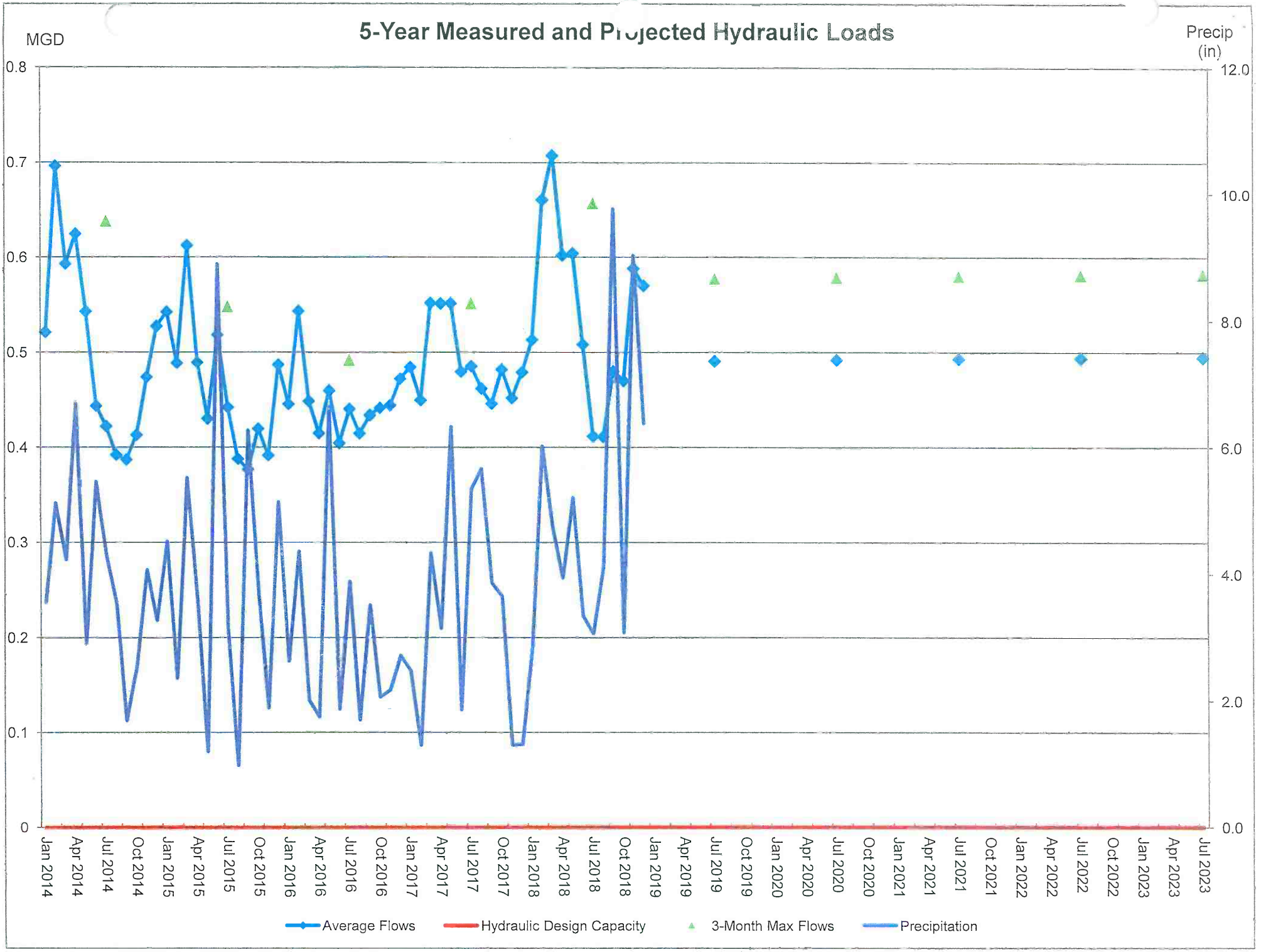
5-Year Measured and Projected Hydraulic Loads
MGD
Precip (in)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Jan 2014
Apr 2014
Jul 2014
Oct 2014
Jan 2015
Apr 2015
Jul 2015
Oct 2015
Jan 2016
Apr 2016
Jul 2016
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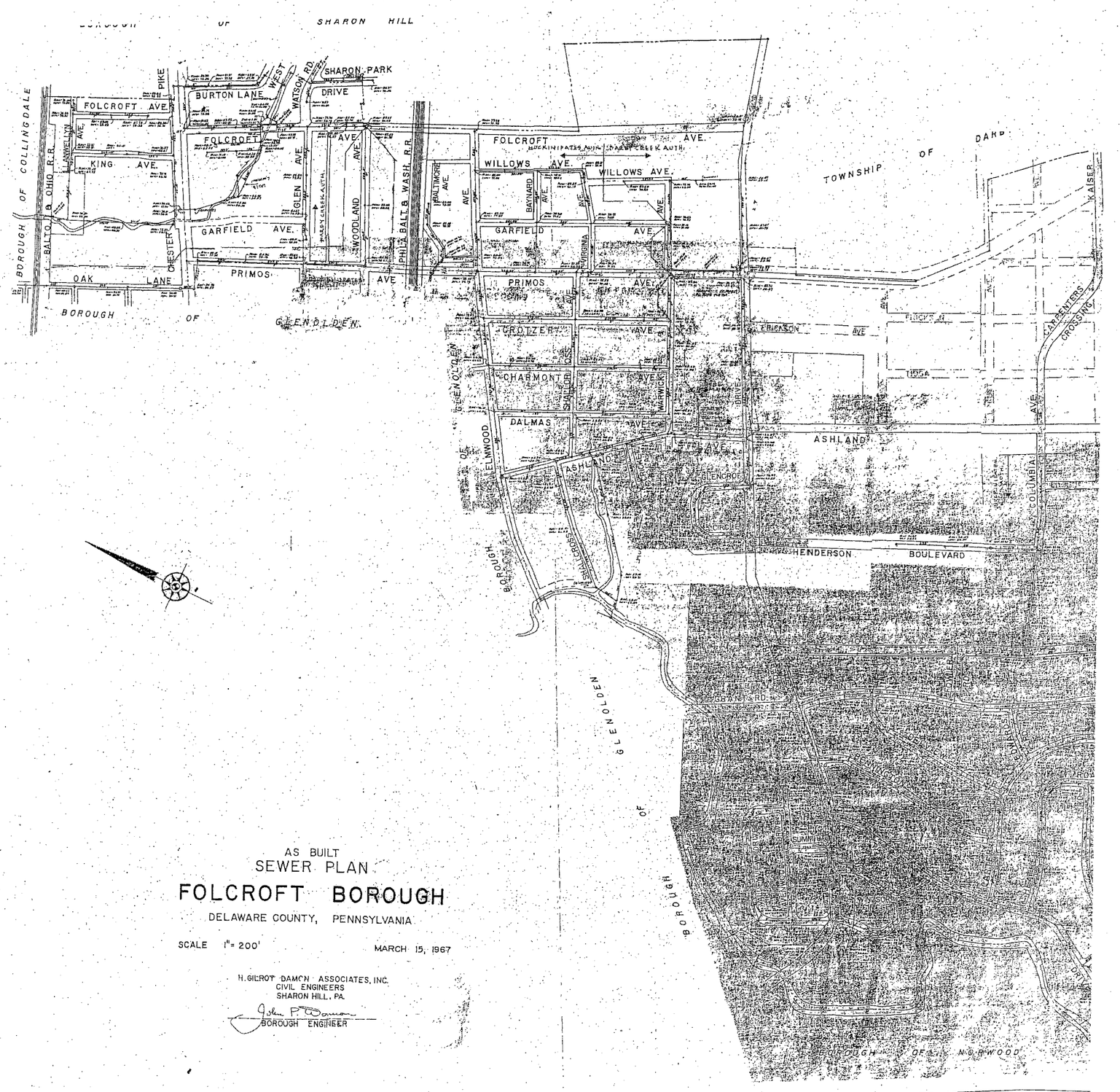
Oct 2021
Jan 2022
Apr 2022
Jul 2022
Oct 2022
Jan 2023
Apr 2023
Jul 2023
Average Flows
Hydraulic Design Capacity
3-Month Max Flows
Precipitation

FOLCROFT BOROUGH MONTHLY FLOW METER DATA

Meter No.	Meter Location	Total EDUs	Outside EDUs	January			February			March			April			May			June			Comments
				Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	
1	1445 Burton Lane (in rear, by creek)	259		11,398,493	1,420		13,424,530	1,851		15,744,831	1,961		12,924,956	1,663		13,370,270	1,665		10,748,283	1,383		
2	Delamar Drive (between Folcroft Avenue and Greenhill)	161		1,743,860	349		1,832,463	406		2,356,003	472		1,987,821	412		2,087,190	418		1,843,697	382		
	Unmetered Areas (average volume from all meters)	89		2,784,927	1,009		3,233,029	1297		3,835,653	1,390		3,160,088	1,184		3,275,509	1,187		2,668,301	999		Use average EDU from all Propsect meters for estimate
	TOTAL	**509**	**0**	**15,927,280**			**18,490,022**			**21,936,487**			**18,072,865**			**18,732,969**			**15,260,281**			

Meter No.	Meter Location	Total EDUs	Outside EDUs	July			August			September			October			November			December			Comments
				Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	
1	1445 Burton Lane (in rear, by creek)	259		8,791,802	1,095		8,840,509	1,101		10,053,892	1,294		10,209,303	1,272		12,402,160	1,596		12,251,532	1,526		
2	Delamar Drive (between Folcroft Avenue and Greenhill)	161		1,739,317	348		1,676,302	336		1,839,000	381		1,819,261	365		2,160,062	447		2,332,081	467		
	Unmetered Areas (average volume from all meters)	89		2,231,594	809		2,228,562	808		2,520,160	944		2,548,910	924		3,085,804	1,156		3,090,337	1,120		Use average EDU from all Propsect meters for estimate
	TOTAL	**509**	**0**	**12,762,713**			**12,745,373**			**14,413,052**			**14,577,474**			**17,648,026**			**17,673,950**			



AS BUILT

SEWER PLAN

FOLCROFT BOROUGH

DELAWARE COUNTY, PENNSYLVANIA

SCALE 1" = 200'

MARCH 15, 1967

H. GILROY DAMON ASSOCIATES, INC.
CIVIL ENGINEERS
SHARON HILL, PA.

John P. Damon
BOROUGH ENGINEER

Pump Station Summary

Pump Station 47 is owned by Folcroft Borough, and operated / maintained by DELCORA. The pump station has 3, 15 HP pumps rated for 1195 GPM each. Emergency stand-by power is provided to the Pump Station via a gas powered generator.

Industrial Waste Report

DELCORA is currently responsible for issuance of Industrial Waste Permits to companies discharging into Folcroft Borough Sewers. The regulation governing discharge of the industrial wastes as well as any program for surveillance and monitoring of industrial waste discharges is maintained by DELCORA.

There are no known industrial permits for the Folcroft Borough system.

Lansdowne Borough

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2018

☐ Permittee is owner and/or operator of a POTW or other sewage treatment facility
☒ Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION			
Permittee Name:	**Borough of Lansdowne**	Permit No.:	**PA**
Mailing Address:	**12 East Baltimore Avenue**	Effective Date:	
City, State, Zip:	**Lansdowne, PA 19050**	Expiration Date:	
Contact Person:	**Craig Totaro**	Renewal Due Date:	
Title:	**Borough Manager**	Municipality:	**Borough of Lansdowne**
Phone:	**610-623-7300**	County:	**Delaware**
Email:	**Totaroc@borough.lansdowne.pa.us**	Consultant Name:	**Krista Heinrich, PE**

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

   Check the appropriate boxes:
   ☐ Line graph for flows attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

   Check the appropriate boxes:
   ☐ Line graph for organic loads attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

   N/A

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

Check the appropriate boxes:

☐ Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment**)

☐ List summarizing each extension or project attached (**Attachment**)

☐ Schedules describing how each project will be completed over time and effects attached (**Attachment**)

Comments:

There were no sewer extensions constructed in 2018. There are no known planned sewer extensions at this time.

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

Based on review of the televising conducted in 2016, the Borough has prepared plans to improve/repair/replace portions of the conveyance piping on South Union Avenue (340 LF) and Pennock Terrace (220 LF), which is planned for construction in 2019.

The Borough is currently in process of preparing construction plans to remove, replace and/or relocate portions of conveyance piping in Marlyn Park, in order to eliminate I&I associated with proximity of piping to waterways.

The Borough maintains a map of the collection/conveyance system, that is updated on an ongoing basis. Ongoing maintenance repair and rehabiliation (particularly maintenance and rehabiliation of manholes) of the conveyance system occurs on an as needed basis.

In November 2018, repairs were completed on Lansdowne Ave. & Essex Ave. Approximately 191 LF of deficient piping was removed and replaced.

The Borough is investigating instituting an I&I monitoring program using portable-type flow meters.

The Borough owns a sewer jet truck used to clean lines in-house. A new sewer jet truck was purchased in 2014. Since 2008 the Borough has used degreasing agents during line cleaning. In 2010 the Borough began a cycle of root treatments; and continues this treatment as a yearly maintenance item. There are two meters in place in Lansdowne and are serviced, under contract, with CSL through DELCORA. The Borough of Lansdowne has no combined sewers.

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

☐ System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.

☒ System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

As discussed in section 5, The Borough plans to rehabilitate the following sections of the conveyance system:

-Pennock Terrace & South Union Avenue
-Marlyn Park

The Borough is investigating instituting an I&I monitoring program using portable-type flow meters

The Borough of Lansdowne has a separate storm and waste water sewer system with approximately 136,900 linear feet (LF) of mains. As reported to DELCORA in the Infiltration/Inflow (I/I) study of 1997, as prepared by Pennoni Associates Inc, there are approximately 11,100 LF of 6" diameter sewer mains, 103,600 LF of 8" mains, 9,400 LF of 10" mains, 3,700 LF of 12" mains, 4,500 LF of 18" mains and 4,600 LF of 24" mains. The sanitary system is comprised of VCP, PVC, DIP, RCP, and HDPE. There are no force mains, pump stations or combined sewers. The age of the Borough's sewer system varies but the majority is over 50 yrs. in age. Since the Borough of Lansdowne is a fully developed community, whose population is approximately 10,500, any significant growth or development is unlikely. There are approximately 3,445 individual connections to the Borough sewer system and six (6) Borough connections to the DCJA interceptor.

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

☒ The collection system does not contain pump stations

☐ The collection system does contain pump stations (Number –)

☐ Discussion of condition of each pump station attached (**Attachment**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

   a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.

   b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.

   c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

   Check the appropriate boxes:

   ☐ Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)
   ☐ Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload.

   Check the appropriate boxes:

   ☐ This report demonstrates an existing hydraulic overload condition.
   ☐ This report demonstrates a projected hydraulic overload condition.
   ☐ This report demonstrates an existing organic overload condition.
   ☐ This report demonstrates a projected organic overload condition.

   If one or more boxes above have been checked, attach a Corrective Action Plan (CAP) to reduce or eliminate present or projected overloaded conditions under §§ 94.21 and/or 94.22 (relating to existing overload and projected overload). (25 Pa. Code § 94.12(a)(9))

   ☐ Corrective Action Plan attached (**Attachment**)

10. Where required by the NPDES permit, attach a Sewage Sludge Management inventory that demonstrates a mass balance of solids coming in and leaving the facility over the previous calendar year.

    ☐ Sewage Sludge Management Inventory attached (**Attachment**)

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite combined sewer systems).

    ☐ Annual CSO Report attached (**Attachment**)

12. For POTWs, attach a calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually. (25 Pa. Code § 94.13(b))

    ☐ Flow calibration report attached (**Attachment**)

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Craig Totaro - Borough Manager	
Name of Responsible Official	Signature
610-623-7300	2/11/19
Telephone No.	Date

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

rista Heinrich, PE - Borough Engineer	
Name of Preparer	Signature
215-305-4644	2/11/19
Telephone No.	Date

Sharon Hill Borough

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2018

☐ Permittee is owner and/or operator of a POTW or other sewage treatment facility
☒ Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION			
Permittee Name:	**Sharon Hill Borough**	Permit No.:	**PA**
Mailing Address:	**250 Sharon Ave**	Effective Date:	**N/A**
City, State, Zip:	**Sharon Hill, PA 19079**	Expiration Date:	**N/A**
Contact Person:	**William Smith**	Renewal Due Date:	**N/A**
Title:	**Borough Manager**	Municipality:	**Sharon Hill Borough**
Phone:	**610-586-8200**	County:	**Delaware**
Email:	**manager@sharonhillboro.com**	Consultant Name:	**H. Gilroy Damon Assoc., Inc**

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

   Check the appropriate boxes:
   ☐ Line graph for flows attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

   Check the appropriate boxes:
   ☐ Line graph for organic loads attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

   N/A

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

Check the appropriate boxes:

☒ Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment**)

☐ List summarizing each extension or project attached (**Attachment**)

☐ Schedules describing how each project will be completed over time and effects attached (**Attachment**)

Comments:

No new extensions have been approved or constructed in 2018. There are no projects in preliminary planning stages that are proposed.

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

See Attached Report

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

☐ System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.

☒ System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

See Attached Report

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

☒ The collection system does not contain pump stations
☐ The collection system does contain pump stations (Number –)
☐ Discussion of condition of each pump station attached (**Attachment**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.

b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.

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Check the appropriate boxes:

☐ Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)
☐ Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload.

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☐ This report demonstrates an existing hydraulic overload condition.
☐ This report demonstrates a projected hydraulic overload condition.
☐ This report demonstrates an existing organic overload condition.
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☐ Corrective Action Plan attached (**Attachment**)

10. Where required by the NPDES permit, attach a Sewage Sludge Management inventory that demonstrates a mass balance of solids coming in and leaving the facility over the previous calendar year.

☐ Sewage Sludge Management Inventory attached (**Attachment**)

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite combined sewer systems).

☐ Annual CSO Report attached (**Attachment**)

12. For POTWs, attach a calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually. (25 Pa. Code § 94.13(b))

☐ Flow calibration report attached (**Attachment**)

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

William Smith
Name of Responsible Official

Signature

610-586-8200
Telephone No.

2/12/19
Date

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

David P Damon
Name of Preparer

Signature

610-583-4100
Telephone No.

2/12/19
Date

2018 Chapter 94
Municipal Wasteload Management
Annual Report

Borough of Sharon Hill
Delaware County, PA
Collection System

Prepared by

H. GILROY DAMON ASSOCIATES, INC.
Civil Engineers and Land Surveyors
1343 Chester Pike
Sharon Hill, PA 19079

For the

Borough of Sharon Hill
250 Sharon Avenue
Sharon Hill, PA 19079

Preparer

David P. Damon, P.E., P.L.S.
Borough Engineer
H. Gilroy Damon Associates, Inc.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
DAVID PRICE DAMON
ENGINEER
No. PE033239E

Permittee

William Smith,
Borough Manager
Sharon Hill Borough

2018 CHAPTER 94 REPORT

BOROUGH OF SHARON HILL, DELAWARE COUNTY, PA

DESCRIPTION OF THE COLLECTION AND CONVEYANCE SYSTEM

The Borough of Sharon Hill operates and maintains 12.18 miles of sanitary sewer covering the 0.77 square mile area. Most of the sanitary sewers are old, having been constructed between 1905 and 1950. The sewers are primarily vitrified clay or reinforced concrete construction and are all gravity. There are no sewage pump stations within the Borough system. There are no combined sewers in the Borough system. Figure No. 1 presents a breakdown of the total length of sanitary sewers based on diameter of the conduits.

The following describes the Borough sewer system based on the subareas in the two watershed areas. Both watersheds are tributary to the Darby Creek Joint Authority conveyance system.

Hermesprota Creek Watershed

The Borough sanitary sewer system serves about 60 acres in the Hermesprota Creek watershed. There are 8 separate tributary sub areas in the watershed, each having a manhole connection to the Hermesprota Creek interceptor sewer. Approximately 10,379 lineal feet of sanitary sewers are located in the watershed.

The sewers in the Hermesprota basin serve small subareas and are all 8-inches in diameter. The sewers serve primarily single-family residential developments and are in areas with separate storm sewers. There are no combined sewers or sewage pumping stations in this area.

Subarea H-1 is a residential development of single-family homes on Burton Lane known as Sharon Park. The development and sewers were constructed in 1946/1947.

The street sewers consist of 1,105 L.F. 8" V.C. pipe with 5 manholes, serving 40 dwelling units.

Approximately 155 L.F. 8" V.C. pipe extends from the street MH No. 1 to the interceptor sewer manhole.

Subarea H-2 is a residential development of single-family homes on Watson Road and Sharon Park Drive, being part of Sharon Park. The development construction was completed in 1947. A portion of this development is within Folcroft Borough.

The street sewers consist of 1,000 L.F. 8" V.C. pipe with 7 manholes, serving 24 dwelling units.

160 L.F. 8" V.C. pipe extends from the street MH No. 6 to the same interceptor to which manhole Subarea H-1 is connected.

Subarea H-3 is the southerly portion of the same single family residential development as H-2. The street sewers in the development consist of 870 L.F. 8" V.C. pipe and 3 manholes, serving 25 dwelling units.

80 L.F. 8" V.C. pipe extends from the street MH No. 13 to the interceptor manhole.

Subarea H-4 is a residential development of twin family homes on Brainerd Boulevard. The development construction was in 1950.

The street sewers consist of 700 L.F. 8" V.C. pipe with 3 manholes connected to the interceptor sewer manhole. The street sewer serves 46 dwelling units, and the interceptor sewer serves 10 dwelling units. There are 56 total dwelling units. The sewer also serves 2 commercial properties on Chester Pike.

Subarea H-5 is a residential area of twin family homes on High Street, Foster Avenue, a portion of Spring Street and Woodland Avenue. The first part of the development was built in 1928 with 64 homes High Street and a commercial area on Chester Pike. The second part of the development was constructed in 1953 to 1957 for 104 homes.

