



Haverhill

Robert E. Ward, Deputy DPW Director
Water/Wastewater Division
Phone: 978-374-2382 Fax: 978-521-4083
rward@haverhillwater.com

April 27, 2017

Environmental Protection Agency
Water Technical Unit (OES04-3)
U.S. EPA - New England, Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912
Attn: Joy Hilton

Massachusetts Department of Environmental Protection
Northeast Regional Office
Bureau of resource Protection
205B Lowell Street
Wilmington, MA 01887-2941
Attn: Nihar Mohanty

Subject: City of Haverhill NPDES Permit # MA0101621
Infiltration/Inflow (I/I) Report 2016

Dear Ms. Hilton & Mr. Mohanty:

In accordance with the City of Haverhill's NPDES Permit # MA0101621, we are providing this status report as required by Part I.F.3 Infiltration/Inflow (I/I) Plan page 14 of 18. Please note the headings below are taken directly from the NPDES permit.

Inspection and Maintenance Activities Conducted and Corrective Actions Taken in 2016

The following activities were conducted in 2016.

- Completed National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) inspections of 104,309 linear feet of sewer pipe.
- Completed NASSCO Level 1 inspections of 583 sewer manholes
- Completed technical memorandum to provide cost estimates for further inspection and rehabilitation of the sewer collection system.
- Completed CMOM Corrective Action Plan.
- Completed an I/I study of Sewer Area 24 (see attached map) using temporary flow monitoring, spot gauging, and television inspection. This area, which is located near Primrose Street, was also identified as an area with the high ratio between spring and summer flows and R-value above 0.05.

Annual Average and Maximum Month I/I

The Annual Average is 2.94 MGD and Maximum Month I/I was 21.35 MGD in April 2016 base upon meter flow billable account information.

Infiltration/inflow related corrective actions taken as a result of unauthorized discharges reported pursuant to 314 CMR 3.19(20) and reported pursuant to the Unauthorized Discharges section of this permit.

No corrective actions were taken in 2016 as a result of Unauthorized Discharges.

CCTV inspection of sewer lines that experienced a sanitary sewer overflow was added to the procedures for follow-up on sanitary sewer overflows. To date these inspections have not shown any evidence that infiltration and inflow may have caused a sanitary sewer overflow or any identified actionable, excessive I/I.

The City continues to develop an approach to include the CCTV pipe inspections (of sewer lines that experienced sanitary sewer overflows) into the GIS.

Areas Identified for I/I-Related Investigation/Action in 2017

The following activities are planned for 2017.

- Submit I/I Analysis report to DEP as required by 314 CMR 12.04 (2)(a)1.
- Continue to develop a repair and rehab plan for the sewer collection system.

Most of the pipes that require sewer system rehabilitation based on the completed I/I investigations are not in locations that have experienced sanitary sewer overflows (SSOs), so there are no pipe repairs that require immediate attention to eliminate recurrent SSOs. The television inspections were also, unfortunately, performed during relatively dry spring groundwater conditions, and not a lot visible I/I was noted or could be estimated or documented to confirm I/I reduction that could be achieved with pipe rehabilitation. There was, however, evidence of past pipe infiltration.

The lack of visible I/I and actual flow estimates in the city sewer pipes inspected for these investigations also makes it difficult to confirm how much baseline flow reduction could be achieved by doing system rehabilitation in these areas. However, it is expected that, when system rehabilitation is implemented, there could be some downstream CSO reduction. Accordingly, the city is carefully considering the priority of completing these system repairs relative to other system improvement requirements.

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Infiltration Inflow Report 2016

