GHA GEWALT HAMILTON ASSOCIATES, INC.
CONSULTING ENGINEERS

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July 5, 2016

Mr. Robert Kosin
Barrington Hills Village Hall
112 Algonquin Road
Barrington Hills, IL 60010

Dear Mr. Kosin,

We are enclosing the results of the water quality monitoring performed by Environmental Monitoring & Technologies, Inc. This annual monitoring is performed to ensure that the Village of Barrington Hills remains in compliance with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Stormwater Permit ILR40 for discharges from Small Municipal Separate Storm Sewer Systems (MS4s).

An updated version of the LR40 Permit became effective on March 1, 2016, which states that: "At a minimum, analysis of stormwater discharges shall include the following parameters: total suspended solids, total nitrogen, total phosphorus, fecal coliform, chlorides, and oil and grease". Annual monitoring helps determine if the best management practices (BMPs) being performed by the Village are helping to improve water quality within the receiving waters.

Also enclosed is a report produced by Gewalt Hamilton Associates, Inc. (GHA) containing maps of the monitoring sites, a comparison of upstream and downstream results, graphs which summarize and compare results from the previous years, and recommendations for stormwater BMPs to improve the quality of stormwater runoff within the Village.

Should you have any questions, please do not hesitate to contact me at cburke@gha-engineers.com or at (847) 821-6256.

Sincerely,
GEWALT HAMILTON ASSOCIATES, INC.

Caitlin Burke

Caitlin Burke
Environmental Consultant

WATER QUALITY REPORT
Summer 2016

Village of Barrington Hills
GHA Project No. 9355.090

Prepared by
Gewalt Hamilton Associates, Inc.
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Section 1

Executive Summary

BACKGROUND

This water quality test analysis was developed for the Village of Barrington Hills for the purpose of demonstrating compliance with the minimum standards required by the Illinois Environmental Protection Agency (IEPA) General Storm Water Permit ILR40 for discharges from Small Municipal Separate Storm Sewer Systems (MS4s). The most recent version of the ILR40 permit expired on March 31, 2014, but has been administratively continued by the IEPA. NOTE: The new updated version of the permit states that: "At a minimum, analysis shall include the following parameters: total suspended solids, total nitrogen, total phosphorus, fecal coliform, and chlorides, and oil and grease".

Test results obtained through this project were compared against the Water Quality Standards (WQS) established by the Illinois Pollution Control Board (IPCB) under Title 35 of the Illinois Administrative Code; *Standard Methods for the Examination of Water and Wastewater*, a joint publication of the American Public Health Association (APHA), American Water Works Association (AWWA), and the Water Environment Federation (WEF); or *Volunteer Stream Monitoring: A Methods Manual*, published by the United States Environmental Protection Agency, Office of Water.

Parameters

Lab Analyses

1. Chloride
2. Fluoride
3. Fecal Coliform
4. Oil/Grease
5. Total Kjeldahl Nitrogen
6. Total Phosphorous
7. Total Suspended Solids (TSS)

Locations

Five (5) sites within the Village of Barrington Hills were tested, at locations upstream and downstream of the MS4 discharge:

- Spring Creek North
- Spring Creek South
- Spring Creek Middle
- Flint Creek South
- Flint Creek Middle

A map of these locations is included in Section 3.

Section 2

Program Overview

PURPOSE

The purpose of water quality testing analysis is to demonstrate compliance with the minimum standards required by the Illinois Environmental Protection Agency (IEPA) General Storm Water Permit ILR40 for discharges from Small Municipal Separate Storm Sewer Systems (MS4s). The permit requires annual monitoring of receiving waters upstream and downstream of the MS4 discharges, use of indicators to gauge the effects of storm water discharges on the physical/habitat-related aspects of the receiving waters and/or monitoring of the effectiveness of the Best Management Practices (BMPs). MS4 components include the conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, gutters, ditches, swales, manmade channels or storm sewers. Storm water run-off naturally contains numerous constituents; however, urbanization and urban activities (including municipal activities) typically increase concentrations to levels that may impact water quality. Pollutants associated with storm water include sediment, nutrients, bacteria and viruses, oil and grease, metals, organics, pesticides and gross pollutants.

Water pollution control programs are designed to protect the beneficial uses of the water resources within the state. Each state has the responsibility to set water quality standards (WQS) that protect these beneficial uses, commonly referred to as “designated uses”. In Illinois, waters are designated for various uses including aquatic life, wildlife, agricultural use, primary contact (e.g., swimming, water skiing), secondary contact (e.g., boating, fishing), industrial use, drinking water, food-processing water supply and aesthetic quality. Illinois’ WQS provide the basis for assessing whether the beneficial uses of the state’s waters are being attained. The purpose of this study is to assess the quality of receiving waters and provide recommendations for BMPs that will target the identified areas of concern.

TESTING METHODS AND PARAMETERS

For proper analysis, water samples are taken at locations upstream and downstream of the MS4 discharge and kept on ice during transport to the laboratory for processing. Upstream and downstream results are compared to determine if MS4 discharges are contributing to water pollution in receiving waters.

Water quality test results are also compared against published water quality standards. The purposes of these standards are to protect existing uses of all waters of the State of Illinois, maintain above standard water quality, and prevent unnecessary deterioration of waters of the State. A majority of the standards referred to in this report have been established by the Illinois Pollution Control Board (IPCB), and can be found in the Illinois Administrative Code Title 35, Environmental Protection; Subtitle C, Water Pollution; Chapter I, Pollution Control Board; Part 302, Water Quality Standards, or Part 304, Effluent Standards (http://www.ipcb.state.il.us/SLR/IPCBandIEPAEnvironmentalRegulations-Title35.asp).

The IPCB has not established standards for one of the parameters measured (Total Kjeldahl Nitrogen). For purposes of this report, the standards for these parameters have been established as follows:

- Total Kjeldahl Nitrogen – As published in *Standard Methods for the Examination of Water and Wastewater*, a joint publication of the American Public Health Association (APHA), American Water Works Association (AWWA), and the Water Environment Federation (WEF) (http://www.standardmethods.org/).