The street sewers consist of 2,758 L.F. 8" V.C. pipe with 12 manholes serving 168 dwelling units and 3 commercial properties. 95 L.F. 8" V.C. pipe extends from MH No. 19 to the interceptor sewer.

Subarea H-6 is an old residential area of single-family homes on Elmwood, Melrose, Folcroft and Twin Oaks Avenues. The sewers were constructed about 1922.

The street sewer line consists of 2,821 L.F. 8" V.C. pipe with 10 manholes, serving 56 dwelling units.

Subarea H-7 is a residential area of single-family homes. In 1955 and 1962, two private sewer lines were constructed in the rear yards of Twin Oaks Avenue to serve 6 dwelling units. About 450 L.F. 8" V.C. pipe was connected to a manhole in the interceptor.

Subarea H-8 is a residential area located on the south side of Elmwood Avenue. Approximately 280 L.F. 8" V.C. pipe was constructed around 1962 to serve 8 dwelling units.

Darby Creek Watershed

The Borough sanitary sewer system serves about 433 acres in the Darby Creek watershed. There are five separate tributary subareas in the watershed, each having a manhole connection in the Darby Creek interceptor sewer. There are no combined sewers or sewage pumping stations in this area.

The watershed contains the oldest sewers in the Borough and the largest subareas. The uses include residential, commercial and institutional. Approximately 53,855 L.F. of sanitary sewer is located within the Darby Creek basin in sizes ranging from 8-inches to 24-inches.

Subarea D-1 is an easterly residential development of twin family homes on Greenwood and Laurel Roads. The development construction was completed in 1945/1955.
The street sewers consist of 2,020 L.F. 8" V.C. pipe with 13 manholes serving 101 dwelling units.

300 L.F. 8" V.C. pipe with 1 manhole extends from the street MH No. 45 to a manhole in the Darby Creek interceptor sewer.

Subarea D-2A is an older easterly residential area of the Borough bounded by Chester Pike, Greenwood Road, Poplar Street and the westerly side of Calcon Hook Road. The Chester Pike frontages are commercial buildings and the westerly area along Calcon Hook Road is a school building and athletic fields.

The first sewer mains were constructed in this subarea by the Borough in 1905 to 1910. Later sewer mains were constructed and extended in the 1920s.

The street sewers consist of 11,937 L.F. 8" V.C. pipe with 44 manholes serving 537 dwelling units, 71 apartment units, 11 commercial businesses and 1 school building.

1,065 L.F. 8" V.C. pipe with 5 manholes extends from Poplar Street, through the railroad culvert, to a manhole in the Darby Creek interceptor sewer.

Subarea D-2B is a residential area of single-family homes on Reese Street and a seven-building apartment complex between Poplar Street and the AMTRAK railroad right-of-way.

The Borough sanitary sewer line from Reese Street to MH No. 61 was in existence prior to the development of the apartment complex.

The sewer line consists of 908 L.F. 8" V.C. pipe with 7 manholes serving 8 dwelling units and 124 apartment units.

Subarea D-3A is the older central residential area of the Borough. The Chester Pike frontages are commercial buildings and two shopping centers. The area includes one school building, 3 churches, apartment buildings, the borough Municipal buildings and park facilities.

Several sewer mains in this subarea were constructed in 1905 to 1906 with pre-1905 existing sewer lines.

The street sewers consist of 22,264 L.F. 8" V.C. pipe with 81 manholes, serving about 616 dwelling units, 218 apartment units, 36 commercial properties, 2 shopping centers, 3 churches and a school building.

The sewer system has 16,714 L.F. 8" V.C. pipe; 1,208 L.F. 10" V.C. pipe; 3,114 L.F. 12" V.C. pipe; 1,094 L.F. 15" V.C. pipe and 1,356 L.F. 24" V.C. pipe.

Subarea D-3B is an older residential area of the Borough on the south side of AMTRAK railroad right-of-way and extending north of the railroad on Calcon Hook Road to Poplar Street. The area includes a school building, apartment and commercial buildings.

The street sewers consist of 12,215 L.F. of pipe with 35 manholes serving about 174 dwelling units, 67 apartment units and 7 commercial properties.

The sewer system has 7,872 L.F. 8" V.C. pipe; 2,948 L.F. 18" V.C. pipe and 1,880 L.F. 24" R.C. pipe. About 120 L.F. 24" R.C. pipe extends from MH No. 107 at Elmwood Avenue to the Darby Creek interceptor sewer.

Subarea D-4 is the area of the Folcroft East Business Park south of Elmwood Avenue. This area of the Borough was developed in the mid 1950's by the Curtis Publishing Company. The area was redeveloped in the 1980's as the Folcroft East Business Park. The business park consists of three buildings from the Curtis Publishing era and twelve newer buildings. The site contains light industrial warehouse uses.

Seven of the buildings are sewered by a sewer built in 1955 and extended in the 1980's. This sewer is private and maintained by the owner of the business park. It extends easterly through the park to a point of connection to the Darby Creek interceptor sewer.

Three buildings are connected directly with laterals to the Darby Creek interceptor sewer.

Subarea D-5 is an older area of residence along Calcon Hook Road and Bonsall Avenue. The easterly end of Subarea D-5 has two buildings from the Folcroft East Business Park connected to the system.

The sanitary sewer serving this subarea was constructed in 1927. This system consists of 2,440 L.F. 8" V.C. pipe with 9 manholes serving about 35 dwelling units.

EXISTING AND PROJECTED HYDRAULIC LOADING

The Borough has estimated a total of 2560 EDU's all of which are tributary to the Darby Creek Joint Authority. As part of the Delaware County flow metering program instituted by DELCORA, 4 dedicated meters have been installed in the Borough. The meters provide flow measurement of over 80% of the Borough's EDU's.

The population of the Borough has been falling steadily in the last two decades. This trend is expected to continue with a small decrease or zero growth projected from 2018 to 2023. The Borough does not have any large undeveloped property and expects mainly redevelopment projects in the next 5 years. It is expected that 3 to 6 new EDU's may be added to the total by 2023. The hydraulic loading is expected to stay unchanged with growth being offset by system improvements and overall population loss. The projected monthly average and maximum flows are as follows:

Year	Average Monthly Flows (mgd)	Maximum Monthly Flows (mgd)
2019	0.80	1.10
2020	0.80	1.10
2021	0.80	1.10
2022	0.80	1.10
2023	0.80	1.10

SEWER EXTENSIONS

No sanitary sewer extensions have been built in 2018. No extensions are planned from 2018-2023.

PROGRAM FOR SANITARY SEWER MONITORING, MAINTENANCE, AND REPAIR

The Borough continues to monitor their sanitary sewer system with closed circuit TV inspections and cleaning maintenance performed on portions of the Borough system annually. Inflow connections are ordered removed when found during certificate of occupancy inspections. Borough personnel cleaned the majority of the system in 2018 using the Borough owned jetter. Approximately 3,239 L.F. of sanitary sewer on Poplar Street, Burton Lane, Brainerd Boulevard and Reese Street were lined with CIPP in 2017. In 2018 the Borough continued their rehabilitation program with the lining of 2972 L.F. of 8 inch sewer on Elmwood Avenue, Spring Street, and Eggleston Circle.

CONDITION OF THE SEWER SYSTEM

The Borough is not aware of any areas in their sanitary sewer system where conveyance capacity is being exceeded. There have been no reports of surcharging or sanitary sewer overflows in 2018. Corrective measures have been instituted to reduce pipeline infiltration by relining 6,710 L.F. of sewer lines in 2005 and 6,920 L.F. in 2007. In 2011, 100 L.F. of sewer was replaced on Burnside Avenue and 350 L.F. was slip lined in 2014. 2230 L.F. of a sewer was lined in 2015 and 2445 L.F. was lined in 2016. As noted above 3239 L.F. were lined in 2017.

Figure No. 1 presents data on the sewer system age and sizing.

PUMP STATIONS

All flows in the Borough are by gravity and there are no pump stations.

INDUSTRIAL WASTE DISCHARGE

The Borough has not identified any industrial waste discharger to their system. DELCORA requires that all industrial waste discharges enter into an agreement stipulating pretreatment and other requirements.

CORRECTIVE ACTION PLAN

There are no areas within the Borough of Sharon Hill collection and conveyance system with an existing or projected overflow.

CALIBRATION REPORTS

The 4 meters within the Borough service area are owned and calibrated by DELCORA.

INDUSTRIAL WASTE DISCHARGE

The Borough has not identified any industrial waste discharger to their system. DELCORA requires that all industrial waste discharges enter into an agreement stipulating pretreatment and other requirements.

Enclosed are six copies of maps showing the Borough's sanitary sewer system.

Respectfully submitted,

H. GILROY DAMON ASSOCIATES, INC.

David P. Damon, PE, PLS
Borough Engineer

DPD/pm

Enclosures

C: Sharon Hill Borough

FIGURE 1
BOROUGH OF SHARON HILL
SANITARY SYSTEM SUMMARY

	Description of System		
Sewer Diameter (inches)	Length of Sewer (L.F.)	Construction Material	Age (years±)
8"	200	PVCP	3
8"	51,011	VCP	50 to 105
10"	1,208	VCP	105
12"	3,114	VCP	105
15"	1,094	VCP	105
18"	2,948	VCP	105
24"	3,236	RCP & VCP	55 to 105
		There are no pump stations operated by the Borough.	

BOROUGH OF SHARON HILL

DELAWARE COUNTY, PENNSYLVANIA

SANITARY SEWER MAP

H. GILROY DAMON ASSOCIATES
CONSULTING ENGINEERS
SHARON HILL, PA.

SCALE: 1"=200'

LEGEND

- BOROUGH SEWERS (8" DIA UNLESS OTHERWISE NOTED)
- INTERCEPTOR SEWERS
- PRIVATE SEWERS
- MANHOLES

GRAPHIC SCALE 0' 200' 400' 800'

NORTH

RE 1605

Springfield Township

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2018

☐ Permittee is owner and/or operator of a POTW or other sewage treatment facility
☒ Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION			
Permittee Name:	**Sprinfield Township - DCJA**	Permit No.:	**PA**
Mailing Address:	**50 Powell Road**	Effective Date:	
City, State, Zip:	**Springfield, PA 19064**	Expiration Date:	
Contact Person:	**Lee Fulton**	Renewal Due Date:	
Title:	**Township Manager**	Municipality:	**Springfield Township**
Phone:	**610-544-1300**	County:	**Delaware County**
Email:	**lfulton@springfielddelco.org**	Consultant Name:	**McCormick Taylor, Inc.**

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

   Check the appropriate boxes:
   ☐ Line graph for flows attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

   Check the appropriate boxes:
   ☐ Line graph for organic loads attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

   N/A

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

Check the appropriate boxes:

☐ Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment**)

☐ List summarizing each extension or project attached (**Attachment**)

☐ Schedules describing how each project will be completed over time and effects attached (**Attachment**)

Comments:

There were no sewer extensions made in 2018. In addition, there are no planned or approved extensions at this time.

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

Monitoring, maintenance and rehabilitation programs have been established in accordance with the Water Environment Federation's (WEF) Existing Sewer Evaluation and Rehabilitation (WEF MOP FD-6; ASCE MREP-62) and WEF's MOP 7.

The Township's sewer lines have been catalogued and prioritized for inspection and evaluation. The Public Works Department conducts inspection and evaluation activities according to the schedule prescribed by the Township Engineer. Inspection and evaluation are facilitated through a jet cleaning truck and a closed circuit television sewer inspection truck operated by a three man crew from the Public Works Department. Public Works inspects between 10 and 20 miles of sewer line annually. The lines are evaluated for defects (breaks, roots, I/I, grease, etc.) by the field crew and also by the Public Works Superintendent and Township Engineer. Any defects discovered during evaluation are assessed, rated and prioritized for repair or further evaluation as necessary.

Springfield has been monitoring flow to the Darby Creek Joint Authority via flow meters installed in the 2nd quarter of 2004. DELCORA has also installed three flow meters within the sewershed to monitor the flow from Springfield. In addition in February 2008, DELCORA requested that Springfield Township remove the existing flow meter within the RHM 36" main in order to replace it with one of their meters. This meter will be used to record flows for billing purposes but will provide Springfield Township the information required to continue completing the quarterly reports to DEP. The maintenance of the meters installed by Springfield Township is completed by CSL on an as needed basis with the other meter being maintained by DELCORA. All of the meters record the flow every 15 minutes and transmission of information happens periodically throughout the day. Since the meters are maintained and owned by DELCORA, the required calibration report would have to be obtained from them.

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

☐ System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.

☒ System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

☒ The collection system does not contain pump stations

☐ The collection system does contain pump stations (Number –)

☐ Discussion of condition of each pump station attached (**Attachment**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.

b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.

c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

Check the appropriate boxes:

☐ Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)

☐ Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload.

Check the appropriate boxes:

- ☐ This report demonstrates an existing hydraulic overload condition.
- ☒ This report demonstrates a projected hydraulic overload condition.
- ☐ This report demonstrates an existing organic overload condition.
- ☐ This report demonstrates a projected organic overload condition.

If one or more boxes above have been checked, attach a Corrective Action Plan (CAP) to reduce or eliminate present or projected overloaded conditions under §§ 94.21 and/or 94.22 (relating to existing overload and projected overload). (25 Pa. Code § 94.12(a)(9))

☒ Corrective Action Plan attached (**Attachment A**)

10. Where required by the NPDES permit, attach a Sewage Sludge Management inventory that demonstrates a mass balance of solids coming in and leaving the facility over the previous calendar year.

☐ Sewage Sludge Management Inventory attached (**Attachment**)

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite combined sewer systems).

☐ Annual CSO Report attached (**Attachment**)

12. For POTWs, attach a calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually. (25 Pa. Code § 94.13(b))

☐ Flow calibration report attached (**Attachment**)

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Lee Fulton, Township Manager	Lee Fulton
Name of Responsible Official	Signature
610-544-1300	2-14-19
Telephone No.	Date

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Susan M. Guisinger-Colon, P.E.	Susan M Guisinger-Colon
Name of Preparer	Signature
610-640-3500	2/15/2019
Telephone No.	Date

Attachment A

CORRECTIVE ACTION PLAN

FOR

HYDRAULIC OVERLOAD

OF

THE DARBY CREEK OUTFALL

JANUARY 2002

TOWNSHIP OF SPRINGFIELD

DELAWARE COUNTY

PENNSYLVANIA

TABLE OF CONTENTS

FIGURES

APPENDICES

1.0 EXECUTIVE SUMMARY

This report represents Springfield Township's Corrective Action Plan for a hydraulic overload of the Darby Creek Outfall. This Plan is required by Title 25, Chapter 95 of the Pennsylvania Code and is in response to observed sanitary sewer overflows (SSO) and the Township's notification letter to the Pennsylvania Department of Environmental Protection dated December 20, 2001 (Appendix A).

Included in this report are: a discussion of the background and description of the Darby Creek Outfall service area; an assessment of the problem; actions to be taken to reduce the overload; a plan for managing connections and providing needed capacity; and an implementation schedule for corrective actions.

In summary, this report indicates that the Springfield Township sewage collection system has adequate capacity during dry weather conditions, but experiences periodic hydraulic overloads during wet weather events.

Springfield Township plans to correct this problem through an aggressive inflow and infiltration elimination (I/I) program while continuing to study and identify contributory flows that would cause this overload condition.

New connections to the system will be managed within the system by allowing new connections only after documented elimination of I/I.

2.0 INTRODUCTION

As required by Chapter 94 of Title 25 of the Pennsylvania Code, Springfield Township presents herein a Corrective Action Plan (CAP) for the Darby Creek Outfall. This outfall sewer is located in Springfield Township, Delaware County as shown in Figure 1.

This Plan will: (1) present an overview into the historical background of the Darby Creek Outfall (DCO) service area; (2) identify the service area and existing facilities; (3) develop a plan to reduce overloads; and (4) present a program for controlling new connections along with a schedule for implementation.

This Plan has been prepared in accordance with Chapter 94 of Title 25 of the Pennsylvania Code. Section 94.21(a)(3) requires that a written plan be submitted *"...setting forth the actions to be taken to reduce the overload and to provide the needed additional capacity. The written CAP shall include, but not be limited, to limitations on and a program for control of new connections to the overloaded sewerage facilities and a schedule showing the dates each step toward compliance ...shall be completed."*

3.0 BACKGROUND

The DCO service area covers roughly 40% of Springfield Township. The location of the outfall and connection points for Springfield, Upper Darby and the Radnor-Haverford-Marple Authority (RHM) are shown in Figure 2. The DCO consists of two 24-inch sewer pipes which receive flow from the Springfield Township collection system. The DCO conveys sewage across Darby Creek to a 36-inch sewer in Upper Darby Township. Flow from RHM is introduced into the 36-inch sewer at this location as well. Sewage is conveyed through the 36-inch sewer to the Darby Creek Joint Authority's system and then is conveyed by the Delaware County Regional Water Authority to the Philadelphia Water Department's Southwest Philadelphia Water Pollution Control Plant.

In December 2000, a proposed residential land development in the DCO service area prompted the evaluation of the existing sewage facilities in the areas upstream of the DCO. At that time, residents indicated that they had observed sanitary sewer overflows during wet weather at the manholes just upstream of the DCO. Given that information, the Township began a program of observing the DCO during dry and wet weather conditions.

During a rain event in March of 2000, the Township observed a SSO at four manholes upstream of the DCO. The line appeared surcharged during the rain event and the SSO occurred about an hour after the rain had stopped. In the days following the SSO, the Township inspected every manhole downstream of the SSO along the 36-inch sewer pipe to determine if there was an obstruction that was causing the flow to back-up into the

DCO. These inspections were made during dry conditions and the flow depth was observed to be constant for the entire length of the pipe. Having intuitively eliminated a downstream blockage as the cause of the SSO, the Township is now studying the DCO service area to determine system capacity and to identify and correct inflow and infiltration that would contribute to the overload condition. Additionally, the Township is prohibiting new connections in this service area.

4.0 PROBLEM IDENTIFICATION

In order to identify the problem causing the SSOs, the Township will evaluate the entire DCO service area. Springfield's approach will be to identify the existing facilities within the service area and then to incorporate the evaluation and rehabilitation of these facilities into the Township's *Master Plan for Sanitary Sewer Management and Rehabilitation* (Master Plan; Appendix B). Among other things, it is expected that this approach will identify areas of wet weather inflow, which appears to be a critical contributor to the SSO occurrence.

Existing Facilities Description

The facilities within the DCO service area are shown in Figure 3. SSOs were observed at manholes 05005, 05008, 05009, and 05019. The system consists of pipe from 8 to 24 inches in diameter with dates of installation as early as 1926. The pipe material is predominantly terra-cotta with small areas of asbestos cement pipe, plastic pipe, cast-iron pipe, and ductile-iron pipe. The manholes in this service area are mostly brick and mortar construction.

Municipal Loadings

Presently, there are approximately 3,566 equivalent dwelling units (EDUs) being serviced by the DCO. The EDUs originate from residential, commercial and institutional uses with single family residential homes being the predominate use in this area.

Based on the constraints of the Township Zoning Code and available land for development, it could be expected that an additional 300 EDUs would be introduced into this service area in the future.

For the purposes of this plan an EDU will be considered equivalent to 350 gallons of sewage per day. The flow per EDU may change as more data becomes available to the Township.

5.0 MANAGEMENT PLAN

In an effort to reduce the frequency and severity of the SSOs, Springfield has begun managing connections to the DCO service area and has designated the DCO service area as a Critical System Component in the Master Plan (see Section 2 of the Master Plan).

Springfield's connection management plan prohibits new connections until credits for EDUs have been allocated by the Department of Environmental Protection and the Springfield Township Board of Commissioners in accordance with this plan.

Designation as a Critical System Component gives the DCO service area higher priority on Springfield's inspection and evaluation plan which will help to identify the most severe inflow and infiltration conditions. As inflow and infiltration are identified in the DCO service area, they will be scheduled for corrective work in accordance with the Master Plan.

Springfield's DCO Management Plan consists of the following:

1. Modeling of the DCO Service Area
2. Flow Monitoring
3. Inspection and Evaluation
4. Rehabilitation
5. Plan Updates
6. Allocation of Credits for Connection

Following is a description of each of the management plan components.

Modeling of the DCO Service Area

Springfield has conducted a hydraulic evaluation of the DCO and transmitted the findings of that evaluation to the DEP in a letter dated September 11, 2001 (Appendix C). That study suggested that the capacity of the system downstream of the DCO might be inadequate for peak upstream flows. Springfield Township will continue to monitor and evaluate the flow downstream of the DCO while implementing the Township's management plan upstream of the DCO. If it becomes apparent that downstream restrictions are causing the SSOs on Springfield's system, it will become necessary to manage flows from other contributory municipalities.

Flow Monitoring

Springfield Township plans to continuously monitor and record sewage flows upstream and downstream of the DCO. Flow data in addition to rain gauge data will provide valuable information regarding I/I quantity and the effect of corrective work on the frequency and severity of SSOs. Additionally, flow monitors will give a better indication of the average daily flow per household, which is important for determining the flow rate equivalent to an EDU.

Inspection and Evaluation

As part of the Critical System, the DCO service area will be given high priority for inspection and evaluation. Inspections will be conducted by qualified Township personnel or contractors using closed circuit television equipment. Evaluation will be

done during and after the inspection process and will be based on a procedure and rating system established by the Township.

Rehabilitation

DCO service area components requiring corrective work will be scheduled for rehabilitation in accordance with the Master Plan. Corrective work will be implemented annually according to the schedule promulgated by the Superintendent of Public Works and the Township Engineer.

The Township's schedule for rehabilitation may be accelerated by parties interested in procuring connection credits. In this case, a proposed plan must be submitted to the Township for review and approval prior to any third party commencing any corrective work on the sewer system. Failure to obtain Township approval prior to implementation of corrective work will disqualify the removed flows for use as connection credits.

