

Mr. Michael Squire
Division of Environmental Remediation
New York State Department of Environmental Conservation
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Albany, New York 12233

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Subject:
2020 Groundwater Sampling & Soil Cover Inspection Report
Waterville Former MGP Site
Waterville, New York

ENVIRONMENT

Dear Mr. Squire:

On behalf of NYSEG, Arcadis of New York, Inc. (Arcadis) is pleased to present this annual report summarizing the results of groundwater sampling and soil cover inspection activities conducted in 2020 at the Waterville manufactured gas plant (MGP) site. Relevant background information is provided below, followed by a discussion of the 2020 results and recommendations for the site.

Date:
November 19, 2020

Contact:
David Cornell

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Our ref:
30003362.00001

BACKGROUND

As required by the New York State Department of Environmental Conservation's (NYSDEC's) Record of Decision (ROD) issued in March 2002, NYSEG administered a 5-year post- interim remedial measure (IRM) groundwater and soil cover monitoring program at the Waterville, New York Former MGP site. The 5-year monitoring program consisted of sampling eight monitoring wells for BTEX (benzene, toluene, ethylbenzene, and xylenes) and PAHs (polycyclic aromatic hydrocarbons) on a biannual basis from May 2002 to November 2006. NYSEG submitted an evaluation of the results of this monitoring program to the NYSDEC on May 8, 2007. Based on the NYSDEC's comments on this evaluation, NYSEG agreed (in a letter dated January 4, 2008) to revise the scope of the monitoring to sampling just one well (MW98-7D) and continuing with the soil cover inspections annually for an additional 5 years (until 2012). Based on the results of the supplemental 5-year groundwater monitoring program concluding in 2012 and discussions with the NYSDEC, NYSEG agreed to continue sampling groundwater from MW98-7D and conducting the soil cover inspections on an annual basis for an unspecified duration.

2020 GROUNDWATER SAMPLING EVENT

Arcadis sampled groundwater from monitoring well MW98-7D and conducted site wide synoptic water-level gauging on July 15, 2020. The location of site monitoring wells and other pertinent site features can be found on Figure 1. Measured water levels were observed to be within the range of historical levels. Depending on location, the depth to water is generally between 5 to 12 feet below grade.

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Consistent with the previous sampling events, the sampling from MW98-7D was conducted using low-flow purging techniques. The low-flow method consists of slowly purging water from the well at a rate of approximately 100 to 200 milliliters per minute (mL/min) until readings of the following field parameters stabilize: pH, dissolved oxygen, oxidation-reduction potential (ORP), turbidity and conductivity. The table below presents the values for these field parameters at the time of sampling:

Well ID	pH (S.U.)	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)
MW98-7D	7.07	13.8	0.403	0.20	-85.2	3.71

Notes:

S.U. = Standard Units. mg/L = milligrams per liter.
 °C = degrees Celsius. mV = milliVolts.
 mS/cm = milliSiemens per centimeter. NTU = Nephelometric Turbidity Units.

No problems arose during the groundwater sampling event. The groundwater sampling log, field notes, and sampling chain-of-custody are provided in Attachment 1. The collected sample was analyzed for BTEX and PAHs by Eurofins TestAmerica, Buffalo of Amherst, New York in accordance with NYSDEC Analytical Services Protocol (ASP). The laboratory provided Category B deliverables and the data package was validated by Arcadis. The data validation concluded that the laboratory results are useable for their intended purpose. A copy of the Data Usability Summary Report (DUSR) can be provided upon request.

Historical analytical results for MW98-7D are summarized in Table 1 in comparison to NYSDEC Class GA Standards and Guidance Values¹. Consistent with previous sampling events, groundwater sampled from MW98-7D exceeded the NYSDEC Class GA Standards for all of the BTEX compounds. Also consistent with previous events, several PAHs continue to be detected in the sample collected from well MW98-7D. While trace amounts of individual PAHs continue to be detected, only acenaphthene and naphthalene were detected at concentrations above the NYSDEC Class GA Guidance Value for these compounds. The levels for both BTEX and PAHs were within the range of concentrations detected during the previous sampling rounds. As shown on the time-series graph provided in Attachment 2, there is no discernable trend in dissolved-phase BTEX concentrations at MW98-7D since sampling began in 2004; however, there does appear to be an overall slow downward trend in the concentration of dissolved phase PAHs.

