a smoke and drug free employer and requires a physical with drug screen and CORI, post offer.

***Qualified applicants send resume/application to the Human Relations Office, Room 19 City Hall, Lowell, MA 01852 by 4:00 pm on: Deadline - January 18, 2008***  
***EOE/AA/504 Employer***

***S:\WWTP\Asstpret.jbx***

## Appendix C: City-wide Flow Metering Program Supporting Documentation

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### Legend

**2023 Flow Meter Locations**

- ★ Primary Location
- Back Up Location
- Station
- Index

**2023 Meter Area Gravity Pipe**

1	27
2	28
3	29
4	30
5	31
6	32
7	33
8	34
9	35
10	36
11	37
12	38
13	39
14	40
15	41
16	42
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	FIRST ST

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CHECKED BY:	KGoyette
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<b>2023 Flow Meter Preliminary Locations Keyplan</b>
Lowell Regional Wastewater Utility 451 First Street Blvd. Lowell, MA 01850

## Legend

### 2023 Flow Meter Locations

- ★ Primary Location
- Back Up Location
- Sewer Manhole
- Station
- ▲ CSO Outfall

- Gravity Sewer Pipe
- Siphon Pipe
- Force Main
- Index

### 2023 Meter Area Gravity Pipe

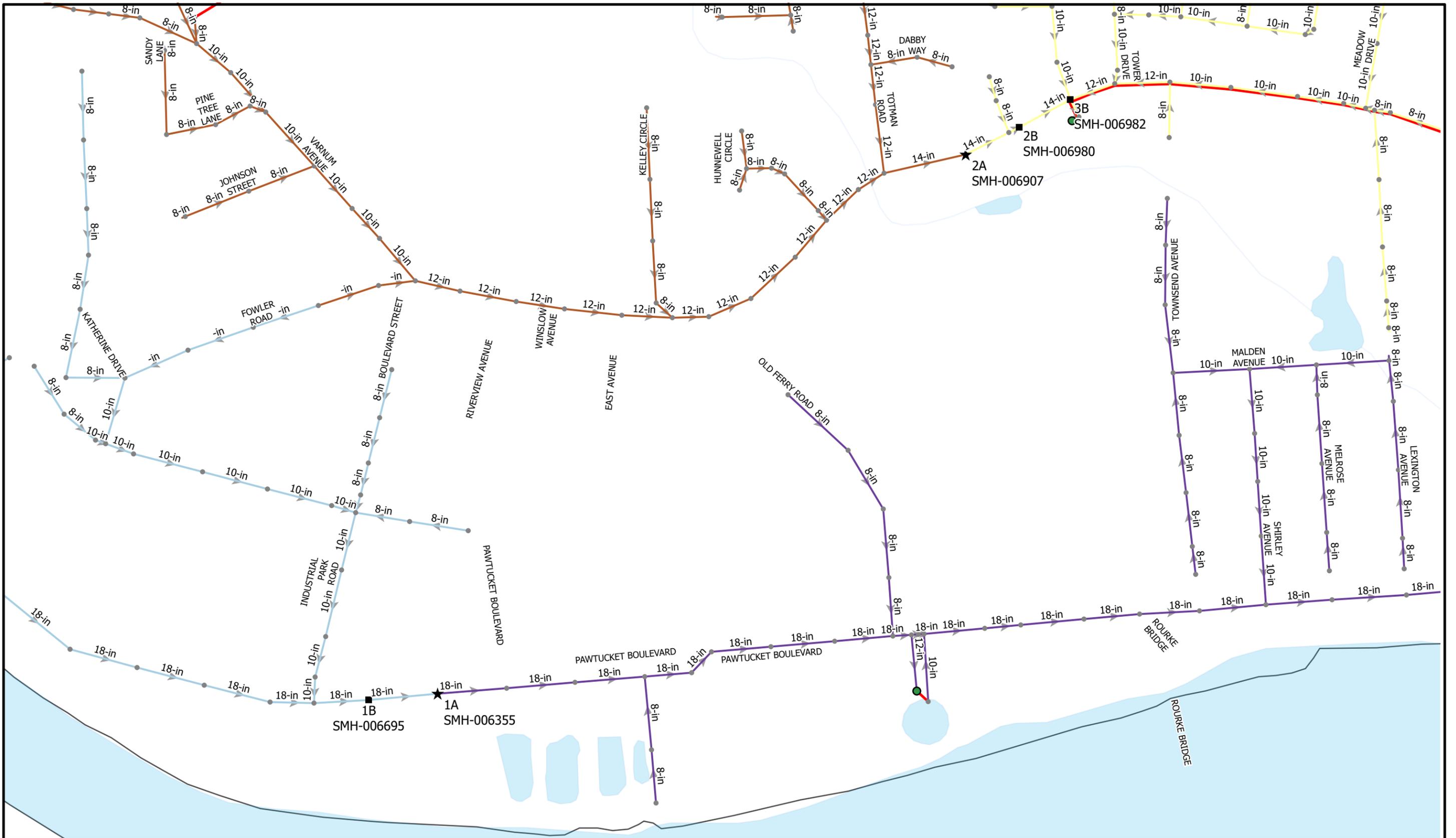
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| 2  | 28       |
| 3  | 29       |
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| 8  | 34       |
| 9  | 35       |
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|    | 56       |
|    | 57       |
|    | 58       |
|    | FIRST ST |

Meter Area	LF	Dia# (Inch)	Meter Placement	Community	Meter Area1	LF1	Dia# (Inch)1	Meter Placement1	Community1
1	20373	18	DS	Tyngsboro	31	16140	35x23	US	
2	22790	14	DS		32	20256	42x23	DS	
3	23978	15	DS		33	18613	48	DS	
4	22116	20	DS		34	12491	45x30	DS	
5	12950	18	DS		35	22502	52x34	DS	
6	24371	50x33	DS		36	21372	36	DS	
7	17320	48	DS		37	24043	36	DS	
8	24992	84	DS		38	16554	96	US	
9	21185	48	US		39	17233	32x47	DS	
10	17465	48	DS		40	14472	36	DS	
11	17092	96	DS	Dracut	41	21800	84	DS	Chelmsford
12	22670	54x46	DS		42	21262	84	DS	
13	24276	48	DS	Dracut	43	20902	48x32	DS	
14	23274	60	DS		44	18807	50x75	DS	
15	19578	96	DS		45	19825	50x75	US	
16	19576	30x36	DS	Dracut	46	17166	12	DS	Tewksbury
17	22363	96	DS		47	25320	36	DS	
18	11222	18	DS		48	18796	84	DS	
19	20444	18	DS	Chelmsford	49	17005	90	DS	
20	12183	48	DS		50	20757	45	US	
21	24673	36	DS		51	23357	120	DS	
22	19536	24	DS		52	24795	30	DS	
23	16282	18	DS		53	24933	48	DS	
24	21631	10	US		54	22349	48	DS	
25	20511	36	DS		55	21532	60	DS	
26	20514	36	US		56	22704	36	US	
27	24076	54	DS		57	20596	84	DS	Tewksbury
28	25490	52x35	DS		58	8041	84	DS	
29	22654	48	DS		FIRST ST	979+	27	—	Dracut
30	19380	72	DS						

**NOTES:**

1. Meter Placement: "DS" = Downstream, "US" = Upstream.
2. Community: Member flows influence subarea.
3. First St: LRWWU's permanent flow meter will be utilized to captured flows at this location.

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★ Primary Location	Orange Siphon Pipe
■ Back Up Location	Red ForceMain
● Sewer Manhole	→ Gravity Sewer Pipe
● Station	
▲ CSO Outfall	

0 500 1,000  
Feet

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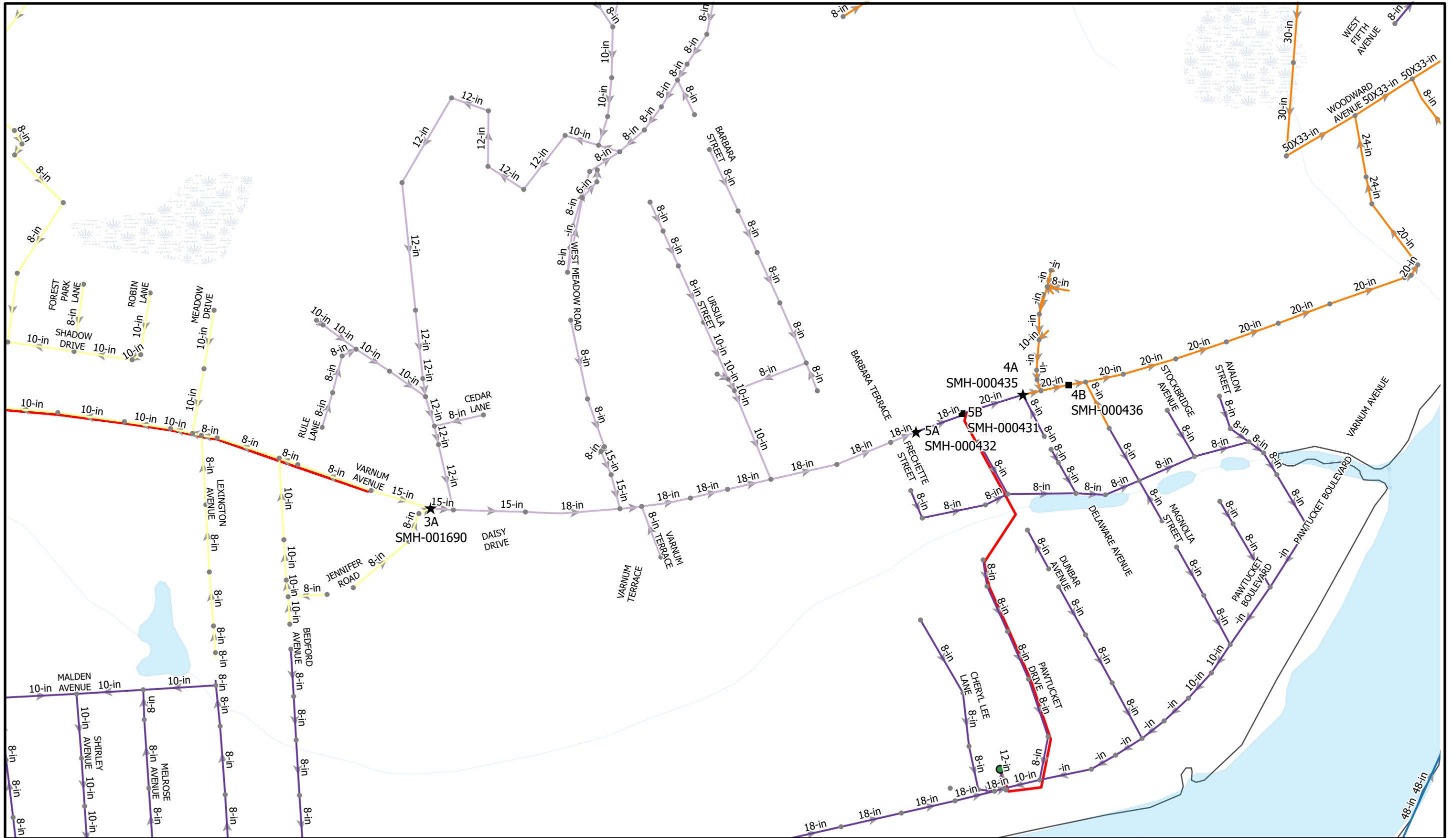


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**2023 Flow Meter Preliminary Locations Mapbook**

Lowell Regional Wastewater Utility  
451 First Street Blvd.  
Lowell, MA 01850



★	Primary Location	Orange line	Siphon Pipe
■	Back Up Location	Red line	ForceMain
●	Sewer Manhole	Grey arrow	Gravity Sewer Pipe
●	Station		
▲	CSO Outfall		