Plan Updates

Quarterly plan updates will be provided to the DEP, which will include the following information for the previous quarter:

1. Proposed inspection/evaluation
2. Actual inspection/evaluation
3. Proposed corrective work
4. Actual corrective work
5. Proposed connection credits for allocation; and

6. Flow data

Additionally, a proposed plan for inspection/evaluation and corrective work will be provided for the following quarter

Allocate Credits for Connection

Quarterly, Springfield Township will request that DEP approve credits for connection based on documented extraneous flow removal discounted in accordance with the following equation:

$$ConnectionCredit\ (gpd) = \frac{EFR\ (gpd)}{10}$$

where:

Connection Credit = flow approved for allocation toward a new connection; and

EFR = Extraneous Flow Reduction – documented extraneous flow removed from the system through system rehabilitation, removal of illegal connections, etc.

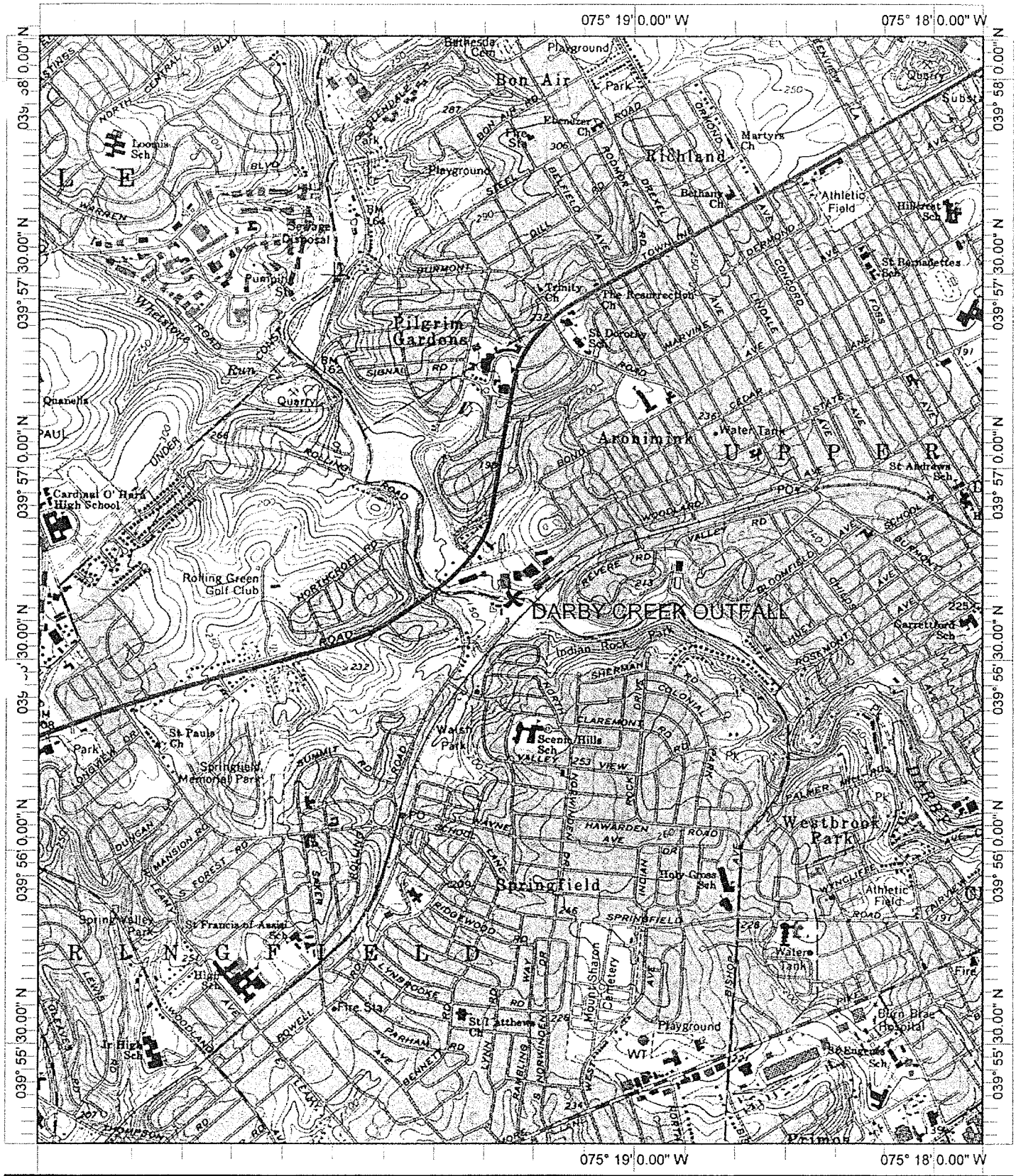
After approval by the DEP, the Springfield Township Board of Commissioners will allocate the credits for use in Springfield Township. An ordinance of the Code of Springfield Township will set forth the specific requirements and procedure for allocating and using the connection credits.

6.0 IMPLEMENTATION SCHEDULE

This plan will be implemented as shown in the following table:

Activity	Implementation Date
Hydraulic Modeling of the DCO Service Area	Completed
Commence Flow Monitoring	1st Quarter 2002
Commence Inspection and Evaluation	1st Quarter 2002
Commence Rehabilitation	4th Quarter 2002
Plan Updates	Quarterly
Allocation of Credits for Connection	Quarterly

FIGURES



Name: LANSDOWNE
Date: 1/17/2002
Scale: 1 inch equals 2000 feet

Location: 039° 56' 40.5" N 075° 19' 24.4" W
Caption: FIGURE 1 - DARBY CREEK OUTFALL SEWER

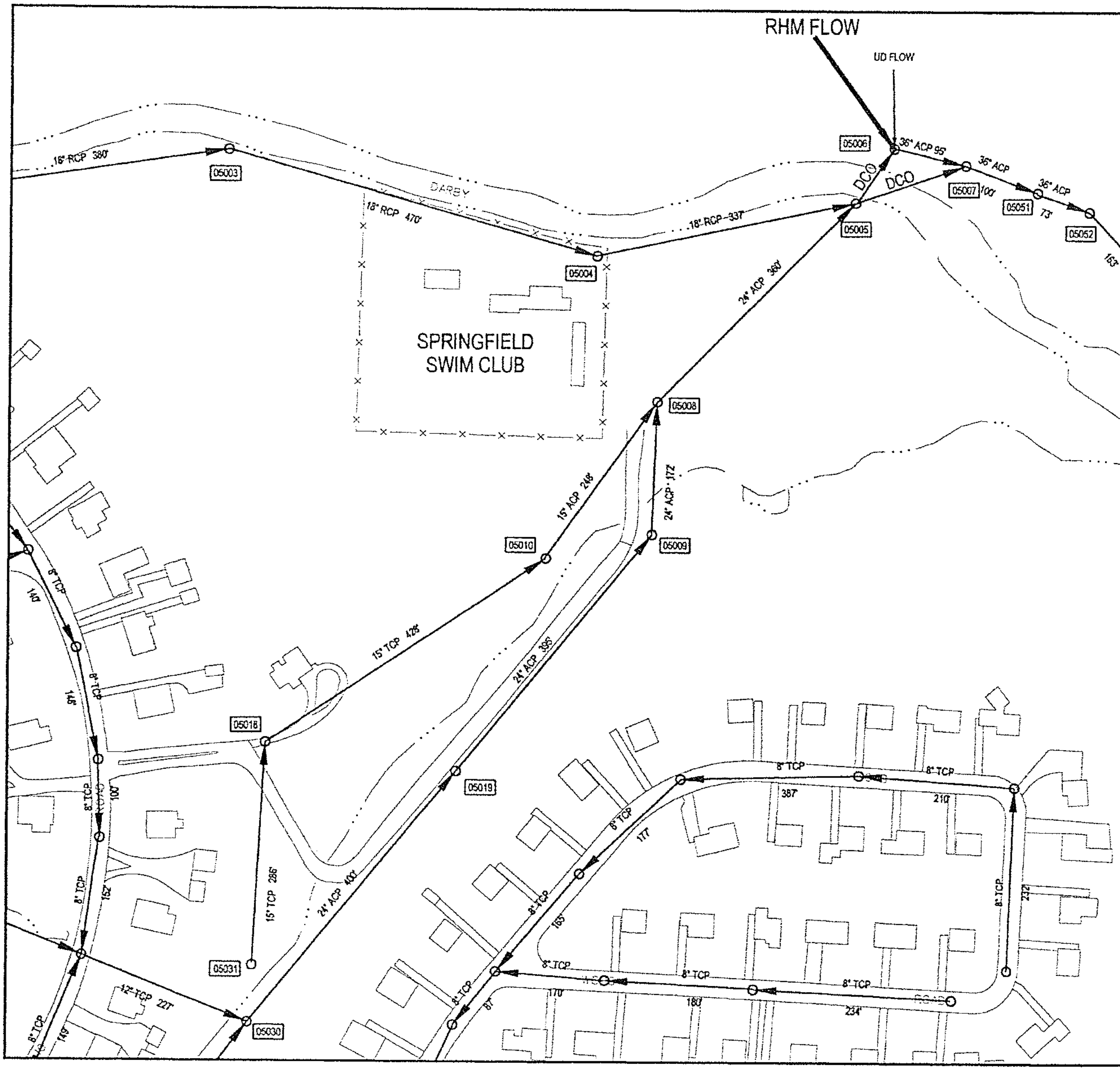


FIGURE 2 - SCHEMATIC DIAGRAM OF SEWERS JUST UPSTREAM OF DARBY CREEK OUTFALL (DCO)

...\cap\fig_2.dgn Jan. 17, 2002 16:34:40

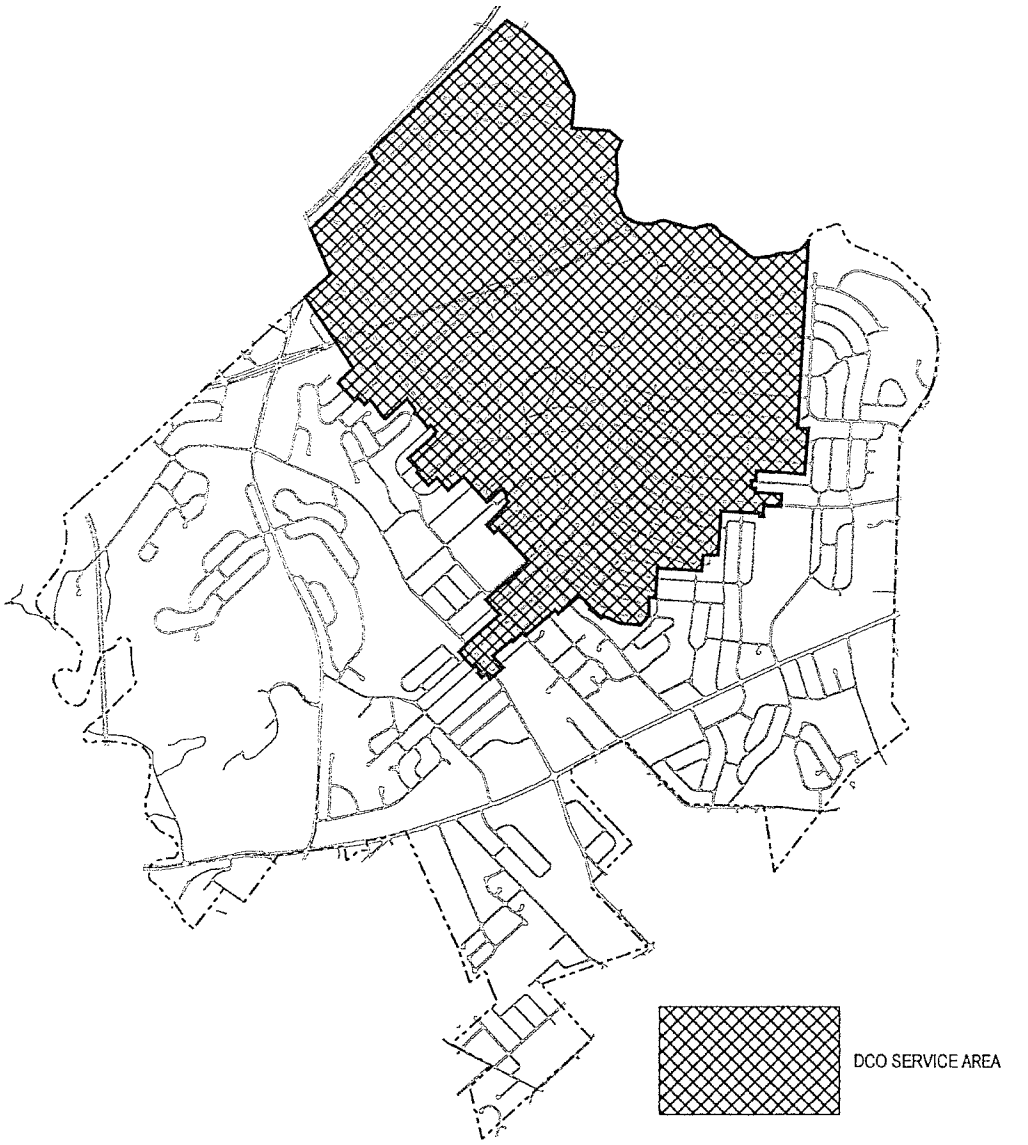


FIGURE 3 - DARBY CREEK OUTFALL SERVICE AREA

...\fig_3.dgn Jan. 16, 2002 12:03:59

APPENDIX A

MICHAEL LeFEVRE
Township Manager

MARGARET A. YOUNG
Treasurer

JAMES J. BYRNE, JR., Esq.
Solicitor

KEVIN M. KANE, P.E.
Engineer

Township of Springfield

DELAWARE COUNTY, PA
50 POWELL ROAD, SPRINGFIELD, PA 19064
OFFICES 610-544-1300 POLICE 610-544-1100 HIGHWAY 610-543-2837 FAX 610-544-3012
EIN NO. 23-6004592

December 20, 2001

Ms. Donna Ulan
PennDEP, Southeast Regional Office
Lee Park, Suite 6010
555 North Lane
Conshohocken, PA 19428-2233

Re: Notification of Overloaded Facility

Dear Donna:

Please let this letter serve as formal notice that Springfield Township has determined that our sewage collection system is hydraulically overloaded in the vicinity of the Springfield Swim Club and the Darby Creek (see attached map).

We have been prohibiting new connections since the overloaded condition was discovered during a wet weather event in March 2000.

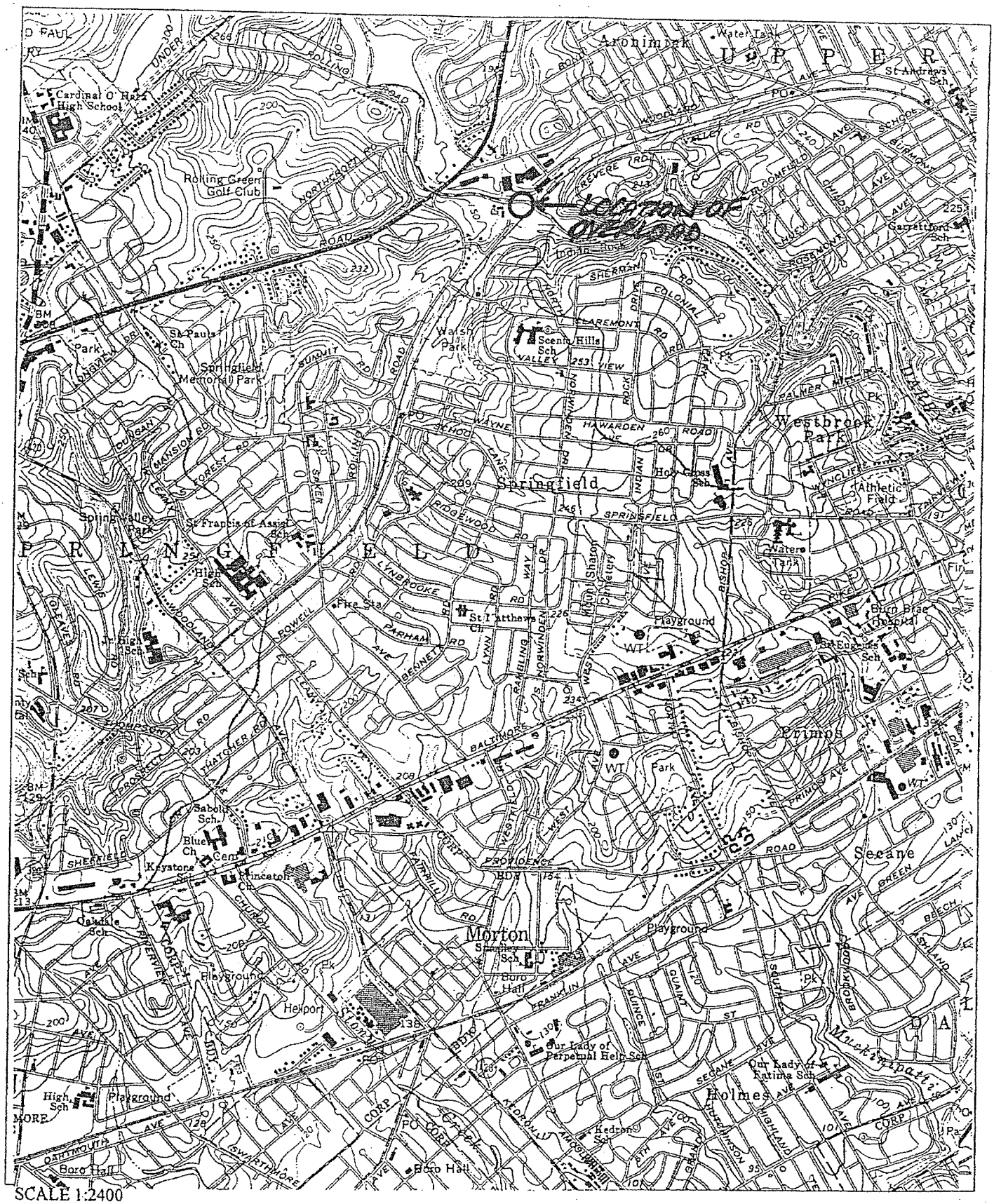
In accordance with §94.21(a)(3), we will be submitting a written Corrective Action Plan (CAP) to your office within the next 90 days (by March 20, 2002) which will include a program for the control of new connections to the overloaded facility.

If you have any questions, or need additional information, please do not hesitate to call me.

Very truly yours,

Kevin M. Kane

Cc: Board of Commissioners
Michael LeFevre
James Byrne, Jr., Esq.
William Cervino



LANSDOWNE QUAD

LOCATION MAP

APPENDIX B

MASTER PLAN

FOR

SANITARY SEWER MANAGEMENT

AND

REHABILITATION

SPRINGFIELD TOWNSHIP
JANUARY 2002

Table of Contents

1.0 Introduction

Springfield Township owns and maintains over 80 miles of sanitary sewer pipe throughout the Township. The mains range in size from 8 inches to 36 inches in diameter and are constructed of a wide variety of materials.

The purpose of the Master Plan (Plan) is to provide a systematic approach to the inspection, evaluation, maintenance and rehabilitation of the sewer system. This approach should provide for the most efficient use of Township personnel and resources.

The Plan will focus on the most critical portions of the system so as to provide reliable service to the public and provide protection to public welfare and the environment. From time to time this plan will need to be updated as new technologies are developed and as more data is gathered about the day to day operation of the system.

This plan is an adaptation of the guidance provided by the Water Environment Federation and the American Society of Civil Engineers[i] and will broadly cover the following topics:

1. Identification of critical system components;
2. Inspection and evaluation of critical system components;
3. Assigning corrective work to the system as needed;
4. Prioritizing implementation of corrective work;
5. Implementation of corrective work;
6. Maintenance of system maps and database; and
7. Annual reporting requirements

Any revisions to this plan must be approved by the Superintendent of Public Works, the Township Engineer, and the Board of Commissioners.

2.0 Identification of Critical System Components

Springfield's sewer system has critical components whose failure would have a particularly significant impact on the public or the environment. This plan will focus Township resources toward these critical components before addressing less critical sewers.

Sewer Categories

Sewers can be divided into three categories:

> **Category A** – Critical sewers where costs of failure would be high and effect on the surrounding environment great. Postfailure rehabilitation would be much more costly than planned replacement or rehabilitation.

Category B – Less critical sewers because of reduced failure cost and effect but where preventive action would still be cost effective.

Category C – Noncritical sewers that have little or no effect as determined by critical definitions. Preemptive work in these sewers would not be cost effective unless numerous failures occur in a confined area.

This plan will attempt to keep Springfield's Category A sewers failure free and reduce the failure rate of Category B sewers.

Critical Definitions

To determine the category and critical nature of a Township sewer, critical sewer definitions have been developed. If a Township sewer meets any one or more of the following criteria, it shall be considered a critical sewer component:

1. Older than 50 years
2. Deeper than ten feet
3. Greater than 8" in diameter
4. Located under a state highway
5. Located proximate to streams
6. Difficult access
7. At or near hydraulic capacity
8. In poor soils or high groundwater
9. Difficult to bypass
10. Require frequent maintenance
11. Excessive I/I
12. Part of a management plan (DEP Chapter 94)

Annual Critical System List

Annually, by November 30 of each year, the Township Engineer and the Superintendent of Public Works shall compile a catalog of critical system components using the criteria in the critical definitions. The Critical System List shall be the basis for establishing the sewer inspection, maintenance and rehabilitation program for the following year.

3.0 Inspection and Evaluation of Critical Components

Annual Inspection Plan

An annual schedule of inspection and evaluation of the critical sewers shall be established by the Superintendent of Public Works and the Township Engineer by December 31 of each year. This schedule will be the basis for the inspection plan for the following year. Priority for inspection and evaluation will be given to the most critical sewer components.