2020 RECONNAISSANCE OF SOIL COVER AREA

On July 15, 2020, Arcadis also performed the annual reconnaissance of the soil cover portion of the site, as required by the site's ROD. Findings of the reconnaissance were generally consistent with those found during previous years. Please refer to the photographic log in Attachment 3 for pictures of relevant features of the soil cover. Tire ruts that are typically observed during the annual events were not observed in the southwest corner of the property, likely due to the relatively dry weather conditions in 2020.

As reported since the 2014 inspection report, the above-ground pool (Photo #1) installed behind the 139 Babbott Avenue property and small raised-bed vegetable garden (Photo #2) behind 145 Babbott Avenue are all still present on-site. The vegetable garden behind 139 Babbott Avenue observed since 2018 is also still present east of monitoring well CW91-6 (Photo #3), however, it no longer appears to be a raised-bed garden. New in 2020 is the appearance on a small vegetable garden immediately south of the small

¹ The NYSDEC Class GA Guidance Values are published in the NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations; reissued June 1998 and revised in April 2000 and June 2004.

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New York State Department of Environmental Conservation
November 19, 2020

raised-bed vegetable garden at 145 Babbott Avenue and immediately north of the MW98-8 well cluster (Photo #4). Also new in 2020 is the appearance to four rectangular raised-bed vegetable gardens west of the aboveground pool behind 139 Babbott Avenue (Photo #4). Both of the new gardens appear to be immediately outside of the soil cover footprint. No additional disturbances were observed during the 2020 inspection and the soil cover appeared in good condition (Photos #5 & 6).

SUMMARY

The 2020 PAH analytical results for the groundwater sample collected from MW98-7D are higher than the 2019 results but are within the range of concentrations historically detected at this well. Only acenaphthene and naphthalene were found to exceed Class GA Guidance Values for these compounds. BTEX concentrations decreased slightly in 2020 compared to analytical results from 2019, but remained within the range of historical BTEX concentrations observed in groundwater from this well. Consistent with previous years, BTEX concentrations exceeded Class GA Standards for each respective compound. Analytical data from the 2021 BTEX and PAH results will be evaluated to determine if any concentration trends become apparent.

Aside from the disturbances caused by the installation of the above-ground pool and vegetable gardens, the soil cover appeared to be in good condition with no obvious damage.

The next groundwater sampling and soil cover inspection event is scheduled for the summer of 2021. If you have any questions, please feel free to contact John Ruspantini of NYSEG at 585.484.6787 or me at 315.671.9379.

Sincerely,

Arcadis of New York, Inc.



David A. Cornell
Senior Geologist

Copies:

John J. Ruspantini, CHMM, NYSEG
Keith A. White, C.P.G., Arcadis

Enclosures:

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- 1 Summary of Groundwater Sampling Results in Comparison to NYSDEC Class GA Standards and Guidance Values

Figure

- 1 Site Map

Attachments

- 1 Field Notes
- 2 MW98-7D Time-Series Graph
- 3 Soil Cover Inspection Photograph Log

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TABLE



Table 1
Summary of Groundwater Sampling Results in Comparison to NYSDEC Class GA Standards and Guidance Values

