HYDROGEOLOGIC ASSESSMENT OF THE WAINSCOTT COMMERCIAL CENTER EAST HAMPTON, NEW YORK

Prepared for

Wainscott Commercial Center, LLC
P.O. Box 1259
Wainscott, New York 11975

November 2018

ALPHA GEOSCIENCE

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Geology
Hydrology
Remediation
Water Supply

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1.0 INTRODUCTION

This report presents the results of a hydrogeologic investigation of the Wainscott Commercial Center proposed by Wainscott Commercial Center, LLC in East Hampton, New York. The site was previously a sand mine that now occupies approximately 70 acres on the north side of New York Route 27 (Figure 1). The site is bordered by Wainscott Northwest Road on the west, Hedges Lane on the east, and the Long Island Rail Road on the north.

This investigation was conducted by Alpha Geological Services, D.P.C. (Alpha Geoscience, d.b.a.) (Alpha) at the request of Wainscott Commercial Center, LLC to establish current (predevelopment) conditions and to address potential environmental impacts from the proposed development of the site for multi-use commercial and industrial tenants. The two primary hydrogeologic features of local concern are the underlying water table aquifer, which is the source of potable water for the local community, most of whom are on private water supply wells[1], and the recreational surface water feature known as Georgica Pond (Figure 1).

The primary concerns for drinking water within the East Hampton community are for the contaminants: perfluorooctane sulfonate (PFOS); perfluorooctanic acid (PFOA); hexavalent chromium; and 1,4-dioxane. These contaminants are of concern due to their potential health effects if consumed.

Iron and manganese that occur above average Suffolk County ground water concentrations have also been detected in ground water in the County and have been identified as being indicative parameters related to a vegetative waste processing facility. There is no vegetative waste processing facility on the site. Iron and manganese also are not regulated as a hazardous waste; consequently, they are not as great a concern as the other mentioned contaminants.

The primary concern for Georgica Pond is the effects on this surface water feature by nitrogen, phosphorus, and bacteria from septic discharge to the water table and also from stormwater

[1] The town recently created the Wainscott Water District that incorporates the site and its surrounding community. The Suffolk County Water Authority (SCWA) is in the process of installing water mains throughout the newly created district, which will provide all home owners with the opportunity to connect to public water supplied by the SCWA that is treated for excess iron and manganese.

runoff (Lombardo Associates, Inc.; 2015). The nitrogen and phosphorus compounds can result in algal blooms and related degradation that impair the aesthetic quality of the water, create a contact recreation hazard, and damage the aquatic habitat.

The primary objectives of this investigation were to evaluate the elevation and flow direction of the water table beneath the site, assess ground water quality, estimate the rate of horizontal ground water flow across the site, and determine how the site water table relates to the area around the site and Georgica Pond. Secondary objectives are to provide data about the soil material at the site and the depth to water across the site to aid in site development. The methods to address the objective are provided herein.

2.0 METHODS

The investigation objectives were met by:

- Drilling seven borings, on June 6 – 7, 2018, around the perimeter of the site (MW-1 through MW-7) using a hollow-stem auger and driving a two-foot long split barrel sampler at five-foot intervals. The auger cuttings and split spoon samples were logged in the field by a geologist. The geologic logs are provided in Appendix A, and the hole locations are shown on Figure 2 along with ten pre-existing monitoring wells (OMW series wells).
- Installing monitoring wells in each of the seven soil borings drilled in 2018. The well installations were observed and documented by the field geologist, and those logs are provided in Appendix B. Each well was constructed by installing a two-inch diameter, 0.01-slot, 10-foot-long well screen to a sufficient depth so that the well screen straddled the water table. The wells were backfilled with sand around the screen and sealed above the screen with 0.5 to 1.0 feet of bentonite, followed by auger cuttings and the placement of a lockable steel cap.
- Surveying location, elevation of the ground surface and elevation of the top of the PVC casing for each well by Fox Land Surveying of West Hampton Beach, New York (Fox). The elevation data are provided on Table 1.

- Developing each new well using a Waterra pump and dedicated tubing. Development was conducted to remove fine sediment and establish an effective connection to the aquifer.
- Measuring water levels after each new well was installed and, again, on June 26, 2018 and September 20, 2018. These water levels are provided on Table 2 along with a conversion of each depth-to-water measurement to a water table elevation based on the Fox survey data. All water level measurements were made from the top of the PVC casings. Water levels were also measured in two pre-existing wells (MW-6A and MW-8). The construction details of these wells are unknown; however, the depth of MW-8 was measured at 31.13 feet from the top of the casing. Consequently, this well is considered representative of the water table.
- Measuring of the water surface elevation of Georgica Pond by the U.S. Geological Survey (USGS) on a continuous basis. The daily water level data measured for the past four months are provided in Appendix C and on Table 2. Alpha personnel also installed a staff gauge (SG-1) in a pool of water in the middle of the site in order to obtain the elevation of that water. The location of SG-1 is provided on Figure 2. The ground surface elevation at SG-1 was estimated from site topography provided by Fox. The Fox survey map is provided in Appendix D.
- Collecting ground water samples from wells MW-1 through MW-8 by Alpha on June 26 and 27, 2018. The samples were taken after purging three well volumes of water from each well. The purging and sampling were conducted using a new, clean bailer for each well. The samples were placed in sample jars supplied by Pace Analytical Services, LLC, placed in a cooler with ice, and transported by Alpha to the Pace Laboratory in Melville, New York.
- Having the ground water samples analyzed, by Pace Analytical Services, LLC of Melville, New York, for dissolved metals, hardness, fluoride, sulfate, chloride, alkalinity, nitrogen, nitrate, nitrite, total dissolved solids, and hexavalent chromium. Pace subcontracted analyses for per- and polyfluoroalkyl substances (PFAs) and 1,4-dioxane through Test America. The analytical results are provided on Table 3.

- Analyzing the ground water elevation and quality data to assess the direction and rate of ground water flow across the site, the relationship of site ground water to Georgica Pond and the community as a whole, and potential sources of some parameters identified in the ground water.
- Researching and reviewing published literature and other unpublished reports for the area and Suffolk County as a whole, as needed, to help in the understanding of the site hydrogeological conditions.
- Reviewing pre-existing ground water elevation and ground water quality data from an investigation of the site in 1999 through 2000. Those water level elevation data are provided on Table 4. The pre-existing water quality data are provided on Table 5.

3.0 RESULTS

3.1 Site Geology

The soils encountered at the site consist of fill composed of coarse to fine sand with some medium to fine gravel and pockets of silt near the surface at some locations. These sandy and gravelly fill materials sit on top of fine to coarse sands of the water table aquifer, which is identified as the "Upper Glacial Aquifer" (Smolensky et al.; 1989).

3.2 Site Hydrogeology

The water level elevation data collected from the OMW series wells in 1999 (Table 4) show that the ground water elevations were highest along the northwest edge of the site and lowest to the southeast. Ground water flows from higher elevations to lower elevations; consequently, the data show that the flow was from the northwest across the site to the southeast. This flow is illustrated on the ground water contour maps for measurements that were made on 12/16/1999 (Figure 3) and again on March 22, 2000 (Figure 4).

The water level measurements were made in the new site monitoring wells, and pre-existing well OMW-1/MW-8, by Alpha on June 26 and September 20, 2018. The water level measurements were converted to water table elevations and used to construct site water table contour maps representing conditions on those respective days (Figures 5 and 6). Both maps confirm the

previous interpretation that the water table slopes across the site from the northwest to the southeast. The only exception to the northwest to the southeast slope was at MW-1 on June 26 (Figure 5) when that water table elevation was higher at that well in the southwest corner than at any other site well. That high level in MW-1 on that date was due to localized aquifer recharge associated with ponded water at the land surface. The water level in MW-1 had returned to an elevation that was consistent with the overall slope of the water table of northwest to southeast as of the September measurements (Figure 6).

Figure 7 provides an expanded view showing the regional ground water flow pattern for the site and surrounding area that is based on the September 20, 2018 site water level measurements along with a USGS measurement of the Georgica Pond water surface elevation. This regional map shows that ground water flows from upgradient areas, such as the East Hampton Airport, and beyond, toward the southeast where the ground water discharges into Georgica Pond and, ultimately, the Atlantic Ocean. The solid lines on Figure 7 are based on actual data, and the dashed lines are inferred or projected based on the expected patterns of ground water flow. This pattern of flow across the site and toward the natural discharge area at Georgica Pond is consistent with a water table map for the area that was prepared by the USGS (Monti et al.; 2013).

3.3 Horizontal Ground Water Flow Velocity

Knowledge of the horizontal velocity of ground water flow is helpful in assessing changes in the distribution of contaminants through time. Although various metals and chemical contaminants in ground water may not move across the site at the same rate as the linear velocity of the ground water, knowledge of the ground water flow is an aid in assessing relative changes in the distribution of detected analytes when comparing water quality results spanning nearly two decades.

The basic equation for estimating horizontal ground water velocity in a sand aquifer like that at the site is:

$$v = -Ki/n$$

where: v = average velocity of ground water flow

K = hydraulic conductivity of the aquifer
i = hydraulic gradient
n = porosity of the aquifer

The hydraulic conductivity of the outwash sand portion of the upper glacial aquifer was determined by McClymonds and Franke (1972) to range from 2,000 to 3,000 gallons per day per foot squared (gpd/ft^2). Alpha selected the midpoint of the range and used 2,500 gpd/ft^2 or 334.8 ft/year in the flow equation.

The water gradient across the site was determined from the September 20, 2018 ground water contour map (Figure 6). The water table had a measured drop of 2.0 feet over a horizontal distance of approximately 2,075 feet. This yields a gradient of -9.6 x 10^{-4} ft/ft.

The porosity is assumed to be approximately 0.35. This is based on the assumption that the outwash sand is moderately sorted fine to coarse sand. Applying this value and the other values for K and i into the equation yields an estimated linear velocity of 335 feet per year across the site.

3.4 Ground Water Quality

The analytical results from the ground water samples obtained by Alpha from the site monitoring wells and the ground water sampling results from the earlier investigation are provided on Tables 3 and 5, respectively. These results are provided on the tables along with the various United States Environmental Protection Agency (USEPA) and New York State Standards. These standards include the Maximum Contaminant Levels enforced by the USEPA (MCL EPA), the Secondary Maximum Contaminant Levels suggested by the EPA (SMCL EPA), the New York State Department of Health enforced Part 5 drinking water standards (NYSDOH DWS), and the New York State fresh ground water standards (NY GA GW).

The historical results from 1999 and 2000 (Table 5) show that iron and manganese were above standards at all of the old well locations, except for OMW-6. Other critical elements and compounds; such as lead, nitrate, and ammonia; were either not detected or at levels that were within standards when tested in 1999/2000 (Table 5). The volatile organic compounds (VOCs) related to hydrocarbons, such as gasoline or oil; herbicides; and pesticides were not detected in

any of the OMW wells. Testing for these substances was not included in water quality analyses for samples collected in the new wells in 2018.

The 2018 water quality analyses (Table 3) were focused on selected metals, which included iron and manganese, along with hexavalent chromium (CR6), 1,4-dioxane, and PFAS. The overall results for the tested parameters show that the water quality is good and meets standards except for PFAS, iron, manganese, aluminum, and sodium. Per- and polyfluoroalkyl substances (PFAS) were detected in all of the sampled monitoring wells. The relative concentrations appear to be similar on both the upgradient and downgradient sides of the site. Iron and manganese were not detectable or were at low concentrations in most of the wells except for the three downgradient wells (MW-2, MW-7, and MW-8). The sodium and aluminum concentrations were slightly above the recommended levels, which are not enforced standards.

4.0 DISCUSSION OF RESULTS

4.1 Hydrogeology

The soil borings at the site (see geologic logs in Appendix A) indicate that the aquifer at the site is an unconfined sand aquifer. The significance of this aquifer being unconfined is that it receives recharge from direct precipitation to the land surface. The ground water contours show that this recharge both originates from precipitation at the site as well as from precipitation to the land surface upgradient (northwest) of the site. This aquifer recharge from direct precipitation moves by ground water flow from the northwest across the site to the southeast (Figures 3 through 7). The water level contours showing the high water table at MW-1 (southwest corner of the site in June 2018) are a good example of concentrated recharge related to water pooling at the land surface at that location (Figure 5). The regional water table contour map (Figure 7) shows that The East Hampton Airport is directly up the ground water flow gradient from the site; consequently, some of the recharge for the ground water crossing the site is coming from the airport area and further to the northwest of the airport.

Ground water flow from the site is directly toward Georgica Pond; consequently, Georgica Pond is the natural zone of discharge from ground water that both originates at and passes through the

site. Ground water flow beneath the site also passes beneath properties along Hedges Lane, the northern end of Stone Road, Fenwood Road, the eastern end of Merriwood Drive, and a short segment of NY-27 (Montauk Highway), where water supply wells likely exist within the water table aquifer.

Periodic pooling of surface water in the northern half of the site is due to low permeability fill at the surface. These isolated surface water pools are not representative of the water table. This is evidenced by the disparity in elevation between the water at SG-1 and the ground water elevation at that location (Figures 5 and 6).

4.2 Ground Water Quality

The ground water quality is very important to the health of Georgica Pond and also to the people who rely on the ground water as their potable water supply. The concerns for Georgica Pond are focused primarily on nutrient loading from fertilizers and septic systems. The concerns for human health derived from the use of water supply wells go beyond nutrient loading and include contaminants such as PFOA, PFOS, 1,4-dioxane and hexavalent chromium. These chemicals are toxic and linked to severe illnesses, such as cancer. There is also a concern for high iron and manganese, but these concerns are mostly due to aesthetic qualities such as poor taste and staining of household fixtures and clothing, if the water is not treated and filtered. These various analytes are discussed further, herein.

4.2.1 Per- and Polyfluoroalkyl Substances (PFAS)

The PFAS were detected in all eight of the monitoring wells sampled in 2018 (Table 5 and Figure 8). These detected PFAS included the following nine compounds that are listed on Table 3:

PFBS
PFBA
PFpS
PFpA
PFHxS
PFHxA
PFNA
PFOS
PFOA

All nine of these compounds were detected at each of the sampled wells. The three highest concentrations of all the compounds were PFHxS at 430 ppt and PFNA at 220 ppt, at MW-5, and also PFHpS at 440 ppt at MW-6. Both of these wells are on the upgradient side of the site (Figure 8). This supports an interpreted offsite source for these compounds.

Some of the concentrations of the PFAS (PFOA and PFOS) exceeded the EPA secondary contaminant level of 70 parts per trillion (ppt). The wells with concentrations of PFOS greater than 70 ppt occurred on both the upgradient and downgradient sides of the site relative to the direction of ground water flow. These results further indicate that PFAS are originating offsite to the northwest and traveling through the site toward the southeast within ground water.

The New York State Department of Environmental Conservation (NYSDEC) is investigating PFAS in the Town of East Hampton (Town) in the vicinity of the East Hampton Airport (see documents in Appendix E). It is Alpha's understanding from anecdotal reports in a local newspaper (The East Hampton Star) that private wells are being tested by the Suffolk County Department of Health Services (SCDHS) within the Town in the area south of the airport. The WCC site lies within that SCDHS investigation area. Alpha did not have access to the SCDHS testing results with the exception of a well at 65 Main Street in Wainscott (Appendix E). That well contained 190 nanograms per liter (ng/L) of PFOA and 2 ng/L of PFOS. One ng/L is approximately equivalent to one part per one trillion parts (ppt). The 65 Main Street location is southwest of the WCC site; consequently, the PFAS detected at the well would not have passed through the site to reach that location.

There is also an anecdotal report in a Southampton Press article dated March 22, 2018 that a fire training exercise was conducted at the site in June 2000. That training exercise may have involved the use of a fire suppressant foam. The soil at that location, which is near MW-6 and MW-6A, will be sampled during a proposed soil investigation.

4.2.2 1,4-dioxane

The chemical 1,4-dioxane is used as a processing chemical in a variety of manufacturing applications that include, but are not limited to, pharmaceuticals, plastics, rubber, pesticides,

deodorants, cement, and adhesives. It is also used as a solvent in some manufacturing processes (USEPA, 2017). It will dissolve in water and enter the water table where it will move in the direction of ground water flow. The chemical was detected at trace levels in all the site monitoring wells; however, it is far below the New York State drinking water standard of 50 µg/L and appears to be a constituent of the regional water table that is passing through the site.

4.2.3 Hexavalent Chromium (CR6)

Hexavalent chromium (CR6) is another potential contaminant of interest that was selected for analysis. It is a potential contaminant that both occurs in the natural environment and is generated during the manufacturing of cement, but not the mixing of cement for concrete and other cement-based products. Hexavalent chromium was not detected in any of the ground water samples.

4.2.4 Iron and Manganese

The New York State drinking water standard of 0.3 mg/L was exceeded at five locations for iron and four locations for manganese when sampled in 1999 (Figure 10). The values for these metals were highest on the upgradient edges and in the middle of the site. This distribution indicates that at least some of the elevated levels are coming from offsite sources.

The 2018 results (Figure 11) revealed that both iron and manganese were detected at levels exceeding their respective New York State drinking water standards in two of the downgradient wells (MW-2 and MW-7) for iron and three of the downgradient wells (MW-2, MW-7, and MW-8) for manganese. This distribution is much different from that indicated in the 1999 data represented on Figure 10. For example, well MW-5; which was installed in 2018 very close to the OMW-5 location, had no detected iron and 0.016 mg/L of manganese in 2018 as compared to 0.52 mg/L and 1.0 mg/L of iron and manganese, respectively, in 1999. The overall pattern also shifted from the relatively high iron and manganese on the upgradient side to the higher values all being along the downgradient side by 2018. This change may be a function of the rapid horizontal flow of ground water across the site. The estimated ground water flow rate of 335 ft/yr would enable ground water entering the northwest corner of the site to exit the southeast corner in approximately twelve years. Although the dissolved iron and manganese may not

move as quickly as ground water, it is not surprising to see significant differences in metal concentrations at particular locations through time.

It is also not unusual to encounter high dissolved iron and manganese in ground water on Long Island. The SCDHS presented a table (Table 13 in SCDHS, 2016) of the average, maximum, and range of iron and manganese in private wells in Suffolk County (see Table 13 from the SCDHS report in Appendix F). The data on SCDHS Table 13 shows the maximum iron concentration at 33 ppm with an average of 0.9 ppm in those wells where detections occurred. The site detections for iron exhibited a maximum of 5.38 mg/L (5.38 ppm) (1.0 mg/L is approximately equal to 1.0 ppm) and an average of 1.9 mg/L (1.9 ppm). These site detections are similar to the SCDHS findings for the County as a whole.

The SCDHS results for manganese (see Table 13 in Appendix F) exhibited a maximum of 7,000 ppb (1.0 ppb is approximately equal to 1.0 µg/L) and an average of 112 ppb for those wells with detections. The site wells exhibited a maximum of 9,790 µg/L (9,790 ppb) and an average of 1,467 µg/L (1,467 ppb) for the detections in the combined 1999 and 2018 data. These values are higher than the average and maximum concentrations detected in wells across the County.

Iron and manganese are not as great a concern as the other previously discussed chemicals. Iron and manganese are regulated as nuisance chemicals in drinking water due to the staining of household fixtures and the metallic taste in drinking water (Lemley et al., 2005); however, there may be some health effects at long-term higher concentrations in drinking water (USEPA, 2004). The concentrations of these metals can be reduced using chlorine followed by filtration, as is done by the Suffolk County Water Authority in water supplied from its public wells.

4.2.5 Nitrogen

Nitrogen is an important chemical for the Wainscott area due to its potential effects on Georgica Pond (Lombardo Associates, Inc.; 2015). Nitrogen compounds are derived from fertilizers and septic discharge to the water table. Nitrate and Nitrogen as Nitrite were well below the drinking water standards of 10 mg/L in all of the ground water samples collected from the site wells. These results indicate that the site is not contributing to the degradation of Georgica Pond by nutrient loading of the water table.