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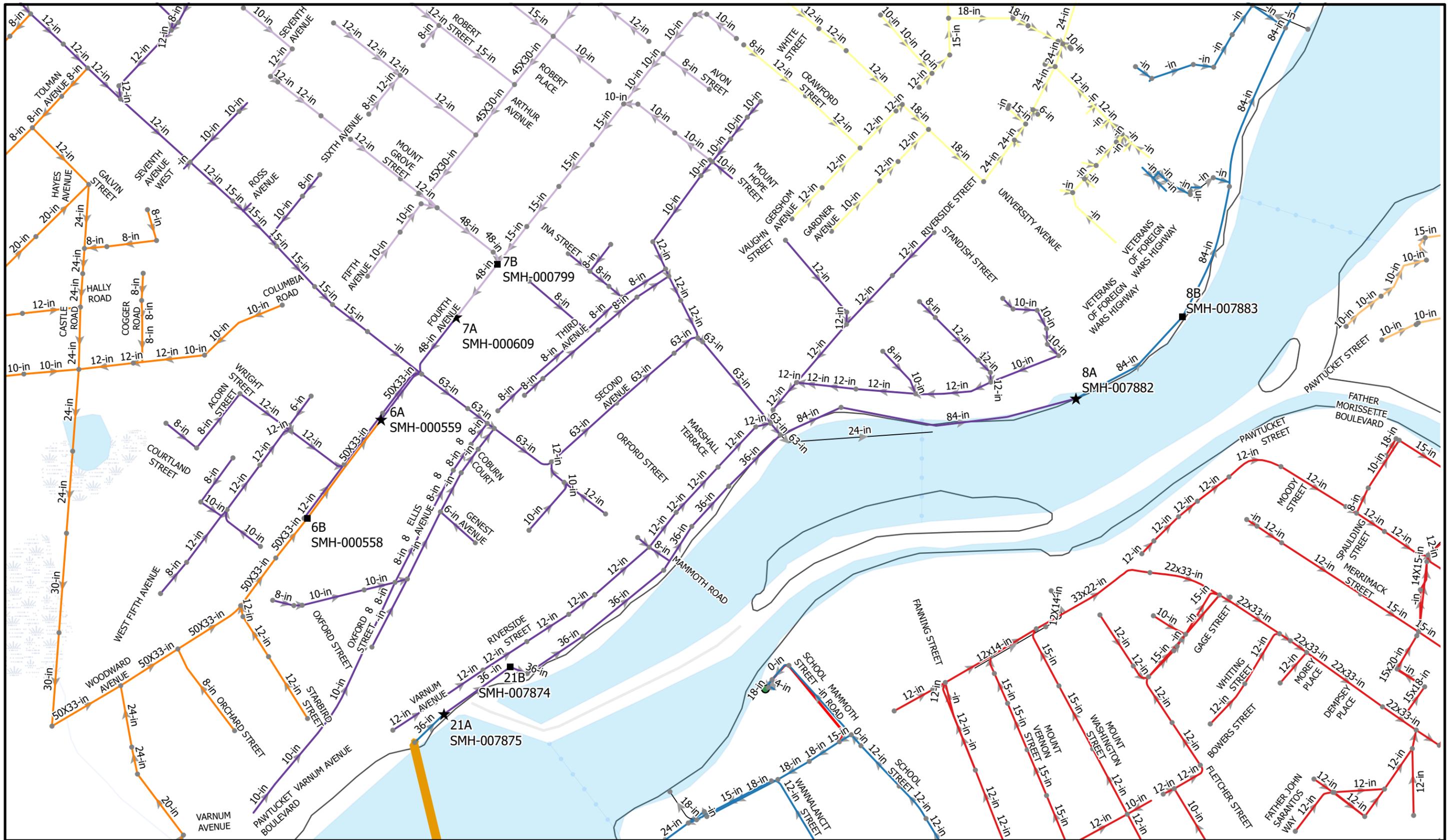


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**2023 Flow Meter Preliminary Locations Mapbook**

Lowell Regional Wastewater Utility  
451 First Street Blvd.  
Lowell, MA 01850



- ★ Primary Location
- Back Up Location
- Sewer Manhole
- Station
- ▲ CSO Outfall
- Siphon Pipe
- ForceMain
- Gravity Sewer Pipe

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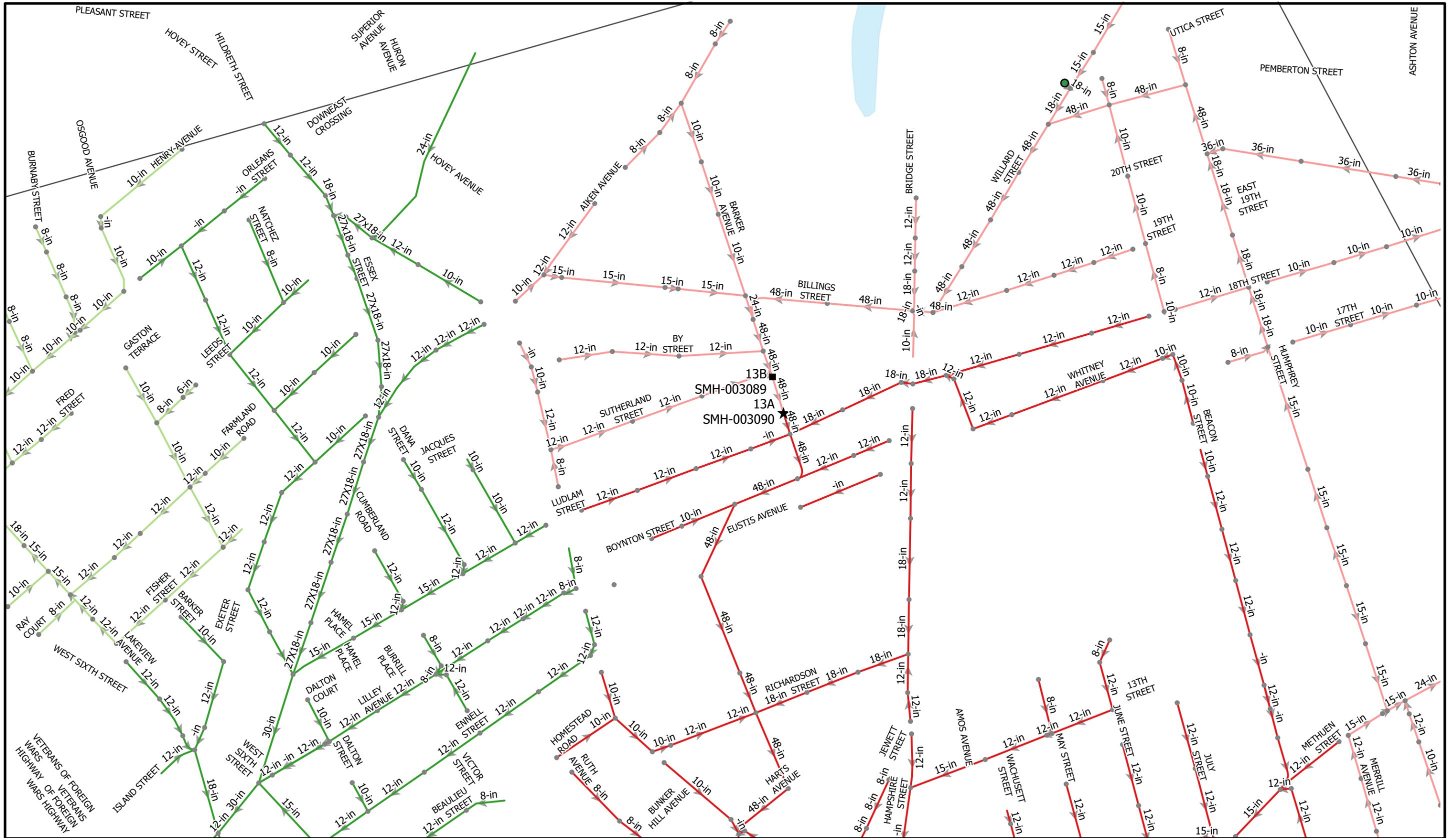
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Lowell Regional Wastewater Utility  
451 First Street Blvd.  
Lowell, MA 01850





★ Primary Location	▬ Siphon Pipe
■ Back Up Location	▬ ForceMain
● Sewer Manhole	➔ Gravity Sewer Pipe
● Station	
▲ CSO Outfall	

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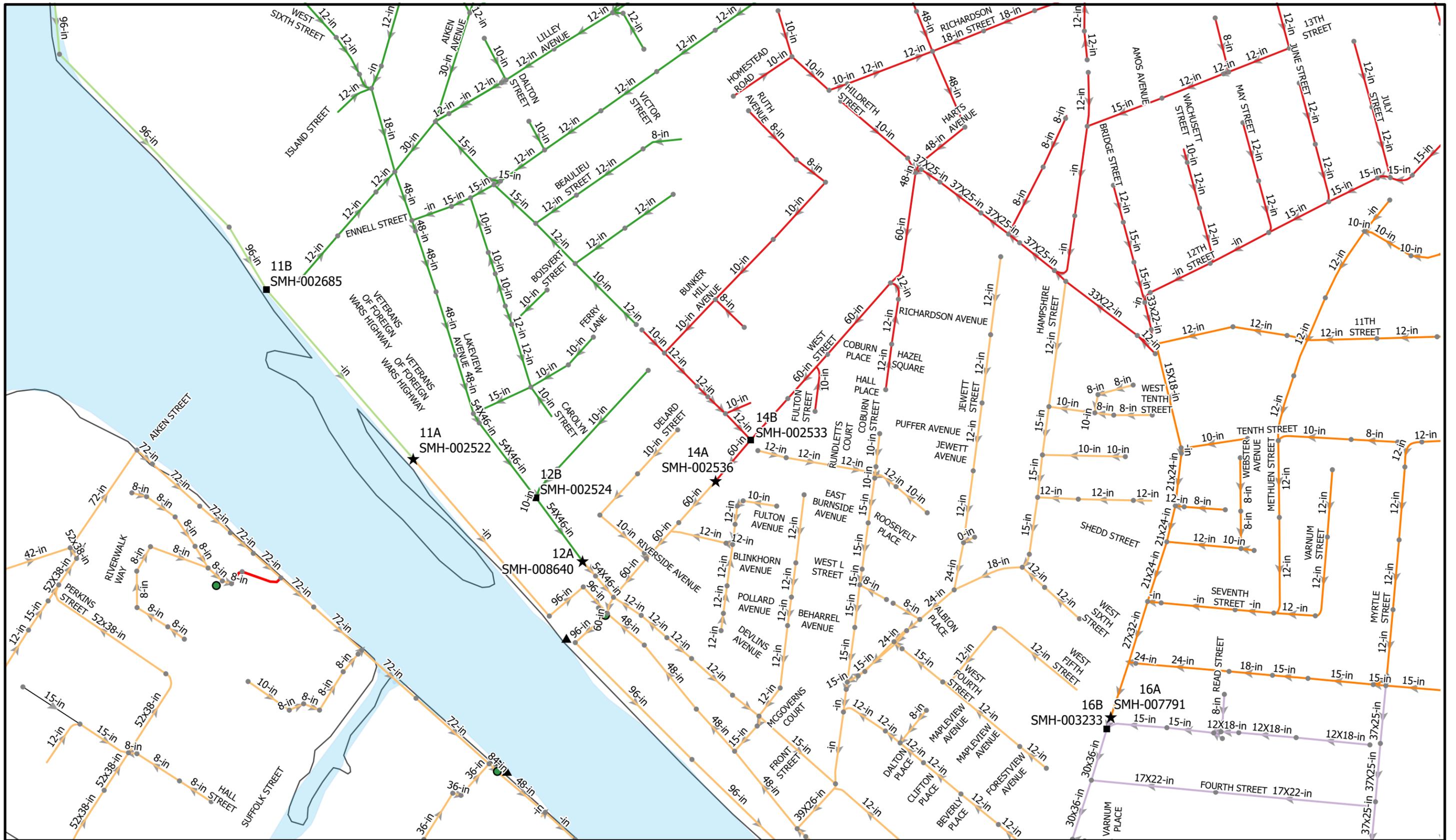


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Lowell Regional Wastewater Utility  
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- ★ Primary Location
- Back Up Location
- Sewer Manhole
- Station
- ▲ CSO Outfall
- Siphon Pipe
- ForceMain
- Gravity Sewer Pipe