Parameter	Description	Standards/Accepted Limits	Source
Chloride	May enter a water system from rocks, agricultural run-off, industrial wastewater, oil well wastes, wastewater treatment plant effluents, and road salts. Chloride in large quantities has negative impacts on aquatic life.	500.0 mg/L	IPCB Title 35, Subtitle C, Chapter 1, Part 302, Subpart C: *Public and Food Processing Water Supply Standards*
Fluoride	Often added to drinking water for dental health but high concentrations are associated with toxicity in aquatic organisms. Fluoride is naturally occurring and often comes from manufacturing emissions and agricultural runoff.	1.4 mg/L	IPCB Title 35, Subtitle C, Chapter 1, Part 302, Subpart D: *Secondary Contact and Indigenous Aquatic Life Standards*
Fecal Coliform	Bacteria found in the digestive systems of warm blooded organisms. It does not pose a health threat but can lead serve as an indicator for bacteria that cause illnesses in both humans and aquatic life.	200 CFU per 100 mL	IPCB Title 35, Subtitle C, Chapter 1, Part 304, Subpart B: *Temporary Effluent Standards*
Oil & Grease	Sources of oil and grease include used fuel, motor oil, hydraulic fluids, and cooking oil. Most oil and grease is insoluble in water. Low levels of pollution can reduce aquatic organisms' ability to reproduce and survive. Toxicity varies among different types. Refined oils are generally more toxic than crude oils.	15 mg/L	IPCB Title 35, Subtitle C, Chapter 1, Part 302, Subpart B: *Temporary Effluent Standards*
Total Kjeldahl Nitrogen (TKN)	TKN is the sum of organic nitrogen, ammonia (NH_3^+), and ammonium ($NH4^+$) of soil, water or wastewater. Various compounds of nitrogen are found in storm water runoff from fertilizers, animal wastes, and plant decay. Once nitrite is broken down to nitrate, if it is in excess it will cause extreme algal growth ultimately lowering the DO levels.	<20.0 mg/L	*Standard Methods for the Examination of Water and Wastewater*

Parameter	Description	Standards/Accepted Limits	Source
Total Phosphorous	A key element in animal and plant growth. Rainfall causes varying amounts of phosphorus and phosphates to wash away from farm soils and certain pesticides into waterways in the form of runoff. Excess phosphates can cause eutrophication which is an excessive amount of algae growth that is consuming large amounts of oxygen.	0.05 mg/L	IPCB Title 35, Subtitle C, Chapter 1, Part 302, Subpart B: *General Use Water Quality Standards*
Total Suspended Solids (TSS)	Both organic and inorganic solid materials that have low density and are too small to settle such as silt, plankton, mud, and industrial wastes. As TSS increases the transparency of the water and DO levels decrease making it hard for some forms of life to exist.	15.0-30.0 mg/L	IPCB Title 35, Subtitle C, Chapter 1, Part 304, Section 124: *Additional Contaminants*

Section 3

Testing Locations

In the Village of Barrington Hills, five (5) sites were selected for testing:

1. **Spring Creek North**

   This test site is located where Spring Creek passes underneath Lincoln Avenue, just north of the intersection of Creek Road with Lincoln Avenue. This site is considered a downstream location.

2. **Spring Creek South**

   The test site is located at the point where Spring Creek passes underneath Dundee Road., just east Healy Road. In this report, the site is considered the upstream location for Spring Creek.

3. **Spring Creek Middle**

   This site is located where Spring Creek passes underneath Lake Cook Rd/County Line Road after flowing through Spring Lake and Mud Lake. In this report, the site is between the upstream and downstream locations for Spring Creek.

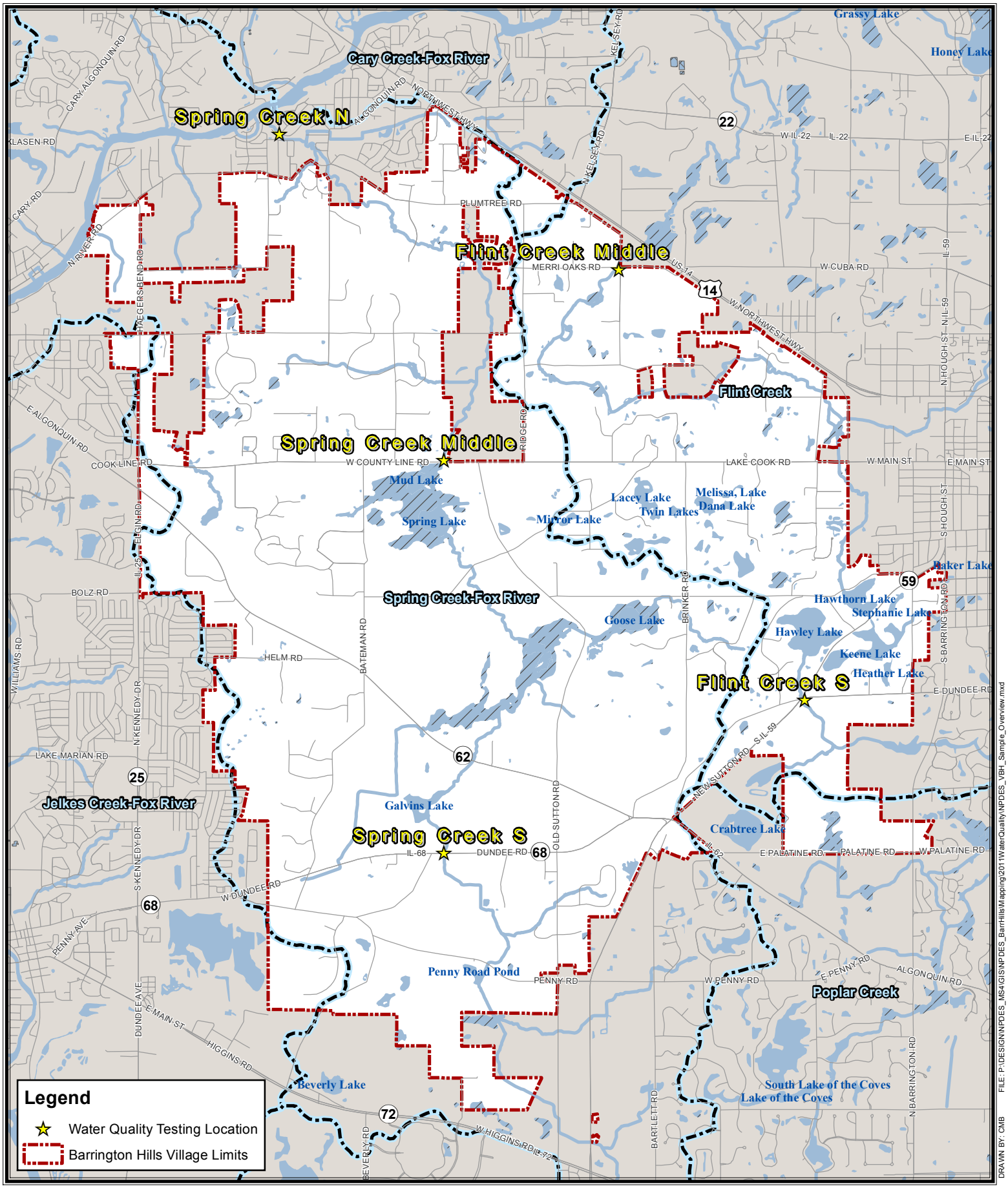
4. **Flint Creek South**

   The test site is located on the east side of Flint Creek at the southeast corner of Dundee Road and IL Route 59 in Barrington Hills. In this report, the site is considered an upstream location for Flint Creek.