4.2.6 Validation of Water Quality Data

The water quality analyses for the samples collected in 2018 were validated by Alpha's chemist to assess the data usability. The results of that review are provided in Appendix G. All of the laboratory analytical results were found to be usable, with some of the data being noted to have a higher degree of uncertainty. These are explained in the Data Usability Summary Report (Appendix G).

5.0 CONCLUSIONS

A hydrogeologic investigation of the proposed Wainscott Commercial Center was conducted by Alpha for Wainscott Commercial Center, LLC. The objectives were to describe the soil material at the site, determine the depth to the water beneath the site, assess the relationship of the water table beneath the site to Georgica Pond and to the surrounding community that relies on ground water as a potable water supply, to evaluate the quality of the ground water, and to assess the significance of the water quality as it relates to the site and surrounding area. The investigation was conducted by reviewing data collected from seven wells installed for an investigation in 1999/2000, installing seven new monitoring wells in 2018, measuring water levels in these seven new wells and two existing wells, reviewing water quality data collected from seven old wells in 1999, collecting and analyzing ground water samples from seven new wells and one of the old wells in 2018, and analyzing the data. The following are the key conclusions from this investigation:

- The aquifer at the site is an unconfined water table aquifer consisting of fine to coarse sand fill over fine to coarse sand of the "Upper Glacial Aquifer."
- The water table elevation slopes across the site from northwest to southeast.
- Ground water flow is from the higher ground water elevation in the northwest toward the lower ground water elevation in the southeast.
- The horizontal ground water flow rate is approximately 335 ft/yr across the site.
- The unconfined water table at the site is recharged by direct precipitation and also by ground water flow from recharge areas that are located to the northwest of the site.

- Georgica Pond is the natural discharge area for the water table that is flowing beneath the site.
- The ground water quality at the site is generally good; however, elevated levels of PFOA, PFOS, iron and manganese were detected in some of the ground water samples.
- The PFOA and PFOS concentrations exceed EPA Guideline values of 70 ppt at both upgradient and downgradient locations; consequently, it is interpreted that the elevated PFOA and PFOS values are coming from upgradient sources and passing beneath the site.
- Elevated levels of iron and manganese were detected throughout the site with the highest values on the upgradient side and in the center of the site in 1999.
- The elevated levels of iron and manganese occurred in the downgradient wells in 2018.
- The elevated levels for iron are similar to high background levels of Fe identified in private wells elsewhere in the County by the Suffolk County Department of Health Services (SCDHS); but the manganese appears to be higher than the average manganese concentrations found by the SCDHS.
- The distribution of high iron and manganese in 1999 indicates that offsite sources are likely.
- The high concentration of iron and manganese on the downgradient side in 2018 could be a function of the high horizontal flow rates in the water table.
- Other chemicals, such as nitrates, 1,4-dioxane, and hexavalent chromium, are well within EPA and New York State standards.
- There is no indication of the presence of petroleum related VOC contamination in ground water at the site based on the 1999 data.
- All of the analytical water quality data from the 2018 sampling were determined to be usable.
- The ground water flowing beneath the site and discharging to Georgica Pond will not have a detrimental impact to the nutrient loading in the pond.

- The ground water quality data generated from this investigation provide a database of current background conditions that can be used to assess any unexpected changes in the measured parameters after the site is developed.
- There is no indication that there is a source of ground water contamination at the site that is impacting local, downgradient water supply wells now, or will in the future, if this site is further developed.

6.0 REFERENCES

Lemley, A. T., Schwartz, J. J., Wagenet, L. P., 2005; Iron and Manganese in Household Drinking Water, in Water Treatment Notes, Cornell Cooperative Extension, College of Human Ecology, Cornell University, Fact Sheet 6, 5 pp.

Lombardo Associates, Inc.; 2015; East Hampton Town Wide Wastewater Management Plan; Report to the Town of East Hampton by Lombardo Associates, Inc., FPM Group and Woods Hole Group; June 8, 2015; 552 pp.

USEPA; 2004; Drinking Water Health Advisory for Manganese, EPA Office of Water (4304T), EPA Document No. EPA-822-R-04-003, January 2004, 55 pp.

McClymonds, N.E. and Franke, O.L.; 1972, Water-Transmitting Properties of Aquifers on Long Island, New York, Hydrology and Some Effects of Urbanization on Long Island, New York; United States Department of the Interior, Geological Survey; Geological Survey Professional Paper 627-E, 24 pp.

Monti, J. Jr., Como, M., Bussiolano, M.; 2013; Water-Table and Potentiometric Surface Altitudes in the Upper Glacial, Magothy, and Lloyd Aquifers beneath Long Island, New York, April – May 2010; Scientific Investigations Map 3270, Water Table – Sheet 1 of 4, U.S. Department of the Interior, U.S. Geological Survey.

Smolensky, D. A., Buxton, H. T., Shernoff, P. K.; 1989; Hydrogeologic Framework of Long Island, New York; Hydrogeologic Investigations Atlas HA-709 (Sheet 1 of 3); Department of the Interior, U.S. Geological Survey.

USEPA; 2004; Drinking Water Health Advisory for Manganese, EPA Office of Water (4304T), EPA Document No. EPA-822-R-04-003, January 2004, 55 pp.

USEPA; 2016; Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA); US Environmental Protection Agency, Office of Water (4304T), Health and Ecological Criteria Division, EPA Document No. EPA-822-R-16-005, 103 pp.

USEPA; 2017; Scope of the Risk Evaluation for 1,4-dioxane, EPA Document No. EPA-740-R1-7003, 58 pp.

TABLES

Table 1
Survey Elevations - September 14, 2018
Wainscott Commercial Center
Suffolk County, New York

Well	Elevations (ft rmsl)	
	TOC	Ground Surface
MW-1	14.48	12.09
MW-2	18.94	16.08
MW-3	19.16	16.35
MW-4	18.65	15.63
MW-5	22.36	19.35
MW-6	18.98	16.07
MW-6A	18.06	15.48
MW-7	18.49	15.28
MW-8	23.27	20.80

Notes: Survey was performed by Fox Land Surveying
of Westhampton Beach, NY
Elevations referenced to NAV Datum (MSL 1988).
TOC = Top of PVC Casing (Measuring Point) Elevation

Table 2
Ground Water Elevation Measurements - 2018
Wainscott Commercial Center
Suffolk County, New York

Well	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6		MW-6A		MW-7		MW-8		SG-1*		Georgica Pond USGS Monitoring Station
TOC Elevation (ft rmsl)	14.48		18.94		19.16		18.65		22.36		18.98		18.06		18.49		23.27		20.31		
DATE	DTW	WTE	DTW	WTE	DTW	WTE	DTW	WTE	DTW	WTE	DTW	WTE	DTW	WTE	DTW	WTE	DTW	WTE	DTW	SWE	WTE
6/7 - 8/2018	6.02	8.46	9.33	9.61	8.54	10.62	8.74	9.91	11.57	10.79	8.48	10.50	7.58	10.48	8.58	9.91	15.24	8.03	2.19	18.12	5.88 / 5.85
6/26/2018	2.31	12.17	9.53	9.41	8.69	10.47	8.86	9.79	11.71	10.65	8.65	10.33	7.75	10.31	8.76	9.73	15.37	7.90	2.31	18.00	5.81
9/20/2018	6.88	7.60	10.33	8.61	9.80	9.36	9.89	8.76	12.79	9.57	9.70	9.28	8.76	9.30	9.71	8.78	15.87	7.40	2.27	18.04	5.75

Notes: Survey was performed by Fox Land Surveying of Westhampton Beach, NY

Elevations referenced to NAV Datum (MSL 1988).

TOC = Top of PVC Casing (Measuring Point) Elevation

DTW = Depth to Ground Water from TOC (feet)

WTE = Water Table Elevation (ft rmsl)

SWE = Surface Water Elevation (ft rmsl)

* Staff Gauge , measurements are from top of wooden stake; stake was broken as of 9/20/18, taped back together.
Elevation of the top of the Staff Gauge is estimated from the Topographic Survey Map

Table 3
2018 Laboratory Results
Wainscott Commercial Center
Suffolk County, NY

Well					MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8
Collection Date					6/27/2018	6/27/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018
Analyte/ Parameter	MCL EPA	SMCL EPA	NY DoH DWS*	NY GA GW								
Dissolved Metals	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Aluminum	NS	0.05 to 0.2	NS	NS	0.354	ND	ND	ND	ND	ND	ND	ND
Arsenic	0.01		0.01	0.025	ND	ND	ND	ND	ND	ND	ND	ND
Barium	2.0		2.0	1.0	ND	ND	ND	ND	ND	ND	ND	ND
Calcium	NS	NS	NS	NS	63	20.1	16.9	12.6	16.8	6.43	9.66	80.2
Chromium	0.1 (total)		0.1	0.05	0.0292	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium				0.05	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt	NS	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Copper	1.3	1.0	NS	0.2	ND	ND	ND	ND	ND	ND	ND	ND
Iron	NS	0.3	0.3	0.5 (total)	ND	2.22	0.0661	ND	ND	ND	5.38	ND
Manganese	NS	0.05	0.3		ND	1.54	0.0196	0.0226	0.0163	0.0337	0.496	9.79
Magnesium	NS	NS	NS	NS	3.63	4.69	4.54	3.00	4.55	2.04	2.40	11.4
Molybdenum	NS	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	NS	NS	NS	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Potassium	NS	NS	NS	NS	22.1	ND	ND	ND	ND	ND	ND	12.6
Sodium	NS	NS	No limit	20	18	6.87	19.4	26.8	54.2	10.5	ND	19.5
Strontium	NS	NS	NS	NS	0.703	0.0724	0.0550	0.0541	0.0691	ND	ND	0.467
Titanium	NS	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	NS	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	NS	5	5	NS	ND	ND	ND	ND	ND	ND	ND	ND
Non Metals	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Sulfate	NS	250	250	250	41.2	22	11.1	11.9	14.4	10.5	ND	26.7
Nitrate as N	10		10	10	4.6	0.66	3.9	0.68	3.7	1.4	0.13	1
Nitrate-Nitrite (as N)	NS	NS	10	10	4.7	0.66	3.9	0.68	3.7	1.4	0.13	1
Nitrite as N	1		1	0	ND	ND	ND	ND	ND	ND	ND	ND
Chloride	NS	250	250	250	20.6	7.4	38.7	55.6	86.2	16.4	4.1	35.6

Table 3
2018 Laboratory Results
Wainscott Commercial Center
Suffolk County, NY

Well					MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8
Collection Date					6/27/2018	6/27/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018	6/26/2018
Analyte/ Parameter	**MCL EPA**	**SMCL EPA**	**NY DoH DWS***	**NY GA GW**								
Other												
Total Dissolved Solids (mg/L)	NS	NS	NS	NS	208	100	70	78	206	58	ND	314
Apparent Color/pH (units)	NS	NS	NS	NS	250/7.0	62.5/6.0	1000/6.0	250/6.0	250/6.5	250/6.0	250/6.0	167/7.0
Corrosivity (pH/Temp (°C))	NS	NS	NS	NS	8.6/25.9	6.1/25.9	5.9/25.7	5.9/25.6	5.8/25.8	5.6/25.8	5.8/25.8	6.3/25.8
Perfluoros /organics *												
1,4-dioxane (µg/L)	NS	NS	<50	NS	0.20	0.21	1.0	0.21	1.0	0.20	0.22	0.21
PFBS (ng/L)	NS	NS	<50000	NS	11	5.7	1.9	17	11	4.9	14	4.6
PFBA (ng/L)	NS	NS	<50000	NS	4	21	0.96	1.3	3.8	23	9.1	91
PFHpS (ng/L)	NS	NS	<50000	NS	2.3	NT	2.4	4.9	19	440	6.6	NT
PFHpA (ng/L)	NS	NS	<50000	NS	3.8	37	0.61	0.92	4.8	88	7.5	46
PFHxS (ng/L)	NS	NS	<50000	NS	86	17	26	120	430	23	170	55
PFHxA (ng/L)	NS	NS	<50000	NS	12	39	2.3	2.7	23	52	14	73
PFNA (ng/L)	NS	NS	<50000	NS	2.3	73	0.4	1.4	220	140	3	18
PFOS (ng/L)	NS	70	<50000	NS	72	69	140	120	23	14	170	150
PFOA (ng/L)	NS	70	<50000	NS	11	48	4.4	4.4	1.5	32	21	110
PFOS +PFOA (ng/L)	NS	<70	<50000	NS	83	117	144.4	124.4	24.5	46	191	260

Notes:

* NYSDOH set generic MCL of 50,000 ppt for any chemical classified as an unspecified organic contaminant under NYCRR Title 10, Part 5, Subpart 5-1

mg/L = milligram per liter, ≈ parts per million (ppm)

ng/L = nanogram per liter ≈ parts per trillion (ppt)

MCL EPA = maximum contaminant levels (MCL) **enforced** by the United States Environmental Protection Agency

SMCL EPA = secondary maximum contaminant levels, **suggested** by the United States Environmental Protection Agency

NY DOH DWS = New York State MCL standards from the Department of Health, Part 5 (**enforced**)

NY GA GW = New York State fresh groundwater standards (GA) (6 NYCRR Part 703, under revision)

NS = No Standard ND = Not Detected NT = Not Tested

Red contaminant above the enforced MCL from the EPA or NYS DoH

Yellow contaminant above the recommended SMCL from the EPA or the fresh groundwater standards from NYS

Table 4
Ground Water Elevation Measurements - 1999-2001
Wainscott Commercial Center
Suffolk County, New York

Well *	Water Table Elevations (ft rmsl)						
	OMW1 / MW-8	OMW2	OMW4 / MW-6A	OMW5	OMW6	OMW7	OMW8
7/7/1999	6.76	7.19	9.80	10.32	8.82	8.18	8.93
9/15/1999	7.11	8.17	9.54	10.00	8.75	8.28	8.88
12/16/1999	8.33	8.17	9.52	9.94	8.86	8.45	8.85
2/23/2000	7.71	9.05	9.62	10.00	9.08	8.70	9.10
3/8/2000	7.56	9.02	8.90	9.98	9.09	8.69	9.08
3/22/2000	7.05	9.12	9.84	10.17	9.14	8.57	9.19
4/5/2000	6.98	-	10.01	10.25	9.20	8.47	9.03
6/2/2000	7.21	-	9.97	10.30	9.12	8.58	9.13
7/10/2000	7.26	-	9.87	10.60	9.27	8.68	9.29
8/20/2000	8.51	-	9.99	10.60	9.22	8.78	9.43
10/20/2000	-	-	9.70	10.32	9.14	8.54	9.13
12/9/2000	-	-	-	9.55	8.52	8.48	8.58
1/12/2001	-	-	-	9.50	8.72	7.98	8.83

* OMW = Old Monitoring Well installed in 1999. Most of the wells installed in 1999 have been lost with only OMW1/MW-8 and OMW4/MW-6A still accessible and renamed.

Table 5
1999 & 2000 Laboratory Results
Wainscott Commercial Center
Suffolk County, NY

Well						OMW1	OMW2	OMW4	OMW5	OMW6	OMW7		OMW8
Collection Date						12/21/1999	12/21/1999	12/21/1999	12/21/1999	12/21/1999	12/21/1999	1/17/2000	12/21/1999
Analyte/ Parameter	MCL EPA	SMCL EPA	SCDHS Limits	NY DoH DWS*	NY GA GW								
Dissolved Metals	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Copper	1.3	1.0	1.0	NS	0.2	0.01	ND	0.01	ND	ND	ND	-	ND
Iron	NS	0.3	0.30 each;	0.3	0.5 (total)	0.34	0.16	0.45	0.52	0.15	7.41	-	2.84
Manganese	NS	0.05	0.50 total	0.3		0.03	0.39	0.19	1.00	0.13	4.79	-	2.09
Lead	<0.015	NS	0.0	0.0	0.0	ND	ND	0.004	0.001	ND	0.008	-	ND
Zinc	NS	5	5.0	5.0	NS	ND	ND	ND	ND	ND	0.01	-	ND
Non Metals	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Ammonia	NS	NS	NS		20.0	ND	ND	ND	ND	ND	0.51	-	1.12
Nitrate as N	10.0	NS	10.0	10.0	10.0	3.98	1.63	2.37	2.31	1.01	0.17	-	0.76
Surfactant (MBAS)	NS	0.5	0.5		0.1	ND	ND	ND	ND	ND	ND	-	ND
Chloride	NS	250	250.0	250.0	250.0	9.99	4.65	9.20	38.4	12.7	6.57	-	6.54
Other													
pH	NS	6.5-8.5	NS	NS	NS	6.1	6.5	5.3	5.2	5.7	6.4	-	6.8
Specific Conductance (µmhos/cm	NS	NS	NS	NS	NS	528	83.4	172	253	226	860	-	391
Total Petroleum Hydrocarbons	NS	NS	NS	NS	NS	ND	ND	ND	ND	ND	2.25	-	ND
Total Coliform (mpn/100ml)	less than 5%	NS	<1.1	NS	NS	<2	<2	300	2	2	27	-	23
E. coli (mpn/100ml)	less than 5%	NS	<1.1	NS	NS	<2	<2	<2	<2	<2	<2	-	<2
Volatile Organics (µg/L)													
Benzene	5.0	NS	5.0	5.0	1.0	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	0.0	NS	50.0	5.0	NS	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	0.0	NS	50.0	NS (Report as group)	NS	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5.0	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100.0	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	NS	NS	50.0	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	70.0	NS	50.0	NS (Report as group)	7.0	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	NS	NS	5.0	5.0	NS	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND

Table 5
1999 & 2000 Laboratory Results
Wainscott Commercial Center
Suffolk County, NY

Well						OMW1	OMW2	OMW4	OMW5	OMW6	OMW7		OMW8
Collection Date						12/21/1999	12/21/1999	12/21/1999	12/21/1999	12/21/1999	12/21/1999	1/17/2000	12/21/1999
Analyte/ Parameter	MCL EPA	SMCL EPA	SCDHS Limits	NY DoH DWS*	NY GA GW								
4-Chlorotoluene	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	NS	NS	5.0	5.0	NS	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	NS	NS	5.0	5.0	3.0	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	NS	NS	5.0	5.0	3.0	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	NS	NS	5.0	5.0	3.0	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5.0	NS	5.0	5.0	0.6	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	7.0	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70.0	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100.0	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5.0	NS	5.0	5.0	1.0	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	NS	NS	5.0	5.0	NS	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	NS	NS	5.0	5.0	0.0	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	NS	NS	5.0	5.0	0.0	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700.0	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	50.0	NS	5.0	5.0	NS	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
p-Isoproyltoluene	NS	NS	5.0	5.0	NS	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Methyl-tert-butyl ether	NS	NS	50.0	10.0	NS	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100.0	NS	5.0	5.0	NS	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5.0	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1.0	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Total Trihalomethanes	80.0	NS	100.0		NS	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	70.0	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	200.0	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5.0	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NS	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND

Table 5
1999 & 2000 Laboratory Results
Wainscott Commercial Center
Suffolk County, NY