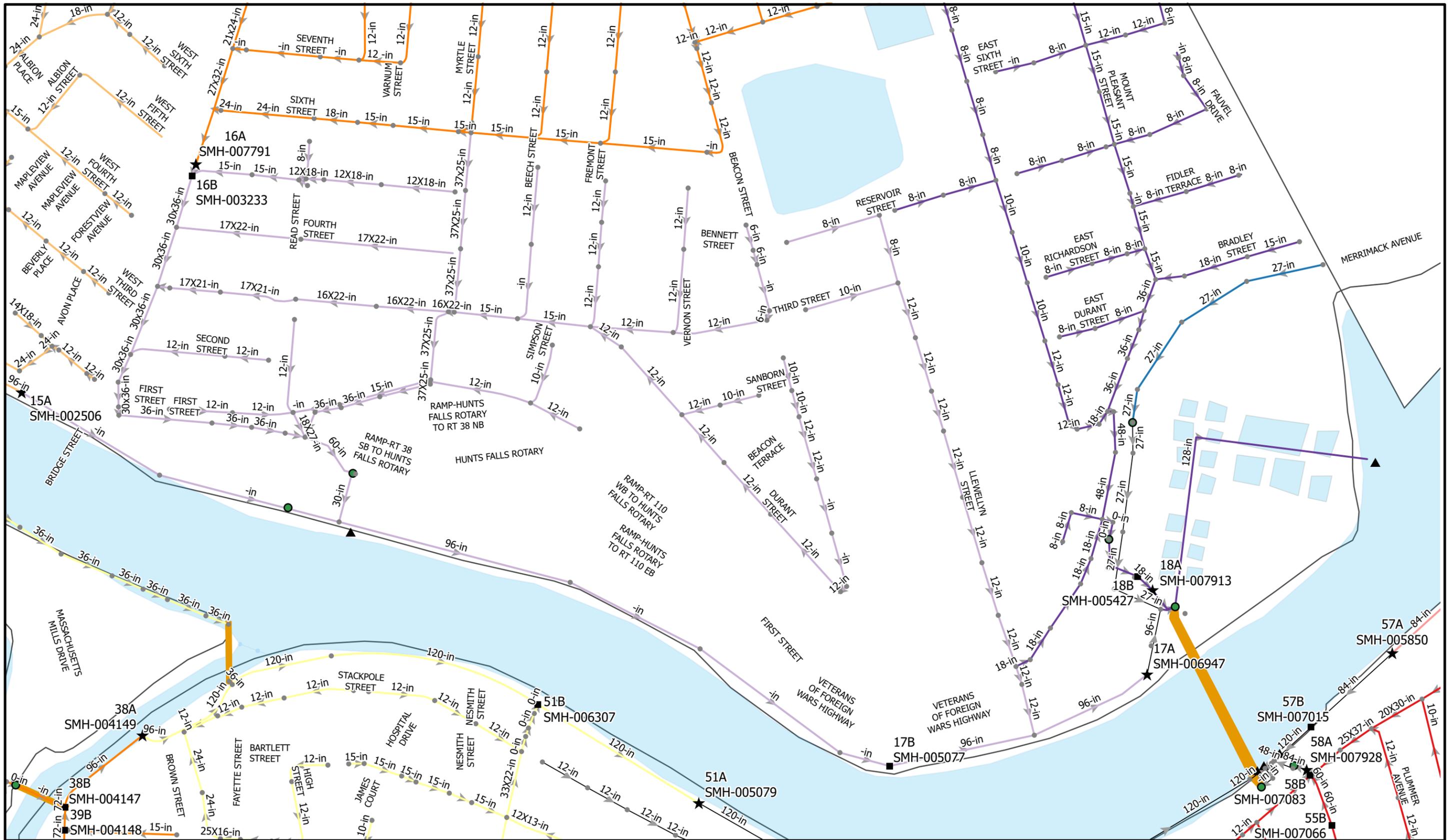


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<b>2023 Flow Meter Preliminary Locations Mapbook</b>
Lowell Regional Wastewater Utility 451 First Street Blvd. Lowell, MA 01850



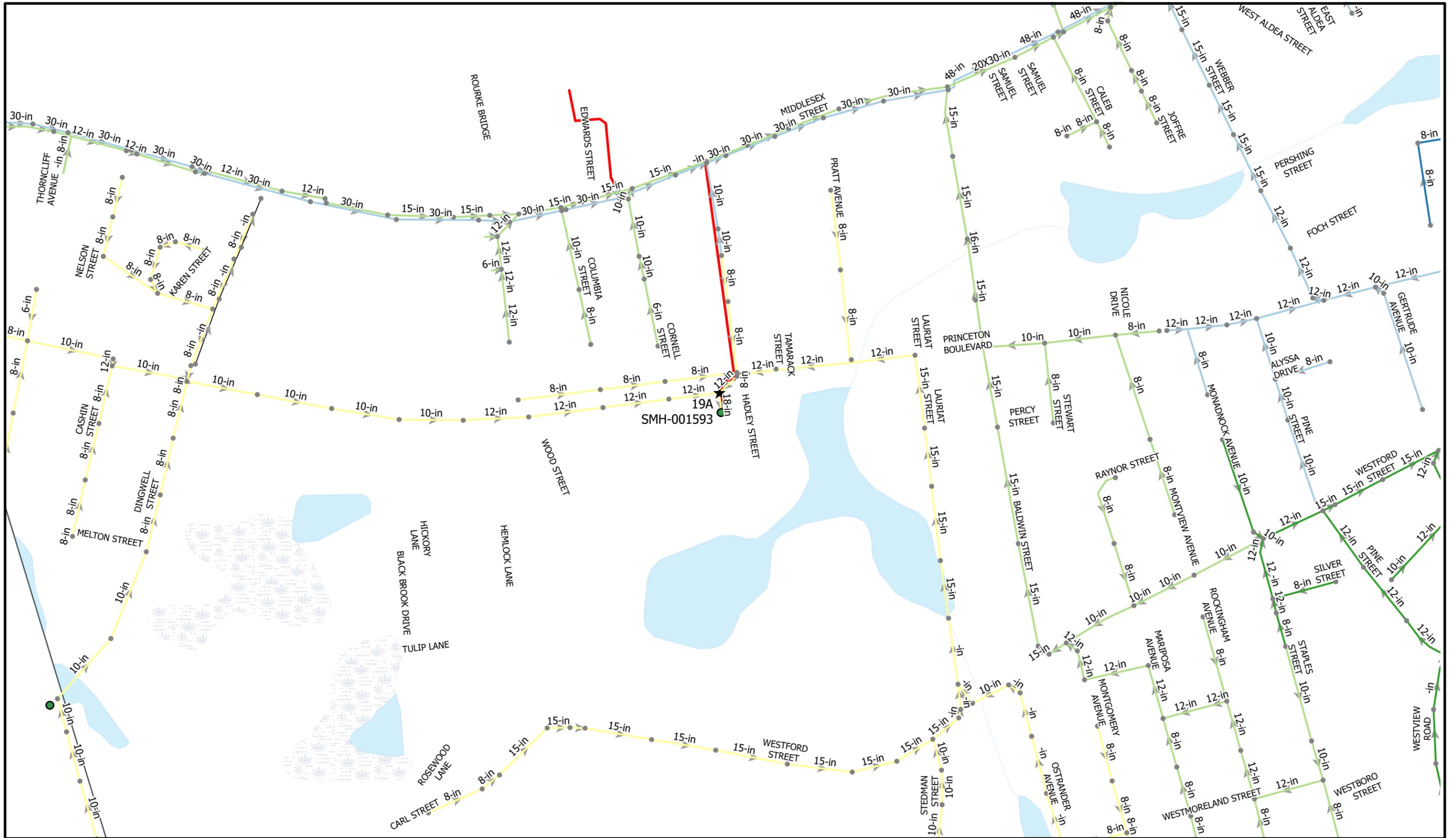
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PROJECT NO. 20220166.003A	<b>2023 Flow Meter Preliminary Locations Mapbook</b>	PAGE <b>7</b>
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CHECKED BY: KGoyette		
FILE NAME: Lowell_2023_Flow_Meter.mxd		



★ Primary Location	Orange line Siphon Pipe
■ Back Up Location	Red line ForceMain
● Sewer Manhole	Grey arrow Gravity Sewer Pipe
● Station	
▲ CSO Outfall	

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**2023 Flow Meter Preliminary Locations Mapbook**

Lowell Regional Wastewater Utility  
451 First Street Blvd.  
Lowell, MA 01850



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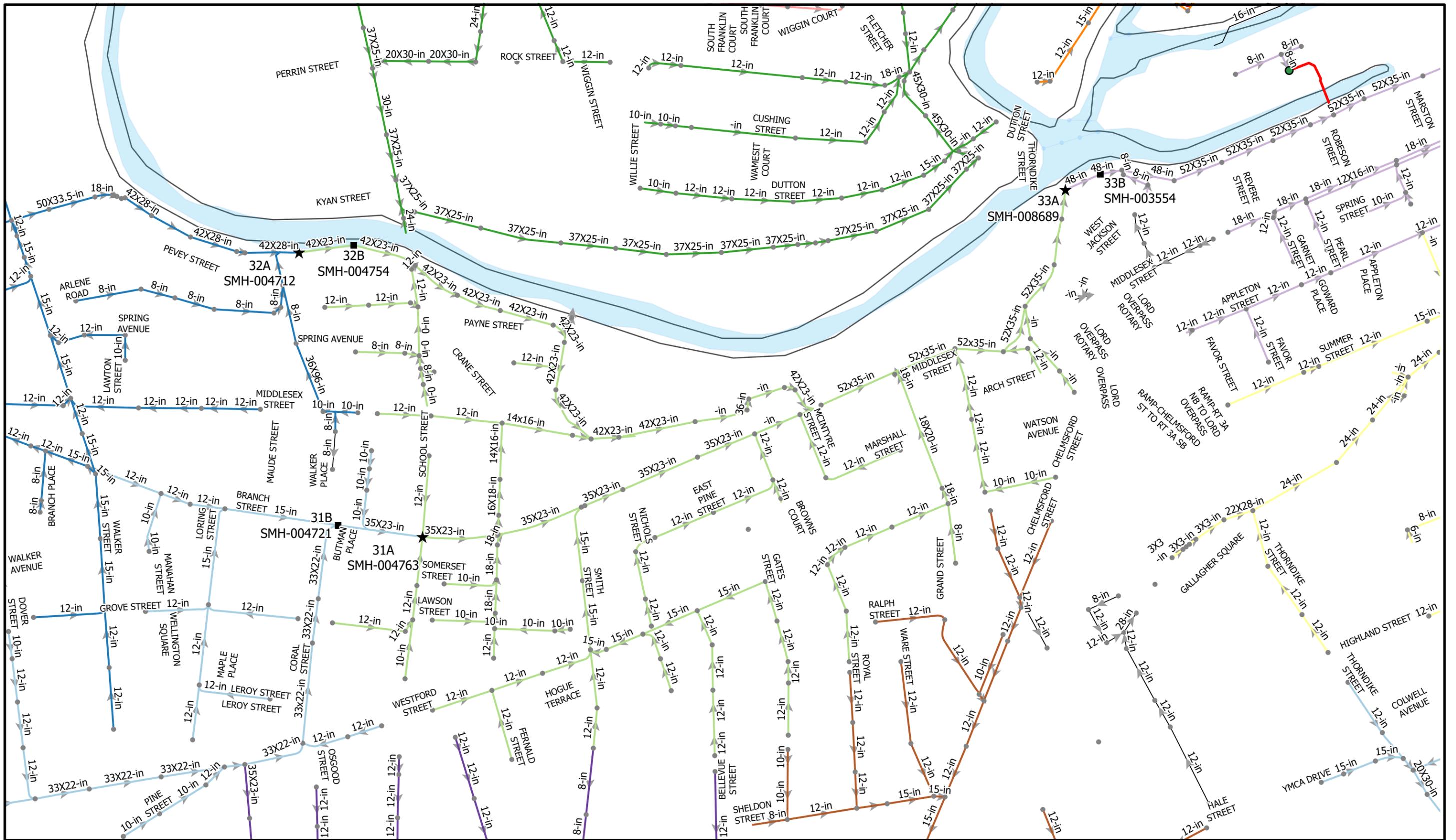
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**2023 Flow Meter Preliminary Locations Mapbook**

Lowell Regional Wastewater Utility  
451 First Street Blvd.  
Lowell, MA 01850



- ★ Primary Location
- Back Up Location
- Sewer Manhole
- Station
- ▲ CSO Outfall
- ▬ Siphon Pipe
- ▬ ForceMain
- ▬ Gravity Sewer Pipe