Structural Evaluation

The closed-circuit television (CCTV) video or entry information for the sewers should be reviewed for structural problems such as cracks, breaks, displaced joints, missing pipe pieces, roots, sags and corrosion. The inspector shall qualify and quantify any structural problems according to a procedure established by the Township.

Infiltration and Inflow Evaluation

The CCTV video or entry information for the sewers should be reviewed to identify extraneous flows including infiltration from groundwater or rainfall and inflow from storm drainage sources that enter the system through cracks, displaced joints, leaking porous walls, voids, and broken or illegal service connections. The inspector shall qualify and quantify infiltration and inflow according to a procedure established by the Township.

4.0 Assigning Corrective Work to System Components

Where system inspections reveal problems, the Superintendent of Public Works and the Township Engineer will evaluate and assess the problem and formulate a corrective action. The corrective action proposed for each identified problem will consist of any of the following:

- Monitoring and information collection;
- Stabilization of the sewer component;
- Rehabilitation of the sewer component; or
- Replacement of the sewer component

The severity of the identified problem and financial constraints will be considered when a level of action is proposed.

Monitoring

The alternative involves collecting additional information to support a decision to either rehabilitate or stabilize an existing sewer. By verifying the quality of the piping and the competence of the soil around the sewer, a program can be formulated that at least stabilizes a sewer. Conversely, if additional data collection reveals a more serious problem, a higher level of rehabilitation may be needed.

A routine inspection program should be established to monitor performance and to develop needed design information that could help cut rehabilitation costs.

Follow-up inspections should be made one year after initial inspection unless rehabilitation or replacement has been initiated. Inspection is also required to verify the integrity of a rehabilitated or reconstructed sewer, however the interval between

inspections can increase as confidence in the sewer's condition increases. Subsequent inspections can be made every 2 to 3 years, depending on initial an subsequent findings.

Stabilization

Stabilization or point repair is the replacement of a collapsed or seriously fractured pipe length instead of total pipeline rehabilitation or replacement.

An alternative involves modifying and stabilizing the soil around the pipeline which is intended to restore soil competence around the sewer and produce uniform circumferential loading that favors the strength of a pipe. Cement or chemical grout stabilization could be appropriate.

Pipe Rehabilitation Methods

Pipeline rehabilitation methods include sliplining, cured-in-place pipe, Nu-pipe and U-liner, rolldown and swagedown deformed pipe, spiral wound pipe, segmental linings, and structural and nonstructural coatings.

Each of these technologies will be evaluated by the Superintendent of Public works and the Township Engineer.

Manhole Rehabilitation Methods

The rehabilitation of manholes can be grouped into the following methods: chemical grouting; coating systems; structural linings; corrosion protection; and manhole frame, cover and chimney renovation.

Each of these technologies will be evaluated by the Superintendent of Public works and the Township Engineer.

Replacement

When pipelines or manholes are found to be beyond repair using any of the rehabilitation methods, total replacement is recommended. Normally this condition exists at specific locations and point repair or rehabilitation may be the most cost-effective measure for the remaining system.

5.0 Prioritizing Corrective Work

Corrective work will be prioritized based on the problems potential impact on the public health and environment. In general the corrective work will be prioritized as follows:

1. Immediate threat to human health;
2. Immediate threat to the environment;
3. Collapse or collapse imminent;

4. Collapse likely in the foreseeable future;
5. Excessive I/I;
6. Collapse unlikely in near future, deterioration likely;
7. Minimal collapse risk in short term but potential for further deterioration.

Annual Work Plan

After prioritizing corrective work, the Superintendent of Public works and the Township Engineer will develop an annual work plan, by December 15, to address as many of the highest priority problems as the sanitary sewer capital projects budget will allow.

Additionally, the Superintendent of Public Works will identify which projects are to be undertaken by the Sewer Division of the Public Works Department and which projects will be undertaken by contractors.

6.0 Implementation of Corrective Work

Annual Sewer Rehabilitation

All work proposed in the Annual Work Plan will conducted in a time frame that is best suited for the work. That is, stream work should be scheduled for dry months, cured-in-place lining during the cold months.

All work shall be subject to inspection by the Superintendent of Public Works and the Township Engineer.

7.0 Maintenance of System Maps and Database

Semi-Annual Map and Database Updates

By July 31 and January 31 of each year the Township Engineer shall update the Township Sewer Map and Database. The semi-annual updates will include new system information provided by the Sewer Division of the Public Works Department and by any new sewer work occurring in the previous six months. Red-lined mark-up maps will be provided to the Engineer by the Public Works Department showing where the map does not reflect actual field conditions. The Township Engineer will be responsible for verifying the changes proposed by the Public Works Department.

The map will be updated with manhole locations, sewer alignment, pipe material, and pipe length. The critical sewer system will be exhibited as an overlay to the entire system.

The system database will include information about the piping and manholes in the system:

Pipe Characteristics

1. Diameter
2. Slope
3. Depth
4. Construction Year
5. Material
6. Condition
7. Use (depth of flow)
8. Connections
9. Traffic Loading
10. Soil Data
11. Water Table
12. I/I Quantity
13. Repair/Renovation History

Manhole Characteristics

1. Material
2. Condition
3. Repair/Renovation History
4. Penetrations

8.0 Annual Reporting

By January 31 of each year, the Township Engineer will prepare a report for the Board of Commissioners detailing the management and rehabilitation work conducted during the previous year. The report will include a breakdown of cost expenditures for each project and a discussion of the cost-effectiveness of the projects.

[i] *Existing Sewer Evaluation & Rehabilitation* (1994) WEF Manual of Practice FD-6, ASCE Manual and Report on Engineering Practice No. 62.

APPENDIX C

MICHAEL LeFEVRE
Township Manager

MARGARET A. YOUNG
Treasurer

JAMES J. BYRNE, JR., Esq.
Solicitor

KEVIN M. KANE, P.E.
Engineer

Township of Springfield

DELAWARE COUNTY, PA
50 POWELL ROAD, SPRINGFIELD, PA 19064
OFFICES 610-544-1300 POLICE 610-544-1100 HIGHWAY 610-543-2837 FAX 610-544-3012
EIN NO. 23-6004592

September 11, 2001

Ms. Donna Ulan
Pennsylvania Department of Environmental Protection
Southeast Regional Office
Lee Park, Suite 6010
555 North Lane
Conshohocken, PA 19428-2233

Re: Springfield – Upper Darby Sewer

Dear Donna:

Enclosed, please find a copy of the study performed on the Darby Creek Outfall. Springfield Township is currently soliciting proposals for a more detailed study of the problem we are experiencing with this sewer line.

If you have any questions or need additional information, please call me.

Very truly yours,

Kevin M. Kane

Upper Darby Township

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2018

☐ Permittee is owner and/or operator of a POTW or other sewage treatment facility
☒ Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION

Permittee Name:	**Upper Darby Township**	Permit No.:	**PAn/a**
Mailing Address:	**100 Garrett Road, Room 301**	Effective Date:	**n/a**
City, State, Zip:	**Upper Darby, PA 19082**	Expiration Date:	**n/a**
Contact Person:	**Daniel R. Lutz, P.E.**	Renewal Due Date:	**n/a**
Title:	**Township Engineer**	Municipality:	**Upper Darby Township**
Phone:	**610-734-7635**	County:	**Delaware**
Email:	**dlutz@upperdarby.org**	Consultant Name:	**n/a**

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

   Check the appropriate boxes:
   ☒ Line graph for flows attached (**Attachment C**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

   Check the appropriate boxes:
   ☐ Line graph for organic loads attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

   DEP Chapter 94 Spreadsheet was used in this report.

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

Check the appropriate boxes:

☒ Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment A**)

☐ List summarizing each extension or project attached (**Attachment**)

☐ Schedules describing how each project will be completed over time and effects attached (**Attachment**)

Comments:

Attachment A is a plot plan of the entire Darby Creek drainage area sanitary sewer system (Figure 1 - Chapter 94 Report for 2018 to Delcora, dated 02/11/2019).

There is no known sewer extensions for year 2018.

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

See Attachment B.

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

☒ System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.

☐ System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

There was one (1) SSO event that occurred on 03/15/2018 along the Pilgrim Gardens interceptor line adjacent the Aronimink Swim Club. There was a blockage in the sewer line that caused the SSO. See Attachment C.

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

☒ The collection system does not contain pump stations
☐ The collection system does contain pump stations (Number –)
☐ Discussion of condition of each pump station attached (**Attachment**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.

b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.

c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

Check the appropriate boxes:

☐ Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)
☐ Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload.

Check the appropriate boxes:

☐ This report demonstrates an existing hydraulic overload condition.
☐ This report demonstrates a projected hydraulic overload condition.
☐ This report demonstrates an existing organic overload condition.
☐ This report demonstrates a projected organic overload condition.

If one or more boxes above have been checked, attach a Corrective Action Plan (CAP) to reduce or eliminate present or projected overloaded conditions under §§ 94.21 and/or 94.22 (relating to existing overload and projected overload). (25 Pa. Code § 94.12(a)(9))

☐ Corrective Action Plan attached (**Attachment**)

10. Where required by the NPDES permit, attach a Sewage Sludge Management inventory that demonstrates a mass balance of solids coming in and leaving the facility over the previous calendar year.

☐ Sewage Sludge Management Inventory attached (**Attachment**)

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite combined sewer systems).

☐ Annual CSO Report attached (**Attachment**)

12. For POTWs, attach a calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually. (25 Pa. Code § 94.13(b))

☐ Flow calibration report attached (**Attachment**)

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Daniel R. Lutz, P.E. - Township Engineer	Daniel R Lutz
Name of Responsible Official	Signature
610-734-7635	2/11/19
Telephone No.	Date

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Name of Preparer	Signature
Telephone No.	Date

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT INSTRUCTIONS

This form has been developed to promote consistency in the development of annual municipal wasteload management reports ("Chapter 94 reports") required by 25 Pa. Code § 94.12. At least two copies of the complete report must be submitted to the appropriate regional office of the Department of Environmental Protection (DEP) by March 31.

Enter the calendar year that the report covers at the top of the form. Check the appropriate box to indicate whether the permittee is the owner/operator of a publicly owned treatment works (POTW) or other sewage treatment facility, or is the owner/operator of a sewage collection system that is tributary to a POTW owned/operated by a different entity.

General Information

Record the name of the permittee, the permittee's full mailing address, the permittee's contact person and this person's title, phone number and email address. Also record the permit number (NPDES or WQM), the effective date of permit coverage, the expiration date of permit coverage (if applicable), the date by which an application or NOI is due for reissuance (renewal) (if applicable), the municipality and county where the sewage treatment facility or collection system is located, and the name of the consultant (company name), if any, who assisted in the preparation of the form.

Chapter 94 Report Components

This section requests responses to 12 questions that, if applicable, must be addressed for a complete Chapter 94 report. Questions 1 – 9 and 12 come directly from the Chapter 94 regulations, i.e., 25 Pa. Code §§ 94.12(a)(1) – 94.12(a)(9) and 94.13(b). Some questions request that you check an appropriate box, attach the information requested, and specify the attachment number, while responses to other questions may be entered directly on the form.

For Questions 1 and 2, permittees may use DEP's Chapter 94 Spreadsheet to satisfy 25 Pa. Code §§ 94.12(a)(1) and 94.12(a)(2), respectively. DEP encourages use of the Chapter 94 Spreadsheet to provide consistency in the format and calculations associated with hydraulic and organic load evaluations (see www.depweb.state.pa.us/chapter94). If the Chapter 94 Spreadsheet was used, check the appropriate box(es) and attach printouts of the data and graphs to the Chapter 94 report. If this report is being used for a collection system only, these graphs are not needed.

For Question 6, if the permittee checks the box that there were capacity-related bypasses or SSOs during the report year, in general the box for existing hydraulic overload in Question 9 should be checked. If the permittee checks the box in Question 6 because surcharging occurred during the report year, in general the box for projected hydraulic overload in Question 9 should be checked.

For Question 8, if the permittee has an EPA-approved pretreatment program, attachment of an annual pretreatment report as required in an NPDES permit will satisfy the requirement for an industrial waste report.

For Question 10, if a permit requires a "Sewage Sludge Management" inventory, check the appropriate box if the inventory is attached to the Chapter 94 report.

For Question 11, if an NPDES permit (individual permit or, for satellite collection systems, PAG-06 General NPDES permit coverage) requires an Annual CSO (Status) report, attach the CSO report to the Chapter 94 report and check the appropriate box.

Certification

In accordance with 25 Pa. Code § 94.12(a), both the individual who prepared the report and (a responsible official of) the permittee must sign the report. The term "responsible official" for a municipality is a principal executive officer or ranking elected official.

Questions on the completion of Chapter 94 reports may be directed to DEP's Bureau of Point and Non-Point Source Management at (717) 787-8184 or to the appropriate DEP regional office (contact information available by visiting DEP's website, www.depweb.state.pa.us, and selecting Regional Resources).

Upper Darby Township

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2018

☐ Permittee is owner and/or operator of a POTW or other sewage treatment facility
☒ Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION			
Permittee Name:	**Upper Darby Township**	Permit No.:	**PAn/a**
Mailing Address:	**100 Garrett Road, Room 301**	Effective Date:	**n/a**
City, State, Zip:	**Upper Darby, PA 19082**	Expiration Date:	**n/a**
Contact Person:	**Daniel R. Lutz, P.E.**	Renewal Due Date:	**n/a**
Title:	**Township Engineer**	Municipality:	**Upper Darby Township**
Phone:	**610-734-7635**	County:	**Delaware**
Email:	**dlutz@upperdarby.org**	Consultant Name:	**n/a**

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

   Check the appropriate boxes:

   ☐ Line graph for flows attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

   Check the appropriate boxes:

   ☐ Line graph for organic loads attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

   n/a

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

Check the appropriate boxes:

☒ Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment A**)

☐ List summarizing each extension or project attached (**Attachment**)

☐ Schedules describing how each project will be completed over time and effects attached (**Attachment**)

Comments:

Attachment A is a plot plan of the entire Darby Creek drainage area sanitary sewer system (Figure 1 - Chapter 94 Report for 2018 to Delcora, dated 02/11/2019).

There is no known sewer extensions for year 2018.

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

See Attachment B.

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

☒ System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.

☐ System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

There was one (1) SSO event that occurred on 03/15/2018 along the Pilgrim Gardens interceptor line adjacent the Aronimink Swim Club. There was a blockage in the sewer line that caused the SSO. See Attachment C.

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

☒ The collection system does not contain pump stations
☐ The collection system does contain pump stations (Number –)
☐ Discussion of condition of each pump station attached (**Attachment**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.

b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.

c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

Check the appropriate boxes:

☐ Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)
☐ Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload.

Check the appropriate boxes:

☐ This report demonstrates an existing hydraulic overload condition.
☐ This report demonstrates a projected hydraulic overload condition.
☐ This report demonstrates an existing organic overload condition.
☐ This report demonstrates a projected organic overload condition.

If one or more boxes above have been checked, attach a Corrective Action Plan (CAP) to reduce or eliminate present or projected overloaded conditions under §§ 94.21 and/or 94.22 (relating to existing overload and projected overload). (25 Pa. Code § 94.12(a)(9))

☐ Corrective Action Plan attached (**Attachment**)

10. Where required by the NPDES permit, attach a Sewage Sludge Management inventory that demonstrates a mass balance of solids coming in and leaving the facility over the previous calendar year.

☐ Sewage Sludge Management Inventory attached (**Attachment**)

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite combined sewer systems).

☐ Annual CSO Report attached (**Attachment**)

12. For POTWs, attach a calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually. (25 Pa. Code § 94.13(b))

☐ Flow calibration report attached (**Attachment**)

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Daniel R. Lutz, P.E. - Township Engineer	Daniel R Lutz
Name of Responsible Official	Signature
610-734-7635	2/11/19
Telephone No.	Date

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Name of Preparer	Signature
Telephone No.	Date

CHAPTER 94
MUNICIPAL WASTELOAD MANAGEMENT
2019 CHAPTER 94 ANNUAL REPORT
UPPER DARBY TOWNSHIP
DARBY CREEK JOINT AUTHORITY AUTHORITY / DELCORA
DELAWARE COUNTY

ATTACHMENT A

DRAINAGE AREA MAP
&
SEWER EXTENSIONS

CHAPTER 94
MUNICIPAL WASTELOAD MANAGEMENT
2019 CHAPTER 94 ANNUAL REPORT
UPPER DARBY TOWNSHIP
DARBY CREEK JOINT AUTHORITY AUTHORITY / DELCORA
DELAWARE COUNTY

ATTACHMENT B

SEWER SYSTEM OPERATIONS & MAINTENANCE

PROGRAM FOR SANITARY SEWER MONITORING, MAINTENANCE AND REPAIR

The Upper Darby Township Sewer Division has one foreman, two operators and three laborers; also, there are two TV operators in charge of operating the TV camera.

The equipment of this Division consists of:

- One pick up truck
- Three dump trucks
- One jet truck
- One rodder truck
- TV camera truck
- Backhoe

In addition, all the equipment of the Township is available in case of an emergency. The Township uses Dukes Root Control for the removal of sewer penetrating roots where detected in the lines. This process is achieved in the following manner. Foam is pumped through a discharge hose, completely filling the mainline from manhole to manhole. Foam is compressed against all pipe surfaces, into cracks and joints, and forced up connecting sewers for maximum contact of all roots. Upon contact with the foam, roots are killed and then decay naturally and slough off. Trees are not harmed, bypass pumping and cleaning prior to treatment is not required, and sewer service is never interrupted.

The sewer crew has a routine plan to monitor and maintain the system, which includes the replacement of deteriorated sections of pipe, the cleaning of grease, built up, removal of roots and jet sewer lines at known problem locations.

The tasks of the TV camera crew along with the surveyor crew are to video the sewer lines, locate manholes, and obtain elevations of the manhole's rims and inverts. Sanitary sewer flow monitoring will continue at selected sites in order to compile flow information for unmeasured sections of the Township's sewers. The data collected will be used for I/I studies, and other reports.

CHAPTER 94
MUNICIPAL WASTELOAD MANAGEMENT
2019 CHAPTER 94 ANNUAL REPORT
UPPER DARBY TOWNSHIP
DARBY CREEK JOINT AUTHORITY AUTHORITY / DELCORA
DELAWARE COUNTY

ATTACHMENT C

SEWER SYSTEM CONDITION

CONDITION OF THE SEWER SYSTEM

The following is a description of the collection and conveyance systems:

Upper Darby Township is located in the southeastern portion of Delaware County, Pennsylvania. The Township's estimated population (2010 Census) is 82,795 people and is approximately 7.80 square miles in size.

The Upper Darby sanitary sewer system is divided into four drainage areas:

- Darby Creek
- Muckinipates Creek
- Naylor's Run Creek
- Cobbs Creek

The four drainage areas discharge sewage flows into the Southwest Philadelphia Treatment Plant.

This report focuses on flows that are conveyed to DELCORA's pump station located in the City of Chester for the Darby Creek drainage area. The sewage flows from this area are conveyed via gravity lines to DELCORA's pump station where they are pumped to the Southwest Philadelphia Treatment Plant.

The drainage area is 2.20 square miles and is primarily a dense suburban, residential district with moderate commercial usage. The estimated population is 20,184 people. This area contains approximately 51.00 linear miles of sewer pipe and over 1,050 manholes.

The collection systems have been in existence for over 85+ years and the trunk lines are as old as 50+ years.

Table 1 depicts the pipe lengths and sizes.

TABLE 1 - PIPE LENGTHS (LF) AND SIZES (IN)

Drainage Area	8"	10"	12"	15"	18"	20"	36"
Darby Creek	222,297	25,436	7,440	1,998	844	2,190	8,387

HYDRAULIC AND ORGANIC LOADINGS

The following is the existing hydraulic loading to the DELCORA system:

The Daily Average Flow at present is 2.69 MGD which has been determined by a combination of flow metering and estimation provided by DELCORA. The following table illustrates the average annual monthly flows expressed in million gallons per day (MGD) for the past five years.

Darby Creek Joint Sewer Authority (DCJA) Service Area					
2014-2018 Monthly Average Flows (MGD)					
Year / Month	2014	2015	2016	2017	2018
Jan	2.574	2.545	2.575	2.390	2.394
Feb	2.881	2.524	2.900	2.385	2.704
Mar	2.666	3.080	2.665	2.630	3.058
Apr	2.686	2.796	2.593	2.717	2.870
May	2.852	2.467	2.717	2.685	2.778
Jun	2.401	2.581	2.468	2.484	2.509
Jul	2.355	2.534	2.415	2.480	2.364
Aug	2.220	2.284	2.255	2.471	2.483
Sep	2.127	2.279	2.240	2.363	2.686
Oct	2.160	2.415	2.282	2.339	2.585
Nov	2.336	2.358	2.293	2.311	2.908
Dec	2.462	2.585	2.350	2.301	2.897
Annual Avg	2.477	2.537	2.479	2.463	2.686
Max 3-Mo. Avg	2.744	2.800	2.719	2.677	2.902
Max:Avg Ratio	1.108	1.104	1.097	1.087	1.080

Monthly average organic loading is tested and recorded by DELCORA and is reported within their annual report.