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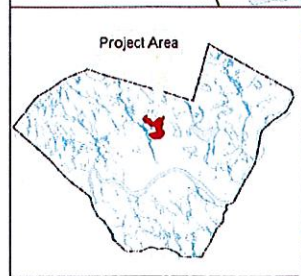
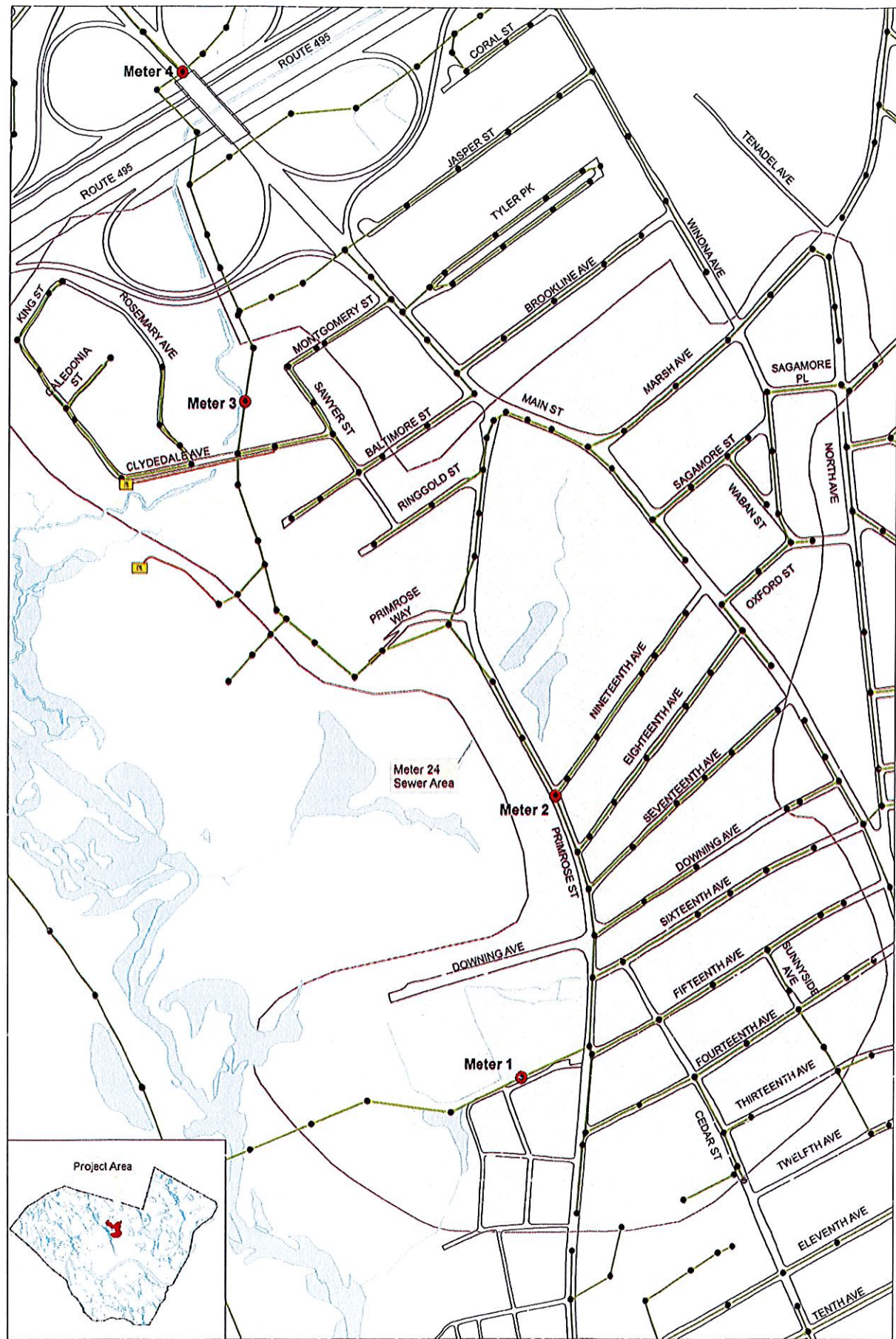
If you require additional information, please contact Paul Jessel at (978) 374-2382 or via email at pjessel@haverhillwater.com.

Sincerely,

A handwritten signature in dark ink, appearing to read "R. E. Ward", written in a cursive style.

Robert E. Ward
Deputy DPW Director

cc: Michael K. Stankovich, Director of Public Works, mstankovich@cityofhaverhill.com
Paul Jessel, Collection System Supervisor, pjessel@haverhillwater.com
Fred Haffty WWTP Facility Manager, fhaffty@haverhillwater.com



LEGEND

- Sewer Manhole
- Sewer
- Meter Location
- ☐ Pump Station
- ☐ Meter 24 Area

City of Haverhill, MA
I/I Study
2016