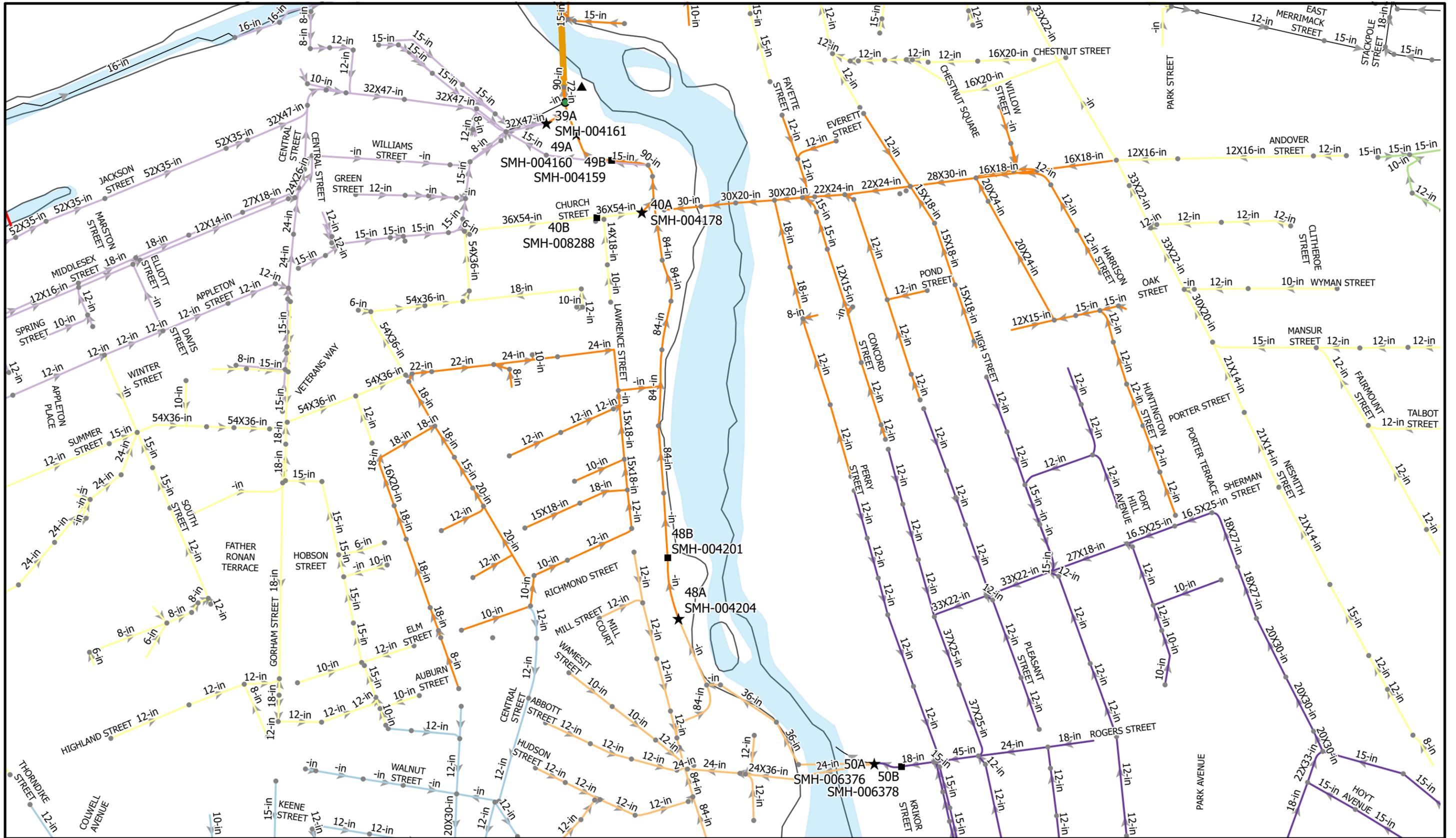
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<b>2023 Flow Meter</b> <b>Preliminary Locations</b> <b>Mapbook</b>
Lowell Regional Wastewater Utility 451 First Street Blvd. Lowell, MA 01850





★ Primary Location	Orange Line Siphon Pipe
■ Back Up Location	Red Line ForceMain
● Sewer Manhole	Grey Arrow Gravity Sewer Pipe
● Station	
▲ CSO Outfall	

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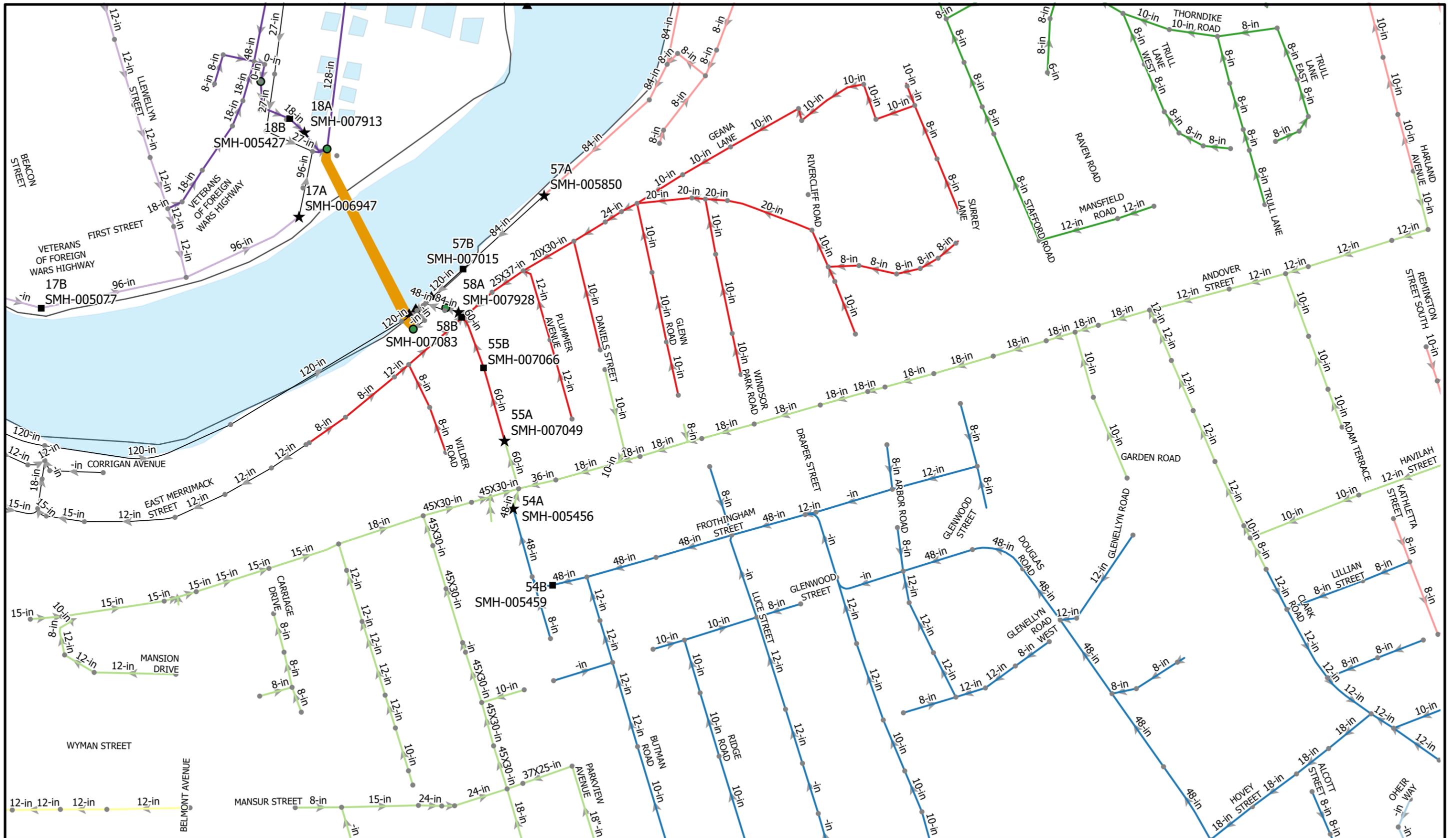
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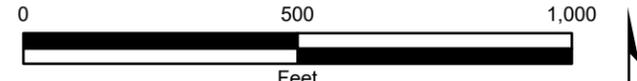
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<b>2023 Flow Meter</b> <b>Preliminary Locations</b> <b>Mapbook</b>	PAGE
	<b>12</b>
Lowell Regional Wastewater Utility 451 First Street Blvd. Lowell, MA 01850	



- ★ Primary Location
- Back Up Location
- Sewer Manhole
- Station
- ▲ CSO Outfall
- ▬ Siphon Pipe
- ▬ ForceMain
- ▬ Gravity Sewer Pipe

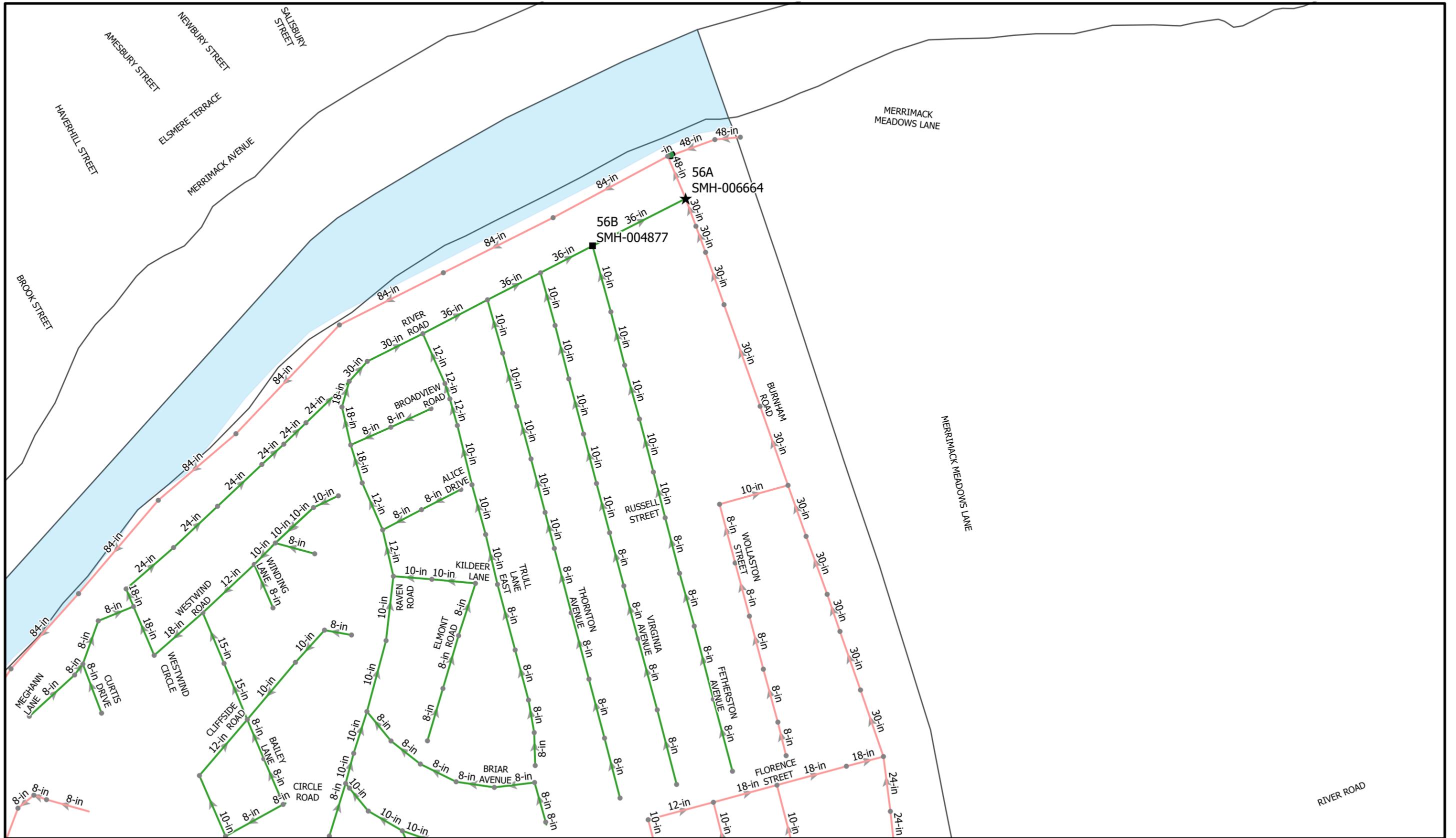


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<b>2023 Flow Meter</b> <b>Preliminary Locations</b> <b>Mapbook</b>
Lowell Regional Wastewater Utility 451 First Street Blvd. Lowell, MA 01850



★ Primary Location	▬ Siphon Pipe
■ Back Up Location	▬ ForceMain
● Sewer Manhole	➔ Gravity Sewer Pipe
● Station	
▲ CSO Outfall	