2020 Groundwater Sampling and Soil Cover Inspection Report
Waterville Former MGP Site
Waterville, New York

Location ID: Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW98-7D 05/10/05	MW98-7D 11/10/05	MW98-7D 05/10/06	MW98-7D 11/07/06	MW98-7D 05/01/08	MW98-7D 05/28/09	MW98-7D 06/03/11	MW98-7D 06/14/12
Detected Volatile Organics										
Benzene	1	ug/L	160 [150]	90	140 [140]	110 [94]	140 D [120 D]	110 D08 [120 D08]	57 [170]	90 J
Ethylbenzene	5	ug/L	110 [110]	84	97 [93]	85 [66 J]	86 [81]	90 M7 [91]	36 [150]	97 J
m&p-Xylene	--	ug/L	NA	NA	NA	NA	38 [36]	39 [40]	20 [62]	39
o-Xylene	--	ug/L	NA	NA	NA	NA	52 [50]	52 M7 [53]	26 [77]	54 J
Toluene	5	ug/L	26 [28]	20 J	27 [26]	18 [16 J]	26 [24]	22 [23]	9.0 [34]	18
Xylenes (total)	5	ug/L	110 [110]	81	95 [91]	90 [64 J]	NA	92 M7 [93]	46 [140]	93 J
Total BTEX	--	ug/L	406 [398]	275 J	359 [350]	303 [240 J]	342 [311]	314 [327]	148 [494]	298 J
Detected Semivolatile Organics										
2-Methylnaphthalene	--	ug/L	110 [120]	140 [140]	130 [52]	100 J [82 J]	110 [97]	110 M7 [140 D08]	NA	NA
Acenaphthene	20	ug/L	110 [110]	140 [140]	96 J [92]	140 [110]	120 [120]	120 D08 [140 D08]	130 [160]	86 J
Acenaphthylene	--	ug/L	23 J [22 J]	24 J [23 J]	19 J [14 J]	19 J [15 J]	22 [22]	19 [25]	21 J [24 J]	12 J
Anthracene	50	ug/L	7.0 J [7.2 J]	11 J [11 J]	44 J [5.2 J]	8.7 J [7.6 J]	8.0 [9.0]	7.8 [9.6]	8.5 J [9.6 J]	6.3 J
Dibenzofuran	--	ug/L	NA	NA	NA	NA	2.0 J [2.0 J]	2.3 [2.9]	NA	NA
Fluoranthene	50	ug/L	2.6 J [2.3 J]	100 U [100 U]	100 U [21 U]	3.5 J [3.0 J]	3.0 J [3.0 J]	2.6 [3.2]	48 U [48 U]	49 U
Fluorene	50	ug/L	13 J [13 J]	100 U [17 J]	57 J [28]	14 J [12 J]	16 [15]	19 [24]	20 J [22 J]	15 J
Naphthalene	10	ug/L	970 [1,000]	1,200 [1,100]	910 [360]	1,300 [930]	1,100 D [980 D]	850 D08 [1,100 D08]	780 [1,000]	600
Phenanthrene	50	ug/L	44 J [42 J]	54 J [51 J]	75 J [39]	51 J [44 J]	46 [45]	44 [56]	59 [69]	37 J
Pyrene	50	ug/L	2.9 J [3.4 J]	100 U [100 U]	100 U [21 U]	4.1 J [3.1 J]	4.0 J [4.0 J]	3.0 [3.7]	3.3 J [3.7 J]	49 U
Total PAHs	--	ug/L	1,280 J [1,320 J]	1,570 J [1,480 J]	1,330 J [590 J]	1,640 J [1,210 J]	1,430 J [1,300 J]	1,180 [1,500]	1,020 J [1,290 J]	756 J
Detected Inorganics										
Iron	300	ug/L	859	1,200	1,180	1,130	NA	NA	NA	NA
Manganese	300	ug/L	1,130	1,390	1,380	1,220	NA	NA	NA	NA
Nitrate	--	ug/L	100 U	100 U	110	100 U	NA	NA	NA	NA
Sulfate	250,000	ug/L	5,000 U	5,000 U	5,000 U	5,000 U	NA	NA	NA	NA
Total Organic Carbon	--	ug/L	1,700	1,800	2,100	1,700	NA	NA	NA	NA

See Notes on Page 2.