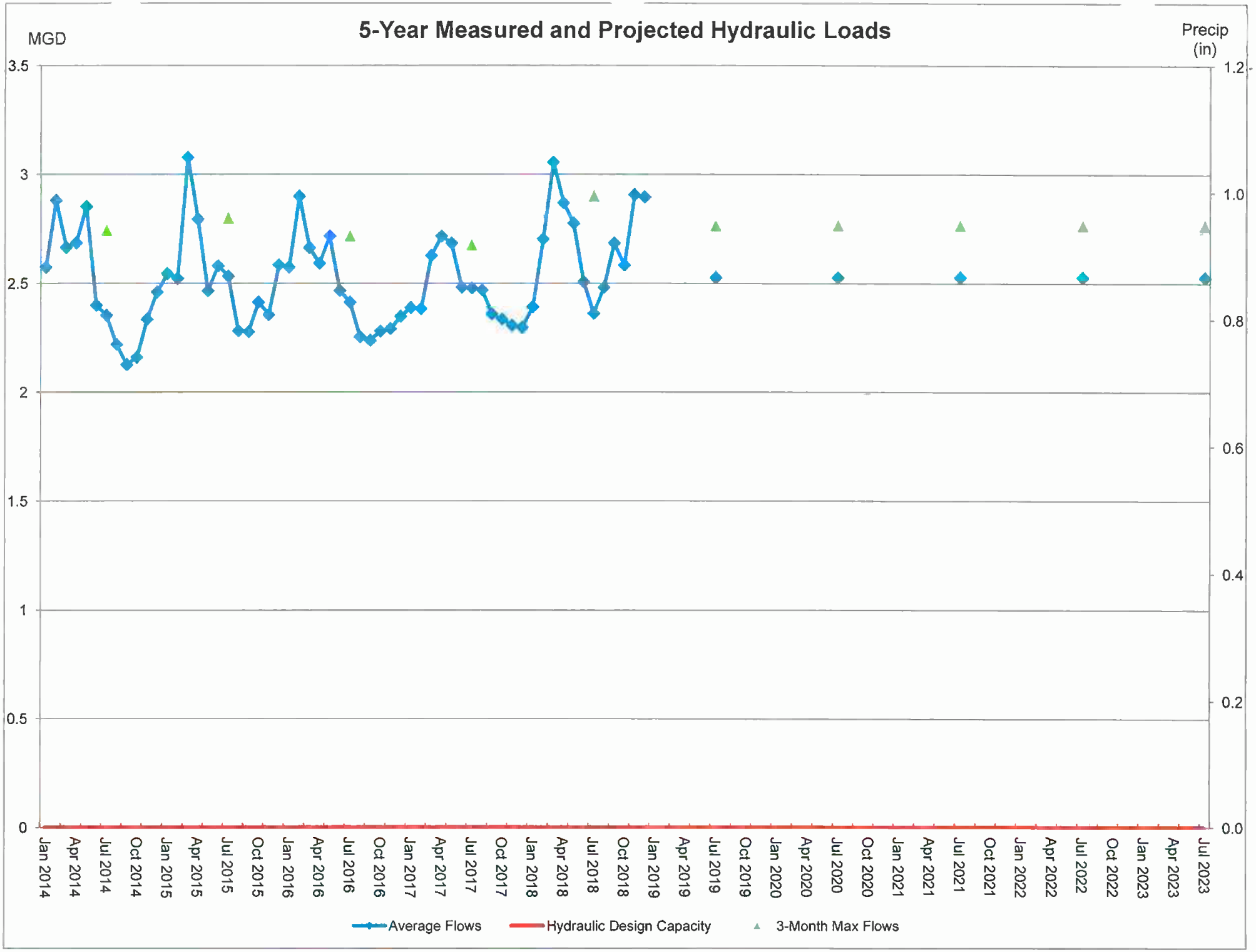
5-YEAR HYDRAULIC LOADING PROJECTIONS

The following is the projected hydraulic loading for Upper Darby Township to the Darby Creek Interceptor system:

At the present, the Darby Creek Interceptor has reached its maximum capacity due to the increased flows from Radnor/Haverford/Marple Townships. Any new increases in flow from Upper Darby Township must be matched with an I/I reduction, as mandated by PADEP. At this time, Upper Darby Township in coordination with Springfield Township and DCJA, are in continuous discussions with RHM to negotiate and address the capacity issues.

The hydraulic loading forecast between year 2019 and 2023 is estimated to increase by 0.00 MGM. The projected flows are expressed as the average annual monthly flows of the past five years expressed in million gallons per day (MGD) for the next five years.

Darby Creek Joint Sewer Authority (DCJA) Service Area 2019 – 2023 Monthly Average Flows (MGD)					
Year / Month	2019	2020	2021	2022	2023
Jan	2.495	2.495	2.495	2.495	2.495
Feb	2.679	2.679	2.679	2.679	2.679
Mar	2.820	2.820	2.820	2.820	2.820
Apr	2.732	2.732	2.732	2.732	2.732
May	2.700	2.700	2.700	2.700	2.700
Jun	2.489	2.489	2.489	2.489	2.489
Jul	2.430	2.430	2.430	2.430	2.430
Aug	2.343	2.343	2.343	2.343	2.343
Sep	2.339	2.339	2.339	2.339	2.339
Oct	2.356	2.356	2.356	2.356	2.356
Nov	2.441	2.441	2.441	2.441	2.441
Dec	2.519	2.519	2.519	2.519	2.519
Annual Avg	2.529	2.529	2.529	2.529	2.529
Max 3-Mo. Avg	2.769	2.769	2.769	2.769	2.769
Max:Avg Ratio	1.095	1.095	1.095	1.095	1.095


5-Year Measured and Projected Hydraulic Loads
MGD
Precip (in)
3.5
3
2.5
2
1.5
1
0.5
0
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Jan 2014
Apr 2014
Jul 2014
Oct 2014
Jan 2015
Apr 2015
Jul 2015
Oct 2015
Jan 2016
Apr 2016
Jul 2016
Oct 2016
Jan 2017
Apr 2017
Jul 2017
Oct 2017
Jan 2018
Apr 2018
Jul 2018
Oct 2018
Jan 2019
Apr 2019
Jul 2019
Oct 2019
Jan 2020
Apr 2020
Jul 2020
Oct 2020
Jan 2021
Apr 2021
Jul 2021
Oct 2021
Jan 2022
Apr 2022
Jul 2022
Oct 2022
Jan 2023
Apr 2023
Jul 2023
Average Flows
Hydraulic Design Capacity
3-Month Max Flows

Sanitary Sewer Overflow (SSO) Report to PADEP- Water Management **DEP fax: 484-250-5971**

Please check the appropriate box ☑ Dry Weather Overflow ☐ Wet Weather Overflow

1. Date, Name, Phone # of person completing this report	Date : 03/15/2018 Name : Allison A. Lee, P.E. Phone # :610-734-7635
2. Your organization name and address ?	Name:Upper Darby Township County:Delaware Address:100 Garrett Rd. R-301 Township/Municipality:Upper Darby
Sewer system owner and permit number	Upper Darby Township
3. Date found and specific location of SSO. Including Municipality/County (if different from #2) ?	Date: 03/15/2018 Municipality:Upper Darby Township Location(Street & #): Dermond Ave and Pontiac Road, in rear of properties adjacent Aronimink Swim Club County: Delaware
4. How was SSO discovered? By whom ?	Township sewer crew was dispatched to a sanitary sewer back-up and discovered that the flow was filtering out of the sanitary main through the joints and through the side embankment of the adjacent storm channel. At approximately 100' away from the incident, the storm channel is then piped to an outfall that discharges onto Darby Creek.
5. Start and end time of SSO (actual or estimate?)	At 11:00 AM the Township sewer crew was dispatched. They arrived on-site at 11:10 AM and discovered the SSO. The blockage in the sewer main was cleared by 12:45 PM. The sewer crew is currently cleaning the storm channel. The sewer foreman has contacted the Township Fire Department to establish booms at the outfall on Darby Creek to help filter any residual flows.
6. Date, time and name of person who called PADEP originally to notify of SSO ?	Date : 03/15/2018 Time : 1:00 PM Name : Allison A. Lee, P.E.
7. Description and actual or estimated volume of SSO	The volume of SSO was estimated to be around 2,000 gallons.
8. Where, precisely, did SSO go ? (land, roadway, basement, swale, storm sewer, creek, etc.) Please include creek name or street location.	The SSO filtered from the blocked sanitary sewer pipe and through the dirt embankment of the adjacent storm channel that discharges onto Darby Creek.
9. What caused SSO ? How was it stopped ?	The SSO was caused by a blockage in the sanitary sewer main. When the main was blocked, the pressure from the blockage caused the flow to filter out of the sewer joints. The sewer crew jetted the line and cleared the blockage. Once the blockage was cleared, the pressure in the sanitary sewer main was eliminated and stopped the SSO.
10. Describe extent of contamination and how it was cleaned up	SSO filtered into the adjacent storm channel through the joints. Booms are being set up at the outfall on Darby Creek.
11. What actions will be taken to prevent a re-occurrence ? When ?	The Township will increase the maintenance for cleaning this section of the sewer main, and continuously monitor the sewer main for future incidents. In the long term, the Township will line the sewer main once funds are available and allocated to do so.
12. Other comments ?	The Aronimink Swim Club was notified of this incident to gain access through the property for remediation. Haverford Township was also made aware of this incident being remediated by Upper Darby Township.
13.Downstream notifications made: (All downstream users such as public water supplies must be notified)	None

Date: 02/11/2019	FIGURE 1 CHAPTER 94 REPORT FOR 2018 DELCORA	THE TOWNSHIP OF UPPER DARBY DELAWARE COUNTY, PENNSYLVANIA DEPARTMENT OF PUBLIC WORKS 100 garrett rd. upper darby, pa. 19082 610-734-7636
Scale: 1"=600'	DARBY CREEK SANITARY SEWER DRAINAGE TO DELCORA	

Yeadon Borough

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2018

☐ Permittee is owner and/or operator of a POTW or other sewage treatment facility
☒ Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION			
Permittee Name:	**Borough of Yeadon**	Permit No.:	**PAN/A**
Mailing Address:	**600 Church Lane**	Effective Date:	**N/A**
City, State, Zip:	**Yeadon, PA 19050**	Expiration Date:	**N/A**
Contact Person:	**Atinuke B. Moss**	Renewal Due Date:	**N/A**
Title:	**Borough Manager**	Municipality:	**Borough of Yeadon**
Phone:	**610-284-1606**	County:	**Delaware**
Email:	**tmoss@yeadonborough.com**	Consultant Name:	**NDI Engineering Company**

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

   Check the appropriate boxes:
   ☐ Line graph for flows attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

   Check the appropriate boxes:
   ☐ Line graph for organic loads attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

   N/A

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

Check the appropriate boxes:

- ☐ Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment**)
- ☐ List summarizing each extension or project attached (**Attachment**)
- ☐ Schedules describing how each project will be completed over time and effects attached (**Attachment**)

Comments:

No sewer extensions approved in 2018.

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

Borough personnel observe conditions of the manhole frames and covers and look for evidence of overflows while performing routine Borough business. The Borough routinely cleans and jets mains known to be problematic for backups.

Street Lateral Replacements (2) - 122/120 Providence Road
Trap Replacements (0) -
House Lateral Replacements (0) -
Collection System Main Replacement - 8" 14LF vicinity of 120/122 Providence Road
New Manholes (1) - precast MH at 120/122 Providence Road
New M/H Frame / Cover (1) - Vicinity of 641 Yeadon Avenue
Sewer Cleaning ~9000LF 8" and 500LF 10" lines
Providence Road - MH169-151
Parmley Avenue, MH334-MH370
Bonsall Avenue, MH137-MH183A
Serrill Avenue, MH296A-MH294
Union Avenue, MH151-MH162
Paul Drive, MH145-MH150
Elder Avenue, MH13-MH163
Rose Avenue, MH203-MH201
Yeadon Avenue, MH307-MH221
Baily Road, MH193 toward firehouse
Connell, MH388-MH391
Rader Avenue, MH392-MH394
Lincoln Avenue, MH5-MH9
Baily Road, MH138-MH141
Industrical Drive, MH168-MH170
Fairview Avenue, MH154-MH157
Union Avenue, MH151-MH154
Sanitary Sewer Televising ~ (0)
Root Cutting - (0)

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

☒ System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.

☐ System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

5 SSOs - homeowner responsibilities - 652 Yeadon Avenue, 821 Rader, 124 Lincoln, 631 Yeadon Avenue, 300 Front

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

☒ The collection system does not contain pump stations
☐ The collection system does contain pump stations (Number –)
☐ Discussion of condition of each pump station attached (**Attachment**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.

b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.

c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

Check the appropriate boxes:

☐ Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)
☐ Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload.

Check the appropriate boxes:

☐ This report demonstrates an existing hydraulic overload condition.
☐ This report demonstrates a projected hydraulic overload condition.
☐ This report demonstrates an existing organic overload condition.
☐ This report demonstrates a projected organic overload condition.

If one or more boxes above have been checked, attach a Corrective Action Plan (CAP) to reduce or eliminate present or projected overloaded conditions under §§ 94.21 and/or 94.22 (relating to existing overload and projected overload). (25 Pa. Code § 94.12(a)(9))

☐ Corrective Action Plan attached (**Attachment**)

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☐ Sewage Sludge Management Inventory attached (**Attachment**)

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☐ Flow calibration report attached (**Attachment**)

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Atinuke Moss — Name of Responsible Official

Signature

(610) 284-1606 — Telephone No.

2/14/19 — Date

PREPARER CERTIFICATION

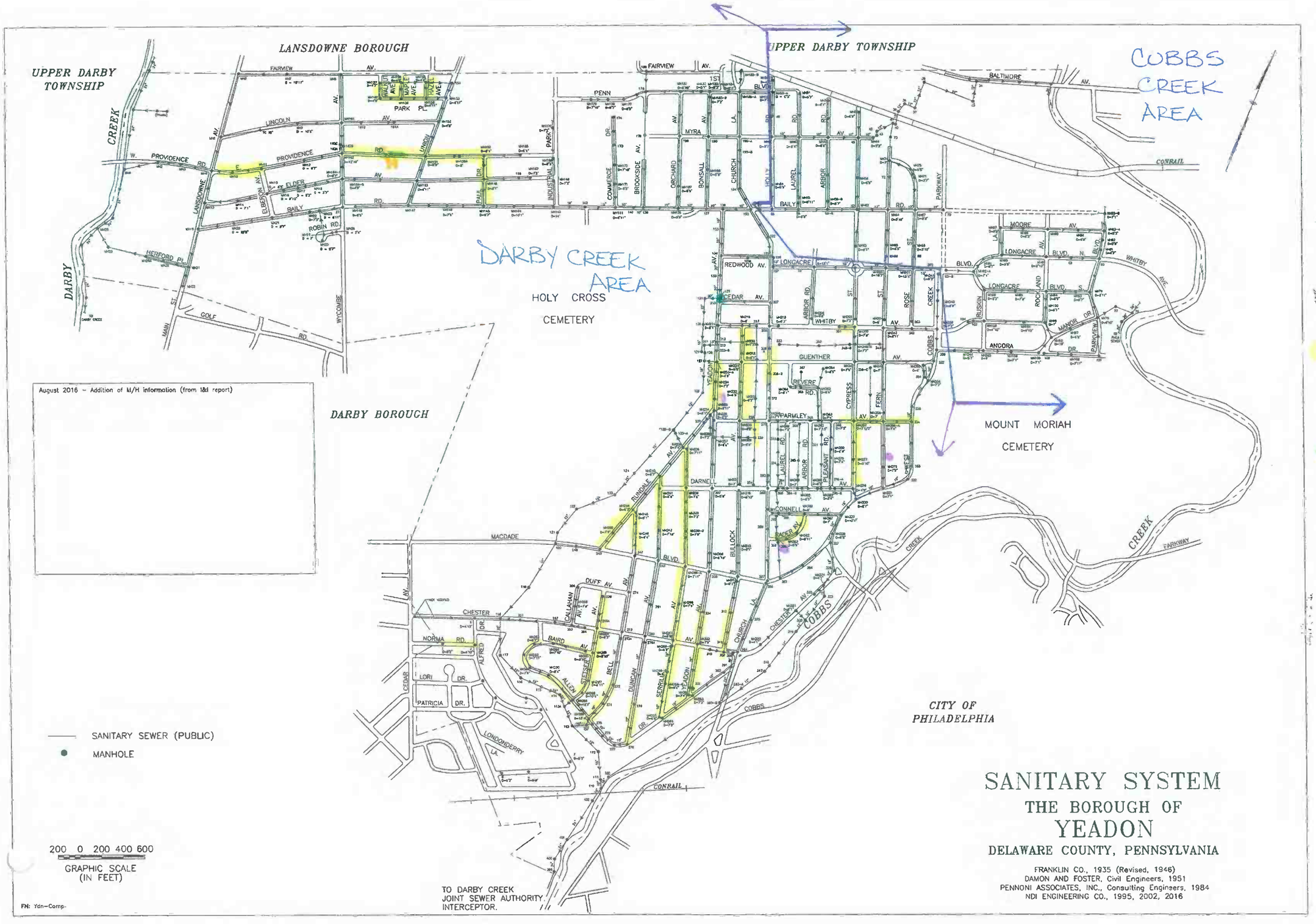
I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Eileen W. Mulvena, PE — Name of Preparer

Signature

(856) 848-0033 — Telephone No.

2/15/19 — Date



cleaning
SSO
Lateral replace
Main replace
New M/H
M/H frame & cover

Meter Location: Meter 1: South Lansdowne Ave @ E. Providence Road

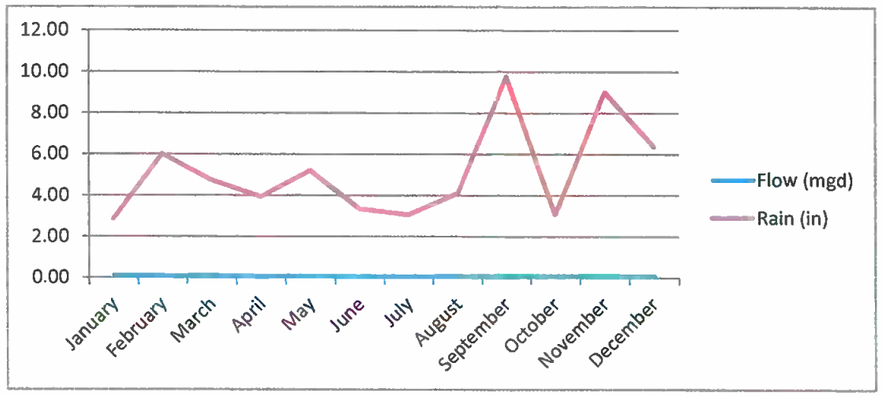
Month	2014	2015	2016	2017	2018
January	0.10	0.12	0.10	0.07	0.09
February	0.13	0.11	0.11	0.07	0.08
March	0.12	0.13	0.10	0.08	0.09
April	0.12	0.09	0.07	0.08	0.06
May	0.12	0.09	0.07	0.08	0.07
June	0.10	0.09	0.09	0.07	0.06
July	0.09	0.09	0.07	0.07	0.06
August	0.09	0.09	0.07	0.07	0.07
September	0.08	0.09	0.07	0.07	0.10
October	0.08	0.11	0.07	0.08	0.08
November	0.10	0.12	0.06	0.07	0.10
December	0.11	0.12	0.06	0.07	0.07
Annual Average	0.10	0.10	0.08	0.07	0.08
3 Month Max. Average	0.12	0.11	0.10	0.08	0.09
Ratio (3 mon Max to AA Ratio)	1.19	1.06	1.32	1.09	1.20
5-YR Average Hydraulic Ratio			1.17		
Total					

Rainfall (in) 2014	Rainfall (in) 2015	Rainfall (in) 2016	2017	2018
6.63	5	5.17	2.57	2.85
7.61	3.54	4.45	1.52	6.02
5.35	6.85	2.12	3.49	4.74
6.69	3.58	1.78	3.15	3.94
2.91	1.19	6.65	6.27	5.21
5.46	8.88	1.87	1.86	3.34
4.3	3.16	3.88	5.35	3.06
3.55	0.98	1.7	6.05	4.11
1.69	6.27	3.52	3.86	9.76
2.53	3.51	2.06	3.66	3.08
4.07	1.89	2.17	1.31	9.03
3.28	5.41	2.72	2.27	6.38
54.07	49.99	38.09	41.36	61.52

Meter Location: Meter 1: South Lansdowne Ave @ E. Providence Road

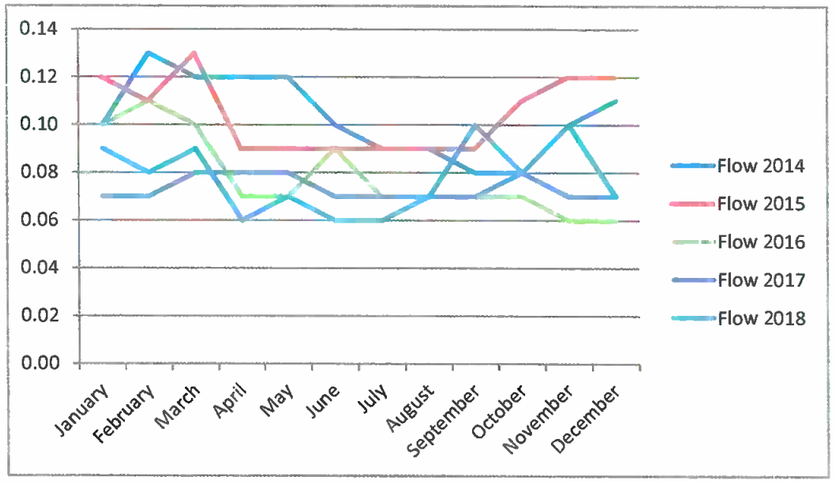
2018 Monthly Flow / Rain

	Flow (mgd)	Rain (in)
January	0.09	2.85
February	0.08	6.02
March	0.09	4.74
April	0.06	3.94
May	0.07	5.21
June	0.06	3.34
July	0.06	3.06
August	0.07	4.11
September	0.10	9.76
October	0.08	3.08
November	0.10	9.03
December	0.07	6.38



5 year Average Monthly Flow

	Flow 2014	Flow 2015	Flow 2016	Flow 2017	Flow 2018
January	0.10	0.12	0.10	0.07	0.09
February	0.13	0.11	0.11	0.07	0.08
March	0.12	0.13	0.10	0.08	0.09
April	0.12	0.09	0.07	0.08	0.06
May	0.12	0.09	0.07	0.08	0.07
June	0.10	0.09	0.09	0.07	0.06
July	0.09	0.09	0.07	0.07	0.06
August	0.09	0.09	0.07	0.07	0.07
September	0.08	0.09	0.07	0.07	0.10
October	0.08	0.11	0.07	0.08	0.08
November	0.10	0.12	0.06	0.07	0.10
December	0.11	0.12	0.06	0.07	0.07