5. **Flint Creek Middle**

   The test site is located on the west side of Flint Creek, north of Merri-Oaks Lane in Barrington Hills. In this report, the site is considered a downstream location for Flint Creek.

Maps showing the approximate locations of the sample site are included on the following pages.



Sources: BAGIS

N

Feet 0 5,000

1 inch = 5,070 feet

National Pollutant Discharge Elimination System
Water Sampling Locations
Village of Barrington Hills, IL

GHA GEWALT HAMILTON ASSOCIATES, INC.
www.gha-engineers.com

Project: 9355.090
Map Code: 21038x11
DATE: 11/3/2014

DRAWN BY: CMB

FILE: P:\DESIGN\NPDES_MS4\GIS\NPDES_BarrHills\Mapping\2011WaterQuality\NPDES_VBH_Sample_Overview.mxd

Sources:

GHA GEWALT HAMILTON ASSOCIATES, INC.
www.gha-engineers.com

File: P:\DESIGN\NPDES_MS4\GIS\NPDES_BarrHillsMapping\2016 WO\2016 Spring Creek N.mxd

Drawn By: cburke

N

1 inch = 125 Feet

Spring Creek North

Water Sample Locations Overview
Village of Barrington Hills, Illinois

Map Center: -88.23617 42.19116

Date: 6/7/2016 Project: 3880.030

Sources:

GHA GEWALT HAMILTON ASSOCIATES, INC.
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File: P:\DESIGN\NPDES_MS4\GIS\NPDES_BarrHillsMapping\2015 Water Quality\2015 Sample SCBH2O.mxd

Drawn By: cburke

N

1 inch = 200 Feet

Spring Creek Middle

Upstream Water Sample Location
Village of Barrington Hills, Illinois

Map Center: -88.21182 42.15441

Date: 5/6/2016 Project: 3880.030

Sources:

GHA GEWALT HAMILTON ASSOCIATES, INC.
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File: P:\DES\GIN\NPDES_MS4\GIS\NPDES_BarrHillsMapping\2015 Water Quality\2015 Sample SCBH1Q.mxd

Drawn By: cburke

N

1 inch = 200 Feet

Spring Creek South

Upstream Water Sample Location
Village of Barrington Hills, Illinois

Map Center: -88.21162 42.11029

Date: 5/6/2016 Project: 3880.030

Sources:

GHA GEWALT HAMILTON ASSOCIATES, INC.
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File: P:\DESIGN\NPDES_MS4\GIS\NPDES_BarrHillsMapping\2015 Water Quality\2015 Sample FCBH4.mxd

Drawn By: cburke

N

1 inch = 200 Feet

Flint Creek Middle

Downstream Water Sample Location
Village of Barrington Hills, Illinois

Map Center: -88.18560 42.17592

Date: 5/6/2016 Project: 3880.030

Sources:

GHA GEWALT HAMILTON ASSOCIATES, INC.
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File: P:\DES\GIS\NPDES_MS4\GIS\NPDES_BarrHillsMapping\2015 Water Quality\2015 Sample FCBH1.mxd

Drawn By: cburke

N

1 inch = 200 Feet

Flint Creek South

Upstream Water Sample Location
Village of Barrington Hills, Illinois

Map Center: -88.15757 42.12783

Date: 5/6/2016 Project: 3880.030

Section 4

Results and Recommendations

TEST RESULTS

Test results were reviewed to detect changes between upstream and downstream sampling points and also against generally accepted standards. The results of the water quality testing indicate that the majority of parameters were within the Water Quality Standards (WQS) limit for the Village of Barrington Hills. A summary table of all results is located in the Appendix. See pages 5-7 above for further description of the tested parameters.

The following table summarizes only the parameters which were outside of the accepted limits:

Testing Site	Location	Parameter	Accepted Limits	Test Results
Spring Creek South	Upstream	Total Phosphorous	0.05(mg/L)	0.0940
Spring Creek North	Downstream	Total Phosphorous	0.05 (mg/L)	0.301
		Total Suspended Solids	15.0-30.0 (mg/L)	57.0
Flint Creek Middle	Downstream	Total Phosphorous	0.05 (mg/L)	0.368
		Total Suspended Solids	15.0-30.0 (mg/L)	50.0
Flint Creek South	Upstream	Total Phosphorous	0.05 (mg/L)	0.436
		Total Suspended Solids	15.0-30.0 (mg/L)	227.0

This analysis is in no way intended to identify violations of the IPCB Standards.

RECOMMENDATIONS

The level of total phosphorus is slightly high for the Spring Creek South, Flint Creek South, Flint Creek Middle and Spring Creek North sites. The main source of excess phosphorous is fertilizer, pesticides and insecticides used on lawns in residential and commercial areas, as well as household and commercial detergents and cleansers. Fertilizer should also not be applied in close proximity to a waterway or prior to a heavy precipitation event, if possible.

The total suspended solids (TSS) level is slightly high at the Flint Creek South, Flint Creek Middle and the Spring Creek North sites, which may cause cloudiness in the water. These particles are often a result of erosion upstream, occasionally due to construction. The level of TSS at the Flint Creek South site is the highest, although the level of TSS downstream decreases. Therefore, Flint Creek is not contributing to the level of TSS between these two sites.

At the request of the Village, we will coordinate any additional recommended testing to either confirm the levels of or track the potential source of the various pollutants.