Table 1
Summary of Groundwater Sampling Results in Comparison to NYSDEC Class GA Standards and Guidance Values

2020 Groundwater Sampling and Soil Cover Inspection Report
Waterville Former MGP Site
Waterville, New York

Location ID: Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW98-7D 06/28/13	MW98-7D 06/20/14	MW98-7D 07/09/15	MW98-7D 07/20/16	MW98-7D 06/15/17	MW98-7D 06/26/18	MW98-7D 06/13/19	MW98-7D 07/15/20
Detected Volatile Organics										
Benzene	1	ug/L	8.9	17	68	39 J	130 DJ	48 [49]	93 [88]	45 [44]
Ethylbenzene	5	ug/L	6.3	11	66	48 J	110 DJ	47 [47]	97 J [92]	68 [66]
m&p-Xylene	--	ug/L	3.3	6.9	31	22	48 J	21 [21]	38 [35]	27 [26]
o-Xylene	--	ug/L	4.2	10	43	30 J	62 J	29 [28]	52 [51]	41 [39]
Toluene	5	ug/L	2.2	3.3	15	9.7	37 J	11 [11]	22 [22]	14 [14]
Xylenes (total)	5	ug/L	7.5	17	74	52 J	110 J	50 [49]	90 [86]	68 [65]
Total BTEX	--	ug/L	24.9	48.3	223	149 J	387 J	156 [156]	302 J [288]	195 [189]
Detected Semivolatile Organics										
2-Methylnaphthalene	--	ug/L	NA							
Acenaphthene	20	ug/L	120 D	61	35 J	100 EJ	150 EJ	88 DJ [62]	86 J [75 J]	80 J [72 J]
Acenaphthylene	--	ug/L	20	5.6	0.66 J	18	27	18 [13]	9.6 J [8.5 J]	15 J [15 J]
Anthracene	50	ug/L	7.7	4.2	4.9 J	7.8	9.1	6.9 [4.9 J]	6.3 J [6.0 J]	7.9 J [5.8 J]
Dibenzofuran	--	ug/L	NA							
Fluoranthene	50	ug/L	2.7 J	1.7 J	1.7 J	2.6 J	3.1 J	2.4 J [1.7 J]	100 UJ [100 U]	100 U [100 U]
Fluorene	50	ug/L	18	8.5	9.7	14	15	9.4 [7.2]	100 UB [100 UB]	8.6 J [8.4 J]
Naphthalene	10	ug/L	990 D	1.9 U	0.86 J	640 D	910 D	440 D [370 D]	100 U [100 U]	590 [540]
Phenanthrene	50	ug/L	49	23	24	45	58 J	39 J [29]	100 UBj [100 UB]	27 J [25 J]
Pyrene	50	ug/L	3.4 J	2.2	2.0 J	2.8 J	4.0 J	2.7 J [2.0 J]	100 UJ [100 U]	100 U [100 U]
Total PAHs	--	ug/L	1,210 J	106 J	78.8 J	830 J	1,180 J	606 J [490 J]	102 J [89.5 J]	729 J [666 J]
Detected Inorganics										
Iron	300	ug/L	NA							
Manganese	300	ug/L	NA							
Nitrate	--	ug/L	NA							
Sulfate	250,000	ug/L	NA							
Total Organic Carbon	--	ug/L	NA							

