



MEMORANDUM

To: Syosset Central School District
From: Walden Environmental Engineering, PLLC
File: SYOS0118
Date: October 19th, 2018
Subject: **South Grove School Groundwater Monitoring Results**

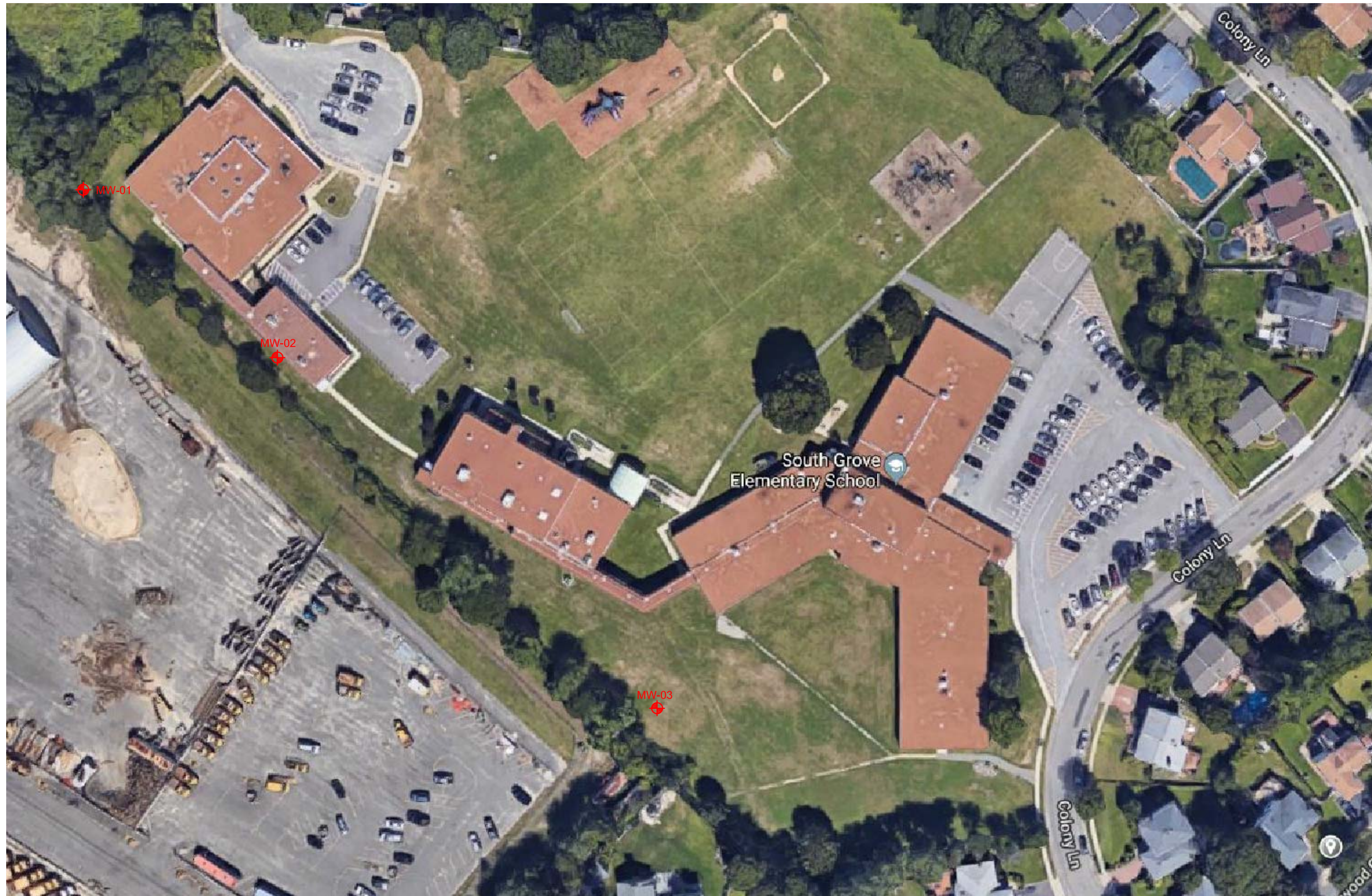
Three (3) new monitoring wells (MW-01, MW-02 and MW-03) were installed at South Grove School in August 2018 at the locations shown on Figure 1 in order to evaluate groundwater quality at the School. The groundwater sampling results confirm that the School is safe.