BEST MANAGEMENT PRACTICES

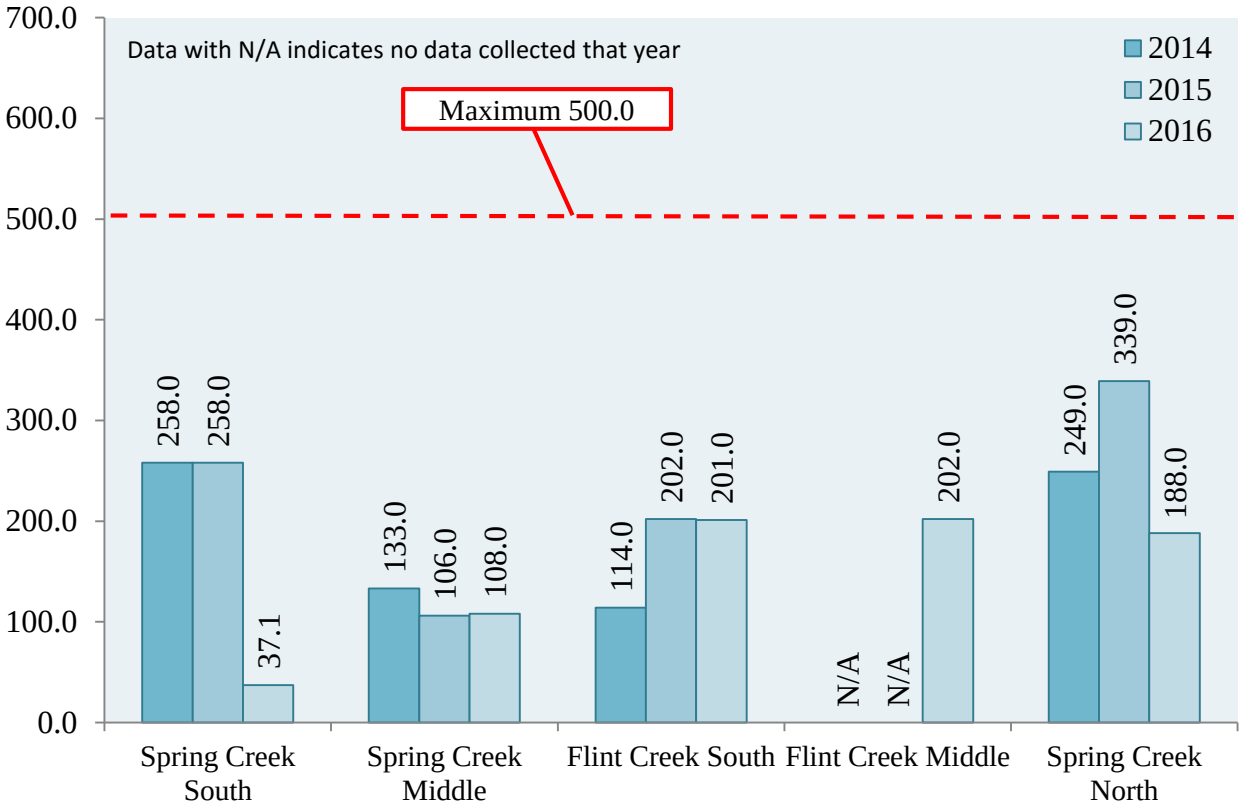
The Village of Barrington Hills can work with upstream communities and users to find solutions for reducing stormwater pollution sources. Incorporating Best Management Practices (BMPs) such as the use of bioswales, rain gardens, filter strips, green infrastructure, reduction of de-icing salts and snow plowing, using grey water for irrigation, native landscapes, watering restrictions, and enforcing septic regulations should be considered. We recommend using stormwater BMPs as outlined in the Village's Draft Stormwater Management Plan (SWMP) in order to reduce adverse effects of stormwater runoff on the Village's water quality.

Additional educational materials to increase public awareness of pollution sources and ways to reduce these are critical to cooperative reduction in pollutants into the environment. Understanding sources of pollutants including pet waste, detergents and cleansers, fertilizers and pesticides will help residents, commercial and industry make

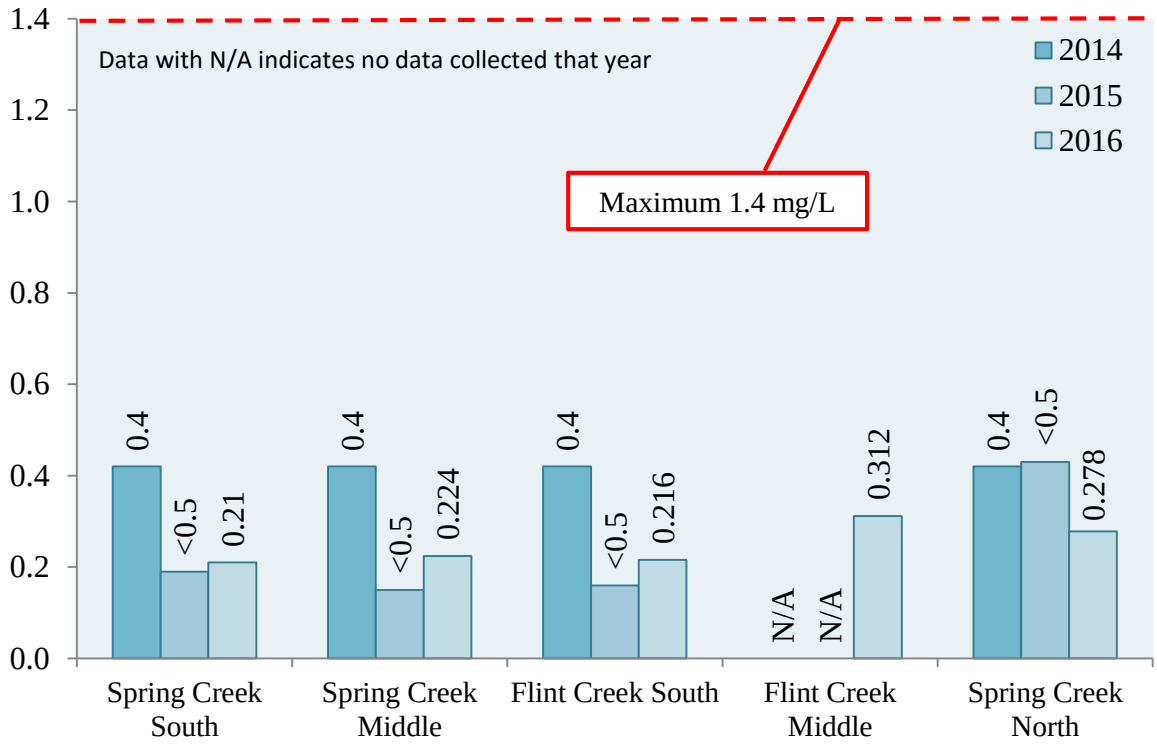
informed choices. Supplying ideas on ways to reduce these problems and enforcing them will assist in long term reductions. For residents, these include using native landscape plantings, composting, rain barrels, reducing fertilizers and lawn watering, and reducing de-icing materials. For commercial, office and industrial, reducing de-icing salts or use of alternative materials, native landscaping, reducing or eliminating irrigation, using grey water, incorporating bioswales, rain gardens, filter strips, encouraging carpooling are ways to reduce pollutants.