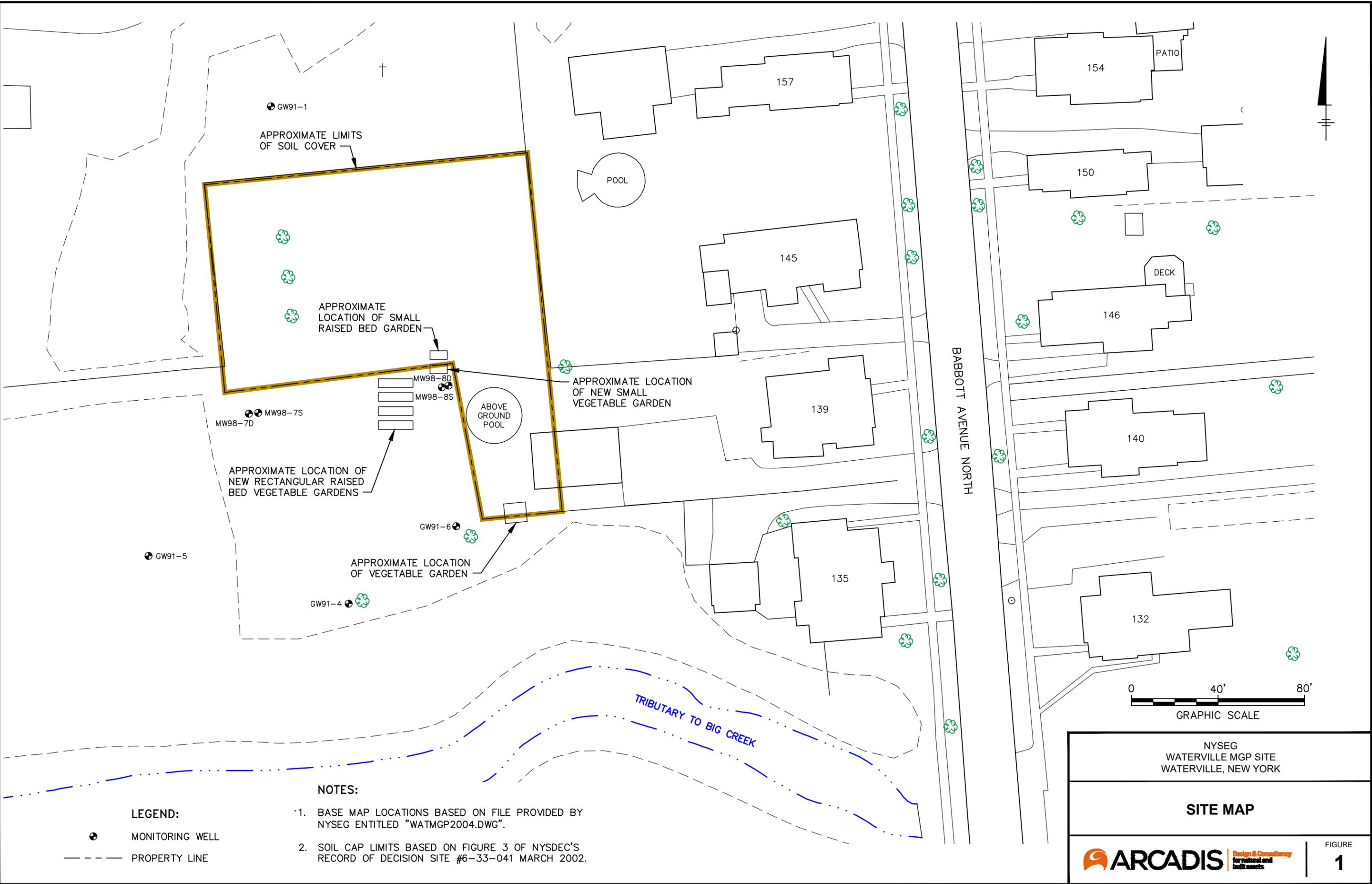
Notes:

- D = Compound quantitated using a secondary dilution.
- D08 = Compound quantitated using a secondary dilution.
- E = Analyte exceeded calibration range.
- J = Indicates an estimated value.
- U = The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
- [] = duplicate sample
- NA = Not Analyzed
- ug/L = micrograms per liter

FIGURE



C:\Users\posenauer\BIM\360\Arcadis\ANA - IBERDROLA USA\Project Files\2018 Waterville GW Monitoring\2018\B001\3653.000601-DWG\WATERVILLE-GWM_FIG_1_SITE_PLAN.DWG LAYOUT: 1. SAVED: 10/14/2020 4:48 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: C-LB-PDF PLOTSTYLETABLE: PLT\FULLCTB PLOTTED: 10/14/2020 4:50 PM BY: POSENAUER, LISA



NOTES:

1. BASE MAP LOCATIONS BASED ON FILE PROVIDED BY NYSEG ENTITLED "WATMGP2004.DWG".
2. SOIL CAP LIMITS BASED ON FIGURE 3 OF NYSDEC'S RECORD OF DECISION SITE #6-33-041 MARCH 2002.