A grab sample of groundwater was collected from MW-01 immediately after this well was installed. The grab sample was submitted to York Labs for analysis of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) to obtain preliminary groundwater screening results. The three new wells were developed on September 10th to remove solids and establish a connection with the aquifer. Groundwater samples were collected on September 19th and submitted to York Labs for analysis of VOCs and SVOCs, consistent with the grab sample analysis, as well as metals and miscellaneous parameters. The laboratory results are summarized in Tables 1 through 4; the applicable water quality standards for each compound are also listed. Parameters exceeding applicable standards are listed in red.

None of the groundwater samples collected from the South Grove School wells in September 2018 contained any VOCs or SVOCs at concentrations above the standards, and the levels of these compounds are generally lower than those reported for the August 2018 screening sample. While the reported concentrations of some metals and miscellaneous parameters are above the applicable water quality standards, the School is safe because there is no exposure to groundwater beneath the School. Groundwater beneath the School is about 100 feet below ground and drinking water in the area is supplied from a far deeper aquifer.

The dissolved metals concentrations for some of the metals listed in Table 3 are higher than the corresponding total levels. Although this may seem counterintuitive, the data have been evaluated by York Labs and found to meet quality control requirements given the margin of error in the analytical instrumentation.

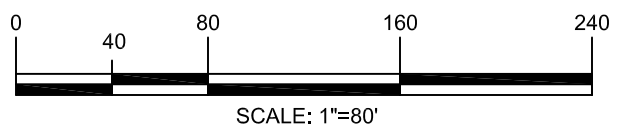
Walden Environmental Engineering, PLLC



SEC.: 15
 BLOCK: 133
 LOT: 8




WALDEN ENVIRONMENTAL ENGINEERING, PLLC
 16 SPRING STREET
 OYSTER BAY, NEW YORK 11771
 P: (516) 624-7200 F: (516) 624-3219
WWW.WALDENENVIRONMENTALENGINEERING.COM



NO	DATE	REVISION COMMENTS
0		

FOR:
SOUTH GROVE ELEMENTARY SCHOOL
 60 Colony Ln, Syosset, NY 11791
 DESIGNED BY: NMB
 APPROVED BY: JMH

DRAWING TITLE:
MONITORING WELLS LOCATION
 60 Colony Lane, Syosset, NY 11791
 JOB NO: SYOS0118
 DATE: 10/04/18
 SCALE: AS NOTED

DRAWING NO: **1**
 SHEET NO: 1 OF 1
 ISSUED
 REVISION NO: **0**

**SYOSSET CENTRAL SCHOOL DISTRICT
SOUTH GROVE SCHOOL
GROUNDWATER MONITORING RESULTS**

TABLE 1

VOLATILE ORGANIC COMPOUNDS (VOCs)