Lastly, the Village should continue to compare water quality test results each year to determine if the BMPs performed by the Village are improving water quality in the receiving waters within the Village of Barrington Hills.

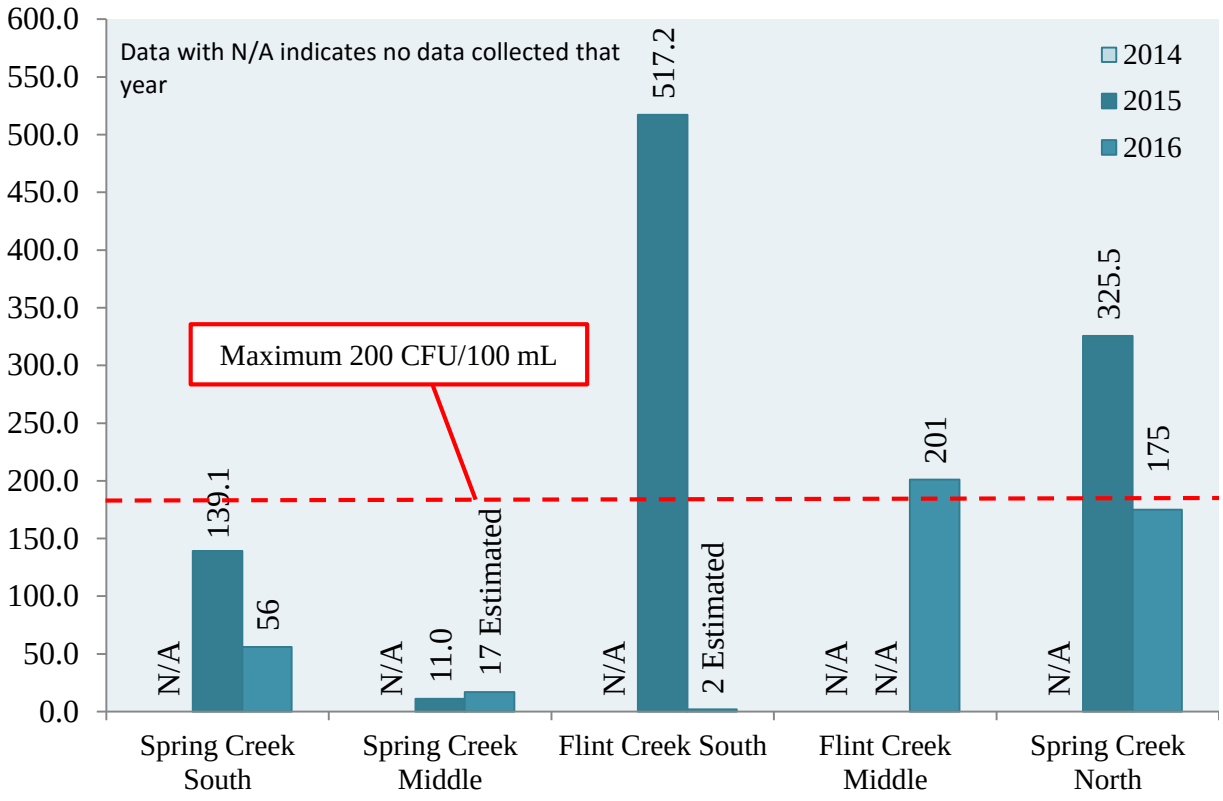
Graphs for each parameter are included on the following pages, which compare results from year to year.



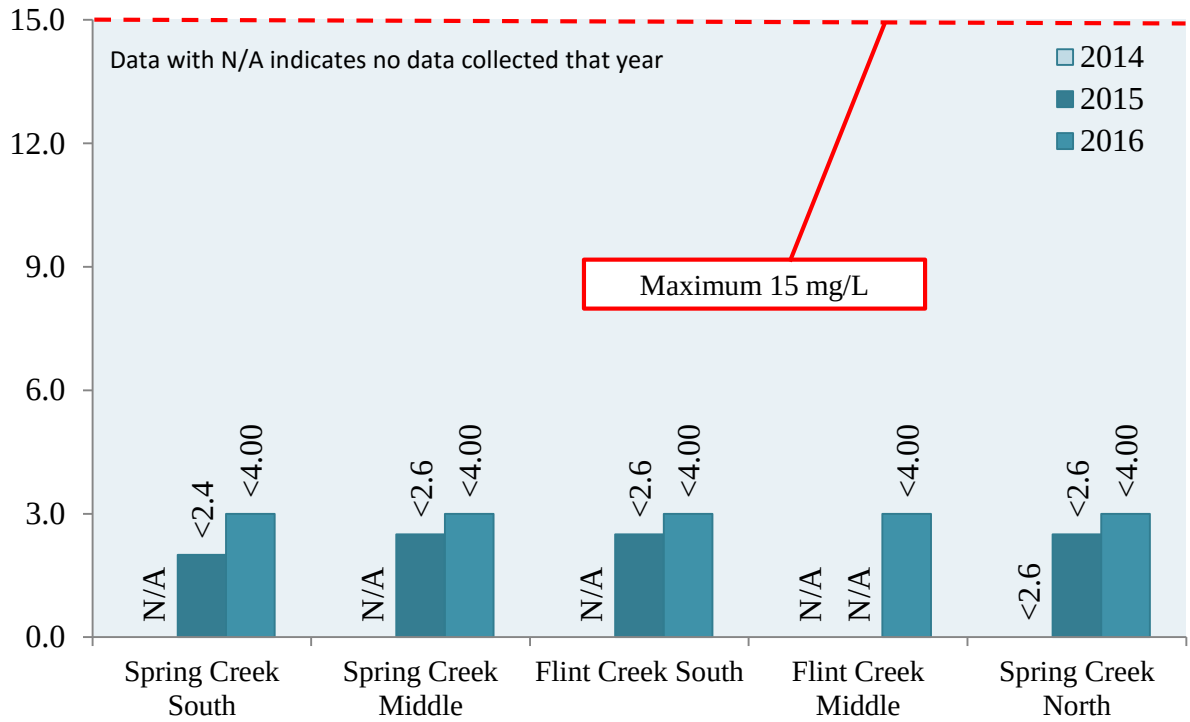
Chloride (mg/L)