LEGEND:

- ⊕ MONITORING WELL
- - - - PROPERTY LINE

NYSEG WATERVILLE MGP SITE WATERVILLE, NEW YORK	
SITE MAP	
ARCADIS	Design & Consultancy for natural and built assets
FIGURE 1	

ATTACHMENT 1

Field Notes



NYSEG-Waterville, NY

Site

Event

GROUNDWATER SAMPLING LOG

Sampling Personnel: Josh Sinay + Courtney Pitman Well ID: MW-98-7D
 Client / Job Number: NYSEG Date: 7/15/20
 Weather: 85°F Clear Time In: 12:55 Time Out: 14:45

Well Information

Depth to Water: <u>6.43</u> (from MP)	Well Type: <u>Flushpoint</u> Stick-Up
Total Depth: <u>18.51</u> (from MP)	Well Material: <u>Stainless Steel</u> <u>PVC</u>
Length of Water Column: <u>17.08</u>	Well Locked: <u>Yes</u> No
Volume of Water in Well: <u>1.97</u>	Measuring Point Marked: <u>Yes</u> No
Three Well Volumes: <u>5.91</u>	Well Diameter: 1' <u>2'</u> Other:

Purging Information

Purging Method: <u>Peristaltic</u> Bailer Grundfos Other:	Conversion Factors gal / ft of water 1' ID 2' ID 4' ID 6' ID 0.041 0.163 0.653 1.469 1 gal = 3.785 L = 3875 ml = 0.1337 cubic feet
Tubing/Bailer Material: <u>St. Steel</u> <u>Polyethylene</u> Teflon Other: <u>LDPE</u>	
Sampling Method: <u>Bailer (VOCs)</u> <u>Peristaltic</u> Grundfos Other:	
Duration of Pumping: <u>55</u> (min)	Unit Stability pH DO Cond. ORP ±0.1 ± 10% ± 3.0% ± 10 mV
Average Pumping Rate: <u>200</u> (ml/min) Water-Quality Meter Type: <u>YSI</u>	
Total Volume Removed: <u>2.8</u> (gal) Did well go dry: Yes <u>No</u>	

Time:	1	2	3	4	5	6	7	8	9
Parameter:	1310	1315	1320	1325	1330	1335	1340	1345	1350
Volume Purged (mL)	0.0	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00
Rate (mL/min)	200	200	200	200	200	200	200	200	200
Depth to Water (ft.)	7.67	8.91	9.54	9.26	9.26	9.26	9.26	9.26	9.26
pH	7.38	7.02	6.92	6.97	6.96	7.00	6.97	7.03	7.03
Temp. (C)	13.7	13.2	13.1	14.3	14.6	14.9	14.6	14.7	14.9
Conductivity (mS/cm)	0.224	0.195	0.213	0.249	0.312	0.330	0.340	0.375	0.377
Dissolved Oxygen	1.52	1.42	1.16	0.92	0.70	0.58	0.55	0.48	0.33
ORP (mV)	28.2	21.4	3.0	-31.6	-50.9	-61.8	-65.1	-75.1	-80.3
Turbidity (NTU)	13.8	12.1	7.54	4.95	3.77	3.87	3.45	3.0	3.28
Notes:									

Sampling Information

Analyses	#	Laboratory
<u>BTEX</u>		
<u>PAHs</u>		
Sample ID: <u>MW-98-7D</u> Sample Time: <u>1410</u>		
MS/MSD: <u>Yes</u> No		
Duplicate: <u>Yes</u> No		
Duplicate ID: <u>DUP-071520</u> Dup. Time: <u>1410</u>		