Well						OMW1	OMW2	OMW4	OMW5	OMW6	OMW7		OMW8
Collection Date						12/21/1999	12/21/1999	12/21/1999	12/21/1999	12/21/1999	12/21/1999	1/17/2000	12/21/1999
Analyte/ Parameter	MCL EPA	SMCL EPA	SCDHS Limits	NY DoH DWS*	NY GA GW								
1,2,3-Trichloropropane	NS	NS	5.0	5.0	0.4	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	NS	NS	5.0	5.0	NS	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	NS	NS	5.0	5.0	NS	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	NS	NS	2.0	2.0	2.0	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	total: 10	NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
m-Xylene		NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
p-Xylene		NS	5.0	5.0	5.0	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatile Organics (µg/L)													
Acenaphthene	NS	NS	NS	NS	20.0	-	-	-	-	-	-	ND	-
Acenaphthylene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Anthracene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Benzidene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Benzo(a)anthracene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Benzo(b)fluoranthene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Benzo(k)fluoranthene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Benzo(a)pyrene	0.2	NS	NS	0.2	ND	-	-	-	-	-	-	ND	-
Benzo(g,h,i)perylene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Butylbenzylphthalate	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Bis(2-chloroethyl)ether	NS	NS	NS	NS	1.0	-	-	-	-	-	-	ND	-
Bis(2-chloroethoxy)methane	NS	NS	NS	NS	5.0	-	-	-	-	-	-	ND	-
Bis(2-ethylhexyl)phthalate	NS	NS	NS	NS	0.6	-	-	-	-	-	-	ND	-
Bis(2-chloroisopropyl)ether	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
4-Bromophenyl phenyl ether	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
4-Chloro-3-methyl phenol	NS	NS	NS	NS	Sum all phenols <1	-	-	-	-	-	-	ND	-
2-Chloronaphthalene	NS	NS	NS	NS	10.0	-	-	-	-	-	-	ND	-
2-Chlorophenol	NS	NS	NS	NS	Sum all phenols <1	-	-	-	-	-	-	ND	-
4-Chlorophenyl phenyl ether	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Chrysene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Dibenzo(a,h)anthracene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Di-n-butylphthalate	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
1,3-Dichlorobenzene	NS	NS	NS	5.0	3.0	-	-	-	-	-	-	ND	-
1,2-Dichlorobenzene	NS	NS	NS	5.0	3.0	-	-	-	-	-	-	ND	-
1,4-Dichlorobenzene	NS	NS	NS	5.0	3.0	-	-	-	-	-	-	ND	-
3,3'-Dichlorobenzidine	NS	NS	NS	NS	5.0	-	-	-	-	-	-	ND	-
2,4-Dichlorophenol	NS	NS	NS	NS	Sum all phenols <1	-	-	-	-	-	-	ND	-

Table 5
1999 & 2000 Laboratory Results
Wainscott Commercial Center
Suffolk County, NY

Well						OMW1	OMW2	OMW4	OMW5	OMW6	OMW7		OMW8
Collection Date						12/21/1999	12/21/1999	12/21/1999	12/21/1999	12/21/1999	12/21/1999	1/17/2000	12/21/1999
Analyte/ Parameter	MCL EPA	SMCL EPA	SCDHS Limits	NY DoH DWS*	NY GA GW								
Diethylphthalate	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
2,4-Dimethylphenol	NS	NS	NS	NS	Sum all phenols <1	-	-	-	-	-	-	ND	-
Dimethylphthalate	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
2,4-Dinitrophenol	NS	NS	NS	5.0	Sum all phenols <1	-	-	-	-	-	-	ND	-
2,4-Dinitrotoluene	NS	NS	NS	5.0	5.0	-	-	-	-	-	-	ND	-
2,6-Dinitrotoluene	NS	NS	NS	5.0	5.0	-	-	-	-	-	-	ND	-
Di-n-octylphthalate	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Fluoranthene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Fluorene	NS	NS	NS	2200.0	NS	-	-	-	-	-	-	ND	-
Hexachlorobenzene	1	NS	NS	1.0	0.0	-	-	-	-	-	-	ND	-
Hexachlorobutadiene	NS	NS	NS	5.0	0.1	-	-	-	-	-	-	ND	-
Hexachlorocyclopentadiene	50	NS	NS	NS	5.0	-	-	-	-	-	-	ND	-
Hexachloroethane	NS	NS	NS	NS	5.0	-	-	-	-	-	-	ND	-
Indeno(1,2,3-cd)pyrene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Isophorone	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
2-Methyl-4,6-dinitrophenol	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Naphthalene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Nitrobenzene	NS	NS	NS	NS	0.4	-	-	-	-	-	-	ND	-
2-Nitrophenol	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
4-Nitrophenol	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
n-Nitrosodimethylamine	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
n-Nitrosodiphenylamine	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
n-Nitrosodi-N-propylamine	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Pentachlorophenol	1	NS	NS	1.0	Sum all phenols <1	-	-	-	-	-	-	ND	-
Phenanthrene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
Phenol	NS	NS	NS	NS	Sum all phenols <1	-	-	-	-	-	-	ND	-
Pyrene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
2,3,4,6-Tetrachlorophenol	NS	NS	NS	NS	Sum all phenols <1	-	-	-	-	-	-	ND	-
1,2,4-Trichlorobenzene	70	NS	NS	5.0	NS	-	-	-	-	-	-	ND	-
2,4,6-Trichlorophenol	NS	NS	NS	NS	5.0	-	-	-	-	-	-	ND	-
2,4,5-TrichlorophenolPyridine	NS	NS	NS	NS	5.0	-	-	-	-	-	-	ND	-
Benzyl alcohol	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
2-Methylphenol (o-cresol)	NS	NS	NS	NS	Sum all phenols <1	-	-	-	-	-	-	ND	-
4-Methylphenol (p-cresol)	NS	NS	NS	NS	Sum all phenols <1	-	-	-	-	-	-	ND	-
Benzoic acid	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-
2-Methylnaphthalene	NS	NS	NS	NS	NS	-	-	-	-	-	-	ND	-

Table 5
1999 & 2000 Laboratory Results
Wainscott Commercial Center
Suffolk County, NY

Well						OMW1	OMW2	OMW4	OMW5	OMW6	OMW7		OMW8
Collection Date						12/21/1999	12/21/1999	12/21/1999	12/21/1999	12/21/1999	12/21/1999	1/17/2000	12/21/1999
Analyte/ Parameter	MCL EPA	SMCL EPA	SCDHS Limits	NY DoH DWS*	NY GA GW								
Chlorinated Herbicides (µg/L)													
2,4-D	70	NS	NS	50.0	NS	-	-	ND	-	-	-	-	-
Dalapon	200	NS	NS	NS	50.0	-	-	ND	-	-	-	-	-
2,4-DB	NS	NS	NS	NS	NS	-	-	ND	-	-	-	-	-
Dicamba	NS	NS	NS	NS	0.4	-	-	ND	-	-	-	-	-
Dichlorprop	NS	NS	NS	NS	NS	-	-	ND	-	-	-	-	-
Dinoseb	7	NS	NS	7.0	NS	-	-	ND	-	-	-	-	-
MCPA	NS	NS	NS	NS	NS	-	-	ND	-	-	-	-	-
MCPP	NS	NS	NS	NS	NS	-	-	ND	-	-	-	-	-
2,4,5-T	NS	NS	NS	NS	NS	-	-	ND	-	-	-	-	-
2,4,5-TP (Silvex)	50	NS	NS	10.0	NS	-	-	ND	-	-	-	-	-
Organophosphorus Pesticides (µg/L)													
Azinophos methyl	NS	NS	NS	NS	NS	-	-	ND	-	-	-	-	-
Demeton	NS	NS	NS	NS	NA	-	-	ND	-	-	-	-	-
Diazinon	NS	NS	NS	NS	0.7	-	-	ND	-	-	-	-	-
Disulfoton	NS	NS	NS	NS	ND	-	-	ND	-	-	-	-	-
Malathion	NS	NS	NS	NS	7.0	-	-	ND	-	-	-	-	-
Parathion methyl	NS	NS	NS	NS	Sum <1.5	-	-	ND	-	-	-	-	-

Note: * NYSDOH set generic MCL of 50,000 ppt for any chemical classified as an unspecified organic contaminant under NYCRR Title 10, Part 5, Subpart 5-1

mg/L = milligram per liter, ≈ parts per million (ppm) ng/L = nanogram per liter ≈ parts per trillion (ppt) mpn/100ml = most probable number per 100 milliliters

MCL EPA = maximum contaminant levels (MCL) **enforced** by the United States Environmental Protection Agency

SMCL EPA = secondary maximum contaminant levels, **suggested** by the United States Environmental Protection Agency

NY DOH DWS = New York State MCL standards from the Department of Health, Part 5 (**enforced**)

NY GA GW = New York State fresh groundwater standards (GA) (6 NYCRR Part 703, under revision)

NS = No Standard ND = Not Detected - = Not Analyzed / No Information

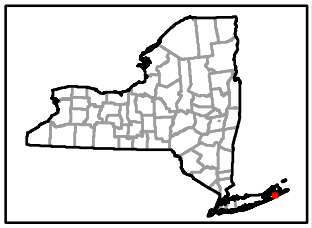
Red contaminant above the enforced MCL from the EPA or NYS DoH

FIGURES

LEGEND

Site Boundary (approx.)

Source:
-Basemap: Google Earth Imagery, October 1, 2017, accessed September 25, 2018



ALPHA GEOSCIENCE
Proj. No. 17115

FIGURE 1
Site Location Map

Wainscott Commerical Center
East Hampton, Suffolk County, New York

Path: Z:\projects\2017\17100 - 17120\17115 - Wainscott Commercial Center\15_0 GIS\Site_Location_Map_new.mxd
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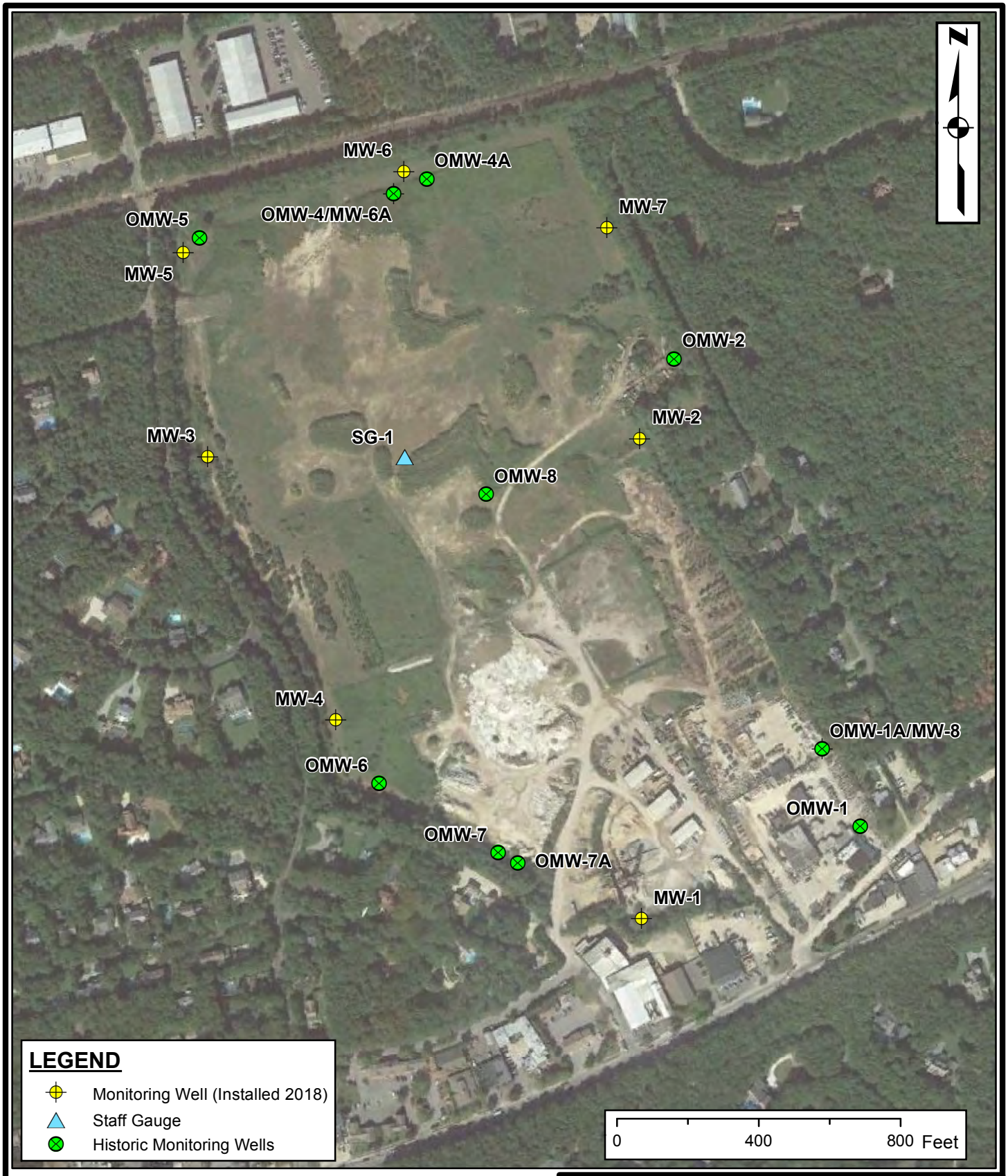

Notes:
-Basemap: Google Earth Imagery October 1, 2017, accessed September 25, 2018
-Monitoring wells (OMW and MW) located approximately using map byFox Land Surveying, September 24, 2001

ALPHA GEOSCIENCE
Proj. No. 17115

FIGURE 2

Combined WCC Monitoring Wells from 1999 and 2018 Investigations

Wainscott Commerical Center
East Hampton, Suffolk County, New York

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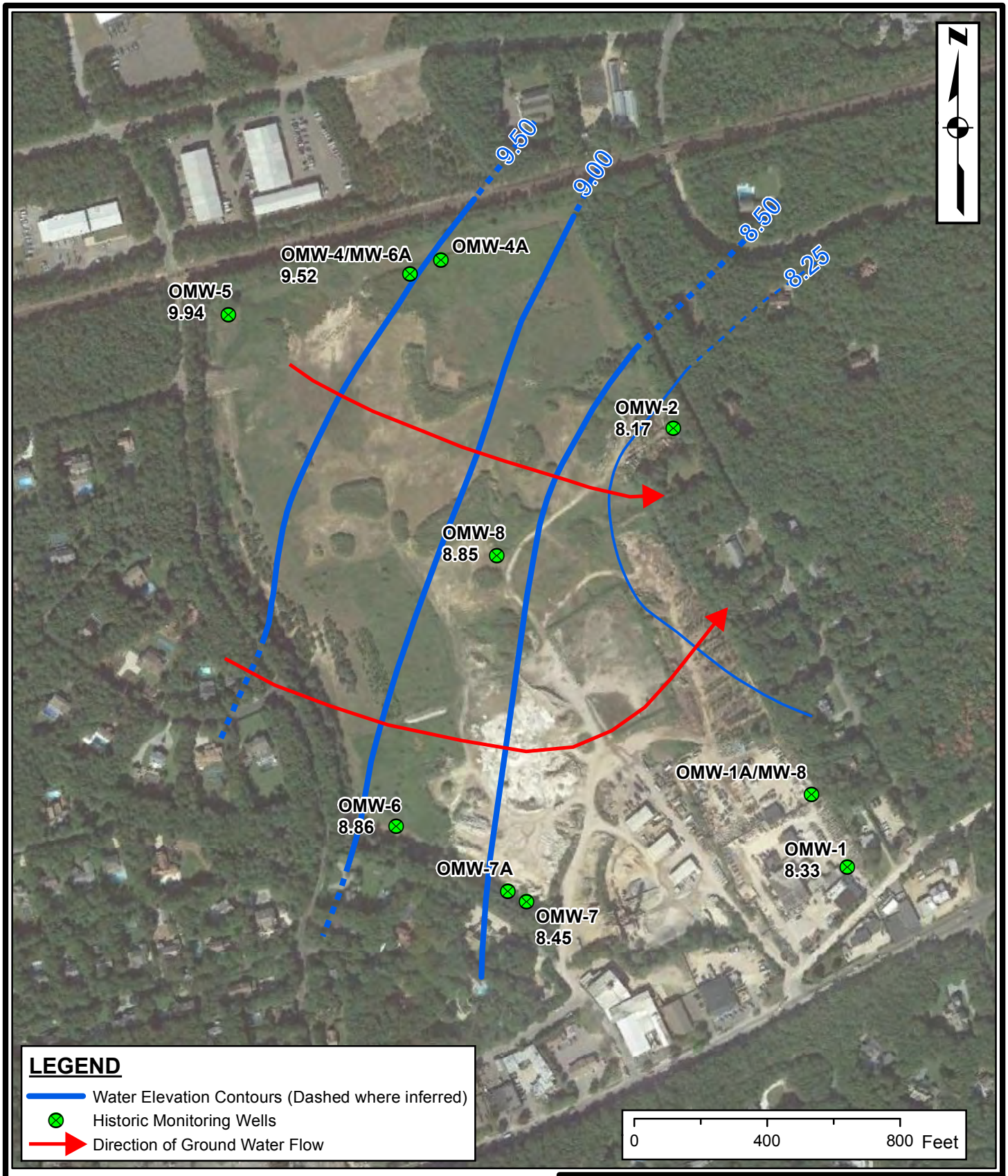

Notes:
-Basemap: Google Earth Imagery October 1, 2017, accessed September 25, 2018
-Old Monitoring wells (OMW) located approximately using map by Fox Land Surveying, September 24, 2001
-Water Table Measurements taken 12/16/1999

ALPHA GEOSCIENCE
Proj. No. 17115

FIGURE 3
Historic Wells
With Water Table Elevation
Contour Map
from 12/16/1999
Wainscott Commerical Center
East Hampton, Suffolk County, New York

Path: Z:\projects\2017\17100 - 17120\17115 - Wainscott Commercial Center\15_0 GIS\GWC_WTE_historic_wells_12_16_1999.mxd
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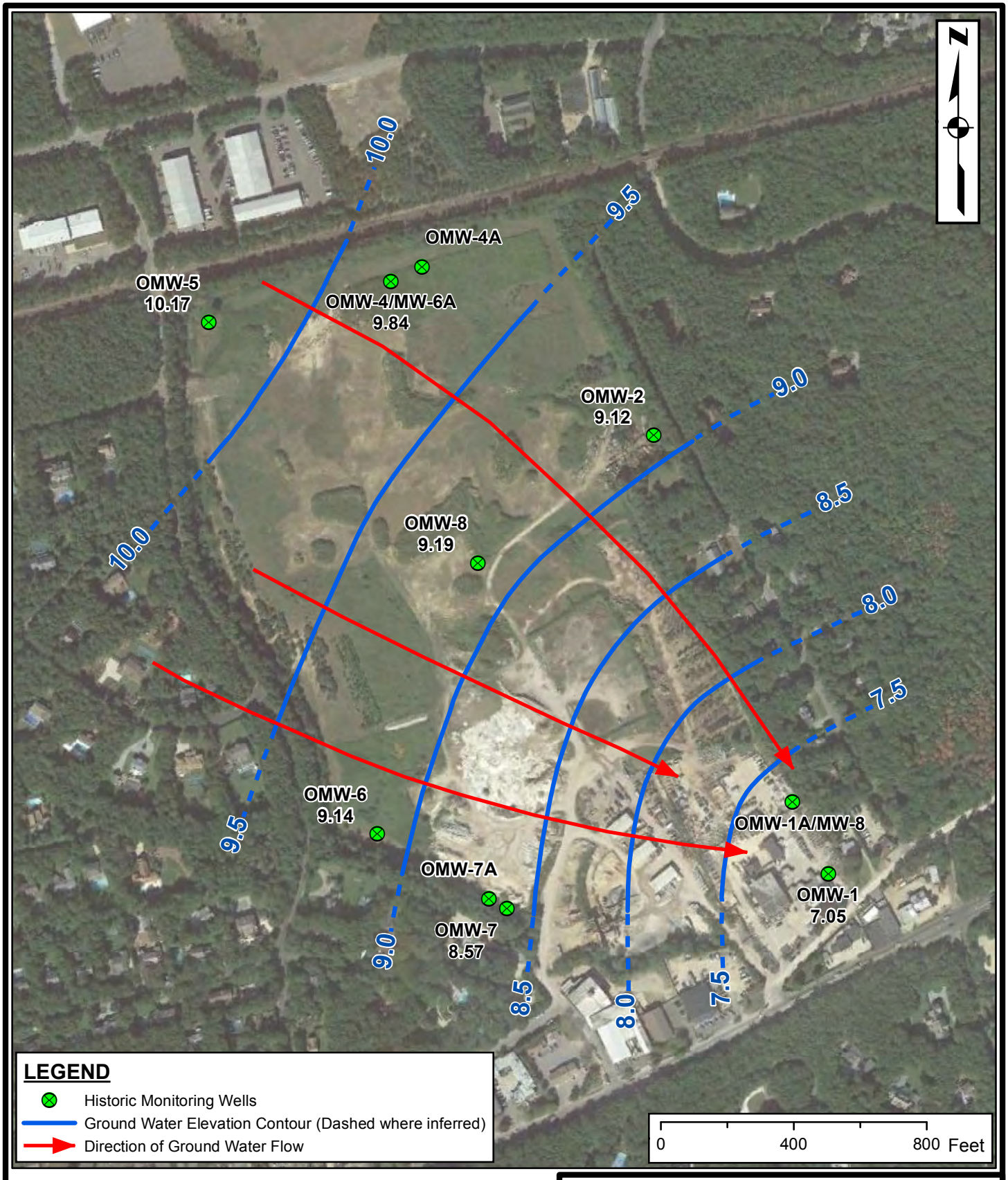