Meter Location: Meter 2: Allen Drive, between Bell and Duncan

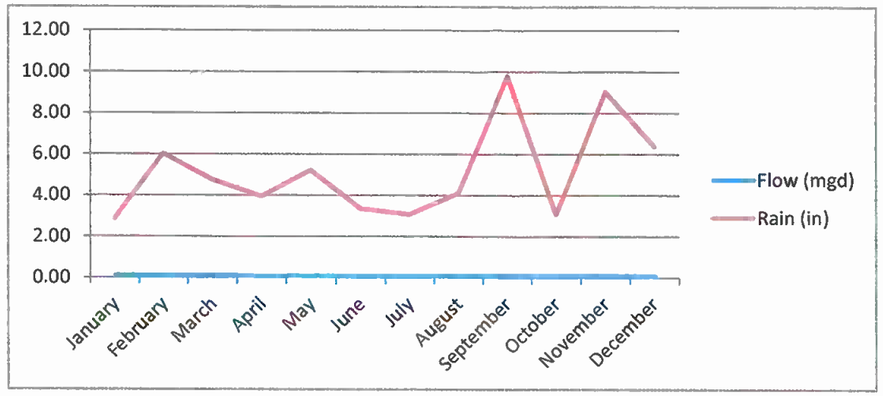
Month	2014	2015	2016	2017	2018
January	1.05	0.99	1.11	1.17	1.04
February	1.13	0.93	1.18	1.15	1.14
March	1.08	1.13	1.03	1.22	1.27
April	1.15	1.01	1.03	1.23	1.09
May	1.00	0.87	1.06	1.27	1.07
June	0.86	1.06	1.09	1.10	0.94
July	0.85	0.95	1.09	1.11	0.82
August	0.82	0.82	1.01	1.03	0.82
September	0.80	0.84	1.06	0.91	0.89
October	0.80	0.89	1.00	0.95	0.83
November	0.81	0.95	0.95	0.92	1.11
December	0.92	1.16	1.11	0.94	1.07
Annual Average	0.94	0.97	1.06	1.08	1.01
3 Month Max. Average	1.12	1.02	1.11	1.24	1.17
Ratio (3 mon Max to AA Ratio)	1.19	1.06	1.04	1.14	1.16
5-YR Average Hydraulic Ratio		1.12			
Total					

Rainfall (in)	Rainfall (in)	Rainfall (in)	Rainfall (in)	Rainfall (in)
2014	**2015**	**2016**	**2017**	**2018**
6.63	5	5.17	2.57	2.85
7.61	3.54	4.45	1.52	6.02
5.35	6.85	2.12	3.49	4.74
6.69	3.58	1.78	3.15	3.94
2.91	1.19	6.65	6.27	5.21
5.46	8.88	1.87	1.86	3.34
4.3	3.16	3.88	5.35	3.06
3.55	0.98	1.7	6.05	4.11
1.69	6.27	3.52	3.86	9.76
2.53	3.51	2.06	3.66	3.08
4.07	1.89	2.17	1.31	9.03
3.28	5.14	2.72	2.27	6.38
54.07	49.99	38.09	41.36	61.52

Meter Location: Meter 2: Allen Drive, between Bell and Duncan

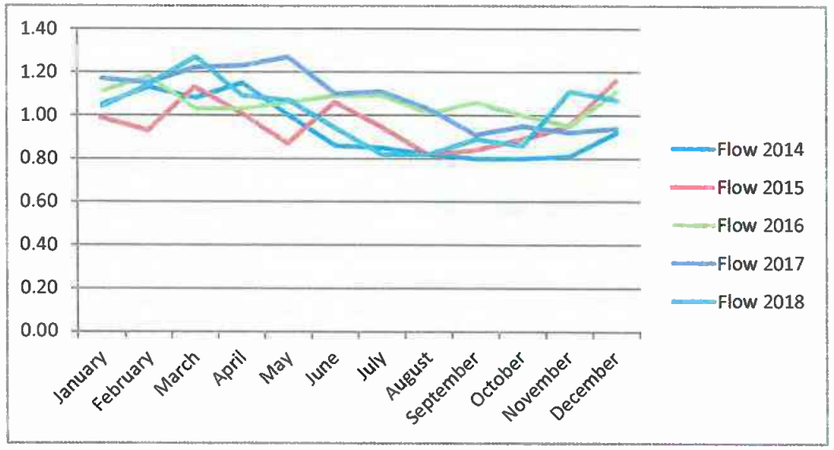
2018 Monthly Flow / Rain

	Flow (mgd)	Rain (in)
January	1.04	2.85
February	1.14	6.02
March	1.27	4.74
April	1.09	3.94
May	1.07	5.21
June	0.94	3.34
July	0.82	3.06
August	0.82	4.11
September	0.89	9.76
October	0.83	3.08
November	1.11	9.03
December	1.07	6.38



5 year Average Monthly Flow

	Flow 2014	Flow 2015	Flow 2016	Flow 2017	Flow 2018
January	1.05	0.99	1.11	1.17	1.04
February	1.13	0.93	1.18	1.15	1.14
March	1.08	1.13	1.03	1.22	1.27
April	1.15	1.01	1.03	1.23	1.09
May	1.00	0.87	1.06	1.27	1.07
June	0.86	1.06	1.09	1.10	0.94
July	0.85	0.95	1.09	1.11	0.82
August	0.82	0.82	1.01	1.03	0.82
September	0.80	0.84	1.06	0.91	0.89
October	0.80	0.89	1.00	0.95	0.86
November	0.81	0.95	0.95	0.92	1.11
December	0.92	1.16	1.11	0.94	1.07



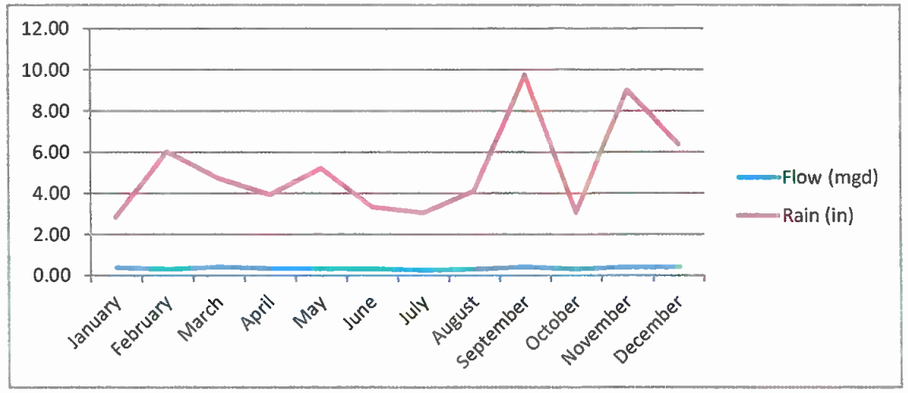
Meter Location: Meter 3: Allen Drive, end of Duncan Avenue

Month	2014	2015	2016	2017	2018	Rainfall (in) 2014	Rainfall (in) 2015	Rainfall (in) 2016	Rainfall (in) 2017	Rainfall (in) 2018
January	0.28	0.35	**0**	0.31	0.39	6.63	5	5.17	2.57	2.85
February	0.37	0.33	0.33	0.30	0.30	7.61	3.54	4.45	1.52	6.02
March	0.32	0.41	0.24	0.36	0.42	5.35	6.85	2.12	3.49	4.74
April	0.31	0.38	0.26	0.35	0.34	6.69	3.58	1.78	3.15	3.94
May	0.33	0.28	0.31	0.35	0.33	2.91	1.19	6.65	6.27	5.21
June	0.27	0.32	0.36	0.31	0.31	5.46	8.88	1.87	1.86	3.34
July	0.25	no data	0.34	0.33	0.27	4.3	3.16	3.88	5.35	3.06
August	0.25	0.24	0.34	0.31	0.30	3.55	0.98	1.7	6.05	4.11
September	0.26	0.24	0.29	0.31	0.43	1.69	6.27	3.52	3.86	9.76
October	0.25	0.25	0.30	0.31	0.31	2.53	3.51	2.06	3.66	3.08
November	0.28	0.31	0.34	0.28	0.42	4.07	1.89	2.17	1.31	9.03
December	0.32	0.27	0.40	0.29	0.41	3.28	5.14	2.72	2.27	6.38
Annual Average	0.29	0.31	0.32	0.32	0.35					
3 Month Max. Average	0.33	0.37	0.35	0.35	0.39					
Ratio (3 mon Max to AA Ratio)	1.15	1.21	1.10	1.11	1.10					
5-YR Average Hydraulic Ratio	1.13									
Total						54.07	49.99	49.99	41.36	61.52

Meter Location: Meter 3: Allen Drive, end of Duncan Avenue

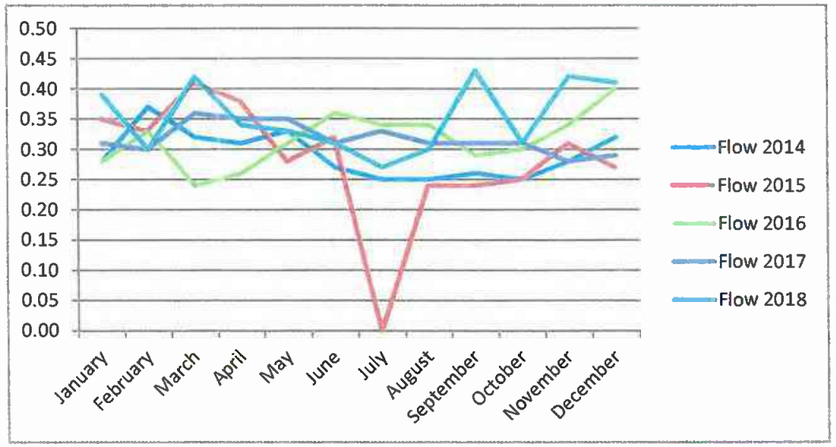
2017 Monthly Flow / Rain

	Flow (mgd)	Rain (in)
January	0.39	2.85
February	0.30	6.02
March	0.42	4.74
April	0.34	3.94
May	0.33	5.21
June	0.31	3.34
July	0.27	3.06
August	0.30	4.11
September	0.43	9.76
October	0.31	3.08
November	0.42	9.03
December	0.41	6.38



5 year Average Monthly Flow

	Flow 2014	Flow 2015	Flow 2016	Flow 2017	Flow 2018
January	0.28	0.35	0.28	0.31	0.39
February	0.37	0.33	0.33	0.30	0.30
March	0.32	0.41	0.24	0.36	0.42
April	0.31	0.38	0.26	0.35	0.34
May	0.33	0.28	0.31	0.35	0.33
June	0.27	0.32	0.36	0.31	0.31
July	0.25	0.00	0.34	0.33	0.27
August	0.25	0.24	0.34	0.31	0.30
September	0.26	0.24	0.29	0.31	0.43
October	0.25	0.25	0.30	0.31	0.31
November	0.28	0.31	0.34	0.28	0.42
December	0.32	0.27	0.40	0.29	0.41



Radnor Haverford Marple Sewer Authority

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2018

☐ Permittee is owner and/or operator of a POTW or other sewage treatment facility
☒ Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION			
Permittee Name:	**Radnor Haverford Marple Sewer Authority**	Permit No.:	**PA**
Mailing Address:	**600 Glendale Road**	Effective Date:	
City, State, Zip:	**Havertown, PA 19083**	Expiration Date:	
Contact Person:	**David Adams**	Renewal Due Date:	
Title:	**Operations Manager**	Municipality:	**Havertown**
Phone:	**610-446-0867**	County:	**Delaware**
Email:	**dadams@rhmsa.org**	Consultant Name:	**William A. Zahn, P.E.**

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

   Check the appropriate boxes:

   ☐ Line graph for flows attached (**Attachment**)
   ☒ DEP Chapter 94 Spreadsheet used (**Attachment A**)
   ☐ Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

   Check the appropriate boxes:

   ☐ Line graph for organic loads attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

See Attachment A, Item No. 3 pertaining to projections

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

Check the appropriate boxes:

- ☐ Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment**)
- ☐ List summarizing each extension or project attached (**Attachment**)
- ☐ *Schedules describing how each project will be completed over time and effects attached* (**Attachment**)

Comments:

See Attachment A, Item 4.
Since the RHM Sewer Authority owns only the interceptor sewer system, it has no sewer extensions tied directly into it in any given year. The RHM interceptor sewer takes in sewage flow from the collector sewers of the five (5) municipalities that have trunk sewers tied into the interceptor. Each collector sewer system is owned by the respective municipality. Any sewer extensions within those collector sewer systems will be reported by those municipalities in their respectiv Chapter 94 Reports

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

See Attachment A, Item No. 5.

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

☐ System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.

☒ System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

The RHM interceptor system experienced no SSOs or capacity related bypassing during 2018. See Attachment A, Item 6.

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

☐ The collection system does not contain pump stations

☐ The collection system does contain pump stations (Number –)

☐ Discussion of condition of each pump station attached (**Attachment**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.

b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.

c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

Check the appropriate boxes:

☐ Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)

☐ Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload.

Check the appropriate boxes:

☐ This report demonstrates an existing hydraulic overload condition.
☐ This report demonstrates a projected hydraulic overload condition.
☐ This report demonstrates an existing organic overload condition.
☐ This report demonstrates a projected organic overload condition.

If one or more boxes above have been checked, attach a Corrective Action Plan (CAP) to reduce or eliminate present or projected overloaded conditions under §§ 94.21 and/or 94.22 (relating to existing overload and projected overload). (25 Pa. Code § 94.12(a)(9))

☐ Corrective Action Plan attached (**Attachment**)

10. Where required by the NPDES permit, attach a Sewage Sludge Management inventory that demonstrates a mass balance of solids coming in and leaving the facility over the previous calendar year.

☐ Sewage Sludge Management Inventory attached (**Attachment**)

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite *combined sewer systems*).

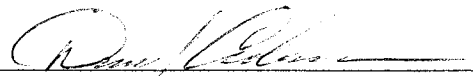
☐ Annual CSO Report attached (**Attachment**)

12. For POTWs, attach a calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually. (25 Pa. Code § 94.13(b))

☒ Flow calibration report attached (**Attachment B**)

RESPONSIBLE OFFICIAL CERTIFICATION

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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

David Adams, RHM Operations Manager	
Name of Responsible Official	Signature
610-446-0867	2/5/19
Telephone No.	Date

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

William A Zahn, P.E.	William A. Zahn
Name of Preparer	Signature
610-772-1263	2/9/2019
Telephone No.	Date

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PADEP Chapter 94 Spread: Sewage Treatment Pl

Reporting Year: 2018

Facility Name: Radnor Haverford Marple Sewer Authority (Interceptor System)

Permit No.:

Persons/EDU: 3.5

Existing Hydraulic Design Capacity: 16.8 MGD
Upgrade Planned in Next 5 Years? NO Year:
Future Hydraulic Design Capacity: MGD

Existing Organic Design Capacity: lbs BOD5/day
Upgrade Planned in Next 5 Years? Year:
Future Organic Design Capacity: lbs BOD5/day

Monthly Average Flows for Past Five Years (MGD)

Month	2014	2015	2016	2017	2018
January	8.25	6.88	6.18	5.67	5.62
February	9.46	6.87	7.68	5.67	6.84
March	9.04	8.75	6.7	5.89	7.76
April	9.34	7.47	6.33	6.61	7.23
May	10.67	6.32	6.39	6.42	7.3
June	7.87	6.29	5.74	5.77	7.16
July	6.04	6.11	5.39	5.33	6.15
August	6.21	5.45	5.62	5.05	6.63
September	6.0	5.57	5.25	5.06	8.41
October	5.91	5.82	5.02	5.09	7.73
November	6.51	5.7	5.05	5.09	9.7
December	6.56	6.11	5.49	5.13	9.9
Annual Avg	7.66	6.45	5.9	5.57	7.54
Max 3-Mo Avg	9.68	7.7	6.9	6.31	9.11
Max : Avg Ratio	1.26	1.19	1.17	1.13	1.21
Existing EDUs					
Flow/EDU (GPD)					
Flow/Capita (GPD)					
Exist. Overload?	NO	NO	NO	NO	NO

Monthly Average BOD5 Loads for Past Five Years (lbs/day)

Month	2014	2015	2016	2017	2018
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
Annual Avg					
Max Mo Avg					
Max : Avg Ratio					
Existing EDUs					
Load/EDU					
Load/Capita					
Exist. Overload?					

Projected Flows for Next Five Years (MGD)

	2019	2020	2021	2022	2023
New EDUs					
New EDU Flow	0.018	0.018	0.018	0.018	0.018
Proj. Annual Avg	6.64	6.658	6.676	6.694	6.712
Proj. Max 3-Mo Avg	7.93	7.95	7.97	7.99	8.01
Proj. Overload?	NO	NO	NO	NO	NO

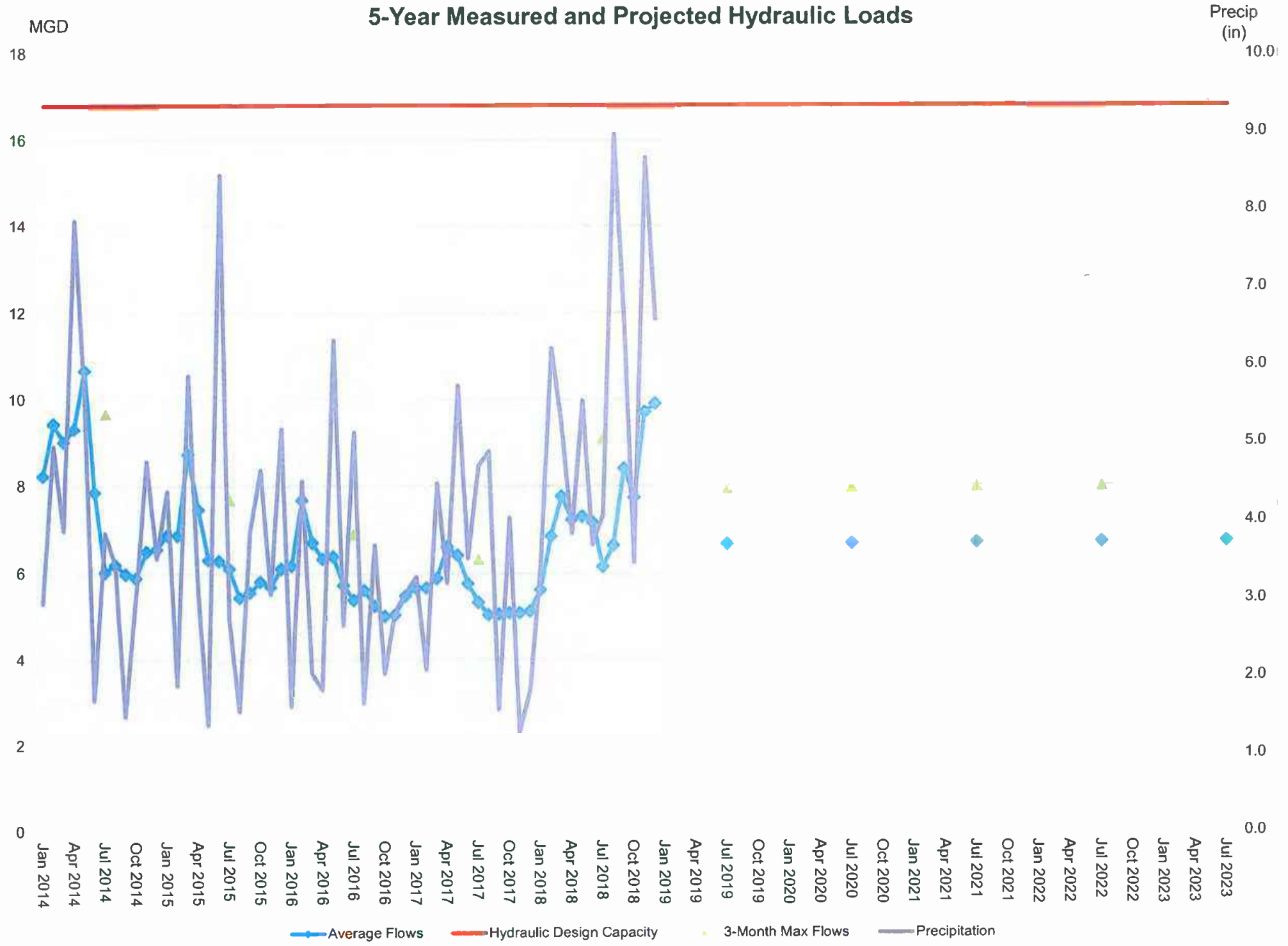
Projected BOD5 Loads for Next Five Years (lbs/day)

	2019	2020	2021	2022	2023
New EDUs					
New EDU Load					
Proj. Annual Avg					
Proj. Max Avg					
Proj. Overload?					

Show Precipitation Data on Hydraulic Graph?