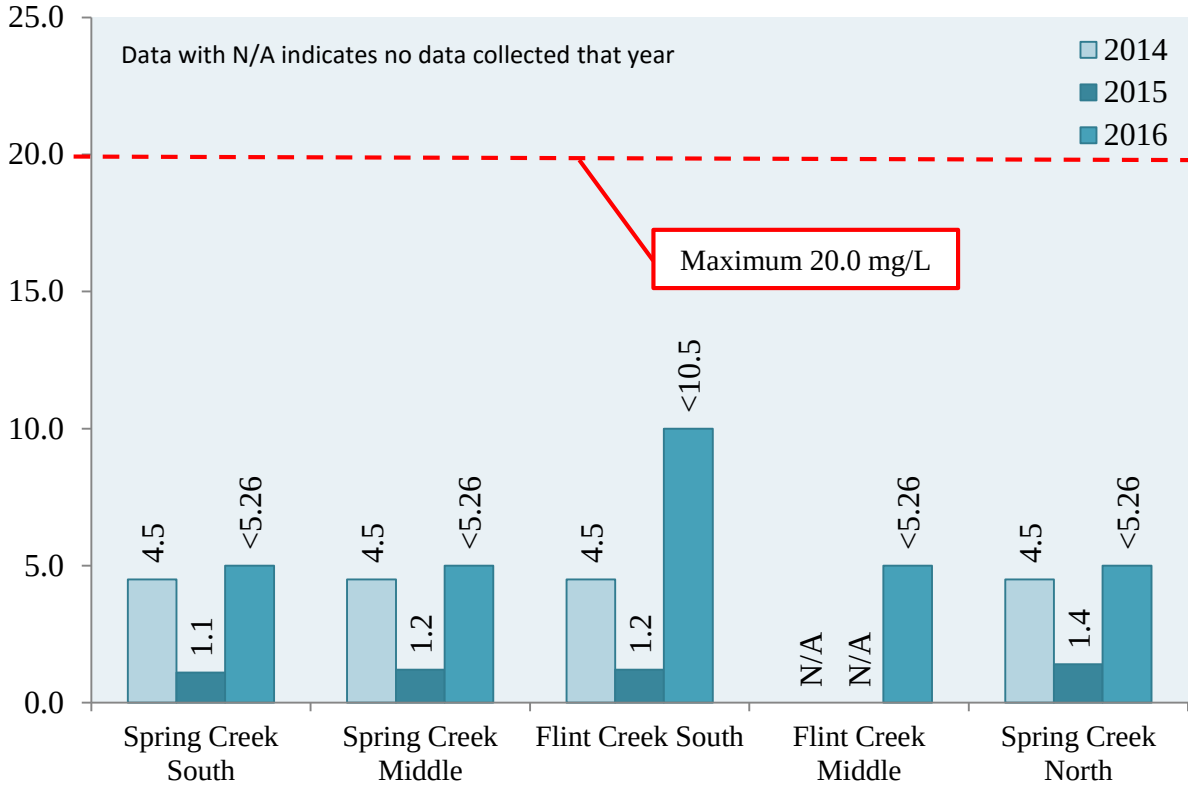
Fluoride (mg/L)



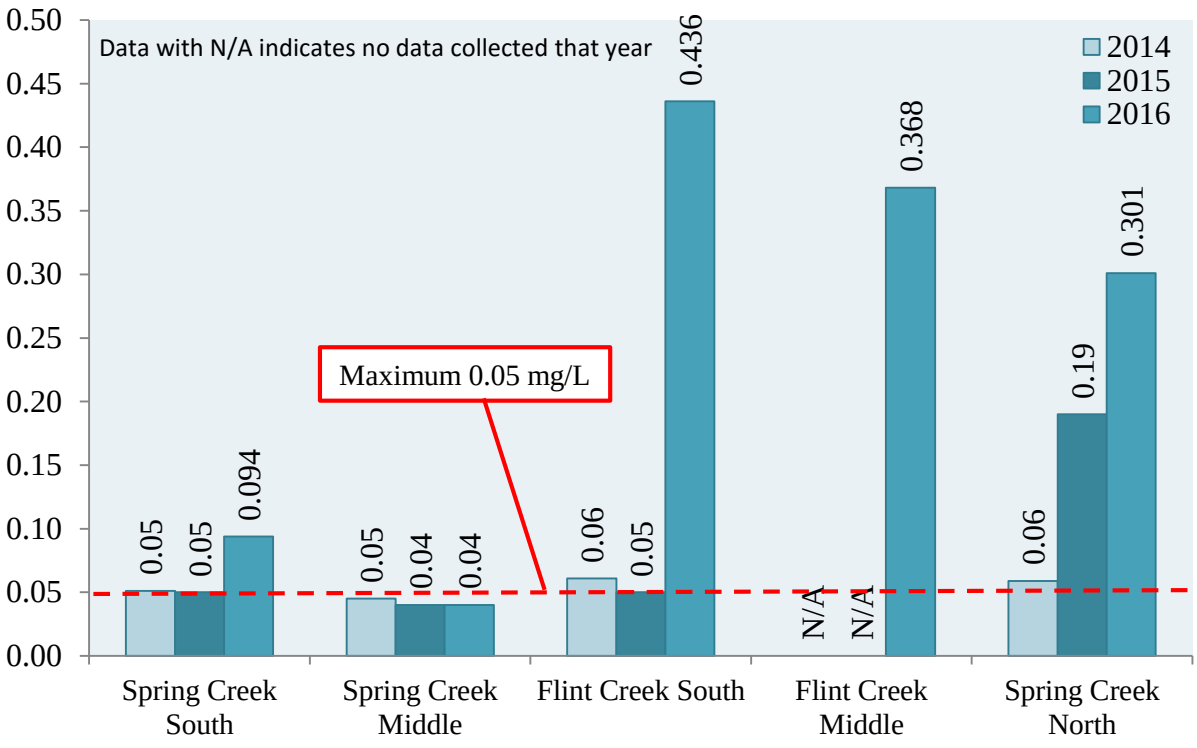
Fecal Coliform (200 CFU/100 mL)