Notes:
-Basemap: Google Earth Imagery October 1, 2017, accessed September 25, 2018
-Old Monitoring wells (OMW) located approximately using map by Fox Land Surveying, September 24, 2001
-Water Table Measurements taken 3/22/2000

ALPHA GEOSCIENCE
Proj. No. 17115

FIGURE 4
Historic Wells
With Water Table Elevation
Contour Map
from 3/22/2000
Wainscott Commerical Center
East Hampton, Suffolk County, New York

Path: Z:\projects\2017\17100 - 17120\17115 - Wainscott Commercial Center\15_0 GIS\GWC_WTE_historic_wells3_22_2000.mxd
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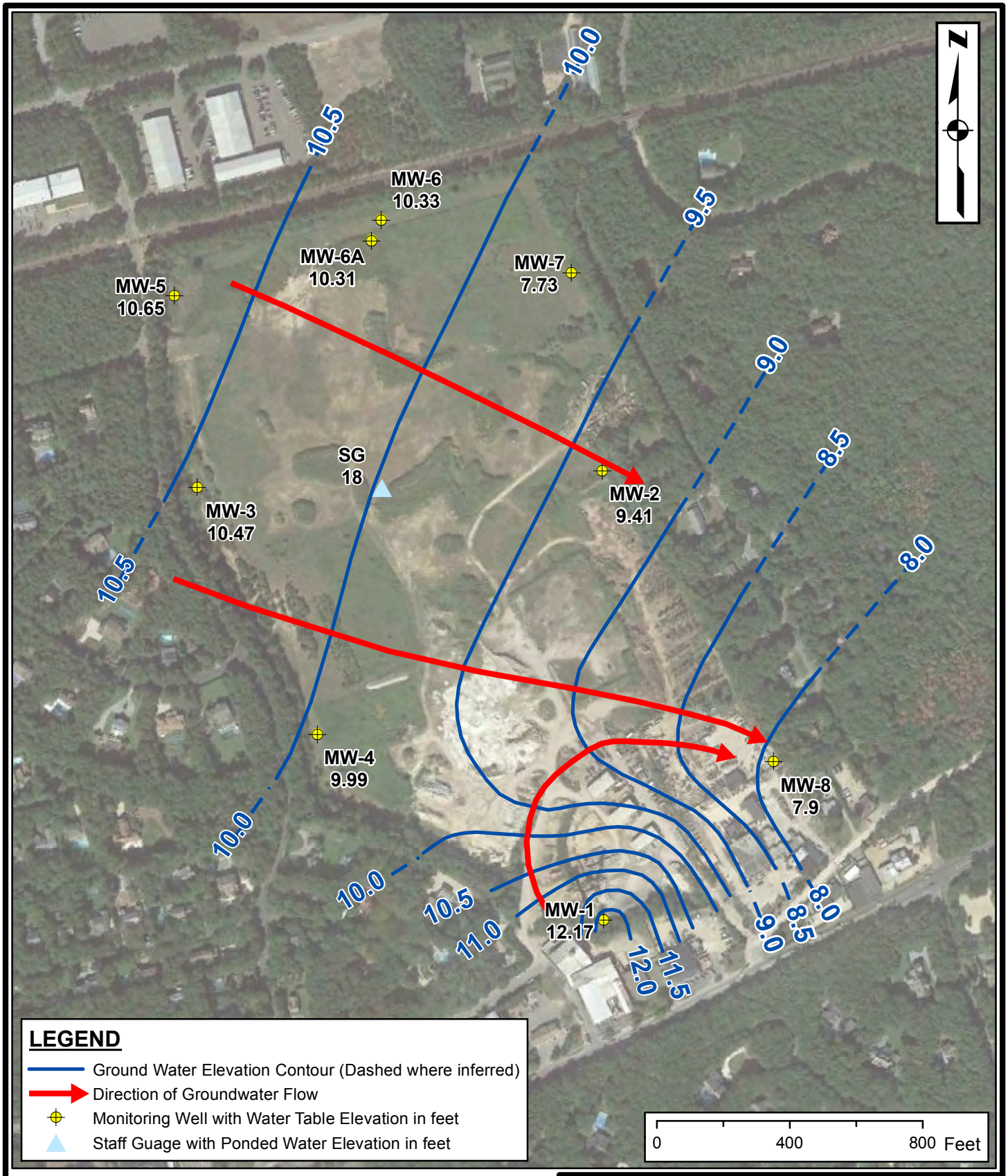

Notes:
-Basemap: Google Earth Imagery, October 1, 2017, accessed September 25, 2018
-Monitoring well and staff gauge are located by Fox Land Surveying on September 4, 2018
-Groundwater elevations measured June 26,2018

ALPHA GEOSCIENCE
Proj. No. 17115

FIGURE 5
Water Table Contour Map 6/26/2018 Data

Wainscott Commerical Center
East Hampton, Suffolk County, New York

Path: Z:\projects\2017\17100 - 17120\17115 - Wainscott Commercial Center\15_0 GIS\GW_contour_2018_06_26.mxd
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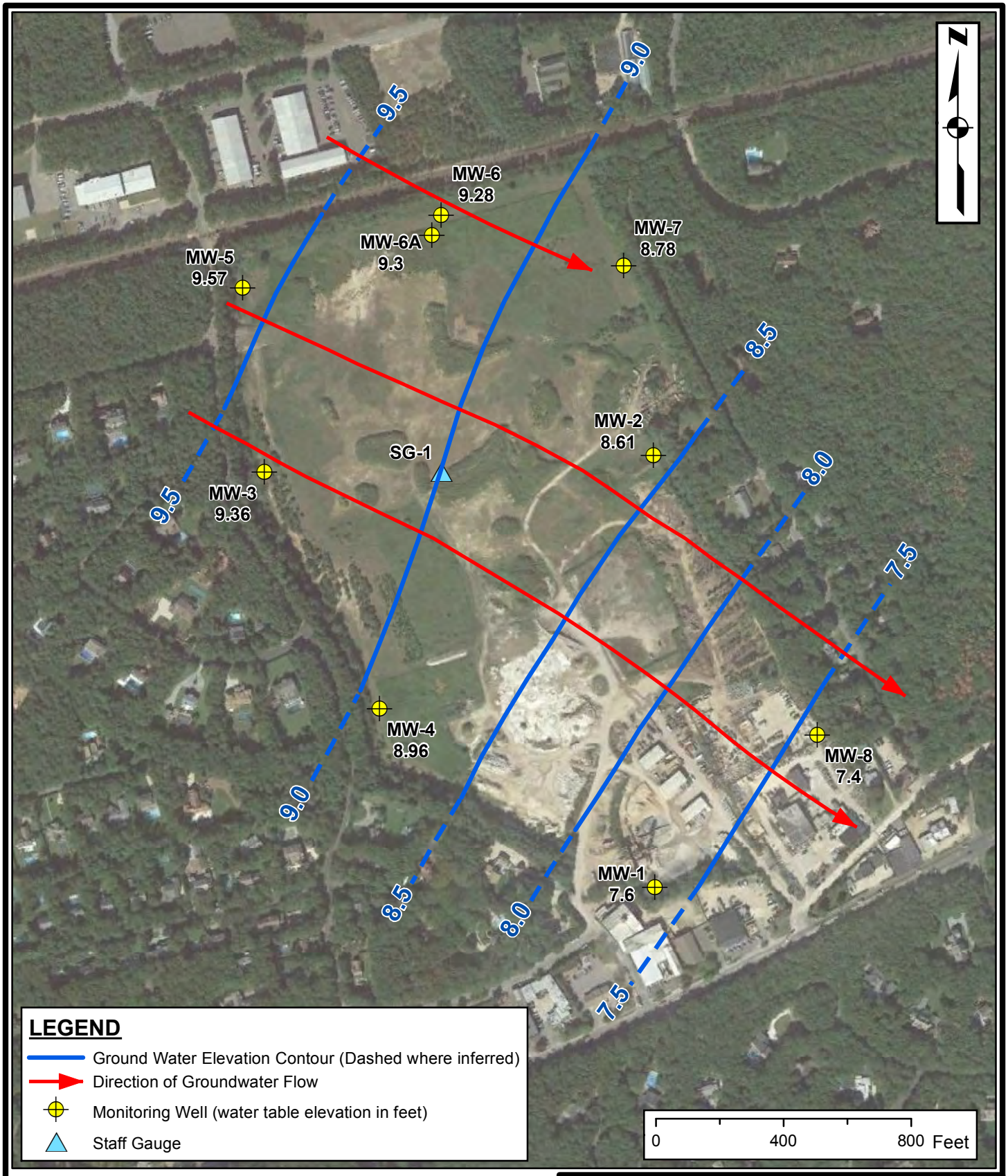

Notes:
-Basemap: Google Earth Imagery October 1, 2017, accessed September 25, 2018
-Monitoring well and staff gauge are located by Fox Land Surveying on September 14, 2018
-Groundwater elevations measured September 20,2018

ALPHA GEOSCIENCE
Proj. No. 17115

FIGURE 6
Water Table Contour Map
9/20/2018 Data

Wainscott Commerical Center
East Hampton, Suffolk County, New York

Path: Z:\projects\2017\17100 - 17120\17115 - Wainscott Commercial Center\15_0 GIS\Maps used in the Hydrogeologic Report\GW_contour_2018_09_20.mxd
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East Hampton Airport

MW-6
9.28

MW-5
9.57

MW-6A
9.3

MW-7
8.78

MW-3
9.36

MW-2
8.61

MW-4
8.96

MW-8
7.4

MW-1
7.6

10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0

Georgica Pond
Water Elevation 5.75ft

0 0.125 0.25 0.5 Miles

N

Legend

- Monitoring Well with Water Table Elevation in feet
- Groundwater Elevation Contour (dashed where inferred)
- Direction of Groundwater Flow

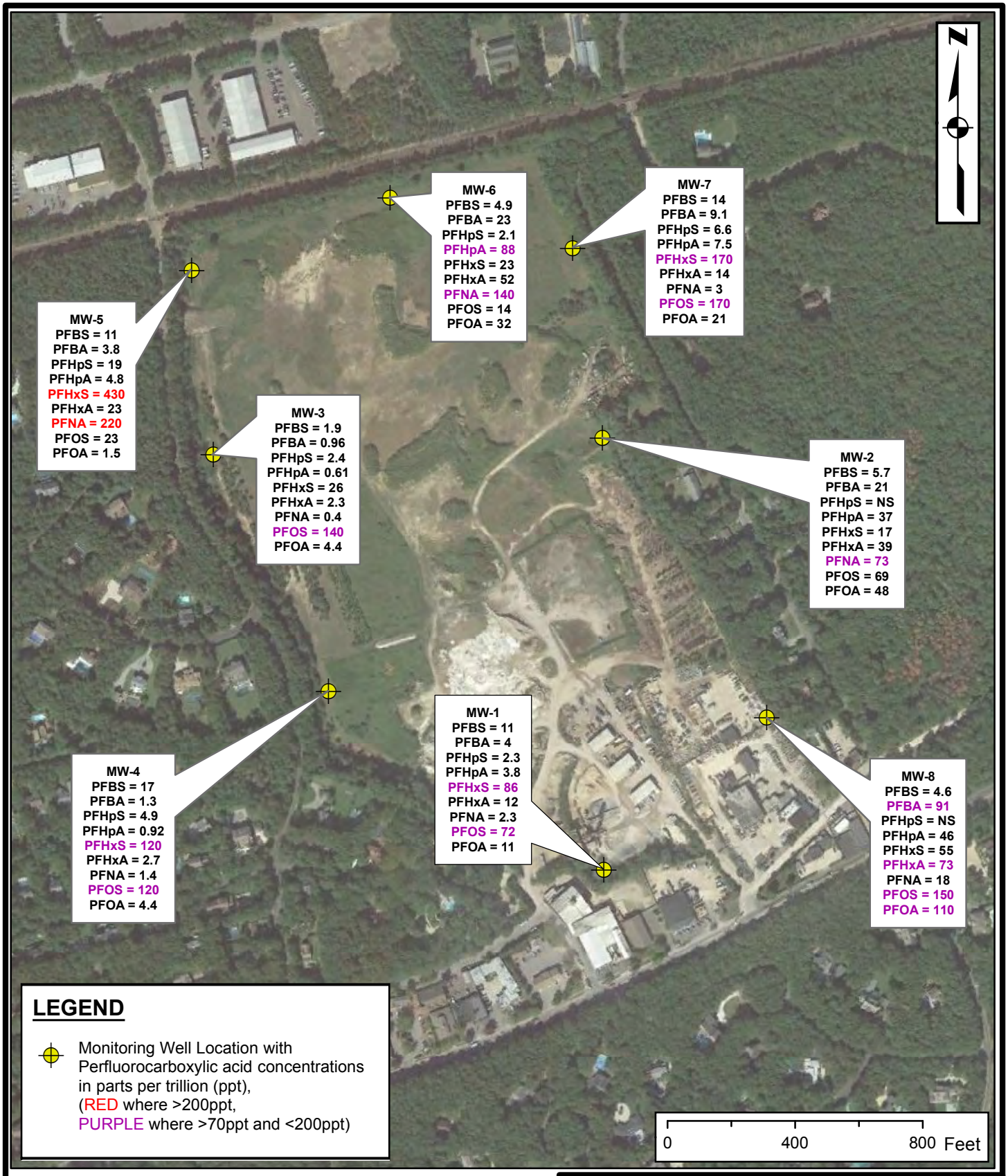
Notes:
--Basemap: Google Earth Imagery October 1, 2017, accessed September 25, 2018
-Monitoring well and staff gauge were located by Fox Land Surveying on September 14, 2018
-Groundwater elevation measured 9/20/2018
-Surface Water Elevation of Georgica Pond measured by USGS September 20, 2018

ALPHA GEOSCIENCE
Proj. No. 15109

FIGURE 7
Regional Water Table Map

Wainscott Commercial Center
Regional Map
Suffolk County, New York

Z:\projects\2017\17100 - 17120\17115 - Wainscott Commercial Center\15_0 GIS\Regional_Map.mxd



Notes:
-Basemap: Google Earth Imagery, October 1, 2017, accessed September 25, 2018
-Monitoring well and staff gauge are located by Fox Land Surveying (September 4, 2018)

ALPHA GEOSCIENCE
Proj. No. 17115

FIGURE 8
PFAS Concentrations 6/26/2018

Wainscott Commerical Center
East Hampton, Suffolk County, New York

Path: Z:\projects\2017\17100 - 17120\17115 - Wainscott Commercial Center\15_0 GIS\Maps used in the Hydrogeologic Report\GW_Fluoro_compounds_Quality_2018_06_26.mxd
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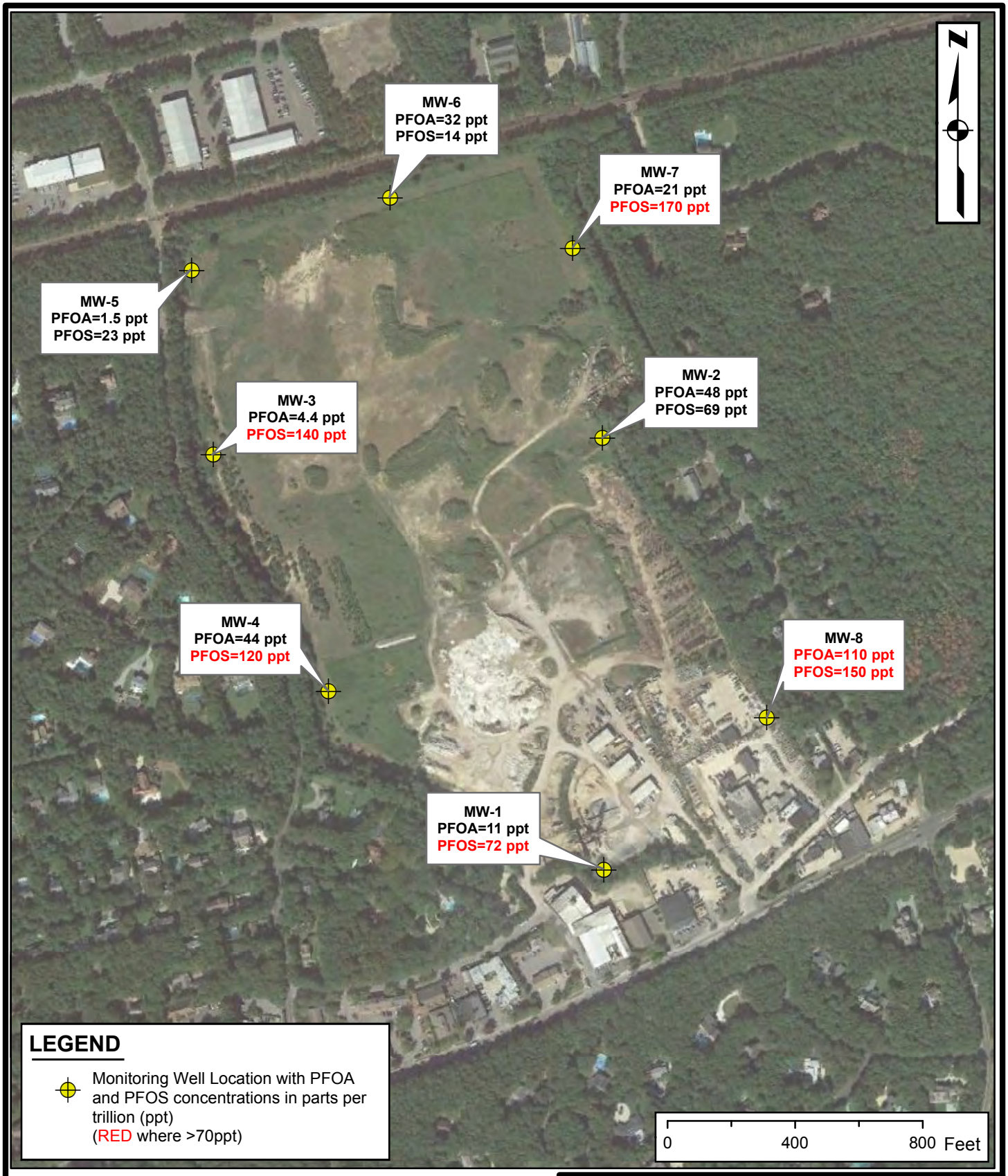

Notes:
-Basemap: Google Earth Imagery, October 1, 2017, accessed September 25, 2018
-Monitoring well and staff gauge are located by Fox Land Surveying (September 4, 2018)

ALPHA GEOSCIENCE
Proj. No. 17115

FIGURE 9
PFOA and PFOS Concentrations 6/26/2018

Wainscott Commerical Center
East Hampton, Suffolk County, New York

Path: Z:\projects\2017\17100 - 17120\17115 - Wainscott Commercial Center\15_0 GIS\Maps used in the Hydrogeologic Report\GW_PFOA_Quality_2018_06_26.mxd
Date Saved: 10/23/2018 3:45:52 PM

Notes:
-Basemap: Google Earth Imagery October 1, 2017, accessed September 25, 2018
-Old Monitoring wells (OMW) located approximately using map by Fox Land Surveying, September 24, 2001
-Samples taken 12/21/1999