0 500 1,000  
Feet

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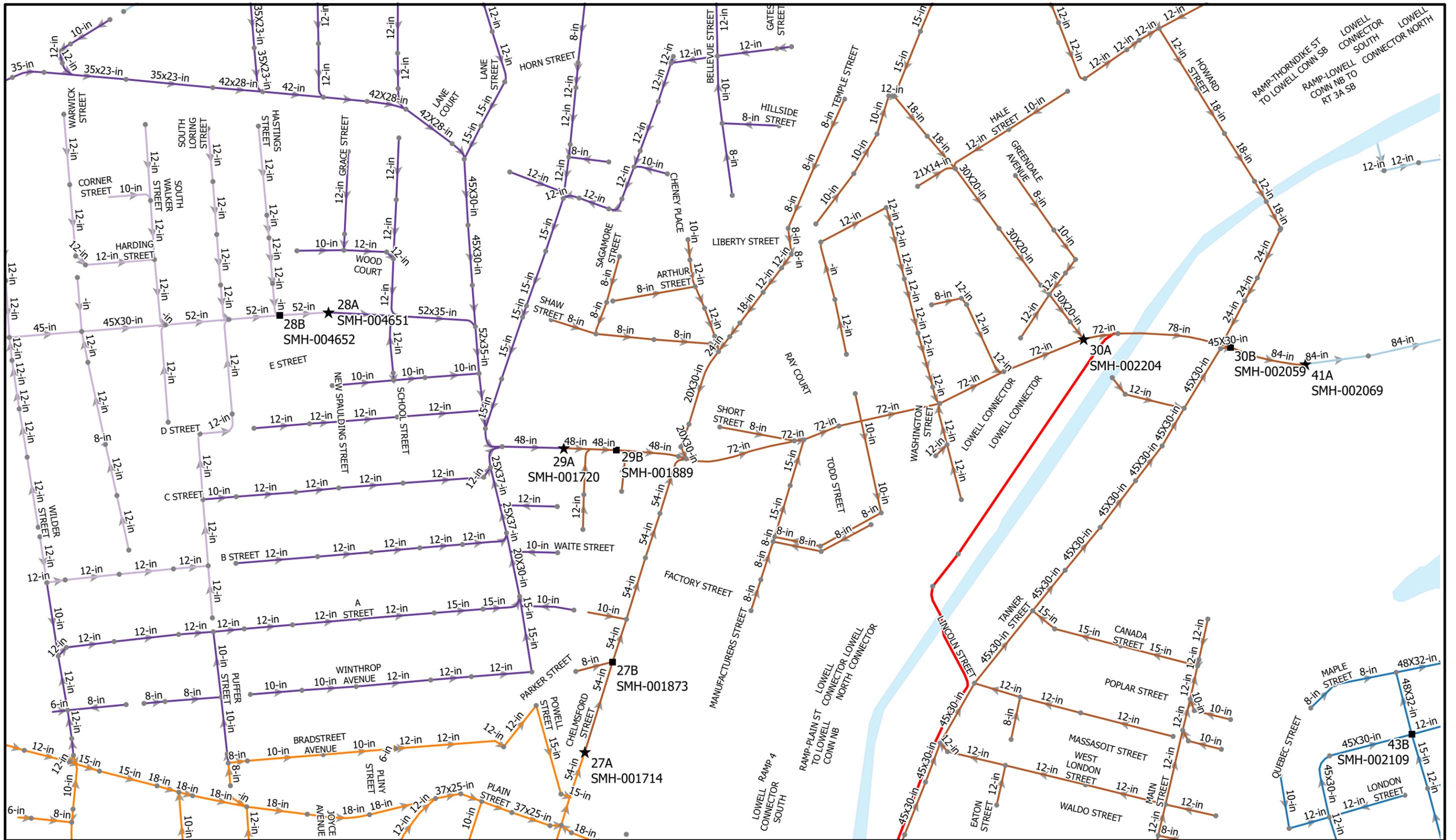


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**2023 Flow Meter Preliminary Locations Mapbook**

Lowell Regional Wastewater Utility  
451 First Street Blvd.  
Lowell, MA 01850



★ Primary Location	Yellow line Siphon Pipe
■ Back Up Location	Red line ForceMain
● Sewer Manhole	Grey arrow Gravity Sewer Pipe
● Station	
▲ CSO Outfall	

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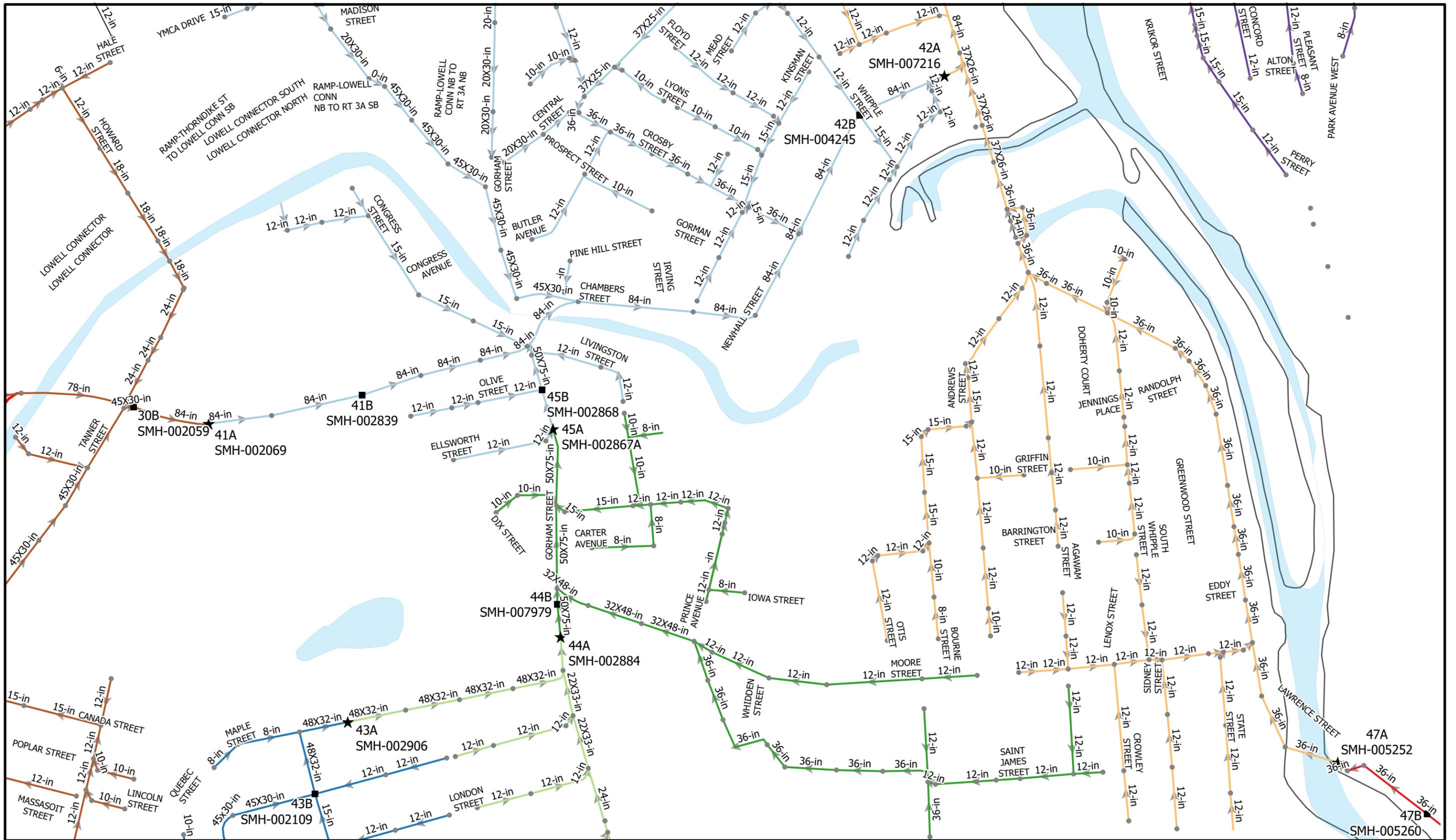


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**2023 Flow Meter Preliminary Locations Mapbook**

Lowell Regional Wastewater Utility  
451 First Street Blvd.  
Lowell, MA 01850



★ Primary Location	Orange Line Siphon Pipe
■ Back Up Location	Red Line ForceMain
● Sewer Manhole	Blue Line Gravity Sewer Pipe
● Station	
▲ CSO Outfall	

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Feet

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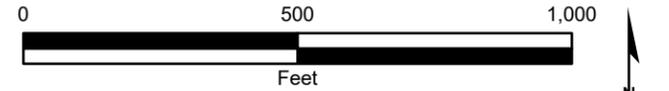
www.kleinfelder.com

PROJECT NO. 20220166.003A	<b>2023 Flow Meter Preliminary Locations Mapbook</b>	PAGE <b>16</b>
CREATED: 1/16/2023		
CREATED BY: JRossini	Lowell Regional Wastewater Utility 451 First Street Blvd. Lowell, MA 01850	
CHECKED BY: KGoyette		
FILE NAME: Lowell_2023_Flow_Meter.mxd		





★ Primary Location	Orange Line Siphon Pipe
■ Back Up Location	Red Line ForceMain
● Sewer Manhole	→ Gravity Sewer Pipe
● Station	
▲ CSO Outfall	



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CREATED:	1/16/2023
CREATED BY:	JRossini
CHECKED BY:	KGoyette
FILE NAME:	Lowell 2023_Flow_Meter.mxd

**2023 Flow Meter Preliminary Locations Mapbook**

Lowell Regional Wastewater Utility  
451 First Street Blvd.  
Lowell, MA 01850



★ Primary Location	▬ Siphon Pipe
■ Back Up Location	▬ ForceMain
● Sewer Manhole	➔ Gravity Sewer Pipe
● Station	
▲ CSO Outfall	

0 500 1,000  
Feet

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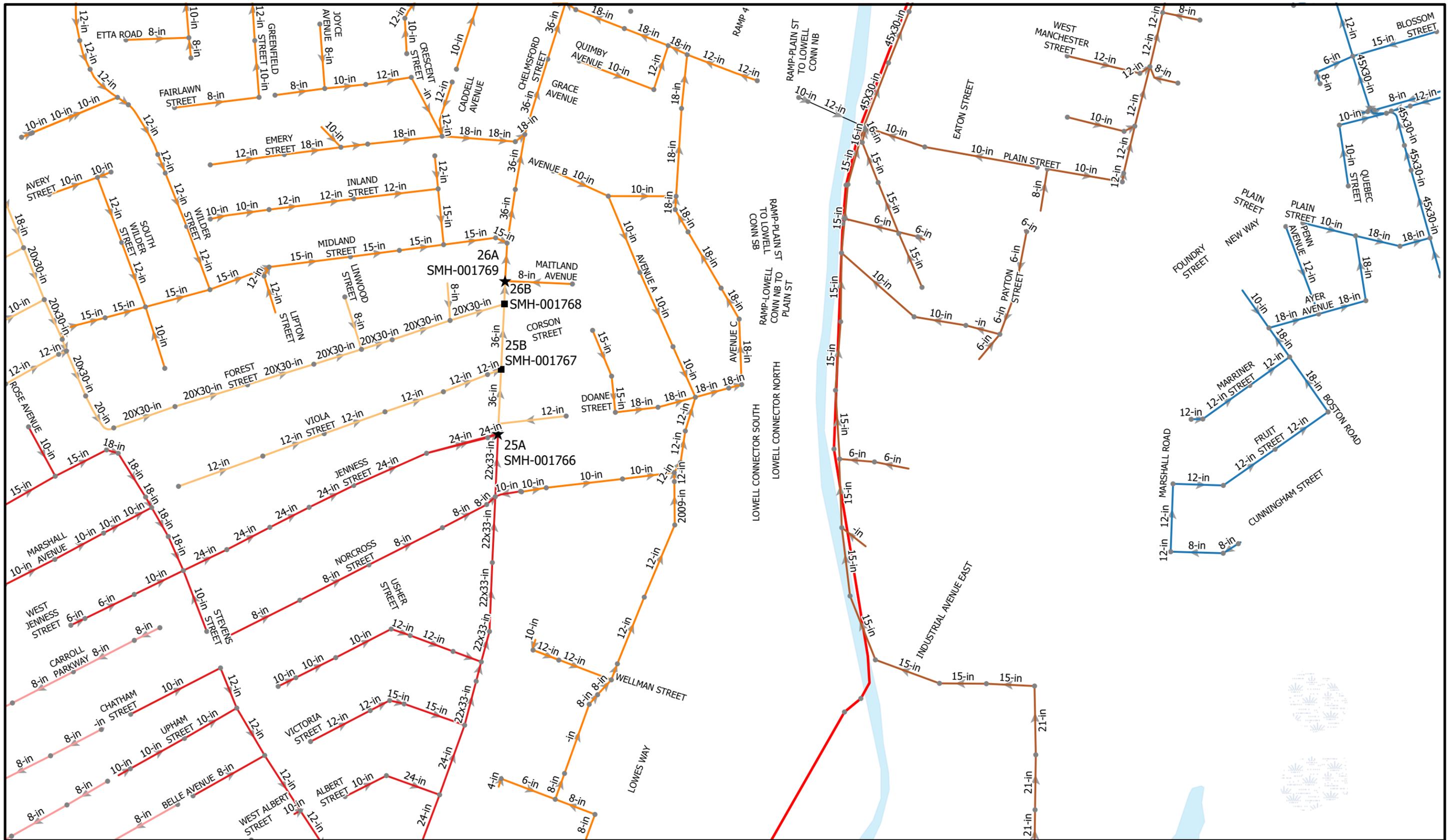


Bright People. Right Solutions.  
www.kleinfelder.com

PROJECT NO.	20220166.003A
CREATED:	1/16/2023
CREATED BY:	JRossini
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**2023 Flow Meter Preliminary Locations Mapbook**

Lowell Regional Wastewater Utility  
451 First Street Blvd.  
Lowell, MA 01850



- ★ Primary Location
- Back Up Location
- Sewer Manhole
- Station
- ▲ CSO Outfall
- Siphon Pipe
- ForceMain
- Gravity Sewer Pipe