Chemical Compound	NYSDEC Class GA Ambient Water Quality Standards/Guidance Values (µg/L)	MW-01 Screening Sample (8/22/2018)	MW-01 (9/19/2018)	MW-02 (9/19/2018)	MW-03 (9/19/2018)
VOLATILE ORGANIC COMPOUNDS					
1,1,1,2-Tetrachloroethane	5	< 0.20	< 0.20	< 0.20	< 0.20
1,1,1-Trichloroethane	5	< 0.20	< 0.20	< 0.20	< 0.20
1,1,2,2-Tetrachloroethane	5	< 0.20	< 0.20	< 0.20	< 0.20
1,1,2-Trichloro-1,2,2-trifluoroethane	5	< 0.20	< 0.20	< 0.20	< 0.20
1,1,2-Trichloroethane	1	< 0.20	< 0.20	< 0.20	< 0.20
1,1-Dichloroethane	5	< 0.20	< 0.20	< 0.20	< 0.20
1,1-Dichloroethylene	5	< 0.20	< 0.20	< 0.20	< 0.20
1,2,3-Trichlorobenzene	5	< 0.20	< 0.20	< 0.20	< 0.20
1,2,3-Trichloropropane	0.04	< 0.20	< 0.20	< 0.20	< 0.20
1,2,4-Trichlorobenzene	5	< 0.20	< 0.20	< 0.20	< 0.20
1,2,4-Trimethylbenzene	5	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dibromo-3-chloropropane	0.04	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dibromoethane	0.6	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dichlorobenzene	3	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dichloroethane	0.0006	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dichloropropane	1	< 0.20	< 0.20	< 0.20	< 0.20
1,3,5-Trimethylbenzene	5	< 0.20	< 0.20	< 0.20	< 0.20
1,3-Dichlorobenzene	3	< 0.20	< 0.20	< 0.20	< 0.20
1,4-Dichlorobenzene	3	< 0.20	< 0.20	< 0.20	< 0.20
1,4-Dioxane	NS	< 40	< 40	< 40	< 40
2-Butanone	50	0.97	< 0.20	< 0.20	< 0.20
4-Methyl-2-pentanone	NS	2.5	< 0.20	< 0.20	< 0.20
Acetone	50	6.7	1.1	E,J < 1.0	1.8 E,J
Acrolein	5	< 0.20	< 0.20	< 0.20	< 0.20
Acrylonitrile	5	< 0.20	< 0.20	< 0.20	< 0.20
Benzene	1	< 0.20	< 0.20	< 0.20	< 0.20
Bromochloromethane	5	< 0.20	< 0.20	< 0.20	< 0.20
Bromodichloromethane	50	0.24	J < 0.20	< 0.20	< 0.20
Bromoform	50	< 0.20	< 0.20	< 0.20	< 0.20
Bromomethane	5	< 0.20	< 0.20	< 0.20	< 0.20
Carbon Disulfide	60	< 0.20	< 0.20	< 0.20	< 0.20
Carbon Tetrachloride	5	< 0.20	< 0.20	< 0.20	< 0.20
Chlorobenzene	5	< 0.20	< 0.20	< 0.20	< 0.20
Chloroethane	5	< 0.20	< 0.20	< 0.20	< 0.20
Chloroform	7	0.44	J < 0.20	< 0.20	< 0.20
Chloromethane (Methyl Chloride)	5	< 0.20	< 0.20	< 0.20	< 0.20
cis-1,2-Dichloroethylene	5	< 0.20	< 0.20	< 0.20	< 0.20
cis-1,3-Dichloropropylene	0.4	< 0.20	< 0.20	< 0.20	< 0.20
Cyclohexane	NS	< 0.20	< 0.20	< 0.20	< 0.20
Dibromochloromethane	50	< 0.20	< 0.20	< 0.20	< 0.20
Dibromomethane	5	< 0.20	< 0.20	< 0.20	< 0.20
Dichlorodifluoromethane	5	< 0.20	< 0.20	< 0.20	< 0.20
Ethylbenzene	5	< 0.20	< 0.20	< 0.20	< 0.20
Hexachlorobutadiene	0.5	< 0.20	< 0.20	< 0.20	< 0.20
Isopropylbenzene (Cumene)	5	< 0.20	< 0.20	< 0.20	< 0.20
Methyl Acetate	NS	< 0.20	< 0.20	< 0.20	< 0.20
Methyl-tert-Butyl Ether	10	< 0.20	< 0.20	< 0.20	< 0.20
Methylcyclohexane	NS	< 0.20	< 0.20	< 0.20	< 0.20
Methylene Chloride	5	< 1.00	< 1.00	< 1.00	< 1.00
n-Butylbenzene	5	< 0.20	< 0.20	< 0.20	< 0.20
n-Propylbenzene	5	< 0.20	< 0.20	< 0.20	< 0.20
o-Xylene	5	< 0.20	< 0.20	< 0.20	< 0.20
p-&m-Xylene	5	< 0.50	< 0.50	< 0.50	< 0.50
p-Isopropyltoluene	5	< 0.20	< 0.20	< 0.20	< 0.20
sec-Butylbenzene	5	< 0.20	< 0.20	< 0.20	< 0.20
Styrene	5	< 0.20	< 0.20	< 0.20	< 0.20
tert-Butyl Alcohol	NS	< 0.50	1.20	J < 0.50	< 0.50
tert-Butylbenzene	5	< 0.20	< 0.20	< 0.20	< 0.20
Tetrachloroethylene	5	< 0.20	< 0.20	< 0.20	< 0.20
Toluene	5	0.59	J	0.43 J	< 0.20 0.29 J
trans-1,2-Dichloroethylene	5	< 0.20	< 0.20	< 0.20	< 0.20
trans-1,3-Dichloropropylene	0.4	< 0.20	< 0.20	< 0.20	< 0.20
trans-1,4-dichloro-2-butene	5.0	< 0.20	< 0.20	< 0.20	< 0.20
Trichloroethylene	5	< 0.20	< 0.20	< 0.20	< 0.20
Trichlorofluoromethane	5	< 0.20	< 0.20	< 0.20	< 0.20
Vinyl chloride	2	< 0.20	< 0.20	< 0.20	< 0.20
Xylene (total)	5	< 0.60	< 0.60	< 0.60	< 0.60

Notes:

Standards/guidance values from NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1

All results in µg/L - Micrograms per liter

Bold-Detected above Laboratory Detection Limit

Red text-Exceeds NYSDEC Standards/Guidance Values

J-Detected below the Reporting Limit but greater than or equal to the MDL

E-Estimated value reported by laboratory.