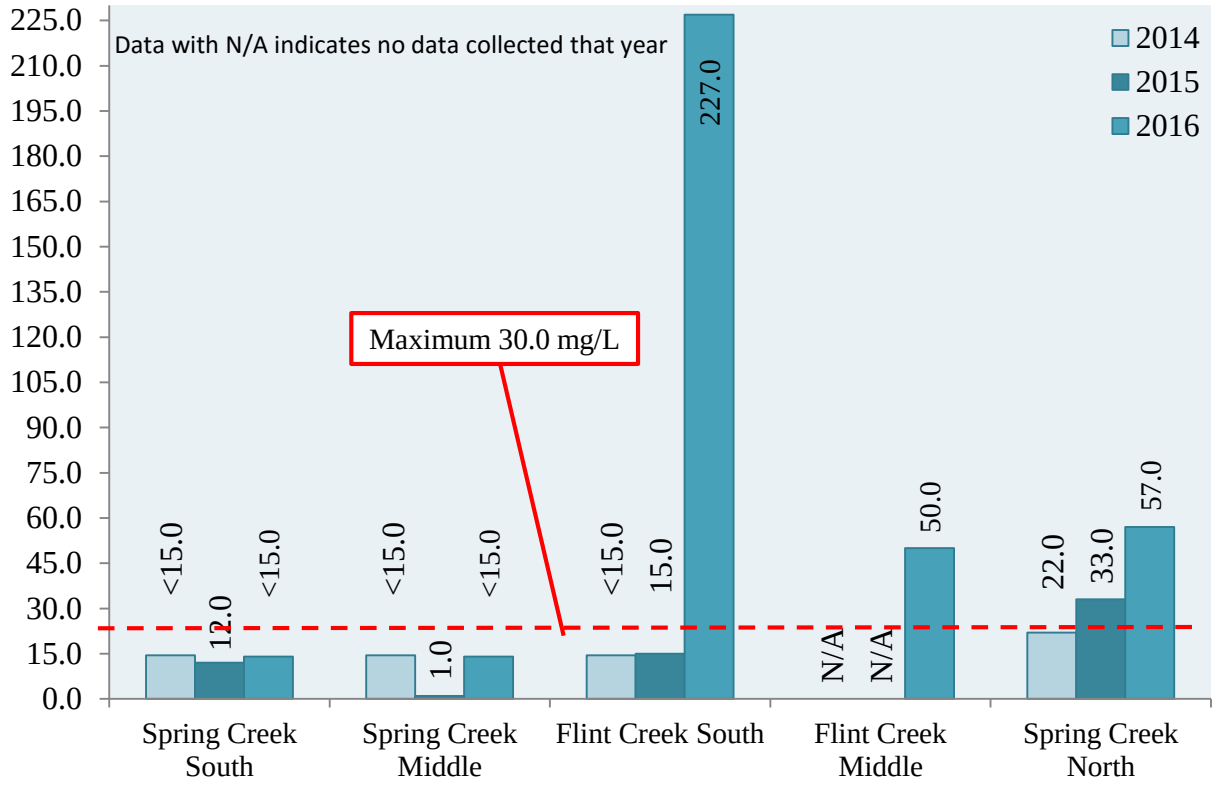
Oil & Grease (mg/L)



Total Kjeldahl Nitrogen (mg/L)



Total Phosphorous (mg/L)



Total Suspended Solids (mg/L)

Section 5

Appendix

APPENDICES

1. GHA summary of all lab results (1 page)

2. Environmental Monitoring & Technologies, Inc. analytical report (5 pages)

Village of Barrington Hills Water Quality Results 2016

	Illinois Water Pollution Control Board WQS*	IPCB Standards or Accepted Limits in mg/L	Spring Creek South	Spring Creek Middle	Spring Creek North	Flint Creek South	Flint Creek Middle
Date Tested: 6/7/16							
Lab Analyses							
Chloride	302.304	500.0	37.1	108.0	188.0	201.0	202.0
Fecal Coliform	302.209	200 CFU/100mL	56.0	17 Estimated	>172	2 Estimated	>200
Fluoride	302.407	1.4	0.21	0.224	0.278	0.216	0.312
Oil & Grease	302.407	15 mg/L	<4.00	<4.00	<4.00	<4.00	<4.00
Total Kjedahl Nitrogen	Standard Methods for the Examination of Water and Wastewater	<20.0	<5.26	<5.26	<5.26	<10.5	<5.26
Phosphorous, Total	302.205	0.05	0.0940	<0.0500	0.301	0.436	0.368
Total Suspended Solids	304 Effluent Standards	15-30.0	<15.0	<15.0	57.0	227.0	50.0

*Title 35 Part 302 Water Quality Standards unless otherwise noted.

Environmental Monitoring and Technologies, Inc.

8100 N. Austin Avenue Morton Grove, IL 60053-3203 **P** 847.967.6666 800.246.0663 **F** 847.967.6735 www.emt.com

Client Sample Results

Client: Gewalt Hamilton Associates
Project: MS4 2016- Barrington Hills
Work Order: 16F0224

Client Sample ID: Flint Creek South
Report Date: 06/24/2016
Collection Date: 06/07/2016 07:35
Matrix: Water
Lab ID: 16F0224-01

Analyses	Result	EMT Reporting Limit	Qual	Units		Date/Time Analyzed	Batch	Analyst
Anions by Ion Chromatography								
Method: E300								
Chloride	**201**	30.0		mg/L		06/10/16 17:51	B6F0675	NB1
Fluoride	**0.216**	0.500	J	mg/L	0.0500	06/09/16 20:31	B6F0599	NB1
Wet Chemistry								
Method: E1664A								
Oil and Grease (HEM)	< 4.00	4.00		mg/L		06/14/16 07:30	B6F0773	SA1
Method: SM2540D								
Suspended Solids (Residue, Non-filterable)	**227**	15.0		mg/L		06/11/16 08:58	B6F0704	CP1
Method: SM4500-Norg B / SM4500-NH3 BC								
Nitrogen, Kjeldahl, Total	< 10.5	10.5		mg/L		06/14/16 17:57	B6F0901	CH1
Method: SM4500-P F by Aquachem / SW3015								
Phosphorus, Total (As P)	**0.436**	0.0500		mg/L		06/18/16 14:55	B6F1173	AP1

Lake County Health Department, Subcontract

Analyses	Result	EMT Reporting Limit	Qual	Units		Date/Time Analyzed	Batch	Analyst
Subcontracted Analyses								
Method: SM9222D								
Fecal Coliform	**2 Estimated**	1		cfu/100 ml		06/07/16 07:35	16F0224-01	

Environmental Monitoring and Technologies, Inc.