Problems / Observations

PID = 0.0 ppm

GROUNDWATER SAMPLING LOG

Time:	10	11	12	13	14	15	16	17	18
Parameter:	135.5	1400	1405	1410					
Volume Purged (mL)	2.25	2.50	2.75	SAMPLE					
Rate (mL/min)	200	200	200						
Depth to Water (ft.)	9.26	9.26	9.26						
pH	7.07	7.08	7.11						
Temp. (C)	13.9	13.7	13.9						
Conductivity (mS/cm)	0.397	0.399	0.463						
Dissolved Oxygen	0.27	0.26	0.2						
ORP (mV)	-83.5	-84.7	-85.2						
Turbidity (NTU)	3.52	3.31	3.71						
Notes:									

Time:	19	20	21	22	23	24	25	26	27
Parameter:									
Volume Purged (mL)									
Rate (mL/min)									
Depth to Water (ft.)									
pH									
Temp. (C)									
Conductivity (mS/cm)									
Dissolved Oxygen									
ORP (mV)									
Turbidity (NTU)									
Notes:									

Sampling Information

Analyses	#	Laboratory
Sample ID:	Sample Time:	
MS/MSD:	Yes	No
Duplicate:	Yes	No
Duplicate ID	Dup. Time:	

Problems / Observations

PID =

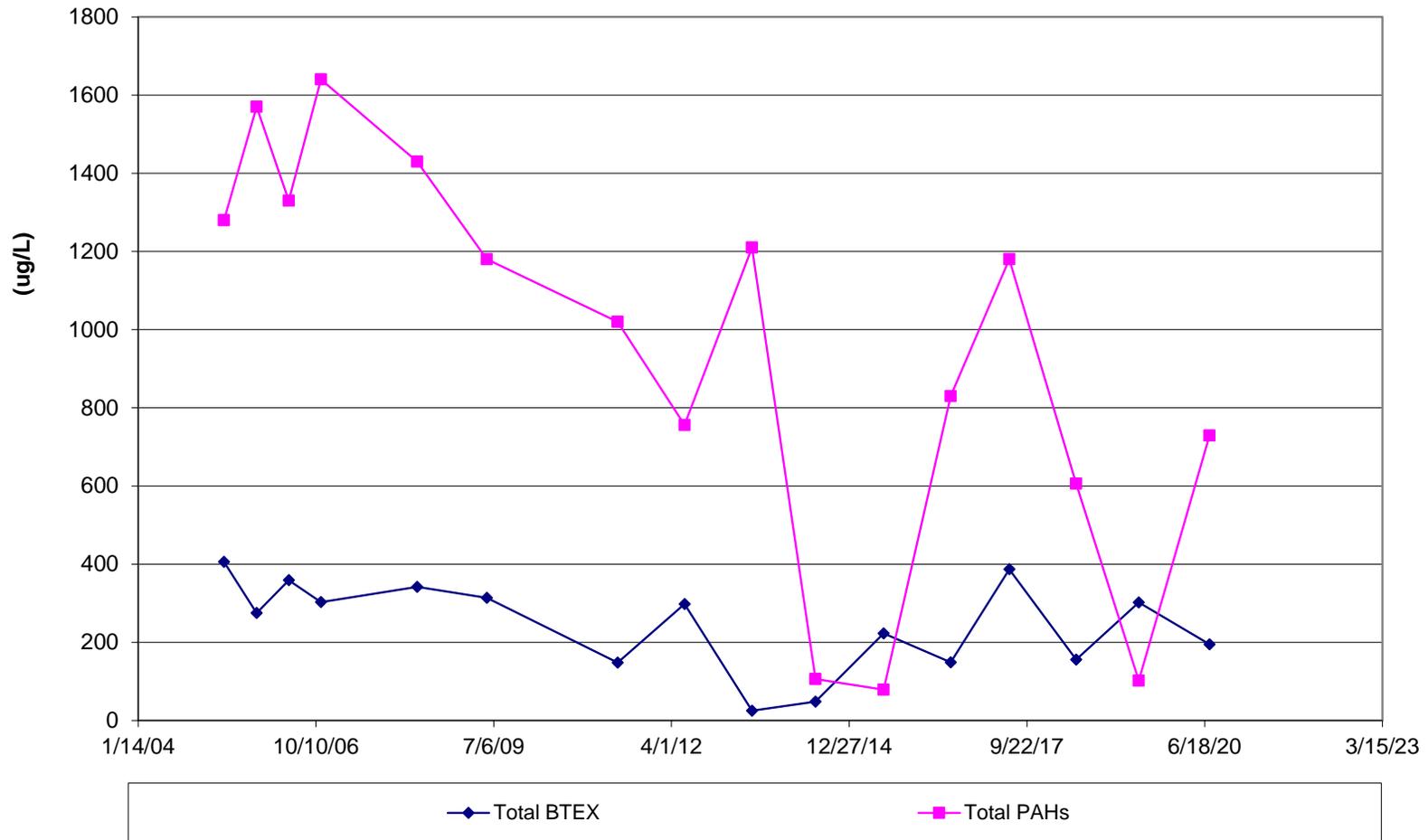
ATTACHMENT 2

MW98-7D Time-Series Graph



**TOTAL BTEX & PAH CONCENTRATION OVER TIME
MONITORING WELL - MW98-7D**

**2020 GROUNDWATER SAMPLING REPORT
NYSEG
WATERVILLE FORMER MGP SITE
WATERVILLE, NEW YORK**



ATTACHMENT 3

Soil Cover Inspection Photograph Log



SOIL COVER INSPECTION PHOTOGRAPH LOG

CLIENT: NYSEG	SITE NAME: Waterville Former MGP Site
PROJECT#: 30056393	SITE LOCATION: Waterville, New York
PHOTOGRAPH #: 1	
PHOTOGRAPHER: JES	
DATE: 07/15/2020	
DIRECTION: South	