SYOSSET CENTRAL SCHOOL DISTRICT
SOUTH GROVE SCHOOL
GROUNDWATER MONITORING RESULTS

TABLE 2

SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)

Chemical Compound	NYSDEC Class GA Ambient Water Quality Standards/Guidance Values (µg/L)	MW-01 Screening Sample (8/22/2018)	MW-01 (9/19/2018)	MW-02 (9/19/2018)	MW-03 (9/19/2018)
SEMI-VOLATILE ORGANIC COMPOUNDS					
1,1-Biphenyl	5	< 3.33	< 2.94	< 2.78	< 2.63
1,2,4,5-Tetrachlorobenzene	5	< 3.33	< 2.94	< 2.78	< 2.63
1,2,4-Trichlorobenzene	5	< 3.33	< 2.94	< 2.78	< 2.63
1,2-Dichlorobenzene	3	< 3.33	< 2.94	< 2.78	< 2.63
1,2-Diphenylhydrazine	ND	< 3.33	< 2.94	< 2.78	< 2.63
1,3-Dichlorobenzene	3	< 3.33	< 2.94	< 2.78	< 2.63
1,4-Dichlorobenzene	3	< 3.33	< 2.94	< 2.78	< 2.63
2,3,4,6-Tetrachlorophenol	NS	< 3.33	< 2.94	< 2.78	< 2.63
2,4,5-Trichlorophenol	NS	< 3.33	< 2.94	< 2.78	< 2.63
2,4,6-Trichlorophenol	NS	< 3.33	< 2.94	< 2.78	< 2.63
2,4-Dichlorophenol	5	< 3.33	< 2.94	< 2.78	< 2.63
2,4-Dimethylphenol	50	< 3.33	< 2.94	< 2.78	< 2.63
2,4-Dinitrophenol	10	< 3.33	< 2.94	< 2.78	< 2.63
2,4-Dinitrotoluene	5	< 3.33	< 2.94	< 2.78	< 2.63
2,6-Dinitrotoluene	5	< 3.33	< 2.94	< 2.78	< 2.63
2-Chloronaphthalene	10	< 3.33	< 2.94	< 2.78	< 2.63
2-Chlorophenol	NS	< 3.33	< 2.94	< 2.78	< 2.63
2-Methyl-4,6-dinitrophenol	NS	< 3.33	< 2.94	< 2.78	< 2.63
2-Methylnaphthalene	NS	< 3.33	< 2.94	< 2.78	< 2.63
2-Methylphenol	NS	< 3.33	< 2.94	< 2.78	< 2.63
2-Nitroaniline	5	< 3.33	< 2.94	< 2.78	< 2.63
2-Nitrophenol	NS	< 3.33	< 2.94	< 2.78	< 2.63
3,3'-Dichlorobenzidene	5	< 3.33	< 2.94	< 2.78	< 2.63
3,4-Methylphenol	NS	< 3.33	< 2.94	< 2.78	< 2.63
3-Nitroaniline	5	< 3.33	< 2.94	< 2.78	< 2.63
4-Bromophenyl phenyl ether	NS	< 3.33	< 2.94	< 2.78	< 2.63
4-Chloro-3-methylphenol	NS	< 3.33	< 2.94	< 2.78	< 2.63
4-Chloroaniline	5	< 3.33	< 2.94	< 2.78	< 2.63
4-Chlorophenol phenyl ether	NS	< 3.33	< 2.94	< 2.78	< 2.63
4-Nitroaniline	5	< 3.33	< 2.94	< 2.78	< 2.63
4-Nitrophenol	NS	< 3.33	< 2.94	< 2.78	< 2.63
Acenaphthene	20	< 0.0667	< 0.0588	< 0.0556	< 0.0526
Acenaphthylene	NS	< 0.0667	< 0.0588	< 0.0556	< 0.0526
Acetophenone	NS	< 3.33	< 2.94	< 2.78	< 2.63
Aniline	5	< 3.33	< 2.94	< 2.78	< 2.63
Anthracene	50	< 0.0667	< 0.0588	< 0.0556	< 0.0526
Atrazine	7.5	< 0.667	< 0.588	< 0.556	< 0.526
Benzaldehyde	NS	< 3.33	< 2.94	< 2.78	< 2.63
Benzidine	5	< 13.3	< 11.8	< 11.1	< 10.5