ALPHA GEOSCIENCE
Proj. No. 17115

FIGURE 10
Historic Wells
With Iron and Manganese
Concentrations on 12/21/1999

Wainscott Commerical Center
East Hampton, Suffolk County, New York

Path: Z:\projects\2017\17100 - 17120\17115 - Wainscott Commercial Center\15_0 GIS\GWC_historic_wellsFEMN_ANNO1999.mxd
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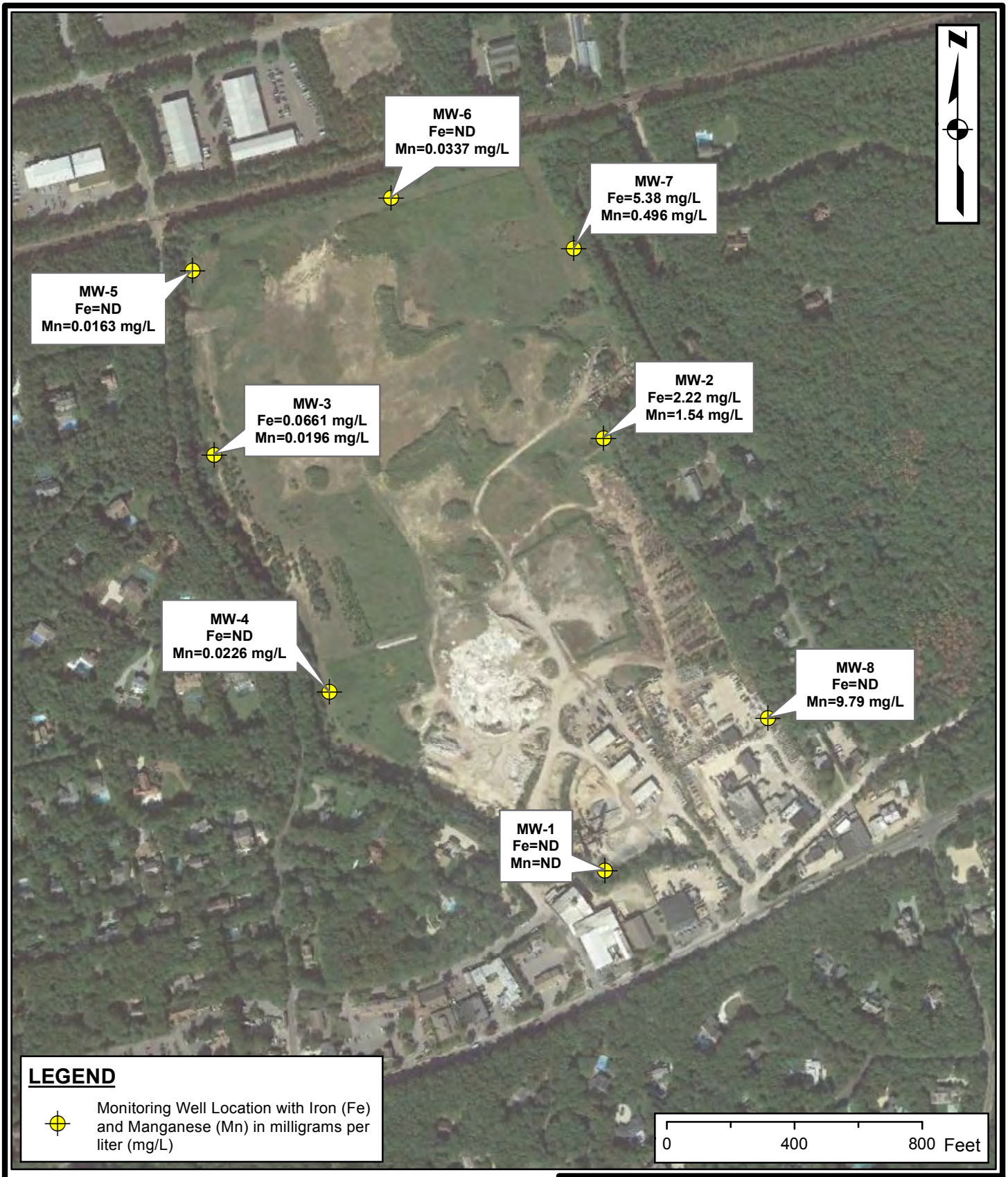

Notes:
-Basemap: Google Earth Imagery, October 1, 2017, accessed September 25, 2018
-Monitoring well and staff gauge are located by Fox Land Surveying (September 4, 2018)
-ND = Non Detect

ALPHA GEOSCIENCE
Proj. No. 17115

FIGURE 11

Iron and Manganese Concentrations 6/26/2018

Wainscott Commerical Center
East Hampton, Suffolk County, New York

Path: Z:\projects\2017\17100 - 17120\17115 - Wainscott Commercial Center\15_0 GIS\Maps used in the Hydrogeologic Report\GW_FE_MN_Quality_2018_06_26.mxd
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APPENDICES

APPENDIX A

Geologic Logs
MW-1 through MW-7

Alpha Geoscience
679 Plank Road
Clifton Park, New York 12065

GEOLOGIC LOG

Boring ID: MW-1

Project Number/Name: 17115 / Wainscott Commercial Center Location: Wainscott, NY

Drilling Contractor/Personnel: Clearwater Drilling / Bruce, Edgar, and Augusto

Geologist/Hydrogeologist: Steve Trader Start/ Finish Date: 6/7/2018

Drilling Equip/Method: CME 75 / Hollow Stem Auger Size/Type of Bit:6.25" OD, hollow stem auger

Sampling Method: split spoon Well Installed? Yes

Elevation/Ground Surface: 12.09 (ft rmsl)

Depth to Ground Water from Ground Surface (Date): 3.63 (ft rmsl) (6/7/2018)

REMARKS:

Depth (Ft)	Sample No.	Blows Per 6 In.	Recovery (ft)	DESCRIPTION	REMARKS
2					Hollow Stem Auger to 5' with no sampling
4					At ~3', very moist to wet cuttings
6	SS1	8 / 6 / 9 / 8	0.2	Light brown fine to coarse sand; wet, loose	Depth to water in augers after collecting split spoon SS1 is ~4' from grade
8					
10	SS2	9 / 13 / 12 / 16	0.8	Light brown fine to coarse sand; little (+) fine to coarse gravel; gravel is rounded, and of different lithologies and colors 12'	Pounded through quartz cobble in SS2
12				End of Boring	Well constructed with PVC screen 12' - 2'.

Proportions Used: Trace=0-10% Little=10-20% Some=20-35% And-35-50%

Alpha Geoscience
679 Plank Road
ALPHA GEOSCIENCE Clifton Park, New York 12065

GEOLOGIC LOG

Boring ID: MW-2

Page 1 of 1

Project Number/Name: 17115 / Wainscott Commercial Center Location: Wainscott, NY

Drilling Contractor/Personnel: Clearwater Drilling / Bruce, Edgar, and Augusto

Geologist/Hydrogeologist: Steve Trader Start/ Finish Date: 6/7/2018

Drilling Equip/Method: CME 75 / Hollow Stem Auger Size/Type of Bit: 6.25" OD, hollow stem auger

Sampling Method: split spoon Well Installed? Yes

Elevation/Ground Surface: 16.08 (ft rmsl)

Depth to Ground Water from Ground Surface (Date): 6.47 (ft rmsl) (6/7/2018)

REMARKS:

Depth (Ft)	Sample No.	Blows Per 6 In.	Recovery (ft)	DESCRIPTION	REMARKS
2				Brown silt; dry; trace fine sand; (from auger flights) trace fine gravel	Hollow stem auger to 5' with no sampling
4				Change to light orange brown fine to coarse sand at ~4'	
6	SS1	4 / 8 / 10 / 12	1.4	brown orange brown Light orange brown, fine (+) to coarse (-) sand, little fine to medium gravel; dry; loose; gravel is subrounded and varying lithologies, but mostly quartz; becoming wet ~7.8'	
8					
10	SS2	12 / 15 / 18 / 25	2.0		Depth to water 7' from grade with augers to 10' and after spoon to 12'
12				Change to coarse (+) to fine (-) sand; trace fine gravel; loose; saturated	
14				15'	
				End of Boring	Well constructed with PVC screen 15' - 5'.

Proportions Used: Trace=0-10% Little=10-20% Some=20-35% And-35-50%

Alpha Geoscience
679 Plank Road
Clifton Park, New York 12065

GEOLOGIC LOG

Boring ID: MW-3

Project Number/Name: 17115 / Wainscott Commercial Center Location: Wainscott, NY

Drilling Contractor/Personnel: Clearwater Drilling / Bruce, Edgar, and Augusto

Geologist/Hydrogeologist: Steve Trader Start/ Finish Date: 6/7/2018

Drilling Equip/Method: CME 75 / Hollow Stem Auger Size/Type of Bit: 6.25" OD, hollow stem auger

Sampling Method: split spoon Well Installed? Yes

Elevation/Ground Surface: 16.35 (ft rsml)

Depth to Ground Water from Ground Surface (Date): 5.73 (ft rsml) (6/7/2018)

REMARKS:

Depth (Ft)	Sample No.	Blows Per 6 In.	Recovery (ft)	DESCRIPTION	REMARKS
2				Brown silt, little fine sand; dry (cuttings)	Hollow stem auger to 5' with no sampling
4					
				5.2'	
6	SS1	6 / 9 / 11 / 8	1.4	Light orange brown, fine (+) to coarse (-) sand; loose; moist; possibly getting wet at 7'	SS1 dry to moist
8					
					SS2 wet
10	SS2	12 / 15 / 18 / 25	2.0	Similar to SS1, but more coarse sand; little fine to medium gravel; rounded; loose; saturated	Depth to water = 4.2' from grade, with 10' of augers in hole and after SS2
				12'	
12				End of Boring	Well constructed with PVC screen 12' - 2'.

Proportions Used: Trace=0-10% Little=10-20% Some=20-35% And-35-50%

Alpha Geoscience
679 Plank Road
Clifton Park, New York 12065

GEOLOGIC LOG

Boring ID: MW-4

Project Number/Name: 17115 / Wainscott Commercial Center Location: Wainscott, NY

Drilling Contractor/Personnel: Clearwater Drilling / Bruce, Edgar, and Augusto

Geologist/Hydrogeologist: Steve Trader Start/ Finish Date: 6/7/2018

Drilling Equip/Method: CME 75 / Hollow Stem Auger Size/Type of Bit: 6.25" OD, hollow stem auger

Sampling Method: split spoon Well Installed? Yes

Elevation/Ground Surface: 15.63 (ft rmsl)

Depth to Ground Water from Ground Surface (Date): 5.72 (ft rsml) (6/7/2018)

REMARKS:

Depth (Ft)	Sample No.	Blows Per 6 In.	Recovery (ft)	DESCRIPTION	REMARKS
2					Hollow stem auger to 5' with no sampling
4					
6	SS1	4 4 3 6	1.6	Light orange brown, fine (+) to coarse (-) sand; moist; loose	
8					
10	SS2	4 5 8 9	2.0	Light brown fine to coarse sand, loose, saturated; coarser toward base with trace fine to medium gravel	Depth to water = 6' from grade, with augers at 10' TD after SS2
12					
14				14' End of Boring	Well constructed with PVC screen 14' - 4'.

Proportions Used: Trace=0-10% Little=10-20% Some=20-35% And-35-50%

Alpha Geoscience
679 Plank Road
Clifton Park, New York 12065

GEOLOGIC LOG

Boring ID: MW-5

Project Number/Name: 17115 / Wainscott Commercial Center Location: Wainscott, NY

Drilling Contractor/Personnel: Clearwater Drilling / Bruce, Edgar, and Augusto

Geologist/Hydrogeologist: Steve Trader Start/ Finish Date: 6/8/2018

Drilling Equip/Method: CME 75 / Hollow Stem Auger Size/Type of Bit: 6.25" OD, hollow stem auger

Sampling Method: split spoon Well Installed? Yes

Elevation/Ground Surface: 19.35 (ft rmsl)

Depth to Ground Water from Ground Surface (Date): 8.56 (ft rmsl) (6/8/2018)

REMARKS:

Depth (Ft)	Sample No.	Blows Per 6 In.	Recovery (ft)	DESCRIPTION	REMARKS
2				Brown fine (+) to coarse sand, trace (+) subrounded to rounded fine gravel; moist; loose; becoming light orange brown ~ 5-6'	Hollow stem auger to 5' with no sampling
4					
6	SS1	6 / 8 / 12 / 15	1.5		SS1 Moist
8					
10	SS2	NM / NM / NM / NM	1.3		SS2 Moist Checked Depth to water with meter and wet sand at ~9' bgs
12					
14					* Drillers had to add water to keep material out of augers while drilling 10 - 15'
16	SS3	6 / 8 / 10 / 6	1.8	Light brown fine to coarse (+) sand, little fine gravel, wet*, loose 17'	
18				End of Boring	Well constructed with PVC screen 17' - 7'.

Proportions Used: Trace=0-10% Little=10-20% Some=20-35% And-35-50%

Alpha Geoscience
679 Plank Road
Clifton Park, New York 12065

GEOLOGIC LOG

Boring ID: MW-6

Project Number/Name: 17115 / Wainscott Commercial Center Location: Wainscott, NY

Drilling Contractor/Personnel: Clearwater Drilling / Bruce, Edgar, and Augusto

Geologist/Hydrogeologist: Steve Trader Start/ Finish Date: 6/8/2018

Drilling Equip/Method: CME 75 / Hollow Stem Auger Size/Type of Bit: 6.25" OD, hollow stem auger

Sampling Method: split spoon Well Installed? Yes

Elevation/Ground Surface: 16.07 (ft rmsl)

Depth to Ground Water from Ground Surface (Date): 5.57 (ft rmsl) (6/8/2018)

REMARKS:

Depth (Ft)	Sample No.	Blows Per 6 In.	Recovery (ft)	DESCRIPTION	REMARKS
2				Orange brown fine (+) to coarse sand (cuttings)	Hollow stem auger to 5' with no sampling
4					
6	SS1	6 / 8 / 11 / 11	1.2	Light orange brown fine to coarse sand, moist, loose	
8					
10	SS2	3 / 6 / 8 / 10	1.8	Light orange brown fine to coarse (+) sand, saturated, loose	Depth to water = 6.8' from grade within augers after SS2 (nearby old well Depth to water = 5' bgs)
12					
14				14'	
				End of Boring	Well constructed with PVC screen 14' - 4'.
16					
18					

Proportions Used: Trace=0-10% Little=10-20% Some=20-35% And-35-50%

Alpha Geoscience
679 Plank Road
Clifton Park, New York 12065

GEOLOGIC LOG

Boring ID: MW-7

Project Number/Name: 17115 / Wainscott Commercial Center Location: Wainscott, NY

Drilling Contractor/Personnel: Clearwater Drilling / Bruce, Edgar, and Augusto

Geologist/Hydrogeologist: Steve Trader Start/ Finish Date: 6/8/2018

Drilling Equip/Method: CME 75 / Hollow Stem Auger Size/Type of Bit: 6.25" OD, hollow stem auger

Sampling Method: split spoon Well Installed? Yes

Elevation/Ground Surface: 15.28 (ft rmsl)

Depth to Ground Water from Ground Surface (Date): 5.37 (ft rmsl) (6/8/2018)

REMARKS:

Depth (Ft)	Sample No.	Blows Per 6 In.	Recovery (ft)	DESCRIPTION	REMARKS
2					Hollow stem auger to 5' with no sampling
4					Water at ~ 4.5 to 5'
6	SS1	6 / 8 / 10 / 12	1.7	Light brown to light orange brown fine (+) to coarse sand, trace fine gravel; moist, to wet at tip of spoon; loose	
8					
10	SS2	7 / 8 / 9 / 9	1.0		Depth to water = 6' in augers after SS2
12				Fine to coarse (+) sand; little (+) fine medium gravel, rounded; loose, saturated	
14				14' End of Boring	Well constructed with PVC screen 14' - 4'.
16					
18					

Proportions Used: Trace=0-10% Little=10-20% Some=20-35% And-35-50%

APPENDIX B

Monitoring Well Completion Logs
MW-1 through MW-7

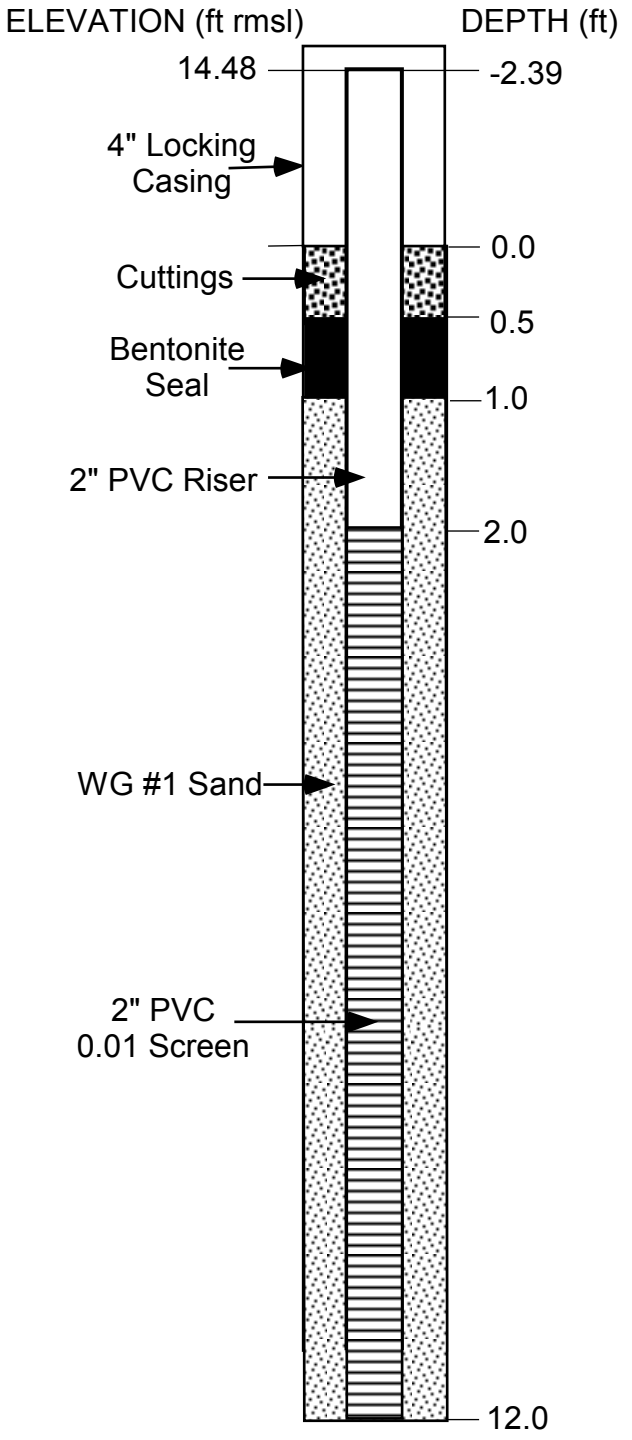
MONITORING WELL COMPLETION LOG

679 Plank Road
Clifton Park, New York
(518) 348-6995

www.alphageoscience.com

Well	MW-1
Project	Wainscott Commercial Center
Project No.	17115
Date Drilled	6/7/2018
Developed	6/7/2018

WELL CONSTRUCTION DETAILS



NOT TO SCALE

INSPECTION NOTES

Geologist Steve Trader
Drilling Contractor Clearwater Drilling
Type of Well Monitoring Well
Static Water Level 6.02' Date 6/7/2018
Measuring Point Top of PVC
Total Well Depth 12' below grade

Riser Pipe
Material PVC Diameter 2"
Length 2' + 2.39' stickup Joint Type flush threaded

Screen
Material PVC Diameter 2"
Slot Size 0.01 Length 10'
Stratigraphic Unit Screened sand and gravel

Packing
Sand x Gravel Natural
Amount 3.5 50-lb bags Interval 12' - 1.0'

Seal
Type bentonite tablets Interval 1.0' - 0.5'

Locking Casing Yes
Diameter 4"

Notes:

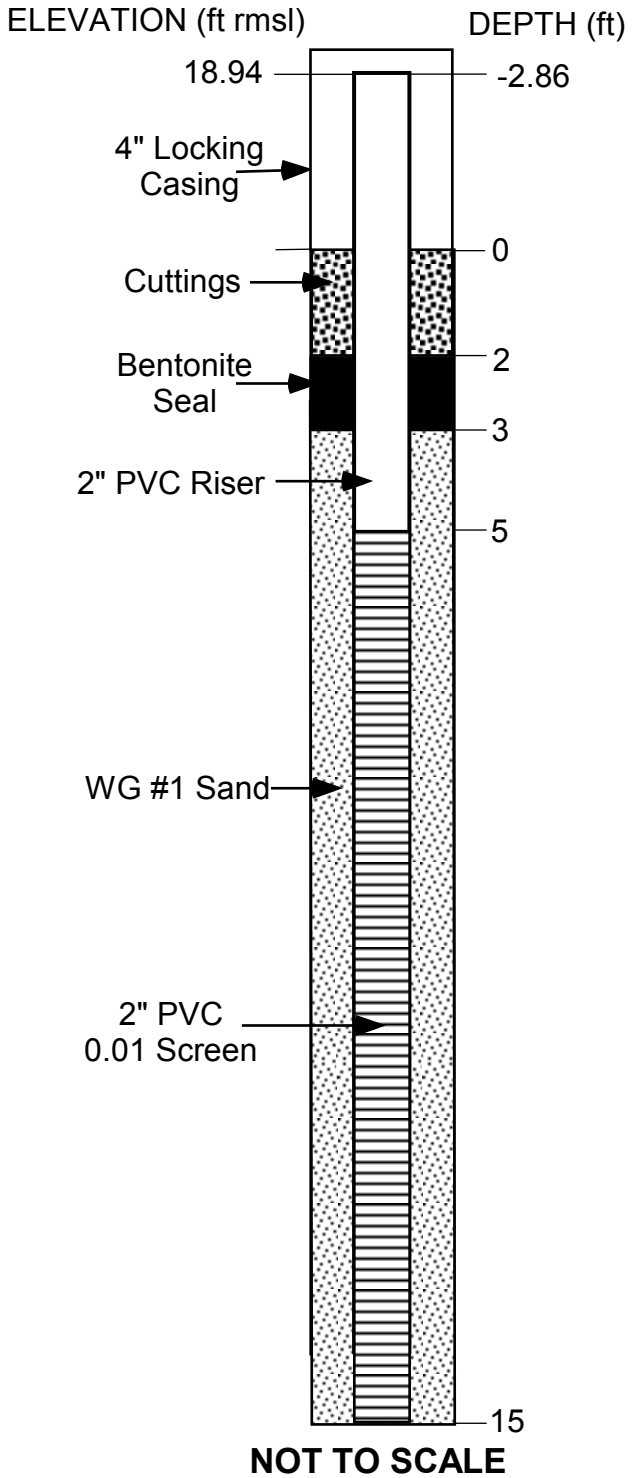
MONITORING WELL COMPLETION LOG

679 Plank Road
Clifton Park, New York
(518) 348-6995

www.alphageoscience.com

Well MW-2
Project Wainscott Commercial Center
Project No. 17115
Date Drilled 6/7/2018
Developed 6/7/2018

WELL CONSTRUCTION DETAILS



NOT TO SCALE

INSPECTION NOTES

Geologist Steve Trader
Drilling Contractor Clearwater Drilling
Type of Well Monitoring Well
Static Water Level 9.33' Date 6/7/2018
Measuring Point Top of PVC
Total Well Depth 15' below grade

Riser Pipe
Material PVC Diameter 2"
Length 5' + 2.86' stickup Joint Type flush threaded

Screen
Material PVC Diameter 2"
Slot Size 0.01 Length 10'
Stratigraphic Unit Screened sand and gravel

Packing
Sand x Gravel Natural
Amount 4 50-lb bags Interval 15' - 3'

Seal
Type bentonite tablets Interval 3' - 2'

Locking Casing Yes
Diameter 4"

Notes:

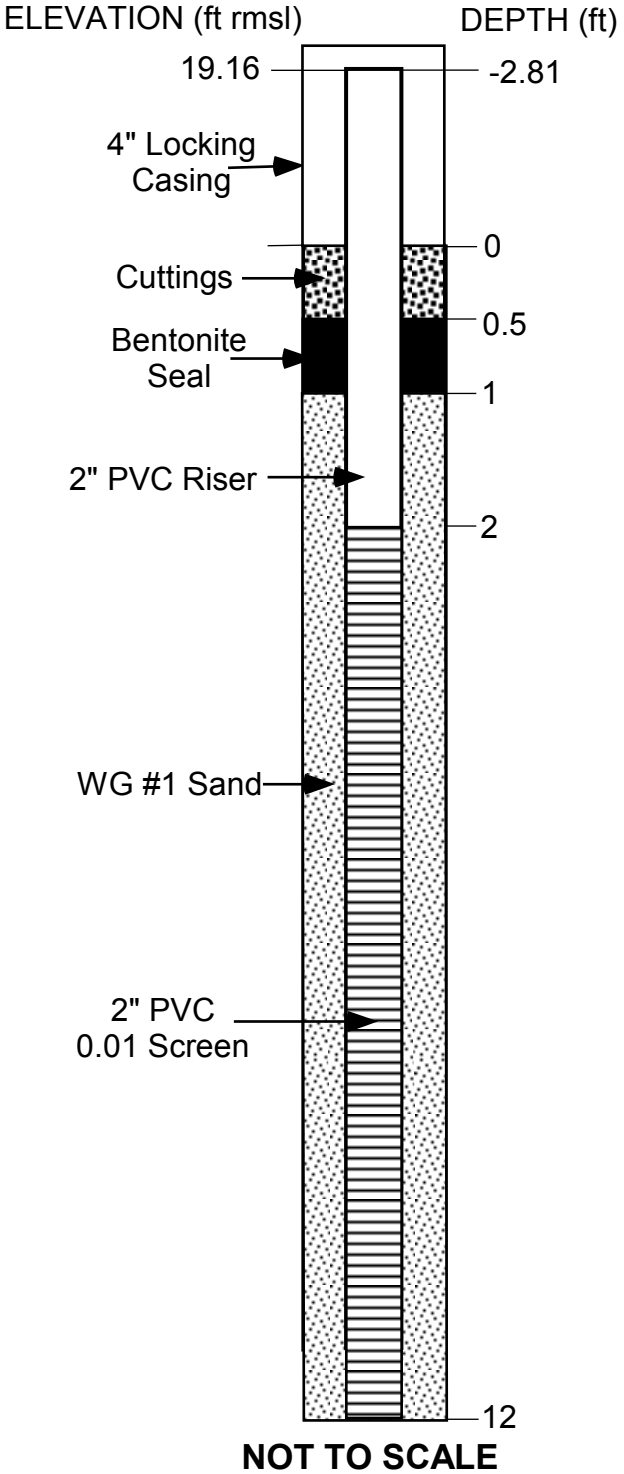
MONITORING WELL COMPLETION LOG

679 Plank Road
Clifton Park, New York
(518) 348-6995

www.alphageoscience.com

Well	MW-3
Project	Wainscott Commercial Center
Project No.	17115
Date Drilled	6/7/2018
Developed	6/7/2018

WELL CONSTRUCTION DETAILS



NOT TO SCALE

INSPECTION NOTES

Geologist Steve Trader
Drilling Contractor Clearwater Drilling
Type of Well Monitoring Well
Static Water Level 8.54' Date 6/7/2018
Measuring Point Top of PVC
Total Well Depth 12' below grade

Riser Pipe
Material PVC Diameter 2"
Length 2' + 2.81' stickup Joint Type flush threaded

Screen
Material PVC Diameter 2"
Slot Size 0.01 Length 10'
Stratigraphic Unit Screened sand and gravel

Packing
Sand x Gravel Natural
Amount 4 50-lb bags Interval 12' - 1'

Seal
Type bentonite tablets Interval 1.0' - 0.5'

Locking Casing Yes
Diameter 4"

Notes:

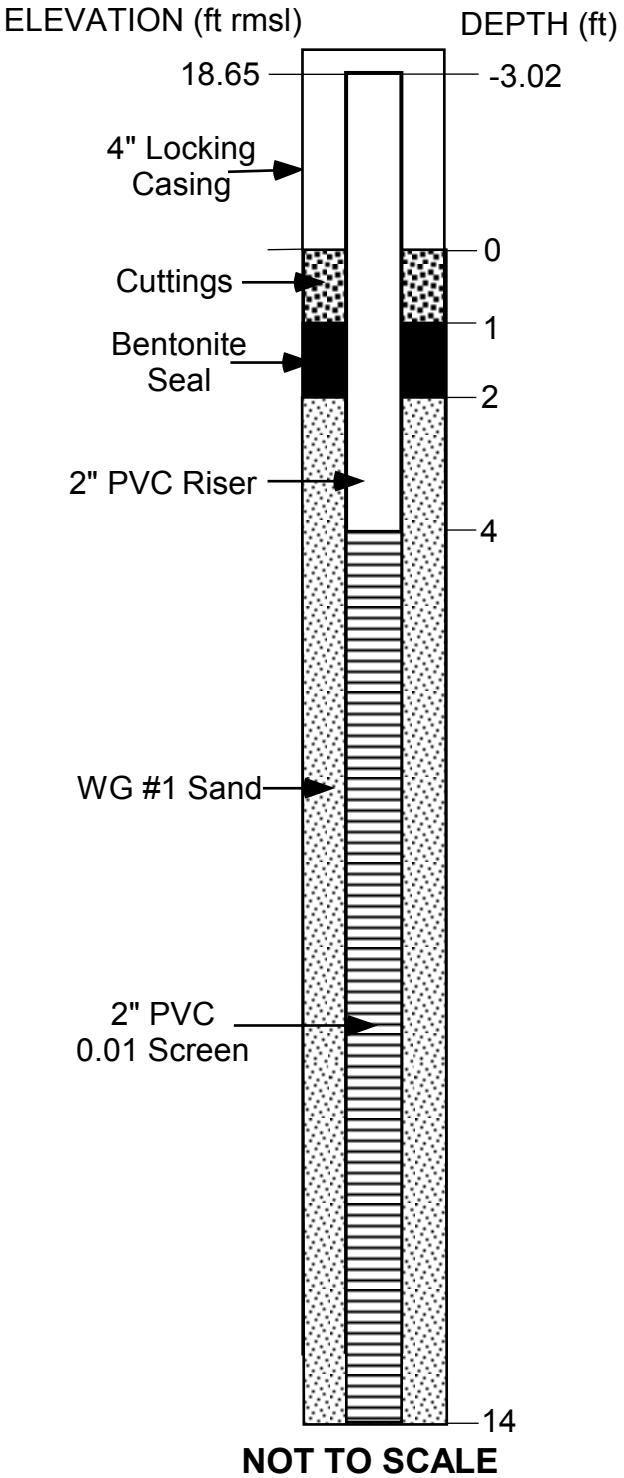
MONITORING WELL COMPLETION LOG

679 Plank Road
Clifton Park, New York
(518) 348-6995

www.alphageoscience.com

Well MW-4
Project Wainscott Commercial Center
Project No. 17115
Date Drilled 6/7/2018
Developed 6/7/2018

WELL CONSTRUCTION DETAILS



NOT TO SCALE

INSPECTION NOTES

Geologist Steve Trader
Drilling Contractor Clearwater Drilling
Type of Well Monitoring Well
Static Water Level 8.74' Date 6/7/2018
Measuring Point Top of PVC
Total Well Depth 14' below grade

Riser Pipe
Material PVC Diameter 2"
Length 2' + 3.02' stickup Joint Type flush threaded

Screen
Material PVC Diameter 2"
Slot Size 0.01 Length 10'
Stratigraphic Unit Screened sand and gravel

Packing
Sand x Gravel Natural
Amount 6 50-lb bags Interval 14' - 2'

Seal
Type bentonite tablets Interval 2' - 1'

Locking Casing Yes
Diameter 4"

Notes: Stickup not measured. (surveyed at a later date)

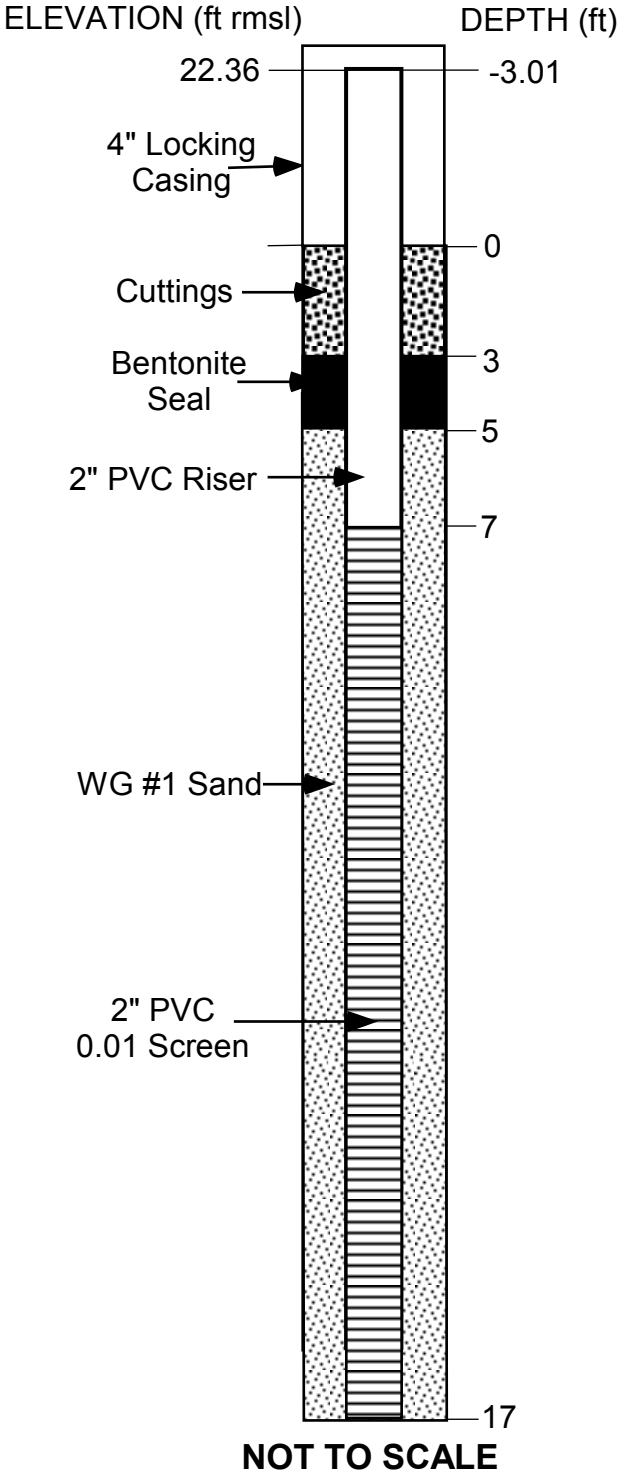
MONITORING WELL COMPLETION LOG

679 Plank Road
Clifton Park, New York
(518) 348-6995

www.alphageoscience.com

Well	MW-5
Project	Wainscott Commercial Center
Project No.	17115
Date Drilled	6/8/2018
Developed	6/8/2018

WELL CONSTRUCTION DETAILS



NOT TO SCALE

INSPECTION NOTES

Geologist Steve Trader
Drilling Contractor Clearwater Drilling
Type of Well Monitoring Well
Static Water Level 11.57' Date 6/8/2018
Measuring Point Top of PVC
Total Well Depth 17' below grade

Riser Pipe
Material PVC Diameter 2"
Length 7' + 3.01' stickup Joint Type flush threaded

Screen
Material PVC Diameter 2"
Slot Size 0.01 Length 10'
Stratigraphic Unit Screened sand and gravel

Packing
Sand x Gravel _____ Natural _____
Amount 6 50-lb bags Interval 17' - 5'

Seal
Type bentonite tablets Interval 5' - 3'

Locking Casing Yes
Diameter 4"

Notes:

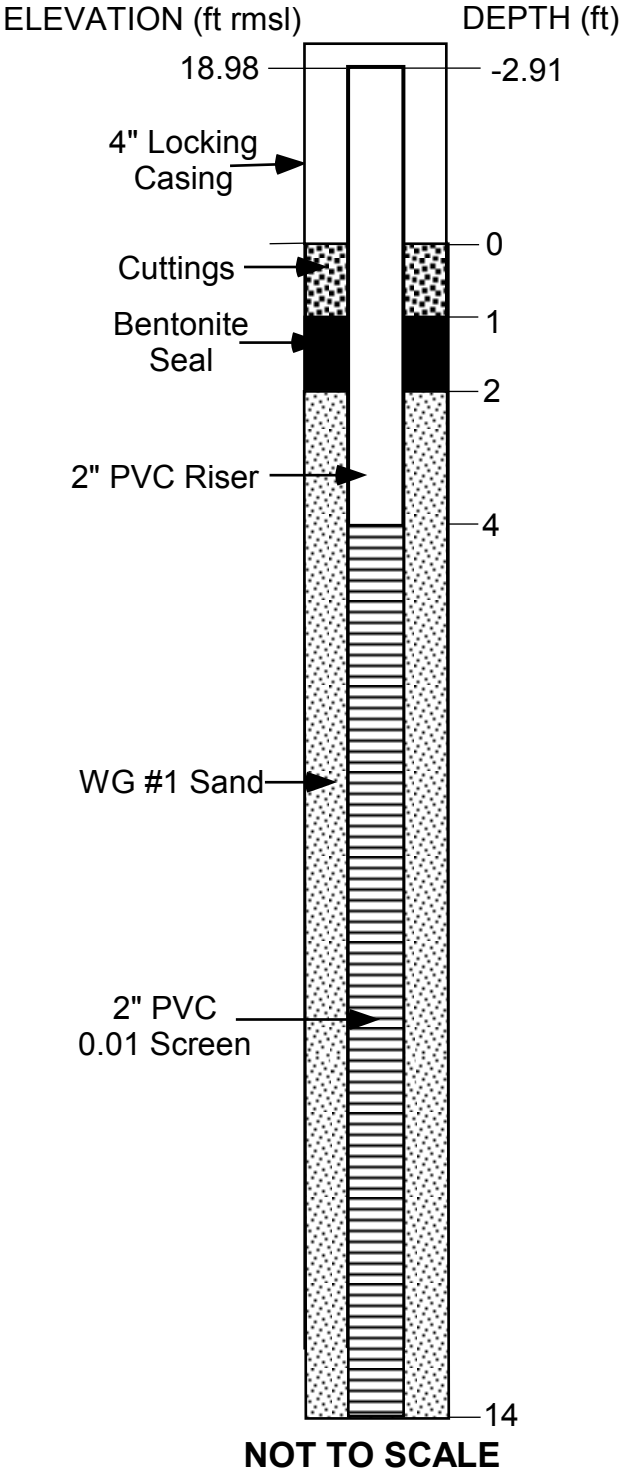
MONITORING WELL COMPLETION LOG

679 Plank Road
Clifton Park, New York
(518) 348-6995

www.alphageoscience.com

Well	MW-6
Project	Wainscott Commercial Center
Project No.	17115
Date Drilled	6/8/2018
Developed	6/8/2018

WELL CONSTRUCTION DETAILS



NOT TO SCALE

INSPECTION NOTES

Geologist Steve Trader
Drilling Contractor Clearwater Drilling
Type of Well Monitoring Well
Static Water Level 8.48' Date 6/8/2018
Measuring Point Top of PVC
Total Well Depth 14' below grade

Riser Pipe
Material PVC Diameter 2"
Length 4' + 2.91' stickup Joint Type flush threaded

Screen
Material PVC Diameter 2"
Slot Size 0.01 Length 10'
Stratigraphic Unit Screened sand and gravel

Packing
Sand x Gravel Natural
Amount 5 50-lb bags Interval 14' - 2'

Seal
Type bentonite tablets Interval 2' - 1'

Locking Casing Yes
Diameter 4"

Notes:

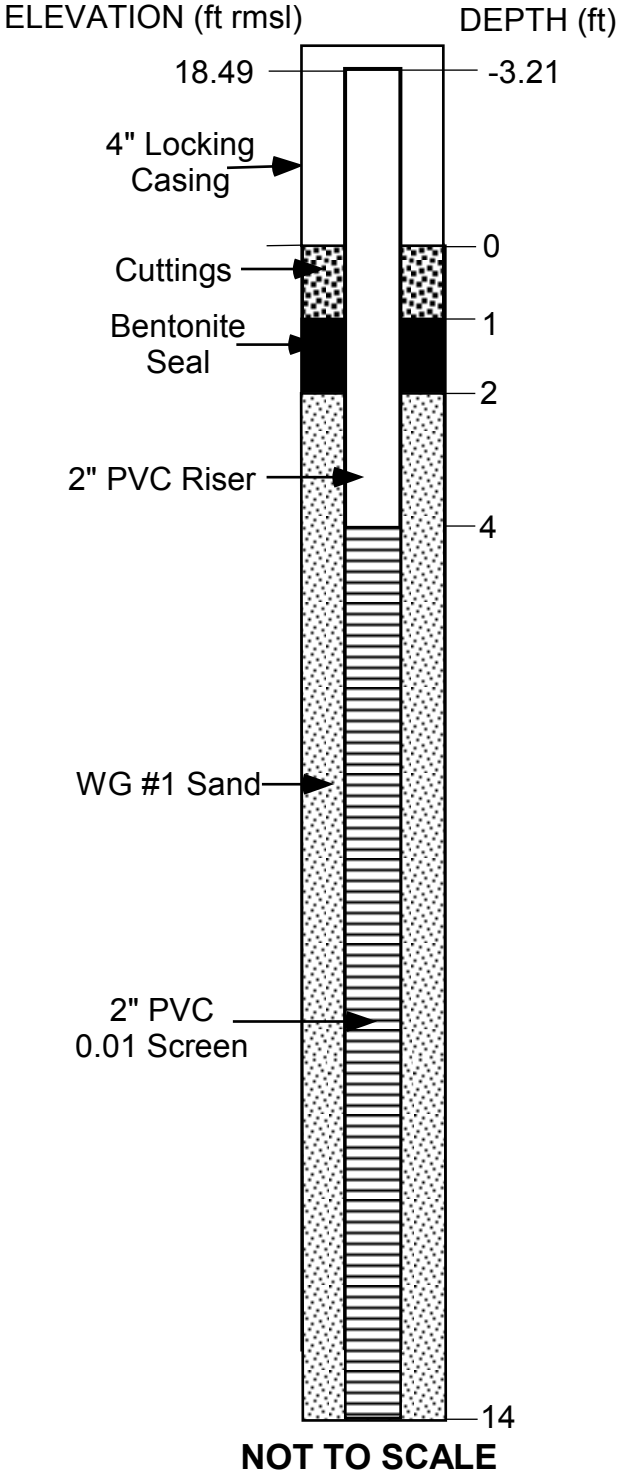
MONITORING WELL COMPLETION LOG

679 Plank Road
Clifton Park, New York
(518) 348-6995

www.alphageoscience.com

Well	MW-7
Project	Wainscott Commercial Center
Project No.	17115
Date Drilled	6/8/2018
Developed	6/8/2018

WELL CONSTRUCTION DETAILS



NOT TO SCALE

INSPECTION NOTES

Geologist Steve Trader
Drilling Contractor Clearwater Drilling
Type of Well Monitoring Well
Static Water Level 8.58' Date 6/8/2018
Measuring Point Top of PVC
Total Well Depth 14' below grade

Riser Pipe
Material PVC Diameter 2"
Length 4' + 3.21' stickup Joint Type flush threaded

Screen
Material PVC Diameter 2"
Slot Size 0.01 Length 10'
Stratigraphic Unit Screened sand and gravel

Packing
Sand x Gravel Natural
Amount 5 50-lb bags Interval 14' - 2'

Seal
Type bentonite tablets Interval 2' - 1'

Locking Casing Yes
Diameter 4"

Notes:

APPENDIX C

USGS Water Elevation Data for Georgica Pond

National Water Information System: Web Interface

USGS Water Resources

Data Category: Surface Water ▼ Geographic Area: New York ▼ GO

Click to hideNews Bulletins

- Please see news on new formats
- Full News

Click to hide state-specific text
ALL DATA ARE EASTERN STANDARD TIME

USGS 01304705 GEORGICA POND NEAR APAQUOQUE NY

PROVISIONAL DATA SUBJECT TO REVISION

Available data for this site Time-series: Daily data ▼ GO

Click to hidestation-specific text

Funding for this site is provided by:

Suffolk County Water Authority

Village of East Hampton

Friends of Georgica Pond Foundation

USGS - Cooperative Matching Funds

LOCATION.-- Lat 40°56'00", long 72°13'30" referenced to North American Datum of 1927, Suffolk County, NY, Hydrologic Unit 02030202, on southeastern shore at Village of East Hampton preserve on West End Road, near Apaquogue.
PERIOD OF RECORD.-- June 2003 to October 2008, July 2009 to current year.
GAGE.-- Water-stage recorder. Datum of gage is NGVD of 1929.
REMARKS.-- Records good. During spring and fall, pond is opened to Atlantic Ocean to regulate stage for fisheries management, flood control, and sanitary improvement. Satellite elevation telemeter at station.
EXTREMES FOR PERIOD OF RECORD.-- Maximum elevation, 8.32 ft, Mar. 31, 2010; minimum elevation, 1.89 ft, May 20, 2004.

Peak Flow and Stage Information

Station image

This station managed by the NY Water Science Center Coram.

Available Parameters	Period of Record
All 1 Available Parameters for this site	
62614 Elevation, lake/res,(Mean)	2003-06-04 2018-09-24

Output format

- ○ Graph
- ○ Graph w/ stats
- ○ Graph w/ (up to 3) parms
- ◉ Table
- ○ Tab-separated

Days (115) Summary of all available data for this site

Instantaneous-data availability statement

GO

-- or --

Begin date
2018-06-01

End date
2018-09-24

Daily Mean Lake or reservoir water surface elevation above NGVD 1929, feet

DATE	Jun 2018	Jul 2018	Aug 2018	Sep 2018
1	5.53P	5.82P	5.63P	5.51P
2	5.65P	5.79P	5.64P	5.50P
3	5.74P	5.76P	5.63P	5.49P
4	5.88P	5.73P	5.69P	5.49P
5	5.88P	5.71P	5.70P	5.49P
6	5.88P	5.72P	5.67P	5.50P
7	5.88P	5.68P	5.64P	5.51P
8	5.85P	5.64P	5.62P	5.52P
9	5.80P	5.62P	5.61P	5.56P
10	5.77P	5.61P	5.60P	5.72P
11	5.73P	5.62P	5.78P	5.84P

12	5.70[P]	5.70[P]	5.75[P]	5.81[P]
13	5.74[P]	5.77[P]	5.78[P]	5.81[P]
14	5.77[P]	5.75[P]	5.82[P]	5.91[P]
15	5.77[P]	5.72[P]	5.75[P]	5.91[P]
16	5.75[P]	5.69[P]	5.70[P]	5.82[P]
17	5.72[P]	5.71[P]	5.65[P]	5.78[P]
18	5.70[P]	5.74[P]	5.81[P]	5.81[P]
19	5.71[P]	5.67[P]	5.92[P]	5.83[P]
20	5.67[P]	5.63[P]	5.80[P]	5.75[P]
21	5.74[P]	5.59[P]	5.75[P]	5.71[P]
22	5.70[P]	5.79[P]	5.76[P]	5.68[P]
23	5.79[P]	5.74[P]	5.76[P]	5.65[P]
24	5.79[P]	5.72[P]	5.73[P]	5.63[P]
25	5.86[P]	5.71[P]	5.68[P]	
26	5.81[P]	5.88[P]	5.65[P]	
27	5.78[P]	5.80[P]	5.64[P]	
28	5.78[P]	5.76[P]	5.62[P]	
29	5.81[P]	5.73[P]	5.60[P]	
30	5.84[P]	5.70[P]	5.57[P]	
31		5.66[P]	5.54[P]	
COUNT	30	31	31	24
MAX	5.88	5.88	5.92	5.91
MIN	5.53	5.59	5.54	5.49

Explanation

P	Provisional data subject to revision.

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Accessibility Plug-Ins FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey
Title: USGS Surface-Water Daily Data for New York
URL: https://waterdata.usgs.gov/ny/nwis/dv?

Page Contact Information: New York Water Data Support Team
Page Last Modified: 2018-09-25 10:56:10 EDT
0.96 0.88 caww01

APPENDIX D

Topographic and Well Survey Map of
Wainscott Commercial Center
by Fox Land Surveying
September 14, 2018

LONG ISLAND RAIL ROAD

N75°46'11"E 782.00'

312.67'

N06°43'48"W

BROADWOOD COURT

174.49'

N01°47'11"E

354.18'

186.00'

N09°48'07"W

NORTHWEST ROAD

N32°12'41"W 438.89'

SANDOWN COURT

N26°51'27"W 187.70'

288.14'

WAINSCOTT

N10°12'27"W

N10°17'52"E 44.56'

GEORGICA DRIVE L=826.17'

R=1221.29'

S82°00'50"W 137.99'

S82°00'50"W 111.38'

N61°58'10"W 130.46'

now or formerly Home Sweet Home Moving & Storage

now or formerly Di Gate Ready-mix Corporation

now or formerly Stanley L. Redug

now or formerly Patrick D. Brown & Susan L. Brown

now or formerly Ronald Stinson & Cynthia Stinson

Subdivision Map "Midhampton" Suff. County File No. 1625 Map Section "I"

DRIVE

MONTAUK HIGHWAY

N62°34'50"E

now or formerly Home Sweet Home Moving & Storage

now or formerly Bruce H. Bromberg

now or formerly John G. Hill

now or formerly Di Gate Ready-mix Corporation

S82°00'50"W 135.98'

S66°54'21"W 104.00'

S65°48'50"W 120.00'

S61°08'50"W

N32°55'02"W 135.00'

N32°55'02"W 152.88'

FENCE LIES

S44°52'30"W 414.09'

OLD MONTAUK HIGHWAY

N61°58'10"W 128.43'

MW#1 TOP EL=14.48 GROUND=12.09

S66°54'21"W 123.78'

25' WIDE EASEMENT

S65°48'50"W 102.74'

S61°08'50"W 142.27'

762.94'

337.88'

N44°52'30"E 172.48'

MW#5 TOP EL=22.36 GROUND=19.35

MW#6 TOP EL=18.98 GROUND=16.07

OLD WELL TOP EL=18.06 GROUND=15.48

N30°17'16"W 277.59'

970.93'

S63°13'16"W

1026.22'

S63°37'04"W

MW#3 TOP EL=19.16 GROUND=16.35

MW#4 TOP EL=18.65 GROUND=15.63

S27°04'24"E 185.00'

303.00'

488.00'

N57°01'38"E 219.00'

259.00'

635.14'

S62°16'40"W 184.23'

193.51'

435.00'

S29°06'45"E

435.00'

S57°24'06"W

S26°02'53"E

361.65'

S23°35'16"E

N66°51'22"E 456.00'

733.00'

1361.51'

MW#2 TOP EL=18.94 GROUND=16.08

MW#7 TOP EL=18.49 GROUND=15.28

OLD WELL TOP EL=23.27 GROUND=20.80

1464.44'

682.44'

L=369.72'

R=212.76'

S27°43'20"E

PRIVATE ROAD (HEDGES LANE)

HOLE ROAD

DANIELS

now or formerly Sand Land Corporation

now or formerly Sand Land Corporation

now or formerly John T. Renos & Deirdre L. Renos

now or formerly Sand Land Corporation

now or formerly Michael McGrath

now or formerly Sand Land Corporation

now or formerly Edward C. Kominski Charlot Kominski

now or formerly Deborah Quincy Egginton

now or formerly William T. Cullum

now or formerly Sand Land Corporation

now or formerly Pitt Ford Mercury Inc.

Survey for:

SAND LAND CORPORATION

"CI Zone"

At

Wainscott

Town of

East Hampton

Suffolk County, New York

S.C.T.M.: 0300–192.00–02.00–006.002, 006.003, 006.004, 006.005, 006.006, 006.007

100 0 100

SCALE: 1"=100'

NOTES:

1. TOTAL AREA = 70.5119 ACRES
2. ■ = MONUMENT FOUND, O = IRON ROD FOUND.
3. REFERENCE DEED; L 11812 CP 735
4. STRUCTURES NOT SHOWN HEREON.
5. TOPOGRAPHY SHOWN HEREON IS FROM PHOTOGRAPHIC METHODS PROVIDED BY GEOMAPS INTERNATIONAL INC. IN AUG. 2017.
6. ELEVATIONS SHOWN HEREON ARE REFERENCED TO N.A.V. DATUM 1988.

SEPT 14, 2018 LOCATE WELLS
OCT. 05, 2017 IND. TOPO
AUG. 09, 2007 IND. LOT LINES
MAY 21, 2003 LOCATED BUILDINGS & TRAILORS
SEPT. 24, 2001 FINAL SURVEY
MAR. 21, 2000 INDICATED PROP BLOCK PLANT
JULY 07, 1999 INDICATED WELLS

DATE: JUNE 21, 1999

JOB NO: 99–0071

CERTIFIED TO:
SAND LAND CORPORATION

DAVID H. FOX N.Y.S.L.S. #50234
FOX LAND SURVEYING
64 SUNSET AVENUE
WESTHAMPTON BEACH, N.Y. 11978
(631) 288–0022

DWG: 990071

APPENDIX E

NYSDEC and SCDHS Letters Regarding PFC Investigation in East Hampton

E.1.6.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau A
625 Broadway, 12th Floor, Albany, NY 12233-7015
P: (518) 402-9625 I F: (518) 402-9627

November 10, 2017

Mr. Larry Cantwell, Supervisor
Town of East Hampton
159 Pantiago Road
East Hampton, NY 11937

Re: Potential Hazardous Waste Disposal Site

Dear Mr. Cantwell:

As required by subdivision 27-1305(2)(a) of the Environmental Conservation Law (ECL, quoted below), the New York State Department of Environmental Conservation (DEC) must investigate all suspected or known inactive hazardous waste disposal sites. We have received information that certain perfluorinated compounds (PFCs) have been detected in nearby water supply wells, which may be attributable to current or past operations on your property. These compounds are known components of firefighting foams, and are listed as hazardous substances in New York State (6 NYCRR Part 597). This information leads us to suspect that hazardous waste may have been disposed of at the following location:

Site Name: East Hampton Airport
Site Address: 200 Daniels Hole Road, Wainscott, NY 11975
DEC Site No.: 152250
Tax Map Identifier(s): 18100-200-6000, 18000-100-8013, 18100-200-1000, 18100-200-3000, 19100-300-1001, 18100-300-1001, 18100-300-3000, 18100-300-2000, 18100-200-4000, 18100-200-2000, 19200-300-50000, 18100-200-5000, 19200-300-42001, 18100-500-1001

Therefore, this letter constitutes DEC's notification to you as the identified property owner that this property is considered a potential inactive hazardous waste disposal site. If DEC determines that hazardous waste has been disposed of on the property and that the hazardous waste poses a significant threat to public health or the environment, the property will be listed on the Registry of Inactive Hazardous Waste Disposal Sites (Registry).

If you have any information that may be relevant to our investigation and pending determination, please forward it to DEC as soon as possible. Such information includes the locations of firefighting foam storage, use, and training activities; and the brand names of all aqueous film forming foam (AFFF) handled at the site.

This letter also serves as DEC's notification to you of the need to carry out an investigation in accordance with DEC's technical requirements for a site characterization. In addition to carrying out the investigation (which will include installing and sampling on-site wells), there is a need to install point of entry treatment systems (POETs) or other alternate water supply (i.e., waterline extension) to address the contaminated water supply wells mentioned above. Also, bottled water must be provided until such time as that system or alternate supply is in place. We understand that, presently, the Town of East Hampton is providing bottled water to the affected residences.

Please contact me within 10 business days to discuss the necessary scope of the investigation and the installation of the POET systems or alternate water supply. Also, please have your attorney contact the DEC Project Attorney, Caryn Bower, to discuss entering into a legal agreement with DEC to carry out the necessary investigation.

Should you be unwilling or unable to conduct the needed study, if the site is determined to be an inactive hazardous waste disposal site and DEC incurs costs to investigate or remediate the site, DEC will seek to recover all such costs from any responsible person.

A brief summary of the information currently available about the site is enclosed for your reference. This information is also available on DEC's environmental remediation database, by using our "Environmental Site Remediation Database Search" tool at: http://www.dec.ny.gov/cfmx/extapps/derexternal/index.cfm?pageid=3

If you have any questions, please feel free to contact me at 518-402-9625 or eric.obrecht@dec.ny.gov. To discuss the legal agreement required for the investigation of the site, contact Caryn Bower at 518-402-9186.

Sincerely,

Eric K. Obrecht

Eric Obrecht, P.E.
Director, Remedial Bureau A
Division of Environmental Remediation

Enclosure

Ec w/o Enc.: S. Edwards
J. Moras
C. Bower

Environmental Conservation Law

Section 27-1305(2)(a)

"The department shall conduct investigations of the sites listed in the registry and shall investigate areas or sites which it has reason to believe should be included in the registry. The purpose of these investigations shall be to develop the information required by subdivision one of this section to be included in the registry."

COUNTY OF SUFFOLK

STEVEN BELLONE
SUFFOLK COUNTY EXECUTIVE

DEPARTMENT OF HEALTH SERVICES

JAMES L. TOMARKEN, MD, MPH, MBA, MSW
COMMISSIONER

September 13, 2018

Barbara Deandra
PO Box 273
Wainscott NY 11975

Re: Private Request Number: PR18-0707
Site Location: 65 Wainscott Main Street, Wainscott

Date Sampled: 8/24/18
Survey #: SV0317

Dear Ms. Deandra:

The purpose of this letter is to provide you with analytical results from samples collected at the above site location. As of the date of this letter, we have received the analytical results for a group of parameters called perfluorinated compounds including perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). This analysis of your water supply indicates that, at the time of sampling, the PFOA concentration in the sample was 190.0 parts per trillion (ppt) and PFOS was not detected. These concentrations of PFOS and PFOA exceed the current health advisory level of 70.0 ppt established by the United States Environmental Protection Agency (EPA). Please see the enclosed EPA Fact Sheet and the Suffolk County Department of Health Services Frequently Asked Questions (FAQs) for more information on the health advisory.

Based on your results, we recommend taking action to limit exposure by using an alternative source of water for drinking, preparation of infant formula and food preparation. The Town of East Hampton has offered to provide bottled water to property owners in the Wainscott private well survey area until further notice. Please call (631) 324-4183 to make arrangements to receive bottled water.

More information on PFOS and PFOA can be found at Suffolk County website at www.suffolkcountyny.gov/health/pfcwaterinfo. If you have health related questions related to PFOA and PFOS, please call the New York State Department of Health at (518) 402-7860.

Should you have any general questions concerning your drinking water, feel free to contact Anthony Condos of this office at (631) 852-5810. Please have your Private Request Number available when making inquiries to this office concerning this water sample.

Sincerely,

Douglas J. Feldman, P.E.
Principal Public Health Engineer
Chief, Office of Water Resources

Enclosures
cc: Walter Parish, NYSDEC
Charlotte Bethoney, NYSDOH
Andrew Rapiejko, SCDHS
Jason R. Hime, P.E., SCDHS

SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES - WATER ANALYSIS

Requestor Name: BARBARA DEANDRA
Location: 65 WAINSCOTT MAIN STREET, WAINSCOTT
Sample Location: HAND WELL
Treatment: NONE

Request No.: PR18-0707
Sample Date: 08/24/2018
Sanitarian: KRAKOWSKI
Field No.: 010-847-18-08-24

Survey #: SV0317

Notes: '<' symbol means "less than" indicating no detection. mg/L = milligrams per liter; ug/L = micrograms per liter. Alkalinity is reported as mg/L as CaCO3. '*' symbol means level found exceeds the maximum contaminant level (MCL), or action level for lead and copper. Moderately restricted sodium diet should not exceed 270 mg/L. Severely restricted should not exceed 20 mg/L. The MCL for nickel is a proposed limit. Any MCL's not shown below have not been established.