Total Monthly Precipitation for Past Five Years (Inches)

Month	2014	2015	2016	2017	2018
January	2.96	4.38	1.63	3.29	3.41
February	4.96	1.9	4.51	2.1	6.21
March	3.88	5.86	2.05	4.48	5.22
April	7.85	3.09	1.84	3.22	3.84
May	5.59	1.39	6.32	5.73	5.53
June	1.71	8.44	2.67	3.53	3.7
July	3.85	2.76	5.15	4.71	4.07
August	3.45	1.56	1.67	4.89	8.96
September	1.5	3.86	3.69	1.59	6.55
October	3.04	4.65	2.05	4.04	3.47
November	4.77	3.07	2.84	1.29	8.66
December	3.53	5.19	3.08	1.82	6.59


5-Year Measured and Projected Hydraulic Loads
MGD
Precip (in)
18
16
14
12
10
8
6
4
2
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Jan 2014
Apr 2014
Jul 2014
Oct 2014
Jan 2015
Apr 2015
Jul 2015
Oct 2015
Jan 2016
Apr 2016
Jul 2016
Oct 2016
Jan 2017
Apr 2017
Jul 2017
Oct 2017
Jan 2018
Apr 2018
Jul 2018
Oct 2018
Jan 2019
Apr 2019
Jul 2019
Oct 2019
Jan 2020
Apr 2020
Jul 2020
Oct 2020
Jan 2021
Apr 2021
Jul 2021
Oct 2021
Jan 2022
Apr 2022
Jul 2022
Oct 2022
Jan 2023
Apr 2023
Jul 2023
Average Flows
Hydraulic Design Capacity
3-Month Max Flows
Precipitation

ATTACHMENT A

1. INTRODUCTION

The Radnor Haverford Marple Sewer Authority (RHM) receives sanitary sewage flow from the separate collection systems of its five (5) member townships (Radnor, Haverford, Marple, Newtown and Tredyffrin) and routes the sewage through its own interceptor system. This interceptor system consists of approximately 4 miles of 30-inch and 3 miles of 24-inch RCP acting as a parallel interceptor that connects and flows into a single 1.6 mile long 36-inch RCP interceptor. The latter interceptor connects the RHM system with the 36-inch interceptor segment known as the SCUD line which, in turn, flows into the Darby Creek Joint Authority (DCJA) interceptor system (See Table 1-1).

TABLE 1-1
RHM Interceptor Sewers

Diameter	Material	Length (feet)	Age (years)	HDC[1] (MGD)
24-inch	RCP	14,788	35+	20
30-inch	RCP	22,894	65+	
36-inch	RCP	8,658	35+	16.8

HDC[1] – Hydraulic Capacity shown, acting as parallel interceptor, is a combined 20 MGD based on an August 1992 report by Roy F. Weston, Inc. HDC for 36-inch RCP is 16.8 MGD from same report.

RHM meters the amount of sewage discharged by each sewer collection system of its five member townships into RHM's interceptor system. Meter pits are strategically located where the five township collection systems tie into the RHM system. A total of twenty-one (21) flow meters are used to measure the township flows. Table 1-2 indicates the number of meters used to measure each township's sewage flow to the RHM system.

TABLE 1-2
NUMBER OF FLOW METERS ON TOWNSHIP TRUNK SEWERS TIED INTO RHM INTERCEPTOR

Township	Radnor	Haverford	Marple	Newtown	Tredyffrin	Total No. Meters
Number of Flow Meters	2	9	4	4	2	21

Each RHM meter pit uses a palmer bowlus flume (size varies) as the primary flow-measuring device. Ultrasonic flow meters are used to measure the level of sewage passing through the meter pit flumes. These levels are converted to flow values and transmitted to RHM's Operations Center via a telemetry system. These flow readings are summarized and totaled on a monthly basis before being forwarded to DELCORA and RHM's member townships. There is also a meter, known as RHM-1, which is located in a manhole on the 36-inch interceptor near the Operations Center. This meter differs from the other RHM permanent meters in that it uses a combination flow level recorder and velocity meter to measure flow

mounted in the interceptor manhole. Previously, RHM had used this meter only to monitor surcharging on the interceptor. In a meeting with DCJA in March of 2011, RHM agreed to begin using the RHM-1 meter solely as the basis for reporting its service area flows. Reporting to DELCORA using the RHM-1 meter formally began in May of 2011.

A small portion of Easttown Township, along the western borders of Radnor and Tredyffrin Townships, flows into the RHM service area through these townships. This area of Easttown encompasses approximately 70 sewer connections.

Monthly flows (in MGD) from the RHM service area, as totalized by RHM-1 meter, are presented in the Chapter 94 Spreadsheet for the past 5-year period (2014-2018). Rainfall, measured at RHM's rain gauge at the Operation Center, is also included in the table.

2. ORGANIC LOADING

RHM is not a treatment facility. It is a sewer interceptor carrying domestic sewage. Organic loading is not applicable

3. FLOW PROJECTIONS

All RHM approvals for new sewer connections are subject to subsequent review and approval by Springfield Township under its current Corrective Management Plan. Table 3-1 presents a summary of the Equivalent Dwelling Units (EDUs) approved by both RHM and Springfield for connections within the RHM service area over the past 5 year period.

TABLE 3-1

RADNOR HAVERFORD MARPLE SEWER AUTHORITY

YEAR	NO. OF EDU'S CONNECTED	GPD/EDU	NEW FLOW (MGD)
2014	148	262.5	0.039
2015	68	262.5	0.018
2016	228	262.5	0.060
2017	0	262.5	0.000
2018	73	262.5	0.019

RHM has no finite count of EDUs in its overall service area. It has always reported flows from each of its member townships based on the daily records compiled by its 21 permanent meters on township trunk sewers entering the interceptor, as well as the RHM-1 meter on the interceptor itself. RHM uses a flow figure of 262.5 gallons per day (gpd) for each EDU connection.

In prior years under its Corrective Management Plan, Springfield had approved increases in the balance of flow allocation EDUs available for RHM based on a percentage of measured Infiltration/Inflow (I/I) removed from collector and trunk sewers by RHM and its member townships. This removal had been documented in annual Progress Reports submitted to Springfield, DCJA, and PADEP. However, in 2012 Springfield ceased accepting this basis for increasing RHM flow allocation.

In subsequent years, RHM continued approving flow allocation based on the available balance of over 400 EDUs left at the end of 2012. This gradually diminished over time and went to a zero balance of available flow allocation at the end of 2016. In early 2018, Springfield allowed a flow allocation increase to RHM in the amount of 19,040 gpd (73 EDUs). This additional flow allocation was granted based on documented flow reductions from two (2) developments: the Haverford Reserve in Haverford Township and the Penn Medicine development in Radnor. RHM used this additional flow allocation to grant approvals to a backlog of pending connections for various developments dating back to late 2016.

Negotiations between DCJA, Springfield, Upper Darby, and RHM began in 2017 and continued through 2018 on an Interim Agreement between the parties. The purpose of the Agreement pertained to the approval of future requests for flow allocation in the RHM service area. The Agreement also addressed RHM monetary contributions toward payment of any fines incurred in the event of a sanitary sewer overflow (SSO) on the Springfield-Clifton-Upper Darby Sewer Line (SCUD Line). The Agreement was to last one (1) year from the date of its execution with renewal possible, subject to review and approval by the parties. The Agreement, when executed, will grant additional flow allocation to RHM up to a limit of 22,539 gpd (~86 EDUs) "where the capacity exists to support" such requests.

DCJA is currently conducting a hydraulic capacity analysis of the SCUD Line which is due to be completed in early 2019. The results of this analysis may adversely impact the amount of flow allocation granted to RHM once the Agreement is fully executed and for the years beyond. For that reason, the RHM flow projections over the next 5 years are forecast to be a modest 70 EDU connections (0.018 MGD) per year.

4. SEWER EXTENSIONS

No sewer extensions were directly tied into the RHM interceptor. Any sewer extensions constructed would be tied into respective RHM member township collector sewer systems that then discharge to the RHM interceptor.

For reasons stated in Item 3, RHM is only aware of the 73 EDUs granted in 2018 for sewer connections to member township collector systems. RHM forwarded copies of DCJA's January 17, 2019 letter request for Chapter 94 Reports to each township. **Any information relative to planned sewer extensions within these townships should be included in their respective Chapter 94 reports for 2018.**

5. PROGRAM FOR SANITARY SEWER MONITORING, MAINTENANCE, AND REPAIR

SYSTEM INSPECTIONS – RHM inspects its facilities on a routine basis. RHM employees inspect the RHM interceptor right-of-way (ROW) on a monthly basis. The interceptor manholes are opened and visually inspected to assess the interior condition of the manhole and whether there is evidence of obstructions or surcharging. Meter pits are inspected and cleaned on a regular basis. In these inspections, flow values from the 21 meter pits are reviewed to obtain an early indication of potential problems within the system. All meters in RHM's flow monitoring system are calibrated semiannually by ENV Services, Inc., an independent process control instrumentation company. (Calibration reports are included at the end of this report).

SYSTEM MAINTENANCE AND REPAIRS – RHM assists in the maintenance and repairs the sewage collection system for its five member townships in the areas of those townships it serves. Specific maintenance and repair tasks involving RHM work crews include the following:

- Root control in sewage collection pipes (using a RazoRooter).
- Cleaning of sewage collection pipes
- Television inspection and evaluation of sewage collection pipes.
- Grouting of defective joints in sewage collection pipes.
- Manhole repairs/rehabilitation (includes structural coating of manhole interiors using Permacast, installation of manhole dish inserts, power washing, resealing manhole walls to reduce or eliminate infiltration leakage, removing blockages from channels, and raising of manhole frames and covers in low areas).

INFILTRATION/INFLOW (I/I) REDUCTION PROGRAM - A summary of all RHM maintenance and repair activities is provided on an annual basis with its I/I Flow Reduction Progress Report. These reports document the amount of measured I/I removed annually by the efforts of RHM and township work crews. These reports continue to be submitted on an annual basis to Springfield Township, PADEP, and the Darby Creek Joint Authority (DCJA) for review. In the past, RHM had normally been granted additional flow allocation based on

the percentage (usually 10%) of the measured I/I flow quantity (in gallons per day) removed for the year. As noted in Part 3, Springfield's approval of flow allocation in this manner was stopped in 2012. This led to RHM eventually losing its available balance of flow allocation credits in 2016.

In its 2018 annual progress report summarizing work activities in 2017, RHM documented total measured I/I removal exceeding 68,000 gpd. This figure included measured infiltration reduction by RHM work crews in grouting of leaking sewer lines, interceptor manholes, and township collector sewer manholes.

WET WEATHER INFLOW ABATEMENT PROGRAM – Besides its on-going I/I Flow Reduction Program, RHM initiated a Wet Weather Inflow Abatement Program in 2005. The objective of the program focused on performing flow monitoring within township collector systems in order to identify areas exhibiting the greatest amounts of wet weather inflow. Portable flow meters are installed at strategic manhole locations and flows are monitored over dry and wet weather periods. A dry weather average flow is obtained and then compared with wet weather flows from the largest rainfall events to estimate inflow. Flow Monitoring and Inflow Summary Reports, quantifying wet weather inflow amounts and identifying the most problematic inflow areas, are then prepared and submitted to the township.

Since 2005, RHM has generated 19 of these summary reports covering all member townships. For each report submitted to a township, a copy was sent to the township manager and a second copy was sent to either the township engineer or director of public works. A copy of each report was also sent to PADEP.

6. CONDITION OF THE SEWER SYSTEM

In 2018, there were no wet weather sanitary sewer overflows (SSOs) occurring on the RHM interceptor system. It should be noted that no SSOs have occurred on the RHM interceptors since May 2014.

There are no conveyance capacity issues in the RHM interceptor system during dry weather periods and most rainfalls. However, during very heavy rain events, SSOs can sometimes occur on the interceptor. These occurrences are the result of excessive wet weather flows in upstream collector systems coupled with surcharging in downstream interceptor systems. The latter surcharging is likely caused by interceptor conveyance capacity issues resulting from wet weather inflow in downstream collector systems.

RHM acknowledges the importance of reducing inflow into the system and will continue its Wet Weather Inflow Abatement Program, as described in the previous section. Problematic inflow areas found during flow monitoring investigations will continue to be reported to the townships for corrective action and RHM will offer its assistance and resources in remediation efforts.

7. SEWAGE PUMPING STATIONS

RHM Sewer Authority has no pump station facilities on its interceptor system. RHM has forwarded copies of DCJA's January 17, 2019 Chapter 94 letter to each member township. **Information relating to sewage pumping stations located within an RHM member township's collection system will be included in that township's Chapter 94 report for 2018 submitted to DCJA.**

8. INDUSTRIAL WASTES

The RHM Sewer Authority is not aware of industrial waste discharges into the system from any of its five member township collection systems. RHM has forwarded copies of DCJA's January 17, 2019 Chapter 94 letter to each member township. **Information relating to industrial waste discharges located within an RHM member township's collection system will be included in that township's Chapter 94 report for 2018 submitted to DCJA.**

9. EXISTING OR PROJECTED OVERLOAD

As shown in the Chapter 94 Spreadsheet and Hydraulic Graph, there is no existing or projected hydraulic overload for the RHM interceptor.

10. SEWAGE SLUDGE MANAGEMENT INVENTORY

Not applicable.

11. FACILITIES WITH CSOs

Not applicable.

12. *METER CALIBRATION REPORTS*

RHM has all of its flow meters calibrated twice per year. Calibration is done in March and September.

Reports for 2018 are included in Attachment B.

ATTACHMENT B

RHM-1

METER CALIBRATIONS

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203358

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	RHM1	**Equipment ID:**	METER/36 IN PIPE
Manufacturer:	HACH	**Location:**	RHM1
Model No:	FL904	**Range:**	0 - 20 MGD
Serial No:	150800000944	**Grads:**	0.01 MGD
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	3	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 0.5 MGD/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
16.54	16.54	16.54	16.04	17.04
MGD	MGD	MGD	MGD	MGD
8.49	8.49	8.49	7.99	8.99
°F	°F	°F	°F	°F
52.2	51.3	51.3	50.2	54.2
VELOCITY-FPS	FPS	FPS	DATA ONLY	DATA ONLY
LOOP				
4.24	4.24	4.24		

* = Out Of Tolerance

Remarks: FULL SCALE = 20.000 MEID, A10000045882A73 msb 14MAR2018

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 5:03 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Jun-2018

CERTS Control # : RHM-1

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0727451

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	RHM1	**Equipment ID:**	METER/36 IN PIPE
Manufacturer:	HACH	**Location:**	RHM1
Model No:	FL904	**Range:**	0 - 20 MGD
Serial No:	150800000944	**Grads:**	0.01 MGD
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	3	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 0.5 MGD/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	6/30/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	**As Found**	**As Left**	**Minimum**	**Maximum**
Standard	**Unit Under Test**			
INCHES	INCHES	INCHES	INCHES	INCHES
14.69	14.69	14.69	14.19	15.19
MGD	MGD	MGD	MGD	MGD
5011.21	5011.21	5011.21	4961	5061
°F	°F	°F	°F	°F
61.2	62.0	62.0	59.2	63.2
VELOCITY-FPS	FPS	FPS	DATA ONLY	DATA ONLY
LOOP				
4.12	4.1	4.1		

* = Out Of Tolerance

Remarks: FULL SCALE = 20.000 MEID,

Calibrated By:
Victoria Terry
Field Technician
E-Signed 05-Jun-2018 8:23 AM

Temp: 61.2 °F **RH:** 25.2% RH
Date Tested: 05-Jun-2018
Next Date Due: 30-Sep-2018

CERTS Control # : RHM-1

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764819

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	RHM1	**Equipment ID:**	METER/36 IN PIPE
Manufacturer:	HACH	**Location:**	RHM1
Model No:	FL904	**Range:**	0 - 20 MGD
Serial No:	150800000944	**Grads:**	0.01 MGD
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	3	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 0.5 MGD/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
17.25	17.25	17.25	16.75	17.75
MGD	MGD	MGD	MGD	MGD
6371.63	6371.63	6371.63	6367.63	6371.63
°F	°F	°F	°F	°F
68.3	68.5	68.5	66.3	70.3
VELOCITY-FPS	FPS	FPS	DATA ONLY	DATA ONLY
LOOP				
4.46	-	-		

* = Out Of Tolerance

Remarks: FULL SCALE = 20.000 MEID,
Will be sending velocity probe to get checked, was not reading correctly, so velocity not measured. Passes without velocity being

Calibrated By:
Victoria Terry
Field Technician
E-Signed 11-Sep-2018 8:39 AM

Temp: 23 °C **RH:** 41% RH
Date Tested: 11-Sep-2018
Next Date Due: 31-Dec-2018

CERTS Control # : RHM-1

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 455-0802810

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083

Instrument Identification

Instrument ID:	RHM1	**Equipment ID:**	METER/36 IN PIPE
Manufacturer:	HACH	**Location:**	RHM1
Model No:	FL904	**Range:**	0 - 20 MGD
Serial No:	150800000944	**Grads:**	0.01 MGD
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	3	**Output:**	NA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 0.5 MGD

Standard(s) Used

	Asset No.	Date Due
SEE REMARKS	NA	NA

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
16.5	16.55	16.55	16.0	17.0
VELOCITY-FPS	FPS	FPS	DATA ONLY	DATA ONLY
LOOP 4.10	4.41	4.41		

* = Out Of Tolerance

Remarks: FULL SCALE = 20.00 MGD STD, FLO-MATE 2000 SN 2001351 DATE DUE 12-06-2019

Calibrated By:
Jay Schwartz
Field Technician
E-Signed 13-Dec-2018 9:42 AM

Temp: 14 °C **RH:** 30% RH
Date Tested: 13-Dec-2018
Next Date Due: 31-Mar-2019

CERTS Control # : RHM-1

RHM METER CALIBRATIONS

ON

TOWNSHIP TRUNK SEWERS

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203342

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	R1	**Equipment ID:**	METER 21 P/B
Manufacturer:	HACH	**Location:**	R1
Model No:	FL904	**Range:**	0 - 3161.00 GPM
Serial No:	150800000942	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 10 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
11.00	10.69	10.99	10.50	11.50
GPM	GPM	GPM	GPM	GPM
1723.35	1630.42	1723.35	1719.35	1727.35
°F	°F	°F	°F	°F
50.0	48.4	48.4	48.0	52.0

* = Out Of Tolerance

Remarks: FULL SCALE = 3161.0 MEID A1000045885E9A
Level sensor adjusted to reflect the standard reading. msb 14MAR2018

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 4:13 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 15 - R1

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203340

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	R2	**Equipment ID:**	METER 30 LEO
Manufacturer:	HACH	**Location:**	R2
Model No:	FL904	**Range:**	0 - 6148 GPM
Serial No:	150800000943	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 10 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
11.25	12.26	11.36	10.75	11.75
GPM	GPM	GPM	GPM	GPM
2149.13	2419.07	2149.13	2145.13	2153.13
°F	°F	°F	°F	°F
45.4	45.5	45.5	43.4	47.4

* = Out Of Tolerance

Remarks: FULL SCALE = 6148 MEID A10000458848AA
Level Sensor was adjusted to reflect the standard reading. msb 14MAR2018

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 4:08 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 16 - R2

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203372

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H1	**Equipment ID:**	METER 10 P/B
Manufacturer:	HACH	**Location:**	H1
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150800000954	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
2.50	2.48	2.48	2.00	3.00
GPM	GPM	GPM	GPM	GPM
66.91	66.91	66.91	62.91	70.91
°F	°F	°F	°F	°F
46.9	48.7	48.7	44.9	48.9

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEIDA10000458F2246

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 5:47 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 03 - H1

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203359

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H1A	**Equipment ID:**	METER 8 P/B
Manufacturer:	HACH	**Location:**	H1A
Model No:	FL904	**Range:**	0 - 309.60 GPM
Serial No:	150800000938	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
4.40	4.30	4.30	3.90	4.90
GPM	GPM	GPM	GPM	GPM
162.39	162.39	162.39	158.39	166.39
°F	°F	°F	°F	°F
39.5	40.6	40.6	37.5	41.5

* = Out Of Tolerance

Remarks: FULL SCALE = 309.6 MEID A1000045885BE2

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 5:16 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 02 - H-1A

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203368

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H2	**Equipment ID:**	METER 10 P/B
Manufacturer:	HACH	**Location:**	H2
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150800000953	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2°F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
4.40	4.40	4.40	3.90	4.90
GPM	GPM	GPM	GPM	GPM
191.08	191.08	191.08	187.08	195.08
°F	°F	°F	°F	°F
42.4	44.2	44.2	40.4	44.4

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEID A10000458F1D68

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 5:40 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 05 - H2

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203364

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H3	**Equipment ID:**	METER 6 P/B
Manufacturer:	HACH	**Location:**	H3
Model No:	FL904	**Range:**	0 - 132.42 GPM
Serial No:	150800000955	**Grads:**	0.01 GPM
Inst Type:	FI	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
2.50	2.70	2.70	2.00	3.00
GPM	GPM	GPM	GPM	GPM
57.15	57.15	57.15	53.15	61.15
°F	°F	°F	°F	°F
41.7	43.5	43.5	39.7	43.7

* = Out Of Tolerance

Remarks: FULL SCALE = 132.4 MEID A10000458F222E

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 5:27 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 06 - H3

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203354

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H5	**Equipment ID:**	METER 10 P/B
Manufacturer:	HACH	**Location:**	H5
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150800000945	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2°F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
2.50	2.31	2.31	2.00	3.00
GPM	GPM	GPM	GPM	GPM
59.30	59.30	59.30	55.30	63.30
°F	°F	°F	°F	°F
42.5	41.9	41.9	40.5	44.5

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEID A1000045883911

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 4:37 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 09 - H5

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203362

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H4	**Equipment ID:**	METER 10 P/ B
Manufacturer:	HACH	**Location:**	H4
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150800000968	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
3.90	4.00	4.00	3.40	4.40
GPM	GPM	GPM	GPM	GPM
159.10	159.10	159.10	155.10	163.10
°F	°F	°F	°F	°F
47.9	49.1	49.1	45.9	49.9

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEID A10000458F22E3

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 5:23 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 07 - H4

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203352

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H6	**Equipment ID:**	METER 10 P/B
Manufacturer:	HACH	**Location:**	H6
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150800000940	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
2.55	2.65	2.65	2.05	3.05
GPM	GPM	GPM	GPM	GPM
75.21	75.21	75.21	71.21	79.21
°F	°F	°F	°F	°F
47.7	46.9	46.9	45.7	49.7

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEID A1000045882A73

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 4:33 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 10 - H6

ENV SERVICES, INC.
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HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203346