Benzo(a)anthracene	0.002	0.133	< 0.0588	< 0.0556	< 0.0526
Benzo(a)pyrene	ND	0.133	< 0.0588	< 0.0556	< 0.0526
Benzo(b)fluoranthene	0.002	0.120	< 0.0588	< 0.0556	< 0.0526
Benzo(g,h,i)perylene	NS	0.120	< 0.0588	< 0.0556	< 0.0526
Benzo(k)fluoranthene	0.002	0.120	< 0.0588	< 0.0556	< 0.0526
Benzoic Acid	NS	< 33.3	< 29.4	< 27.8	< 26.3
Benzyl Alcohol	NS	< 3.33	< 2.94	< 2.78	< 2.63
Benzyl butyl phthalate	NS	< 3.33	< 2.94	< 2.78	< 2.63
bis(2-Chloroethoxy)methane	5	< 3.33	< 2.94	< 2.78	< 2.63
bis(2-Chloroethyl)ether	1	< 3.33	< 2.94	< 2.78	< 2.63
bis(2-Chloroisopropyl)ether	NS	< 3.33	< 2.94	< 2.78	< 2.63
bis(2-Ethylhexyl)phthalate	5	< 0.667	< 0.588	0.644 B	< 0.526
Caprolactam	NS	24.8	< 2.94	< 2.78	< 2.63
Carbazol	NS	< 3.33	< 2.94	< 2.78	< 2.63
Chrysene	0.002	0.133	< 0.0588	< 0.0556	< 0.0526
Dibenzo(a,h)anthracene	NS	< 0.0667	< 0.0588	< 0.0556	< 0.0526
Dibenzofuran	NS	< 3.33	< 2.94	< 2.78	< 2.63
Diethyl phthalate	50	< 3.33	< 2.94	< 2.78	< 2.63
Dimethyl phthalate	50	< 3.33	< 2.94	< 2.78	< 2.63
Di-n-butylphthalate	50	< 3.33	< 2.94	< 2.78	< 2.63
Di-n-octylphthalate	50	< 3.33	< 2.94	< 2.78	< 2.63
Fluoranthene	50	0.307	0.0706	< 0.0556	< 0.0526
Fluorene	50	< 0.067	< 0.0588	0.689	< 0.0526
Hexachlorobenzene	0.04	< 0.027	< 0.0235	< 0.0222	< 0.0211
Hexachlorobutadiene	0.5	< 0.667	< 0.588	< 0.556	< 0.526
Hexachlorocyclopentadiene	5	< 3.33	< 2.94	< 2.78	< 2.63
Hexachloroethane	5	< 0.667	< 0.588	< 0.556	< 0.526
Indeno(1,2,3-cd)pyrene	0.002	0.933 IS-HI	< 0.0588	< 0.0556	< 0.0526
Isophorone	50	< 3.33	< 2.94	< 2.78	< 2.63
Naphthalene	10	< 0.067	0.259	0.111	< 0.0526
Nitrobenzene	0.4	< 0.333	< 0.294	< 0.278	< 0.263
N-Nitrosodimethylamine	NS	< 0.667	< 0.588	< 0.556	< 0.526
N-Nitrosodi-n-propylamine	NS	< 3.33	< 2.94	< 2.78	< 2.63
N-Nitrosodiphenylamine	50	< 3.33	< 2.94	< 2.78	< 2.63
Pentachlorophenol	1	< 0.333	< 0.294	< 0.278	< 0.263
Phenanthrene	50	0.147	0.0824	< 0.0556	< 0.0526
Phenol	1	< 3.33	< 2.94	< 2.78	< 2.63
Pyrene	50	0.213	< 0.0588	< 0.0556	< 0.0526

Notes:

Standards/guidance values from NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1

All results in µg/L - Micrograms per liter

Bold-Detected above Laboratory Detection Limit

Red text-Exceeds NYSDEC Standards/Guidance Values

IS-HI-Sample rerun to confirm matrix

B-Analyte found in associated analysis batch blank.