		Result	MCL				Result	MCL	
===== Results for Sample Group: PERFLUORINATED COMPOUNDS analyzed by Test America Sacramento =====									
PFBS (Perfluorobutanesulfonic Acid).....	<	2.	50000	ng/L	PFOA (Perfluorooctanoic Acid).....	=	190.	50000	ng/L
PFHxs (Perfluorohexanesulfonic Acid)...	<	2.	50000	ng/L	PFOS (Perfluorooctanesulfonic Acid)...	<	2.	50000	ng/L
PFHpA (Perfluoroheptanoic Acid).....	=	41.	50000	ng/L	PFNA (Perfluorononanoic Acid).....	=	19.	50000	ng/L

Wainscott Chapel

APPENDIX F

Table 13 from SCDHS Report
dated January 22, 2016

Table 13 – Compost Study Metals Data Comparison to Metals in Suffolk County Private

Parameter	Investigation	# Samples Analyzed	# of Samples with Detection	% Samples with Detection	Maximum Concentration Detected	Overall Mean Concentration[#]	Mean Concentration of Detected^
Aluminum (ppb)	11 Study Sites*	230	208	90%	25,301	433	478
	Suffolk Shallow Private Wells**	1,196	655	55%	2,580	39	69
Antimony (ppb)	11 Study Sites	233	13	6%	2.1	0.22	0.66
	Suffolk Shallow Private Wells	1,196	1,183	1%	1.1	0.18	0.62
Arsenic (ppb)	11 Study Sites	233	37	16%	64	1.8	8.5
	Suffolk Shallow Private Wells	1,196	35	3%	7	0.55	2.1
Barium (ppb)	11 Study Sites	232	232	100%	872	92	92
	Suffolk Shallow Private Wells	1,196	1,166	97%	243	36	37
Beryllium (ppb)	11 Study Sites	233	26	11%	2.4	0.23	0.72
	Suffolk Shallow Private Wells	1,196	26	2%	1	0.15	0.5
Cadmium (ppb)	11 Study Sites	232	2	0.9%	3	0.52	2.5
	Suffolk Shallow Private Wells	1,196	9	0.8%	6	0.51	1.9
Calcium (ppm)	11 Study Sites	232	232	100%	140	17	17
	Suffolk Shallow Private Wells	1,197	1,187	99%	127	14	14
Chromium (ppb)	11 Study Sites	232	145	63%	38	2.2	3.2
	Suffolk Shallow Private Wells	1,196	216	18%	10	0.7	1.5
Cobalt (ppb)	11 Study Sites	232	100	43%	81	3.5	7.5
	Suffolk Shallow Private Wells	1,196	39	3%	25	0.62	4.1
Copper (ppb)	11 Study Sites	232	84	36%	46	2.3	5.3
	Suffolk Shallow Private Wells	1,196	1,160	97%	2,727	127	132
Germanium (ppb)	11 Study Sites	230	33	14%	3	0.6	1.4
	Suffolk Shallow Private Wells	1,195	8	0.67%	2	0.4	1.0
Iron (ppm)	10 VOWM Sites	232	88	38%	81	3.3	8.5
	Suffolk Shallow Private Wells	1,197	383	32%	33	0.3	0.9
Lead (ppb)	11 Study Sites	233	21	9%	46	1.3	9.4
	Suffolk Shallow Private Wells	1,196	620	52%	488	5.2	9.6
Magnesium (ppm)	11 Study Sites	232	231	100%	461	6.7	6.7
	Suffolk Shallow Private Wells	1,197	1,175	98%	212	5.0	5.1
Manganese (ppb)	11 Study Sites	232	221	95%	49,300	1,618	1,698
	Suffolk Shallow Private Wells	1,196	1,093	91%	7,000	102	112
Molybdenum (ppb)	11 Study Sites	233	29	12%	10	0.83	3.1
	Suffolk Shallow Private Wells	1,196	8	0.67%	17	0.5	3.3
Nickel (ppb)	11 Study Sites	232	210	91%	26	3.1	3.4
	Suffolk Shallow Private Wells	1,196	853	71%	57	1.4	1.9
Potassium (ppm)	11 Study Sites	232	232	100%	97	9.2	9.2
	Suffolk Shallow Private Wells	1,197	1,190	99%	53	2.6	2.6
Sodium (ppm)	11 Study Sites	232	229	99%	236	20	20
	Suffolk Shallow Private Wells	1,197	1,196	100%	1,360	22	22
Strontium (ppb)	11 Study Sites	232	231	100%	635	79	79
	Suffolk Shallow Private Wells	1,196	1,174	98%	1,030	68	69
Thallium (ppb)	11 Study Sites	232	38	16%	2.9	0.26	0.79
	Suffolk Shallow Private Wells	1,196	13	1%	0.62	0.1	0.4
Titanium (ppb)	11 Study Sites	230	108	47%	708	14	30
	Suffolk Shallow Private Wells	1,196	28	2%	20	0.6	3
Vanadium (ppb)	11 Study Sites	233	32	14%	65	1.7	9.3
	Suffolk Shallow Private Wells	1,196	27	2%	10	0.6	2.9
Zinc (ppb)	11 Study Sites	230	26	11%	1,320	34	108
	Suffolk Shallow Private Wells	1,195	560	47%	5,400	114	217

* Note that these statistics include data from all wells and profile levels included in the study, even those exhibiting little or no water quality degradation.

** Untreated water quality data from private wells collected by the SCDHS from January 2010 – June 2014.

One half the detection limit was used in the calculation of the mean for samples that had concentrations reported as not detected.

^ This is the mean concentration of only the samples that had concentrations above their respective detection limits.

APPENDIX G

Data Validation Summary

ALPHA GEOSCIENCE

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Data Usability Summary Report for
Pace Analytical Services, Inc.-New York
SDG No.: 7056430

8 Ground Water Samples
Collected June 26 and 27, 2018

Prepared by: Donald Anné
October 26, 2018

The data packages contain the documentation required by NYSDEC ASP. The proper chain of custody procedures were followed by the samplers. All information appears legible and complete. The data pack contains the results for 8 ground water samples analyzed for perfluorinated alkyl substances (PFAS) method 537 (modified), 1,4-dioxane, metals, hardness, fluoride, sulfate, color, chloride, alkalinity, hexavalent chromium, nitrate as N, nitrate-nitrite as N, nitrite as N, and total dissolved solids (TDS).

The overall performances of the analyses are acceptable. Pace Analytical Services, Inc.- New York and Pittsburg, TestAmerica Buffalo (subcontracted 1,4-dioxane data), and TestAmerica Sacramento (subcontracted PFAS data) did fulfill the requirements of the analytical methods.

The data are mostly acceptable with some issues that are identified in the accompanying data validation reviews. The following data were qualified:

- The positive TDS results were qualified as "estimated" (J) for all 8 ground water samples because the samples were analyzed beyond the NYSDEC ASP holding time.

- The positive alkalinity results were qualified as "estimated, biased low" (J-) for all 8 ground water samples because 2 of 2 percent recoveries for total alkalinity were below QC limits, but not below 30% in the associated aqueous batch MS/MSD sample.

- The positive PFAS result for PFUnA was qualified as "estimated, biased high" (J+) for sample MW-6 DL because the internal standard was below control limits.

- The positive PFAS results for PFBS, PFBA, and PFPeA were qualified as "estimated, biased high" (J+) for sample MW-8 because the percent recoveries for the surrogate associated with these PFAS were below QC limits, but not below 10% for sample MW-8.

- The “not detected” PFAS results for FOSA and PFTeA were qualified as “estimated” (UJ) for sample MW-8 because the percent recoveries for the surrogate associated with these PFAS were below QC limits, but not below 10% for sample MW-8.

All data are considered usable with estimated (J+, J, or UJ) data associated with a higher level of quantitative uncertainty. Detailed information on data quality is included in the data validation reviews.

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QA/QC Review of Dissolved Metals and Hardness
Data for Pace Analytical Services, Inc.-New York
SDG No.: 7056430

8 Ground Water Samples
Collected June 26 and 27, 2018

Prepared by: Donald Anné
October 26, 2018

Holding Times: Samples were analyzed within NYSDEC ASP holding times.

Initial and Continuing Calibration Verification: The percent recoveries for target metals were within control limits (90-110% for all metals).

CRDL Standard for AA and ICP: The percent recoveries for target metals were within laboratory QC limits (70-130%) for CRDL check standards..

Blanks: The analyses for the method blanks reported target metals as not detected.

Interference Check Sample: The percent recoveries for applicable metals were within control limits (80-120%) for the interference check samples.

Spike Sample Recovery: The percent recoveries for target metals were within control limits (75-125%) for aqueous batch spike samples 7056428001 and 7056677001.

Duplicates: The realtive percent differences for applicable metals and hardness were below the allowable maximum (20%) in aqueous batch duplicate samples 336983DUP and 338599DUP, as required

Laboratory Control Sample: The percent recoveries for target metals were within control limits (85-115%) for aqueous samples 336982LCS and 338597LCS.

Serial Dilution: The %Ds for applicable metals were below the allowable maximum (10%) for aqueous batch serial dilution samples 336987SD and 338598SD, as required.

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QA/QC Review of Method 537 (Modified) PFAS Data
for Pace Analytical Services, Inc.-New York
SDG No.: 7056430
(Subcontrated toTestAmerica Sacramento, Job No: 480-138255-1)

8 Ground Water Samples
Collected June 26 and 27, 2018

Prepared by: Donald Anné
October 26, 2018

Holding Times: Samples were analyzed within USEPA holding times.

Initial Calibration: The %RSDs for applicable PFASs were below the method maximums, as required.

Continuing Calibration: The %Ds for applicable PFASs were below the allowable maximums, as required

Blanks: Method blank MB 320-232920/1-A contained a trace of PFHxS (0.277 ng/L). Positive results for these compounds that are less than five times the highest blank level should be reported as not detected (U) in associated samples

Internal Standard Area Summary: The internal standard area retention times were within control limits.

The internal standard area for sample MW-6 DL was below QC limits. Positive results for sample MW-6 DL should be estimated, biased high (J+) and "not detected" results estimated (UJ).

Surrogate Recovery: Five of eighteen surrogate recoveries for sample MW-8 were below QC limits, but not below 10%. Positive results for compounds associated with these surrogates should be considered estimated, biased high (J+) and "not detected" results estimated (UJ) in sample MW-8.

One of eighteen surrogate recoveries for sample MW-1 was above QC limits. Positive results for compounds associated with this surrogate should be considered estimated, biased low (J-) in sample MW-1.

Laboratory Control Sample: The relative percent differences were below the allowable maximum and the percent recoveries for spiked compounds were within QC limits for aqueous samples LCS 320-232920/2-A and LCSD 320-232920/3-A.

Compound ID: Checked compounds and surrogates were within LC quantitation limits.

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QA/QC Review of Method 8270D SIM 1,4-Dioxane
Data for Pace Analytical Services, Inc.-New York
SDG No.: 7056430
(Subcontrated to TestAmerica Buffalo, Job No: 480-138255-1)

8 Ground Water Samples
Collected June 26 and 27, 2018

Prepared by: Donald Anné
October 26, 2018

Holding Times: Samples were analyzed within NYSDEC ASP holding times.

GC/MS Tuning and Mass Calibration: The DFTPP tuning criteria were within control limits.

Initial Calibration: The average RRFs for 1,4-dioxane were above the allowable minimum (0.010) and r squared was above the allowable minimum (0.9900), as required.

Continuing Calibration: The RRFs for 1,4-dioxane were above the allowable minimum (0.010) and the %Ds were below the allowable maximum (25%), as required.

Blanks: The analysis of the method blank reported 1,4-dioxane as not detected.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Surrogate Recovery: The surrogate recoveries were within control limits for the ground water samples.

Laboratory Control Sample: The relative percent difference for 1,4-dioxane was below the allowable maximum and the percent recoveries for 1,4-dioxane were within QC limits for aqueous samples LCS 480-422634/2-A and LCSD 480-422634/3-A.

Compound ID: Checked surrogates were within GC quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

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QA/QC Review of General Chemistries Data*
for Pace Analytical Services, Inc.-New York
SDG No.: 7056430

8 Ground Water Samples
Collected June 26 and 27, 2018

Prepared by: Donald Anné
October 26, 2018

Holding Times: Samples were analyzed were within NYSDEC ASP holding times.

Initial and Continuing Calibration Verification: The percent recoveries for target analytes were within QC limits (90-110%).

CRDL Standard for AA and ICP: The applicable percent recoveries for target analyes were within laboratory QC limits (70-130% for all except chloride, 50-150% for chloride) for CRDL check standards.

Blanks: The analyses for the method blanks reported target analytes as not detected.

Spike Sample Recovery: The applicable percent recoveries for target analytes were within QC limits (75-125%) for aqueous spike samples MW-3 and MW-4, and aqueous batch spike samples 7056367001, 7056400001, 7056475001, and 7054599021.

Duplicates: The relative percent differences for applicable analytes were below the allowable maximum (20%) in aqueous duplicate sample MW-3, and aqueous batch duplicate samples 336352DUP 336354DUP, 337315DUP, and 336422DUP, as required

Laboratory Control Sample: The percent recoveries for target analytes were QC limits (90-110%) for aqueous samples 336280LCS, 336350LCS, 336410LCS, 336441LCS, 337313LCS, and 337319LCS.

* General chemistries target analytes include color, chloride, hexavalent chromium, nitrate as N, nitrate-nitrite as N, and nitrite as N.

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QA/QC Review of Fluoride and Sulfate Data by Ion Chromatography for Pace Analytical Services, Inc.-New York
SDG No.: 7056430

8 Ground Water Samples
Collected June 26 and 27, 2018

Prepared by: Donald Anné
October 26, 2018

Holding Times: Samples were analyzed within the NYSDEC ASP holding times.

Initial and Continuing Calibration Verification: The percent recoveries for fluoride and sulfate were within QC limits (90-110%).

CRDL Standard for AA and ICP: The percent recoveries for fluoride and sulfate were within laboratory QC limits (70-130%) for CRDL check standards.

Blanks: The analyses for the method blanks reported fluoride and sulfate as not detected.

Spike Sample Recovery: The percent recoveries for fluoride and sulfate were within QC limits (75-125%) for aqueous spike sample MW-2.

Duplicates: The relative percent differences for sulfate was below the allowable maximum (20%) in aqueous duplicate sample MW-2, as required

Laboratory Control Sample: The percent recoveries for fluoride and sulfate were QC limits (85-115%) for aqueous sample 338675LCS.

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QA/QC Review of Total Alkalinity Data
for Pace Analytical Services, Inc.-New York
SDG No.: 7056430
(Subcontrated to Pace-Pittsburg, SDG: 30258047)

8 Ground Water Samples
Collected June 26 and 27, 2018

Prepared by: Donald Anné
October 26, 2018

Holding Times: Samples were analyzed within the NYSDEC ASP holding time.

Initial and Continuing Calibration Verification: The percent recoveries for total alkalinity were within QC limits (98.5-101.4%).

Blanks: The analysis for the method blank reported total alkalinity as not detected.

Spike Sample Recovery: The percent recoveries for total alkalinity were below QC limits (85-115%), but not below 30% for aqueous batch MS/MSD sample 7056132015. Positive results for total alkalinity should be considered estimated, biased low (J-) and "not detected" results estimated (UJ) in associated aqueous samples.

Duplicates: The relative percent difference for total alkalinity was below the allowable maximum (20%) in aqueous batch MS/MSD sample 7056132015, as required

Laboratory Control Sample: The percent recovery for total alkalinity was within QC limits (85-115%) for aqueous sample 1490851LCS.

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QA/QC Review of Total Dissolved Solids (TDS)
Data for Pace Analytical Services, Inc.-New York
SDG No.: 7056430

8 Ground Water Samples
Collected June 26 and 27, 2018

Prepared by: Donald Anné
October 26, 2018

Holding Times: All 8 samples were analyzed beyond the NYSDEC ASP holding time. Positive results for TDS should be considered estimated (J) in all 8 samples.

Blanks: The analyses for the method blanks reported TDS as not detected.

Spike Sample Recovery: The percent recovery for TDS was within QC limits (75-125%) for aqueous spike sample MW-5.

Duplicates: The relative percent difference for TDS was below the allowable maximum (20%) in aqueous duplicate sample MW-5, as required

Laboratory Control Sample: The percent recoveries for TDS were QC limits (85-115%) for aqueous samples 338426LCS and 338432LCS.

Data Validation Acronyms

AA	Atomic absorption, flame technique
BHC	Hexachlorocyclohexane
BFB	Bromofluorobenzene
CCB	Continuing calibration blank
CCC	Calibration check compound
CCV	Continuing calibration verification
CN	Cyanide
CRDL	Contract required detection limit
CRQL	Contract required quantitation limit
CVAA	Atomic adsorption, cold vapor technique
DCAA	2,4-Dichlophenylacetic acid
DCB	Decachlorobiphenyl
DFTPP	Decafluorotriphenyl phosphine
ECD	Electron capture detector
FAA	Atomic absorption, furnace technique
FID	Flame ionization detector
FNP	1-Fluoronaphthalene
GC	Gas chromatography
GC/MS	Gas chromatography/mass spectrometry
GPC	Gel permeation chromatography
ICB	Initial calibration blank
ICP	Inductively coupled plasma-atomic emission spectrometer
ICV	Initial calibration verification
IDL	Instrument detection limit
IS	Internal standard
LCS	Laboratory control sample
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
MSA	Method of standard additions
MS/MSD	Matrix spike/matrix spike duplicate
PID	Photo ionization detector
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzodioxins
PCDF	Polychlorinated dibenzofurans
QA	Quality assurance
QC	Quality control
RF	Response factor
RPD	Relative percent difference
RRF	Relative response factor
RRF(number)	Relative response factor at concentration of the number following
RT	Retention time
RRT	Relative retention time
SDG	Sample delivery group
SPCC	System performance check compound

TCX	Tetrachloro-m-xylene
%D	Percent difference
%R	Percent recovery
%RSD	Percent relative standard deviation

Polyfluorinated Alkyl Substances (PFAS) Acronyms

PFBA	Perfluorobutanoic acid
PFPeA	Perfluoropentanoic acid
PFHxA	Perfluorohexanoic acid
PFHpA	Perfluoroheptanoic acid
PFOA	Perfluorooctanoic acid
PFNA	Perfluorononanoic acid
PFDA	Perfluorodecanoic acid
PFUnA	Perfluoroundecanoic acid
PFDoA	Perfluorododecanoic acid
PFTriA	Perfluorotridecanoic acid
PFTeA	Perfluorotetradecanoic acid
PFBS	Perfluorobutanesulfonic acid
PFPeS	Perfluoropentanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFHpS	Perfluoroheptanesulfonic acid
PFOS	Perfluorooctanesulfonic acid
PFNS	Perfluorononanesulfonic acid
PFDS	Perfluorodecanesulfonic acid
FOSA	Perfluorooctane Sulfonamide
NMeFOSAA	N-methyl perfluorooctane sulfonamidoacetic acid
NEtFOSAA	N-ethyl perfluorooctane sulfonamidoacetic acid
4:2 FTS or 4:2	1H, 1H, 2H, 2H-perfluorohexanesulfonic acid
6:2 FTS or 6:2	1H, 1H, 2H, 2H-perfluorooctanesulfonic acid
8:2 FTS or 8:2	1H, 1H, 2H, 2H-perfluorodecanesulfonic acid

Data Validation Qualifiers Used in the QA/QC Reviews for USEPA Region II

U	=	Not detected. The associated number indicates the approximate sample concentration necessary to be detected significantly greater than the level of the highest associated blank.
R	=	Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data or information is necessary to confirm the result.
N	=	Tentative identification. Analyte is considered present. Special methods may be needed to confirm its presence or absence during future sampling efforts.
J	=	Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method.
J-	=	Analyte is present. Reported value may be biased low and associated with a higher level of uncertainty than is normally expected with the analytical method.
J+	=	Analyte is present. Reported value may be biased high andassociated with a higher level of uncertainty than is normally expected with the analytical method.
UJ	=	Not detected, quantitation limit may be inaccurate or imprecise.

Note: These qualifiers are used for data validation purposes. The data validation qualifiers may differ from the qualifiers that the laboratory assigns to the data. Refer to the laboratory analytical report for the definitions of the laboratory qualifiers.