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Client Sample Results

(Continued)

Client: Gewalt Hamilton Associates
Project: MS4 2016- Barrington Hills
Work Order: 16F0224

Client Sample ID: Flint Creek Middle
Report Date: 06/24/2016
Collection Date: 06/07/2016 09:00
Matrix: Water
Lab ID: 16F0224-02

Analyses	Result	EMT Reporting Limit	Qual	Units		Date/Time Analyzed	Batch	Analyst
Anions by Ion Chromatography								
Method: E300								
Chloride	**202**	30.0		mg/L		06/10/16 18:19	B6F0675	NB1
Fluoride	**0.312**	0.500	J	mg/L	0.0500	06/09/16 20:59	B6F0599	NB1
Wet Chemistry								
Method: E1664A								
Oil and Grease (HEM)	< 4.00	4.00		mg/L		06/15/16 07:30	B6F0846	SA1
Method: SM2540D								
Suspended Solids (Residue, Non-filterable)	**50.0**	15.0		mg/L		06/11/16 08:58	B6F0704	CP1
Method: SM4500-Norg B / SM4500-NH3 BC								
Nitrogen, Kjeldahl, Total	< 5.26	5.26		mg/L		06/14/16 17:57	B6F0901	CH1
Method: SM4500-P F by Aquachem / SW3015								
Phosphorus, Total (As P)	**0.368**	0.0500		mg/L		06/11/16 16:20	B6F0739	CH1

Lake County Health Department, Subcontract

Analyses	Result	EMT Reporting Limit	Qual	Units		Date/Time Analyzed	Batch	Analyst
Subcontracted Analyses								
Method: SM9222D								
Fecal Coliform	> 200	1		cfu/100 ml		06/07/16 09:00	16F0224-02	

Environmental Monitoring and Technologies, Inc.

8100 N. Austin Avenue Morton Grove, IL 60053-3203 **P** 847.967.6666 800.246.0663 **F** 847.967.6735 www.emt.com

Client Sample Results

(Continued)

Client: Gewalt Hamilton Associates
Project: MS4 2016- Barrington Hills
Work Order: 16F0224

Client Sample ID: Spring Creek North
Report Date: 06/24/2016
Collection Date: 06/07/2016 09:30
Matrix: Water
Lab ID: 16F0224-03

Analyses	Result	EMT Reporting Limit	Qual	Units		Date/Time Analyzed	Batch	Analyst
Anions by Ion Chromatography								
Method: E300								
Chloride	**188**	30.0		mg/L		06/10/16 18:48	B6F0675	NB1
Fluoride	**0.278**	0.500	J	mg/L	0.0500	06/09/16 21:27	B6F0599	NB1
Wet Chemistry								
Method: E1664A								
Oil and Grease (HEM)	< 4.00	4.00		mg/L		06/15/16 07:30	B6F0846	SA1
Method: SM2540D								
Suspended Solids (Residue, Non-filterable)	**57.0**	15.0		mg/L		06/11/16 08:58	B6F0704	CP1
Method: SM4500-Norg B / SM4500-NH3 BC								
Nitrogen, Kjeldahl, Total	< 5.26	5.26		mg/L		06/14/16 17:57	B6F0901	CH1
Method: SM4500-P F by Aquachem / SW3015								
Phosphorus, Total (As P)	**0.301**	0.0500		mg/L		06/11/16 16:20	B6F0739	CH1

Lake County Health Department, Subcontract

Analyses	Result	EMT Reporting Limit	Qual	Units		Date/Time Analyzed	Batch	Analyst
Subcontracted Analyses								
Method: SM9222D								
Fecal Coliform	> 172	1		cfu/100 ml		06/07/16 09:30	16F0224-03	

Environmental Monitoring and Technologies, Inc.

8100 N. Austin Avenue Morton Grove, IL 60053-3203 **P** 847.967.6666 800.246.0663 **F** 847.967.6735 www.emt.com

Client Sample Results

(Continued)

Client: Gewalt Hamilton Associates
Project: MS4 2016- Barrington Hills
Work Order: 16F0224

Client Sample ID: Spring Creek South
Report Date: 06/24/2016
Collection Date: 06/07/2016 08:05
Matrix: Water
Lab ID: 16F0224-04

Analyses	Result	EMT Reporting Limit	Qual	Units		Date/Time Analyzed	Batch	Analyst
Anions by Ion Chromatography								
Method: E300								
Chloride	**37.1**	3.00		mg/L		06/09/16 21:55	B6F0599	NB1
Fluoride	**0.210**	0.500	J	mg/L	0.0500	06/09/16 21:55	B6F0599	NB1
Wet Chemistry								
Method: E1664A								
Oil and Grease (HEM)	< 4.00	4.00		mg/L		06/15/16 07:30	B6F0846	SA1
Method: SM2540D								
Suspended Solids (Residue, Non-filterable)	< 15.0	15.0		mg/L		06/11/16 08:58	B6F0704	CP1
Method: SM4500-Norg B / SM4500-NH3 BC								
Nitrogen, Kjeldahl, Total	< 5.26	5.26		mg/L		06/14/16 09:47	B6F0850	CH1
Method: SM4500-P F by Aquachem / SW3015								
Phosphorus, Total (As P)	**0.0940**	0.0500		mg/L		06/18/16 14:55	B6F1173	AP1

Lake County Health Department, Subcontract

Subcontracted Analyses								
Method: SM9222D								
Fecal Coliform	**56**	1		cfu/100 ml		06/07/16 08:05	16F0224-04	

Environmental Monitoring and Technologies, Inc.

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Client Sample Results

(Continued)

Client: Gewalt Hamilton Associates
Project: MS4 2016- Barrington Hills
Work Order: 16F0224

Client Sample ID: Spring Crrek Middle
Report Date: 06/24/2016
Collection Date: 06/07/2016 08:30
Matrix: Water
Lab ID: 16F0224-05

Analyses	Result	EMT Reporting Limit	Qual	Units		Date/Time Analyzed	Batch	Analyst
Anions by Ion Chromatography								
Method: E300								
Chloride	**108**	3.00		mg/L		06/09/16 23:46	B6F0599	NB1
Fluoride	**0.224**	0.500	J	mg/L	0.0500	06/09/16 23:46	B6F0599	NB1
Wet Chemistry								
Method: E1664A								
Oil and Grease (HEM)	< 4.00	4.00		mg/L		06/15/16 07:30	B6F0846	SA1
Method: SM2540D								
Suspended Solids (Residue, Non-filterable)	< 15.0	15.0		mg/L		06/11/16 08:58	B6F0704	CP1
Method: SM4500-Norg B / SM4500-NH3 BC								
Nitrogen, Kjeldahl, Total	< 5.26	5.26		mg/L		06/14/16 09:47	B6F0850	CH1
Method: SM4500-P F by Aquachem / SW3015								
Phosphorus, Total (As P)	< 0.0500	0.0500		mg/L		06/18/16 14:55	B6F1173	AP1

Lake County Health Department, Subcontract

Analyses	Result	EMT Reporting Limit	Qual	Units		Date/Time Analyzed	Batch	Analyst
Subcontracted Analyses								
Method: SM9222D								
Fecal Coliform	**17 Estimated**	1		cfu/100 ml		06/07/16 08:30	16F0224-05	