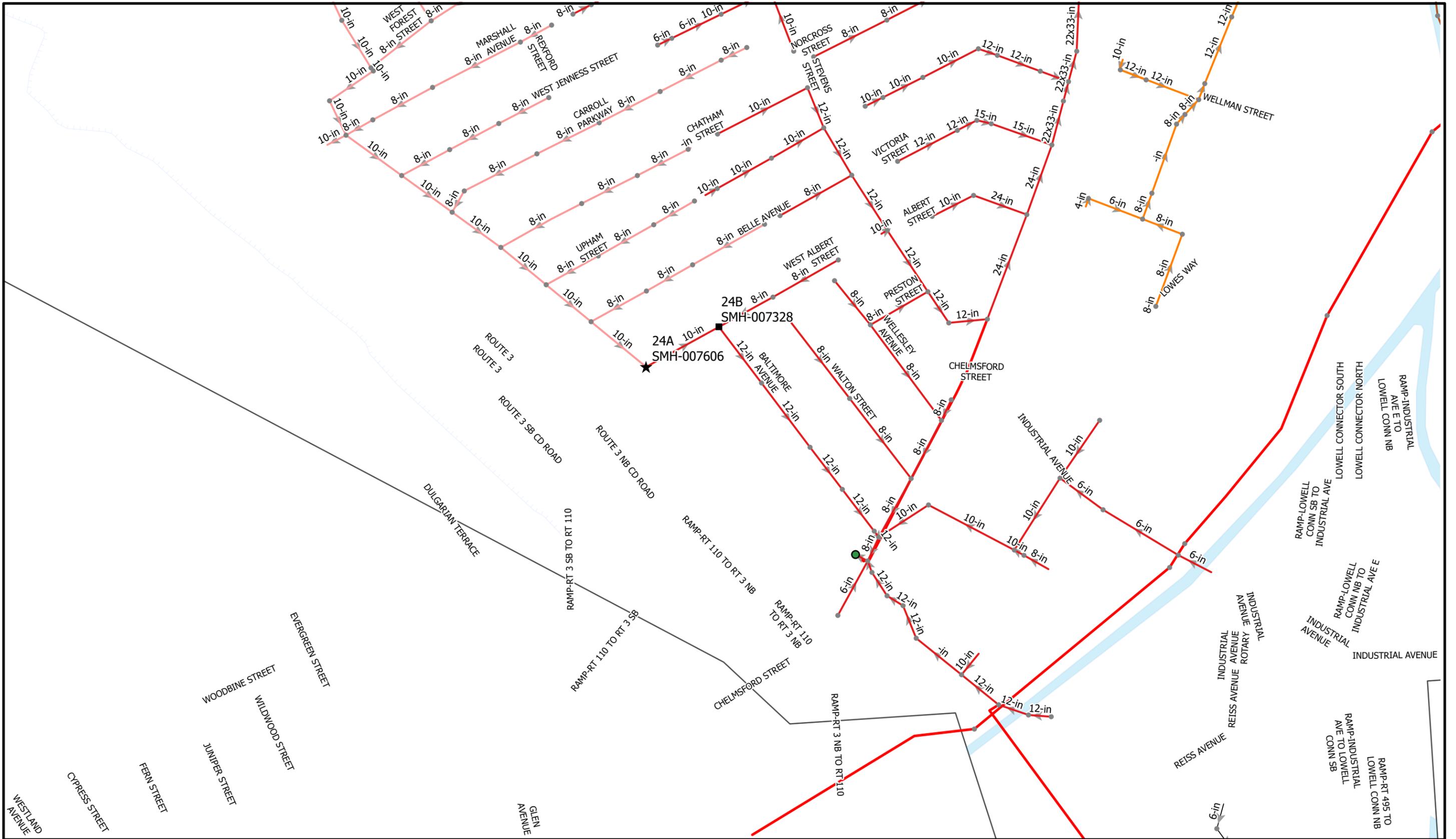


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PROJECT NO.	20220166.003A
CREATED:	1/16/2023
CREATED BY:	JRossini
CHECKED BY:	KGoyette
FILE NAME:	Lowell 2023_Flow_Meter.mxd

<b>2023 Flow Meter</b> <b>Preliminary Locations</b> <b>Mapbook</b>
Lowell Regional Wastewater Utility 451 First Street Blvd. Lowell, MA 01850



★ Primary Location	Orange Line Siphon Pipe
■ Back Up Location	Red Line ForceMain
● Sewer Manhole	→ Gravity Sewer Pipe
● Station	
▲ CSO Outfall	

0 500 1,000  
Feet

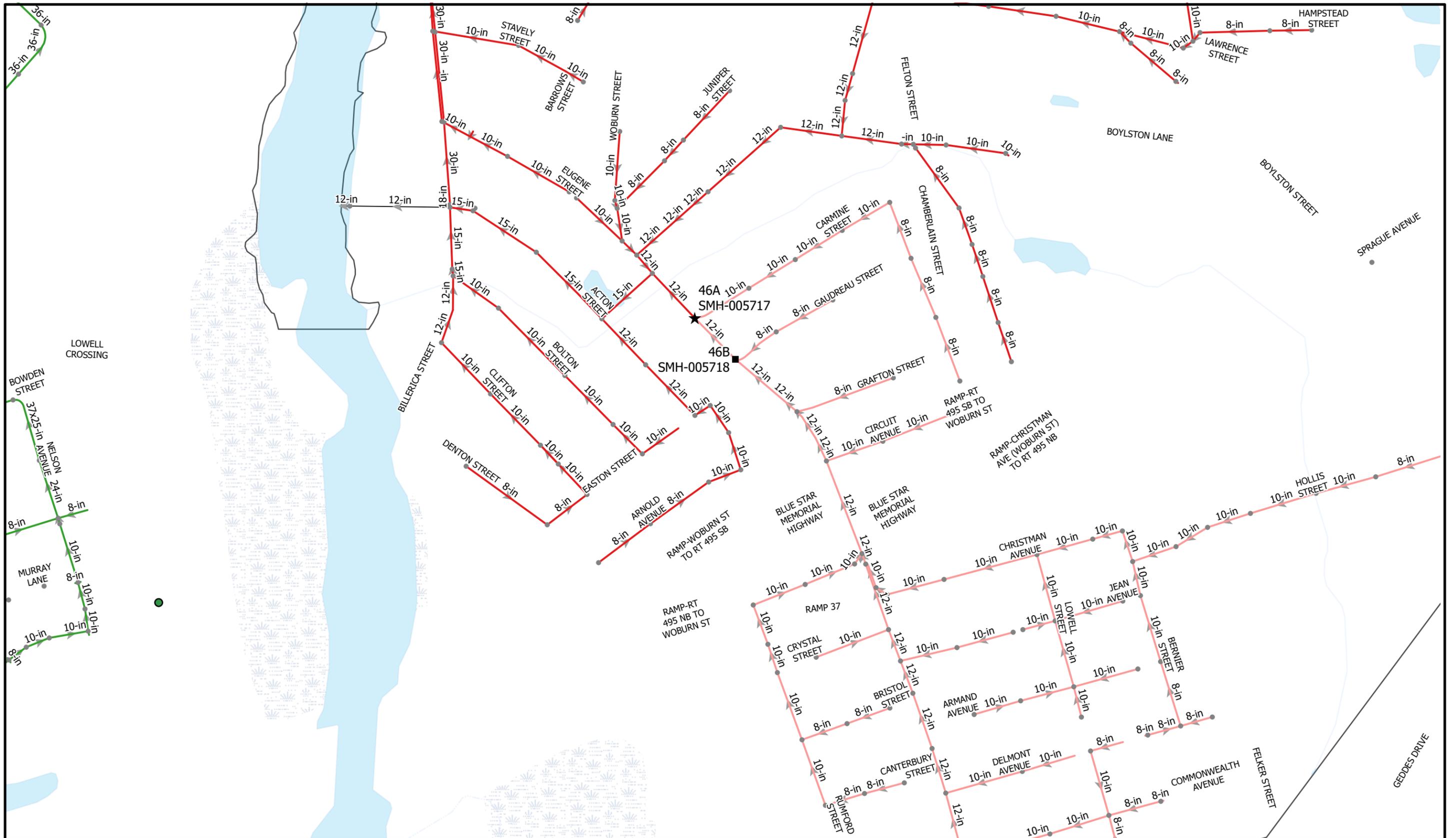
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**2023 Flow Meter Preliminary Locations Mapbook**

Lowell Regional Wastewater Utility  
451 First Street Blvd.  
Lowell, MA 01850



★ Primary Location	▬ Siphon Pipe
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0 500 1,000  
Feet

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**2023 Flow Meter Preliminary Locations Mapbook**

Lowell Regional Wastewater Utility  
451 First Street Blvd.  
Lowell, MA 01850

## Appendix D: Humphrey's Brook Separation Project Supporting Documentation

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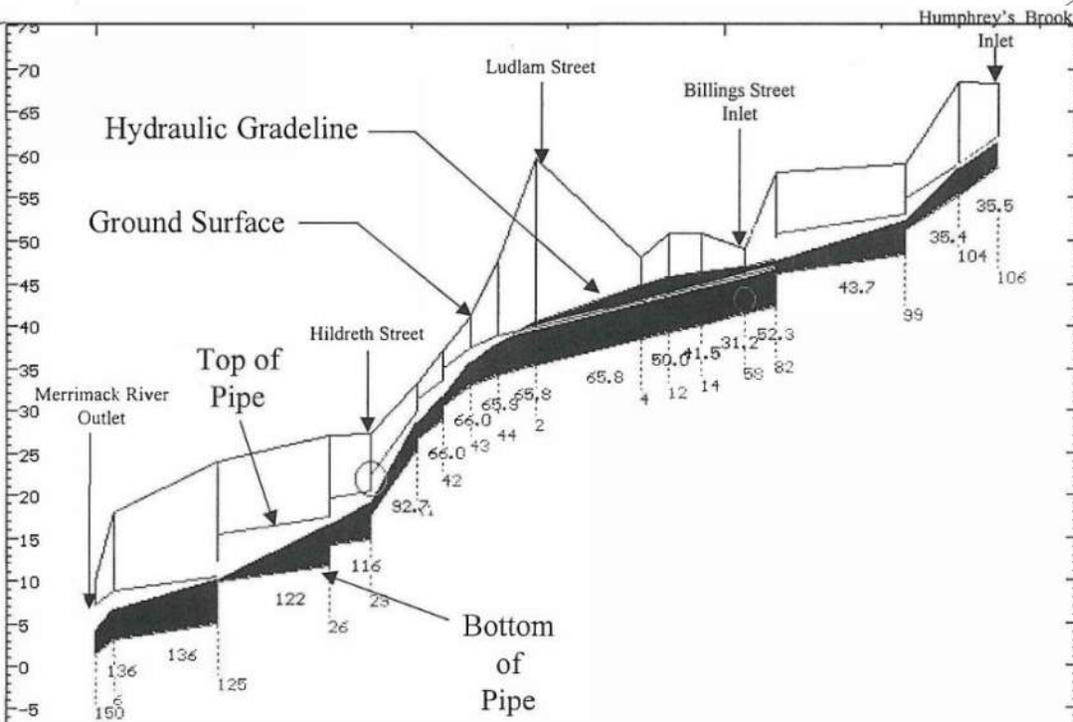