**SYOSSET CENTRAL SCHOOL DISTRICT
SOUTH GROVE SCHOOL
GROUNDWATER MONITORING RESULTS**

TABLE 3

TOTAL AND DISSOLVED METALS

Chemical Compound	NYSDEC Class GA Ambient Water Quality Standards/Guidance Values (µg/L)	MW-01 (9/19/2018)		MW-02 (9/19/2018)		MW-03 (9/19/2018)	
		Total	Dissolved	Total	Dissolved	Total	Dissolved
METALS							
Aluminum	2,000	2,050	< 55.6	1,040	61.9	7,760	< 5.56
Barium	1,000	213	199	129	113	116	43.0
Calcium	NS	72,200	70,900	47,100	47,800	72,100	59,400
Chromium	50	15.1	< 5.56	6.84	< 5.56	80.5	< 5.56
Cobalt	NS	21.7	15.0	< 4.44	< 4.44	32.5	10.5
Copper	200	43.3	< 22.2	< 22.2	< 22.2	189	< 22.2
Iron	300	3,280	< 278	1,870	< 278	21,800	< 278
Lead	25	10.3	< 5.56	< 5.56	< 5.56	11.8	< 5.56
Magnesium	35,000	14,300	14,200	7,470	7,500	7,530	6,420
Manganese	300	2,220	2,150	215	190	2,060	1,530
Nickel	100	< 11.1	< 11.1	< 11.1	< 11.1	32.6	< 11.1
Potassium	NS	13,500	13,300	6,620	6,770	6,120	4,690
Selenium	10	< 27.8	< 27.8	< 27.8	< 27.8	< 27.8	< 27.8
Silver	50	< 5.56	< 5.56	< 5.56	< 5.56	< 5.56	< 5.56
Sodium	20,000	899,000	907,000	368,000	381,000	15,900	15,900
Vanadium	NS	18.1	< 11.1	< 11.1	< 11.1	31.5	< 11.1
Zinc	2,000	82.4	1,040	51.1	< 27.8	124	< 27.8
Antimony	3	< 1.11	< 1.11	< 1.11	< 1.11	< 1.11	< 1.11
Arsenic	25	4.78	< 1.11	2.59	< 1.11	16.1	< 1.11
Beryllium	3	0.346	< 0.333	< 0.333	< 0.333	< 0.333	< 0.333
Cadmium	5	< 0.556	< 0.556	< 0.556	< 0.556	< 0.556	< 0.556
Thallium	0.5	< 1.11	< 1.11	< 1.11	< 1.11	< 1.11	< 1.11
Mercury	0.7	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Notes:

Standards/guidance values from NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1

All results in µg/L - Micrograms per liter

Bold-Detected above Laboratory Detection Limit

Red text-Exceeds NYSDEC Standards/Guidance Values

**SYOSSET CENTRAL SCHOOL DISTRICT
SOUTH GROVE SCHOOL
GROUNDWATER MONITORING RESULTS**

TABLE 4

MISCELLANEOUS PARAMETERS

Chemical Compound	NYSDEC Class GA Ambient Water Quality Standards/Guidance Values (mg/L)	MW-01 (9/19/2018)		MW-02 (9/19/2018)		MW-03 (9/19/2018)	
MISCELLANEOUS PARAMETERS							
Total Dissolved Solids	500*		2,600		1,240		311
Bromide	2	<	0.20	<	0.20	<	0.20
Chloride	250		1,450		571		24.5
Nitrate as N	10		0.292		1.03		4.98
Sulfate as SO4	250		28.9		18.6		31.1
Alkalinity, Total	NS		52		64		150
Ammonia Nitrogen as N	2		0.272	<	0.050		0.539
Biochemical Oxygen demand (BOD) 5-day	NS		23		22		7.0
Chemical Oxygen Demand (COD)	NS		640		400		360
Color, Apparent	NS		4,000		3,000		30,000
pH	6.5-8.5*		6.48		6.57		6.50
Phenols, Total	0.001	<	0.05	<	0.05	<	0.05
Total Kjeldahl Nitrogen	NS		2.92		1.29		6.68
Total Organic Carbon	NS		16.2		14.1		8.61
Total Hardness (as CaCO3)	NS		242		154		218

Notes:

Standards/guidance values from NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1

* USEPA National Secondary Drinking Water Standard

All results in mg/L - Milligrams per liter or as indicated

Bold-Detected above Laboratory Detection Limit

Red text-Exceeds NYSDEC Standards/Guidance Values