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H7	**Equipment ID:**	METER 8 P/B
Manufacturer:	HACH	**Location:**	H7
Model No:	FL904	**Range:**	0 - 309.60 GPM
Serial No:	150800000946	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
3.25	3.22	3.22	2.75	3.75
GPM	GPM	GPM	GPM	GPM
92.34	92.34	92.34	88.34	96.34
°F	°F	°F	°F	°F
47.8	47.3	47.3	45.8	49.8

* = Out Of Tolerance

Remarks: FULL SCALE = 309.6 MEID A1000045885BA7

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 4:22 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 13 - H7

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CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203370

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	M1	**Equipment ID:**	METER 10 P/B
Manufacturer:	HACH	**Location:**	M1
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150800000953	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES /4 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
5.35	5.24	5.24	4.85	5.85
GPM	GPM	GPM	GPM	GPM
270.23	270.23	270.23	266.23	274.23
°F	°F	°F	°F	°F
46.8	48.2	48.2	44.8	48.8

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEID A1000045883427

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 5:44 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 04 - M1

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
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CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203360

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	M2	**Equipment ID:**	METER 15 P/B
Manufacturer:	HACH	**Location:**	M2
Model No:	FL904	**Range:**	0 - 1385.4 GPM
Serial No:	150800000947	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
6.72	6.72	6.72	6.22	7.22
GPM	GPM	GPM	GPM	GPM
549.25	549.25	549.25	545.25	553.25
°F	°F	°F	°F	°F
45.0	46.0	46.0	43.0	47.0

* = Out Of Tolerance

Remarks: FULL SCALE = 1385.4 MEID A10000458F1B8E

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 5:20 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 08 - M2

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203348

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	M3	**Equipment ID:**	METER 6 P/B
Manufacturer:	HACH	**Location:**	M3
Model No:	FL904	**Range:**	0 - 132.40 GPM
Serial No:	150800000966	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
2.00	1.92	1.92	1.50	2.50
GPM	GPM	GPM	GPM	GPM
36.53	36.53	36.53	32.53	40.53
°F	°F	°F	°F	°F
47.3	46.4	46.4	45.3	49.3

* = Out Of Tolerance

Remarks: Full Scale = 132.40 GPM Meid A1000045882A73 msb 14MAR2018

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 4:26 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : M3

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CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203350

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	M3A	**Equipment ID:**	METER 6 P/B
Manufacturer:	HACH	**Location:**	M3A
Model No:	FL904	**Range:**	0 - 132.40 GPM
Serial No:	150800000964	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
1.74	1.93	1.93	1.24	2.24
GPM	GPM	GPM	GPM	GPM
29.58	29.58	29.58	25.58	33.58
°F	°F	°F	°F	°F
46.4	47.2	47.2	44.4	48.4

* = Out Of Tolerance

Remarks: FULL SCALE = 132.4 MEID A10000458F231E

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 4:30 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 11 - M3A

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CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203344

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	M4	**Equipment ID:**	METER 10 P/B
Manufacturer:	HACH	**Location:**	M4
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150800000941	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
4.00	4.03	4.03	3.50	4.50
GPM	GPM	GPM	GPM	GPM
161.07	161.07	161.07	157.07	165.07
°F	°F	°F	°F	°F
43.5	45.1	45.1	41.5	45.5

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEID A10000458852E0

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 4:16 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 14 - M4

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
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CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203338

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	DOE	**Equipment ID:**	METER 6 P/B
Manufacturer:	HACH	**Location:**	DOE LANE
Model No:	FL904	**Range:**	0 - 132.6 GPM
Serial No:	150900000971	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
3.50	3.25	3.25	3.00	4.00
GPM	GPM	GPM	GPM	GPM
80.17	80.17	80.17	76.17	84.17
°F	°F	°F	°F	°F
42.3	42.4	42.4	40.3	44.3

* = Out Of Tolerance

Remarks: FULL SCALE = 132.6 MEID A10000458F1B27

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 4:02 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 17 - DOE LANE

ENV SERVICES, INC.
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HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203336

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	MALIN	**Equipment ID:**	METER 15 P/B
Manufacturer:	HACH	**Location:**	MALIN
Model No:	FL904	**Range:**	0 - 1385.4 GPM
Serial No:	150900000970	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2°F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
6.25	6.12	6.12	5.75	6.75
GPM	GPM	GPM	GPM	GPM
459.70	459.70	459.70	455.70	463.70
°F	°F	°F	°F	°F
47.3	46.5	46.5	45.3	49.3

* = Out Of Tolerance

Remarks: FULL SCALE = 1385.4 MEID A1000458F22E1 Head was ajusted/ inches, JFS 03 mar 2017

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 3:49 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 18 - MALIN

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203334

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	AREA C	**Equipment ID:**	METER 6 P/B
Manufacturer:	HACH	**Location:**	AREA C
Model No:	FL904	**Range:**	0 - 132.4
Serial No:	150900000937	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
4.03	3.98	3.98	3.53	4.53
GPM	GPM	GPM	GPM	GPM
122.14	122.14	122.14	118.14	126.14
°F	°F	°F	°F	°F
42.6	43.7	43.7	40.6	44.6

* = Out Of Tolerance

Remarks: FULL SCALE = 132.4 MEID A1000045885DCA

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 3:45 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 19 - AREA C

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203332

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	EARLTON	**Equipment ID:**	METER 8 P/B
Manufacturer:	HACH	**Location:**	EARLTON
Model No:	FL904	**Range:**	0 - 309.60 GPM
Serial No:	150900000969	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 IN / 4 GPM / 1 F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
3.52	3.53	3.53	3.02	4.02
GPM	GPM	GPM	GPM	GPM
110.37	110.37	110.37	106.37	114.37
°F	°F	°F	°F	°F
46.4	45.1	45.1	44.4	48.4

* = Out Of Tolerance

Remarks: FULL SCALE = 309.6 MEID A1000045848B5A

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 3:38 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 20 - EARLTON

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203325

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	T1	**Equipment ID:**	METER 12 P/B
Manufacturer:	HACH	**Location:**	T1
Model No:	FL904	**Range:**	0 - 752.3 GPM
Serial No:	150900000967	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 IN / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
5.60	5.73	5.73	5.10	6.10
GPM	GPM	GPM	GPM	GPM
341.07	341.07	341.07	337.07	345.07
°F	°F	°F	°F	°F
48.7	47.4	47.4	46.7	50.7

* = Out Of Tolerance

Remarks: FULL SCALE = 752.3 MEID A10000458F2247

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 3:29 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 21 - T1

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 86-163798-453-203330

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	T2	**Equipment ID:**	METER 10 P/B
Manufacturer:	HACH	**Location:**	T2
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150900000972	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 IN / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	2186	8/31/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
3.56	3.66	3.66	3.06	4.06
GPM	GPM	GPM	GPM	GPM
133.54	133.54	133.54	129.54	137.54
°F	°F	°F	°F	°F
44.4	45.7	45.7	42.4	46.4

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEID A1000045885E04

Calibrated By:
Matthew Begley
Cal Technician
E-Signed 14-Mar-2018 3:35 PM

Temp: 45 °F **RH:** 26% RH
Date Tested: 14-Mar-2018
Next Date Due: 30-Sep-2018

CERTS Control # : 22 - T2

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764468

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	R2	**Equipment ID:**	METER 30 LEO
Manufacturer:	HACH	**Location:**	R2
Model No:	FL904	**Range:**	0 - 6148 GPM
Serial No:	150800000943	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 10 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
13.85	13.9	13.9	13.35	14.35
GPM	GPM	GPM	GPM	GPM
2920.75	2920.75	2920.75	2916.75	2924.752
°F	°F	°F	°F	°F
66.2	65.5	65.5	64.2	68.2

* = Out Of Tolerance

Remarks: FULL SCALE = 6148 MEID A10000458848AA
Level Sensor was adjusted to reflect the standard reading. msb 14MAR2018

Calibrated By:
Victoria Terry
Field Technician
E-Signed 10-Sep-2018 11:19 AM

Temp: 24 °C **RH:** 71% RH
Date Tested: 10-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 16 - R2

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764909

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H1	**Equipment ID:**	METER 10 P/B
Manufacturer:	HACH	**Location:**	H1
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150800000954	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
2.48	2.50	2.50	1.98	2.98
GPM	GPM	GPM	GPM	GPM
66.91	66.91	66.91	62.91	62.91
°F	°F	°F	°F	°F
71.2	70.1	70.1	69.2	73.2

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEIDA10000458F2246

Calibrated By:
Victoria Terry
Field Technician
E-Signed 11-Sep-2018 10:04 AM

Temp: 23 °C **RH:** 41% RH
Date Tested: 11-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 03 - H1

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764830

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H1A	**Equipment ID:**	METER 8 P/B
Manufacturer:	HACH	**Location:**	H1A
Model No:	FL904	**Range:**	0 - 309.60 GPM
Serial No:	150800000938	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
4.05	4.00	4.00	3.55	4.55
GPM	GPM	GPM	GPM	GPM
144.44	144.44	144.44	140.00	148.44
°F	°F	°F	°F	°F
67.6	67.3	67.3	65.6	69.6

* = Out Of Tolerance

Remarks: FULL SCALE = 309.6 MEID A1000045885BE2

Calibrated By:
Victoria Terry
Field Technician
E-Signed 11-Sep-2018 8:52 AM

Temp: 23 °C **RH:** 41% RH
Date Tested: 11-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 02 - H-1A

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764882

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H2	**Equipment ID:**	METER 10 P/B
Manufacturer:	HACH	**Location:**	H2
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150800000953	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2°F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
4.19	4.25	4.19	3.69	4.69
GPM	GPM	GPM	GPM	GPM
173.24	173.24	173.24	169.24	177.24
°F	°F	°F	°F	°F
69.8	69.8	69.8	67.8	71.8

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEID A10000458F1D68

Calibrated By:
Victoria Terry
Field Technician
E-Signed 11-Sep-2018 9:47 AM

Temp: 23 °C **RH:** 41% RH
Date Tested: 11-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 05 - H2

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764879

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H3	**Equipment ID:**	METER 6 P/B
Manufacturer:	HACH	**Location:**	H3
Model No:	FL904	**Range:**	0 - 132.42 GPM
Serial No:	150800000955	**Grads:**	0.01 GPM
Inst Type:	FI	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
2.25	2.00	2.00	1.75	2.75
GPM	GPM	GPM	GPM	GPM
40.14	40.14	40.14	36.14	44.14
°F	°F	°F	°F	°F
68.9	68.4	68.4	66.9	70.9

* = Out Of Tolerance

Remarks: FULL SCALE = 132.4 MEID A10000458F222E

Calibrated By:
Victoria Terry
Field Technician
E-Signed 11-Sep-2018 9:37 AM

Temp: 23 °C **RH:** 41% RH
Date Tested: 11-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 06 - H3

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764869

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H4	**Equipment ID:**	METER 10 P/ B
Manufacturer:	HACH	**Location:**	H4
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150800000968	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
3.53	3.50	3.50	3.03	4.03
GPM	GPM	GPM	GPM	GPM
125.80	125.80	125.80	121.80	129.80
°F	°F	°F	°F	°F
71.2	71.8	71.8	69.2	73.2

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEID A10000458F22E3

Calibrated By:
Victoria Terry
Field Technician
E-Signed 11-Sep-2018 9:24 AM

Temp: 23 °C **RH:** 41% RH
Date Tested: 11-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 07 - H4

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764575

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H5	**Equipment ID:**	METER 10 P/B
Manufacturer:	HACH	**Location:**	H5
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150800000945	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2°F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
2.99	2.75	2.75	2.49	3.49
GPM	GPM	GPM	GPM	GPM
92.98	92.98	92.98	88.98	96.98
°F	°F	°F	°F	°F
64.0	64.4	64.4	62.0	66.0

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEID A1000045883911

Calibrated By:
Victoria Terry
Field Technician
E-Signed 10-Sep-2018 1:01 PM

Temp: 23 °C **RH:** 41% RH
Date Tested: 10-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 09 - H5

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764568

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H6	**Equipment ID:**	METER 10 P/B
Manufacturer:	HACH	**Location:**	H6
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150800000940	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
3.44	3.50	3.50	2.94	3.94
GPM	GPM	GPM	GPM	GPM
119.38	119.38	119.38	115.38	123.38
°F	°F	°F	°F	°F
67.6	67.3	67.3	65.6	69.6

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEID A1000045882A73

Calibrated By:
Victoria Terry
Field Technician
E-Signed 10-Sep-2018 12:47 PM

Temp: 22 °C **RH:** 36% RH
Date Tested: 10-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 10 - H6

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764542

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	H7	**Equipment ID:**	METER 8 P/B
Manufacturer:	HACH	**Location:**	H7
Model No:	FL904	**Range:**	0 - 309.60 GPM
Serial No:	150800000946	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
3.76	3.80	3.80	3.26	
GPM	GPM	GPM	GPM	GPM
124.88	124.88	124.88	120.88	128.88
°F	°F	°F	°F	°F
67.1	67.1	67.1	65.1	69.1

* = Out Of Tolerance

Remarks: FULL SCALE = 309.6 MEID A1000045885BA7

Calibrated By:
Victoria Terry
Field Technician
E-Signed 10-Sep-2018 12:10 PM

Temp: 22 °C **RH:** 36% RH
Date Tested: 10-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 13 - H7

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764895

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	M1	**Equipment ID:**	METER 10 P/B
Manufacturer:	HACH	**Location:**	M1
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150800000953	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES /4 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
5.72	5.80	5.80	5.22	6.22
GPM	GPM	GPM	GPM	GPM
322.16	322.16	322.16	318.16	326.16
°F	°F	°F	°F	°F
68.0	68.8	68.8	66.0	70.0

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEID A1000045883427

Calibrated By:
Victoria Terry
Field Technician
E-Signed 11-Sep-2018 9:55 AM

Temp: 23 °C **RH:** 41% RH
Date Tested: 11-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 04 - M1

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764848

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	M2	**Equipment ID:**	METER 15 P/B
Manufacturer:	HACH	**Location:**	M2
Model No:	FL904	**Range:**	0 - 1385.4 GPM
Serial No:	150800000947	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
7.16	7.25	7.25	6.66	7.66
GPM	GPM	GPM	GPM	GPM
608.10	608.10	608.10	604.10	612.10
°F	°F	°F	°F	°F
68.5	69.4	69.4	66.5	70.5

* = Out Of Tolerance

Remarks: FULL SCALE = 1385.4 MEID A10000458F1B8E

Calibrated By:
Victoria Terry
Field Technician
E-Signed 11-Sep-2018 9:12 AM

Temp: 23 °C **RH:** 41% RH
Date Tested: 11-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 08 - M2

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764545

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083

Instrument Identification

Instrument ID:	M3	**Equipment ID:**	METER 6 P/B
Manufacturer:	HACH	**Location:**	M3
Model No:	FL904	**Range:**	0 - 132.40 GPM
Serial No:	150800000966	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
2.56	2.50	2.50	2.06	3.06
GPM	GPM	GPM	GPM	GPM
60.65	60.65	60.65	56.65	64.65
°F	°F	°F	°F	°F
67.7	67.5	67.5	65.7	65.7

* = Out Of Tolerance

Remarks:

Calibrated By:
Victoria Terry
Field Technician
E-Signed 10-Sep-2018 12:20 PM

Temp: 22 °C **RH:** 36% RH
Date Tested: 10-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : M3

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764553

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	M3A	**Equipment ID:**	METER 6 P/B
Manufacturer:	HACH	**Location:**	M3A
Model No:	FL904	**Range:**	0 - 132.40 GPM
Serial No:	150800000964	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
2.33	2.25	2.25	1.83	2.83
GPM	GPM	GPM	GPM	GPM
42.04	42.04	42.04	38.04	46.04
°F	°F	°F	°F	°F
66.2	65.9	65.9	64.2	68.2

* = Out Of Tolerance

Remarks: FULL SCALE = 132.4 MEID A10000458F231E

Calibrated By:
Victoria Terry
Field Technician
E-Signed 10-Sep-2018 12:32 PM

Temp: 22 °C **RH:** 36% RH
Date Tested: 10-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 11 - M3A

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764339

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	EARLTON	**Equipment ID:**	METER 8 P/B
Manufacturer:	HACH	**Location:**	EARLTON
Model No:	FL904	**Range:**	0 - 309.60 GPM
Serial No:	150900000969	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 IN / 4 GPM / 1 F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
4.22	4.38	4.38	3.72	4.72
GPM	GPM	GPM	GPM	GPM
156.60	156.60	156.60	152.60	160.60
°F	°F	°F	°F	°F
66.7	65.9	65.9	64.7	68.7

* = Out Of Tolerance

Remarks: FULL SCALE = 309.6 MEID A1000045848B5A

Calibrated By:
Victoria Terry
Field Technician
E-Signed 10-Sep-2018 10:08 AM

Temp: 24 °C **RH:** 71% RH
Date Tested: 10-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 20 - EARLTON

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764362

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	AREA C	**Equipment ID:**	METER 6 P/B
Manufacturer:	HACH	**Location:**	AREA C
Model No:	FL904	**Range:**	0 - 132.4
Serial No:	150900000937	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
4.16	4.10	4.10	3.66	4.66
GPM	GPM	GPM	GPM	GPM
129.91	129.91	129.91	125.91	133.91
°F	°F	°F	°F	°F
64.5	63.8	63.8	62.5	66.5

* = Out Of Tolerance

Remarks: FULL SCALE = 132.4 MEID A1000045885DCA

Calibrated By:
Victoria Terry
Field Technician
E-Signed 10-Sep-2018 10:27 AM

Temp: 24 °C **RH:** 71% RH
Date Tested: 10-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 19 - AREA C

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764391

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	MALIN	**Equipment ID:**	METER 15 P/B
Manufacturer:	HACH	**Location:**	MALIN
Model No:	FL904	**Range:**	0 - 1385.4 GPM
Serial No:	150900000970	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2°F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
6.99	7.00	7.00	6.49	7.49
GPM	GPM	GPM	GPM	GPM
592.72	592.72	592.72	588.72	596.72
°F	°F	°F	°F	°F
66.2	65.5	65.5	64.2	68.2

* = Out Of Tolerance

Remarks: FULL SCALE = 1385.4 MEID A1000458F22E1

Calibrated By:
Victoria Terry
Field Technician
E-Signed 10-Sep-2018 10:40 AM

Temp: 24 °C **RH:** 71% RH
Date Tested: 10-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 18 - MALIN

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764431

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	DOE	**Equipment ID:**	METER 6 P/B
Manufacturer:	HACH	**Location:**	DOE LANE
Model No:	FL904	**Range:**	0 - 132.6 GPM
Serial No:	150900000971	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 INCHES / 4 GPM/ 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
4.24	4.38	4.38	3.74	4.74
GPM	GPM	GPM	GPM	GPM
132.44	132.44	132.44	128.44	136.44
°F	°F	°F	°F	°F
66.2	66.6	66.6	64.2	68.2

* = Out Of Tolerance

Remarks: FULL SCALE = 132.6 MEID A10000458F1B27

Calibrated By:
Victoria Terry
Field Technician
E-Signed 10-Sep-2018 10:52 AM

Temp: 24 °C **RH:** 71% RH
Date Tested: 10-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 17 - DOE LANE

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764279

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	T1	**Equipment ID:**	METER 12 P/B
Manufacturer:	HACH	**Location:**	T1
Model No:	FL904	**Range:**	0 - 752.3 GPM
Serial No:	150900000967	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 IN / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
4.61	4.75	4.75	4.11	5.11
GPM	GPM	GPM	GPM	GPM
205.32	205.32	205.32	155.32	255.32
°F	°F	°F	°F	°F
67.5	66.7	66.7	65.5	69.5

* = Out Of Tolerance

Remarks: FULL SCALE = 752.3 MEID A10000458F2247

Calibrated By:
Victoria Terry
Field Technician
E-Signed 10-Sep-2018 9:43 AM

Temp: 24 °C **RH:** 71% RH
Date Tested: 10-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 21 - T1

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
CORPORATE 800-345-6094

On-Site Calibration Certificate

ENV SERVICES, INC.
2880 BERGEY ROAD, SUITE K
HATFIELD, PA 19440
800-992-9108

Certificate No. 471-0764251

Submitted To:

RHM SEWER AUTHORITY
ATTN: ACCOUNTS PAYABLE
600 GLENDALE ROAD
HAVERTOWN, PA 19083
Instrument Identification

Instrument ID:	T2	**Equipment ID:**	METER 10 P/B
Manufacturer:	HACH	**Location:**	T2
Model No:	FL904	**Range:**	0 - 502.3 GPM
Serial No:	150900000972	**Grads:**	0.01 GPM
Inst Type:	FIT	**Input:**	LOOP/INCHES
Cal Cycle (Mo.):	6	**Output:**	4 - 20 MA
Procedure No:	1106	**Accuracy:**	± 0.5 IN / 4 GPM / 2 °F

Standard(s) Used

	Asset No.	Date Due
PROCESS CALIBRATOR	1873	10/5/2018

Calibration results may drift from documented values prior to calibration due date attributable to various factors. Results obtained apply to the UUT only and are reflective of conditions at the time of this test.

Data			Tolerance	
Test Point	As Found	As Left	Minimum	Maximum
Standard	Unit Under Test			
INCHES	INCHES	INCHES	INCHES	INCHES
6.98	7.00	7.00	6.48	7.18
GPM	GPM	GPM	GPM	GPM
526.22	526.22	526.22	522.22	530.22
°F	°F	°F	°F	°F
71.0	70.1	70.1	69.0	73.0

* = Out Of Tolerance

Remarks: FULL SCALE = 502.3 MEID A1000045885E04

Calibrated By:
Victoria Terry
Field Technician
E-Signed 10-Sep-2018 9:29 AM

Temp: 23 °C **RH:** 41% RH
Date Tested: 10-Sep-2018
Next Date Due: 31-Mar-2019

CERTS Control # : 22 - T2