# Task A Humphreys Brook PD/FD

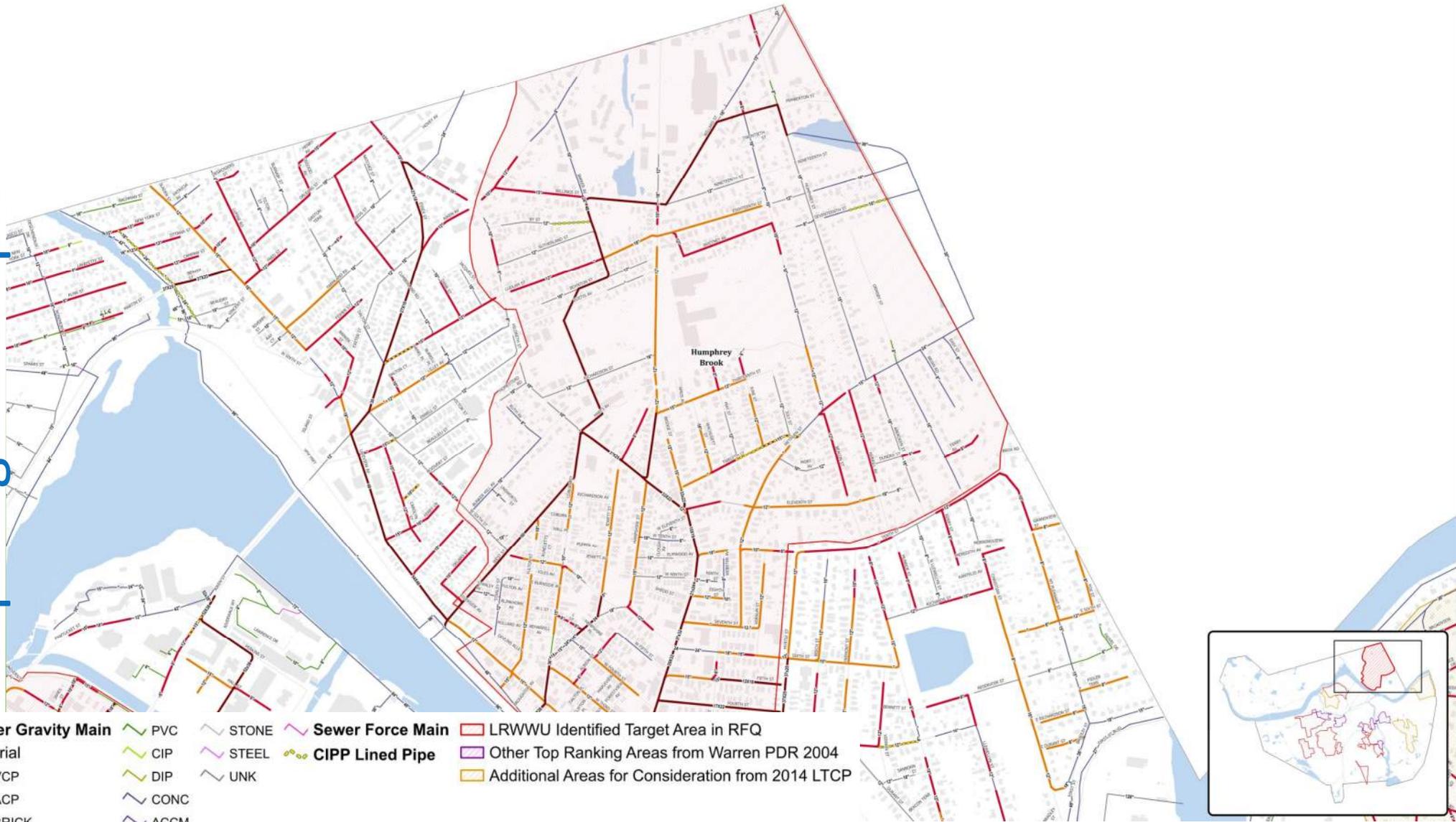


# Alternatives Analysis

- Hydraulic Routing and Capacity
- Develop pipe profiles
- Constructability Challenges
- Feasibility of trenchless opportunities

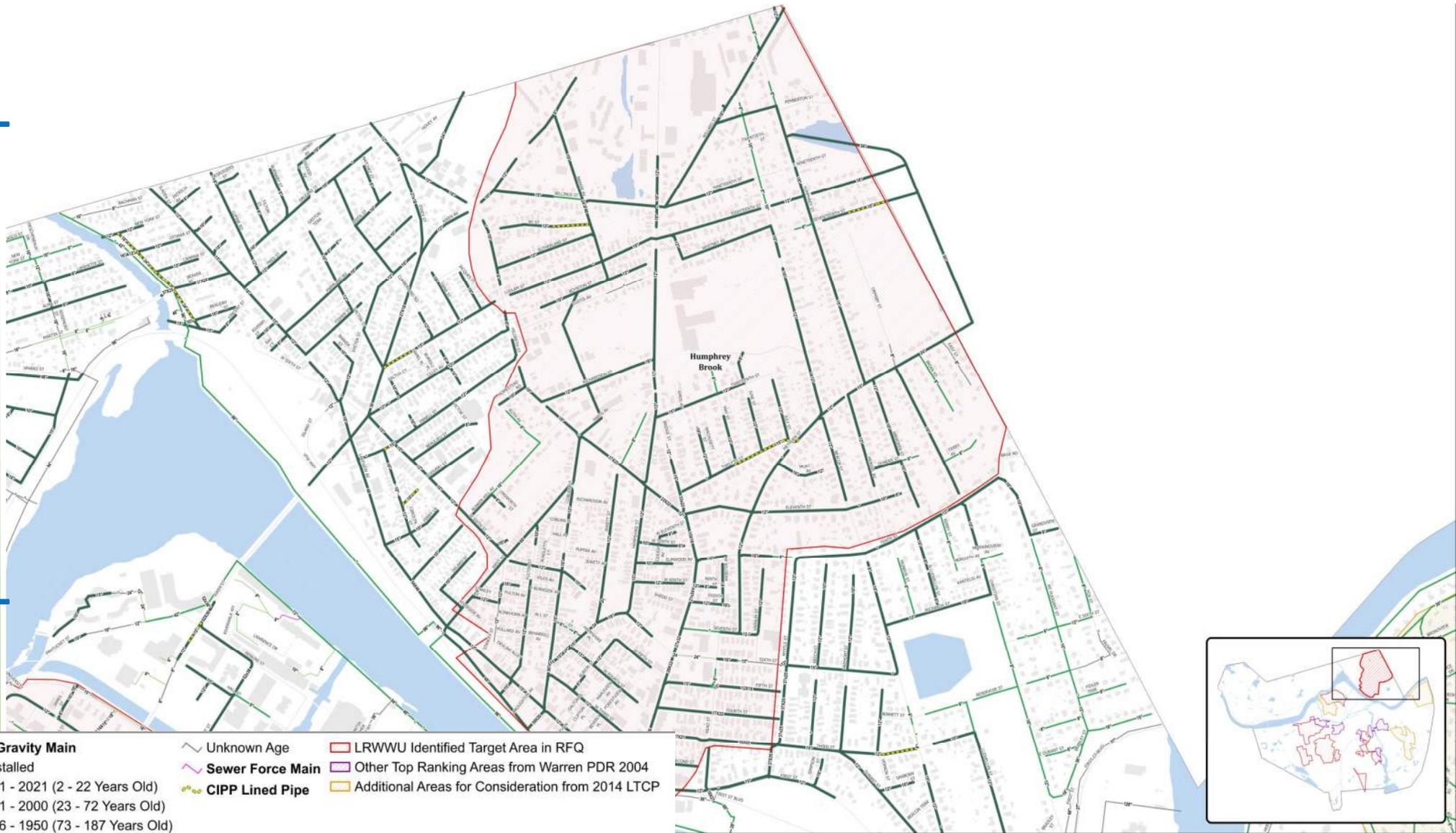


# Pipe Age Example

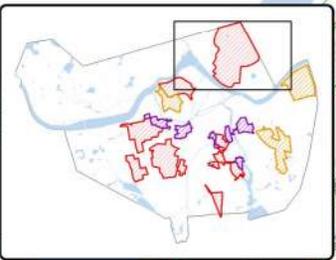
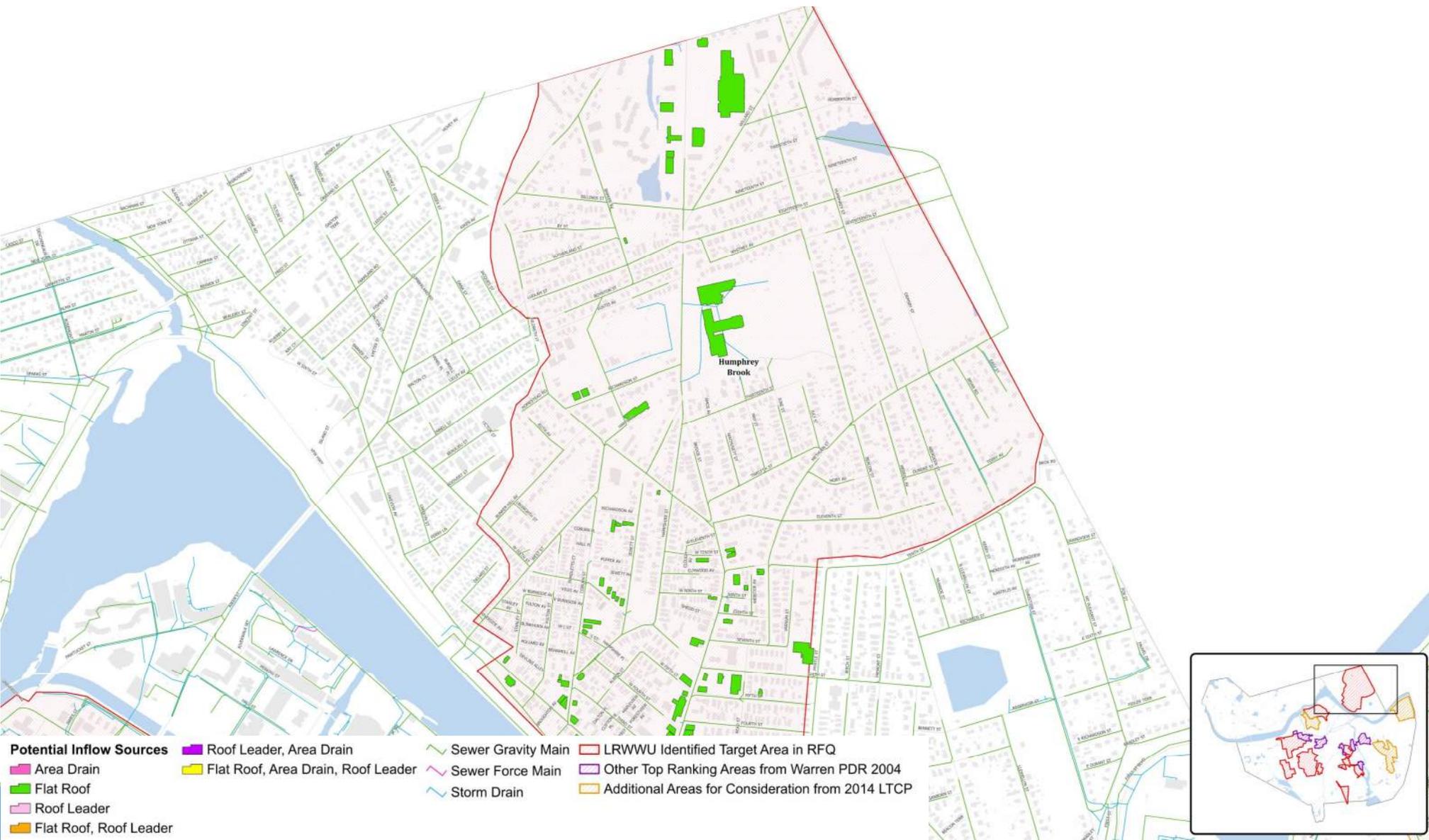


- |                           |      |       |   |  |
|---------------------------|------|-------|---|--|
| <b>Sewer Gravity Main</b> | PVC  | STONE | <b>Sewer Force Main</b>                           | LRWWU Identified Target Area in RFQ          |
| <b>Material</b>           | CIP  | STEEL | <b>CIPP Lined Pipe</b>                            | Other Top Ranking Areas from Warren PDR 2004 |
| VCP                       | DIP  | UNK   | Additional Areas for Consideration from 2014 LTCP |  |
| ACP                       | CONC |       |   |  |
| BRICK                     | ACCM |       |   |  |

# Pipe Material Example



# Inflow Sources Identification



# Proposed Fieldwork Schedule

FIELD TASKS	March	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Kick-off meeting										
CCTV Inspections										
Manhole Inspections										
Existing CCTV Data Processing/Review										
Smoke & Dye Testing										
Windshield Survey & Building Inspections										

## Appendix E: Overflow Notification Templates

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## **Overflow Start Notification Template**

This is a public notification that as of {Event Start Date and Time} discharges of {Overflow Type} are currently underway at the Lowell Wastewater Utility and its diversion structures.

Diversions occur only when necessary to reduce risks to public health and safety that would otherwise result from street flooding and property damage. We are constantly working to improve our high-flow management program in order to reduce the volume and frequency of these discharges. Overflow discharges can occur in multiple ways. Blended wastewater overflows are a mixture of treated and partially treated wastewater. Combined Sewer overflow (CSO) diversions are an untreated mixture of stormwater and sewage. The tables below give details on active outfalls.

### Blended Wastewater

Outfall #	Name	Latitude	Longitude	Receiving Water	Average Discharge Volume (MG)	Active/Inactive
35	Lowell Wastewater Facility	42.645	-71.2888	Merrimack River	6.23	<a href="#">Active/Inactive</a>

### Combined Sewer Overflows

Outfall #	Name	Latitude	Longitude	Receiving Water	Average Discharge Volume (MG)	Active/Inactive
002-SDS#1	Walker Station	42.646	-71.3341	Merrimack River	0.995	<a href="#">Active/Inactive</a>
007-SDS#2	Beaver Brook	42.659	-71.3193	Beaver Brook	0.53	<a href="#">Active/Inactive</a>
008-SDS#3	West Station	42.653	-71.3103	Merrimack River	3.4	<a href="#">Active/Inactive</a>
011-SDS#4	Read Station	42.648	-71.3011	Merrimack River	0.02	<a href="#">Active/Inactive</a>
012-SDS#5	First Street	42.648	-71.2909	Merrimack River	0	<a href="#">Active/Inactive</a>
020-SDS#6	Warren Station	42.643	-71.305	Concord River	1.86	<a href="#">Active/Inactive</a>
027-SDS#7	Tilden Station	42.651	-71.3115	Merrimack River	0.43	<a href="#">Active/Inactive</a>
030(1)-SDS#8	Barasford Station	42.645	-71.2884	Merrimack River	1.025	<a href="#">Active/Inactive</a>
030(2)	Merrimack Station	42.645	-71.2888	Merrimack River	2.43	<a href="#">Active/Inactive</a>

Avoid contact with these water bodies for 48 hours after the discharge or overflow ceases due to increased health risks from bacteria and other pollutants. A follow-up email will be distributed when these discharges have ceased.