COMMENT: View of above-ground swimming pool behind 139 Babbott Ave.	

CLIENT: NYSEG	SITE NAME: Waterville Former MGP Site
PROJECT#: 30056393	SITE LOCATION: Waterville, New York
PHOTOGRAPH #: 2	
PHOTOGRAPHER: JES	
DATE: 07/15/2020	
DIRECTION: Southwest	
COMMENT: View of small raised-bed vegetable garden behind 145 Babbott Avenue property.	

SOIL COVER INSPECTION PHOTOGRAPH LOG

CLIENT: NYSEG	SITE NAME: Waterville Former MGP Site
PROJECT#: 30056393	SITE LOCATION: Waterville, New York
PHOTOGRAPH #: 3	
PHOTOGRAPHER: JES	
DATE: 07/15/2020	
DIRECTION: South	
COMMENT: View of vegetable garden behind 139 Babbott Avenue property.	

CLIENT: NYSEG	SITE NAME: Waterville Former MGP Site
PROJECT#: 30056393	SITE LOCATION: Waterville, New York
PHOTOGRAPH #: 4	
PHOTOGRAPHER: JES	
DATE: 07/15/2020	
DIRECTION: West	
COMMENT: View of new small vegetable garden (foreground) and four new rectangular raised-bed vegetable gardens (fenced in background) behind 139 Babbott Avenue property.	

SOIL COVER INSPECTION PHOTOGRAPH LOG

CLIENT: NYSEG	SITE NAME: Waterville Former MGP Site
PROJECT#: 30056393	SITE LOCATION: Waterville, New York
PHOTOGRAPH #: 5	
PHOTOGRAPHER: JES	
DATE: 07/15/2020	
DIRECTION: Southeast	
COMMENT: View of soil cover looking southeast.	

CLIENT: NYSEG	SITE NAME: Waterville Former MGP Site
PROJECT#: 30056393	SITE LOCATION: Waterville, New York
PHOTOGRAPH #: 6	
PHOTOGRAPHER: JES	
DATE: 07/15/2020	
DIRECTION: North	
COMMENT: View of soil cover looking north.	