Lowell Regional Wastewater Utility  
451 First St Blvd (Rte-110) | Lowell, MA 01850  
T: 978.674.1600 | E: [csonotification@lowellma.gov](mailto:csonotification@lowellma.gov)  
[Visit Our Website For More Information](#)

## **Overflow Update/Continuation Notification Template**

This is a public notification that as of {Current Time} the {Overflow Type} discharge event that started at {Event Start Date and Time} is still underway at the Lowell Regional Wastewater Utility and its diversion structures.

Diversions occur only when necessary to reduce risks to public health and safety that would otherwise result from street flooding and property damage. We are constantly working to improve our high-flow management program in order to reduce the volume and frequency of these discharges. Overflow discharges can occur in multiple ways. Blended wastewater overflows are a mixture of treated and partially treated wastewater. Combined Sewer overflow (CSO) diversions are an untreated mixture of stormwater and sewage. The tables below give details on active outfalls.

### Blended Wastewater

Outfall #	Name	Latitude	Longitude	Receiving Water	Average Discharge Volume (MG)	Active/Inactive
35	Lowell Wastewater Facility	42.645	-71.2888	Merrimack River	6.23	<a href="#">Active/Inactive</a>

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Outfall #	Name	Latitude	Longitude	Receiving Water	Average Discharge Volume (MG)	Active/Inactive
002-SDS#1	Walker Station	42.646	-71.3341	Merrimack River	0.995	<a href="#">Active/Inactive</a>
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008-SDS#3	West Station	42.653	-71.3103	Merrimack River	3.4	<a href="#">Active/Inactive</a>
011-SDS#4	Read Station	42.648	-71.3011	Merrimack River	0.02	<a href="#">Active/Inactive</a>
012-SDS#5	First Street	42.648	-71.2909	Merrimack River	0	<a href="#">Active/Inactive</a>
020-SDS#6	Warren Station	42.643	-71.305	Concord River	1.86	<a href="#">Active/Inactive</a>
027-SDS#7	Tilden Station	42.651	-71.3115	Merrimack River	0.43	<a href="#">Active/Inactive</a>
030(1)-SDS#8	Barasford Station	42.645	-71.2884	Merrimack River	1.025	<a href="#">Active/Inactive</a>
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Avoid contact with these water bodies for 48 hours after the discharge or overflow ceases due to increased health risks from bacteria and other pollutants. A follow-up email will be distributed when these discharges have ceased.

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T: 978.674.1600 | E: [csonotification@lowellma.gov](mailto:csonotification@lowellma.gov)  
[Visit Our Website For More Information](#)

## **Overflow Cease/End Notification Template**

This is a public notification that as of {Event End Date and Time} the discharges of {Overflow Type} have ceased.

Diversions occur only when necessary to reduce risks to public health and safety that would otherwise result from street flooding and property damage. We are constantly working to improve our high-flow management program in order to reduce the volume and frequency of these discharges. Overflow discharges can occur in multiple ways. Blended wastewater overflows are a mixture of treated and partially treated wastewater. Combined Sewer overflow (CSO) diversions are an untreated mixture of stormwater and sewage. The tables below give details on the outfalls for the Lowell Regional Wastewater Utility.

### Blended Wastewater

Outfall #	Name	Latitude	Longitude	Receiving Water	Average Discharge Volume (MG)	Active/Inactive
35	Lowell Wastewater Facility	42.645	-71.2888	Merrimack River	6.23	Inactive

### Combined Sewer Overflows

Outfall #	Name	Latitude	Longitude	Receiving Water	Average Discharge Volume (MG)	Active/Inactive
002-SDS#1	Walker Station	42.646	-71.3341	Merrimack River	0.995	Inactive
007-SDS#2	Beaver Brook	42.659	-71.3193	Beaver Brook	0.53	Inactive
008-SDS#3	West Station	42.653	-71.3103	Merrimack River	3.4	Inactive
011-SDS#4	Read Station	42.648	-71.3011	Merrimack River	0.02	Inactive
012-SDS#5	First Street	42.648	-71.2909	Merrimack River	0	Inactive
020-SDS#6	Warren Station	42.643	-71.305	Concord River	1.86	Inactive
027-SDS#7	Tilden Station	42.651	-71.3115	Merrimack River	0.43	Inactive
030(1)-SDS#8	Barasford Station	42.645	-71.2884	Merrimack River	1.025	Inactive
030(2)	Merrimack Station	42.645	-71.2888	Merrimack River	2.43	Inactive

Avoid contact with these water bodies for 48 hours after the discharge or overflow ceases due to increased health risks from bacteria and other pollutants.

Lowell Regional Wastewater Utility  
451 First St Blvd (Rte-110) | Lowell, MA 01850  
T: 978.674.1600 | E: [csonotification@lowellma.gov](mailto:csonotification@lowellma.gov)  
[Visit Our Website For More Information](#)

## **Overflow Text-Message Alerts**

### **Start**

This is a public notification that as of {Event Start Date and Time} discharges of {Overflow Type} are currently underway at the Lowell Wastewater Utility and its diversion structures.

Lowell Regional Wastewater Utility  
451 First St Blvd (Rte-110) | Lowell, MA 01850  
T: 978.674.1600 | E: csonotification@lowellma.gov  
WEB: <https://www.lowellma.gov/1287>

### **Update**

This is a public notification that as of {Current Time} the {Overflow Type} discharge event that started at {Event Start Date and Time} is still underway at the Lowell Regional Wastewater Utility and its diversion structures.

Lowell Regional Wastewater Utility  
451 First St Blvd (Rte-110) | Lowell, MA 01850  
T: 978.674.1600 | E: csonotification@lowellma.gov  
WEB: <https://www.lowellma.gov/1287>

### **End**

This is a public notification that as of {Event End Date and Time} the discharges of {Overflow Type} have ceased.

Lowell Regional Wastewater Utility  
451 First St Blvd (Rte-110) | Lowell, MA 01850  
T: 978.674.1600 | E: csonotification@lowellma.gov  
WEB: <https://www.lowellma.gov/1287>



**Massachusetts Department of Environmental Protection**  
**Bureau of Resource Protection – Watershed Permitting Program**  
**Sanitary Sewer Overflow (SSO)/Bypass**  
**Notification Form**

FOR DEP USE ONLY

\_\_\_\_\_  
 Tax Identification Number

**A. Reporting Facility**

**Important:** When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



1. Facility Information

Reporting Sewer Authority \_\_\_\_\_ Permit # \_\_\_\_\_

2. Authorized Representative Transmitting Form:

First Name \_\_\_\_\_ Last Name \_\_\_\_\_ Telephone No. \_\_\_\_\_

Title \_\_\_\_\_ E-mail Address \_\_\_\_\_

**B. Phone Notifications:**

See DEP Regional Office telephone and fax numbers at the end of this form.

1. **MassDEP staff** contacted: first name \_\_\_\_\_ last name \_\_\_\_\_

Date/Time contacted: Date \_\_\_\_\_ Time \_\_\_\_\_  am  pm

2. **EPA staff** contacted: first name \_\_\_\_\_ last name \_\_\_\_\_

Date/Time EPA contacted: Date \_\_\_\_\_ Time \_\_\_\_\_  am  pm

3. **Board of Health** contacted: First Name \_\_\_\_\_ Last Name \_\_\_\_\_

Date/Time contacted: Date \_\_\_\_\_ Time \_\_\_\_\_  am  pm

4. Others notified (select all that apply);  Conservation Commission

Harbormaster  Shellfish Warden  Division of Marine Fisheries

Downstream Drinking Water Supplier  Watershed Association

Beach Resource Manager  Other: \_\_\_\_\_ (specify)

**C. SSO Information**

1. SSO Discovered: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  am  pm

By: \_\_\_\_\_

2. SSO Stopped: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  am  pm

3. SSO Discharge from:  Sanitary Sewer Manhole  Pump Station

Backup into Property  Other: \_\_\_\_\_ (specify)

4. SSO Discharge to:  Ground Surface (no release to surface water)

Direct to Receiving Water \_\_\_\_\_ (surface water)

Catch basin to Receiving Water \_\_\_\_\_ (surface water)

Backup into Property Basement



**Massachusetts Department of Environmental Protection  
Bureau of Resource Protection – Watershed Permitting Program  
Sanitary Sewer Overflow (SSO)/Bypass  
Notification Form**

FOR DEP USE ONLY

\_\_\_\_\_  
Tax Identification Number

**C. SSO Information (cont.)**

Location: \_\_\_\_\_  
(Description of discharge site or closest address)

5. Estimated SSO Volume at time of this Report: \_\_\_\_\_

Method of Estimating Volume: \_\_\_\_\_

6. Cause of SSO Event:

Rain Event     Pump Station Failure     Insufficient Capacity in System

Treatment Unit failure

Sewer System Blockage:     Pipe Collapse     Root Intrusion     Grease Blockage

Other: \_\_\_\_\_  
(Specify)

7. Corrective Actions Taken:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Impact Area cleaned and/or disinfected:     Yes     No

\_\_\_\_\_  
\_\_\_\_\_

Corrective Actions Completed:     Yes     No

\_\_\_\_\_

**D. Comments/Attachments/Follow-up**

I wish to provide (select all that apply):

Attachment     Additional comments below:     No additional comments or attachments

Additional comments and planned actions:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Massachusetts Department of Environmental Protection**  
**Bureau of Resource Protection – Watershed Permitting Program**  
**Sanitary Sewer Overflow (SSO)/Bypass**  
**Notification Form**

FOR DEP USE ONLY

\_\_\_\_\_  
 Tax Identification Number

**E. Certification Statement**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

\_\_\_\_\_  
 Signature of Authorized Representative

\_\_\_\_\_  
 Date Signed

Please keep a copy of this report for your records. When submitting additional information, include the MassDEP Incident Number from this report.

**MassDEP Regional Office and EPA Telephone and Fax Numbers:**

Northeast Region	Phone: 978-694-3215	Fax: 978-694-3499
Southeast Region	Phone: 508-946-2750	Fax: 508-947-6557
Central Region	Phone: 508-792-7650	Fax: 508-792-7621
Western Region	Phone: 413-784-1100	Fax: 413-784-1149
EPA Contact	Phone: 617-918-1870	Fax: 617-918-0870
DEP 24-hour emergency	Phone: 888-304-1133	

## Appendix F: Signed CSO Records/Station Inspections Certifications

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# LOWELL REGIONAL WASTEWATER UTILITY

WASTEWATER COLLECTION AND TREATMENT



SERVING LOWELL  
CHELMSFORD  
DRACUT  
TEWKSBURY  
TYNGSBORO

MARK A. YOUNG  
EXECUTIVE DIRECTOR

March 31, 2023

U.S. Environmental Protection Agency  
EPA New England, Region 1  
5 Post Office Square – Suite 100  
Boston MA 02109

Massachusetts Department of Environmental Protection  
Northeast Regional Office  
150 Presidential Way  
Woburn, MA 01801

**Subject:** Annual Certification Statement of CSO Discharges for NPDES Permit No. MA0100633

To Whom It May Concern,

On behalf of the Lowell Regional Wastewater Utility (LRWWU), I hereby certify that all CSO discharges from LRWWU's permitted outfalls have been recorded for the 2022 reporting period. CSO discharge records are kept on file.

These records include dates and times of CSO events, CSO volumes and durations, precipitation amounts, and wet weather flows treated by the Utility.

Respectfully,

Clifton Hall  
Staff Engineer  
LRWWU



# LOWELL REGIONAL WASTEWATER UTILITY

WASTEWATER COLLECTION AND TREATMENT



SERVING LOWELL  
CHELMSFORD  
DRACUT  
TEWKSBURY  
TYNGSBORO

MARK A. YOUNG  
EXECUTIVE DIRECTOR

March 31, 2023

U.S. Environmental Protection Agency  
EPA New England, Region 1  
5 Post Office Square – Suite 100  
Boston MA 02109

Massachusetts Department of Environmental  
Protection  
Northeast Regional Office  
150 Presidential Way  
Woburn, MA 01801

**Subject:** Annual Certification Statement of CSO Structure Inspections for NPDES Permit No. MA0100633

To Whom It May Concern,

On behalf of the Lowell Regional Wastewater Utility (LRWWU), I hereby certify that all CSO structures have been routinely inspected during the 2022 reporting period. Inspection records are kept on file.

These inspections include the date, the time, the inspectors, the general conditions of the facility, and notes on the operating condition of the facility.

Respectfully,

Jack Taylor

Maintenance Superintendent