Site-Specific Work Plan for:

HYDROGEOLOGIC INVESTIGATION
AT THE
OLD QUOGUE LANDFILL SITE
NYSDEC REGION 1 - SUFFOLK COUNTY
WESTHAMPTON BEACH, NEW YORK

Prepared For:

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

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1.0 PROJECT BACKGROUND

This hydrogeologic investigation is part of the New York State Department of Environmental Conservation's (NYSDEC's) Inactive Landfills Initiative. The objective of the Initiative is to assess inactive landfills in New York State for potential impacts to drinking water sources and other potential receptors.

2.0 PROJECT OBJECTIVES

The objective of this hydrogeological investigation is to provide an initial assessment of the potential for impacts to groundwater in the immediate vicinity of the Old Quogue Landfill site. This objective will be accomplished by installing two groundwater monitoring wells, sampling groundwater and analyzing the samples for a suite of potential organic and inorganic contaminants. The sample data will be evaluated to assess whether groundwater quality has been impacted by the landfill.

3.0 SITE SETTING

The site address is near the intersection of South Country Road and Deborah Drive in Westhampton Beach, NY as shown on Figure 1. The landfill is located through an access road from 77 South Country Road and through a junk yard. The site is bounded by residential property to the east, a junk yard to the south, a vacant lot to the west, and railroad tracks to the north, beyond which lies Gabrieski Airport. The site is unevenly graded with pits as deep as 30-feet located in the northeast and southeast portions of the site. Much of the site is heavily vegetated or open areas of loose sandy soil. Municipal waste is prominently scattered throughout the site. The site is fenced along the south boundary adjacent to the junk yard property.

During the site visit conducted on October 11th, 2017 by Parsons and NYSDEC and subsequent groundwater sampling conducted by Parsons on October 19th and 20th, 2017 one viable monitoring well was identified and sampled. Results from this sample showed exceedences of the New York State Department of Environmental Conservation Class GA groundwater standards for ammonia, aluminum, iron, sodium, ethylbenzene, and xylene. In addition, this sample also exceedanced the Environmental Protection Agency Drinking Water Advisory Level for perfluorooctanesulfonic acid (PFOS).

3.1 GROUNDWATER AND SURFACE WATER OCCURRENCE AND FLOW

Based on topographic maps of the area and visual site observations the site grades to the south. The closest body of water to the site is Quantuck Creek located approximately 2500-feet to the southeast. Groundwater flow is presumed to be in a south-southeasterly direction. As a result, one upgradient groundwater well is proposed south of the railroad track embankment, centrally located along the sites northern boundary. The downgradient groundwater well is proposed to be installed north of the junk yard property, along the site's southern boundary. Both proposed monitoring well locations are displayed on Figure 1.

4.0 HYDROGEOLOGICAL INVESTIGATION SCOPE OF WORK

Field activities will be conducted in accordance with the Quality Assurance Project Plan (QAPP), Field Activities Plan (FAP), and Health and Safety Plan (HASP), which have been prepared and approved specifically for the NYSDEC Inactive Landfill

Initiative program. Site-specific elements and specific job safety analyses for soil borings, and monitoring well installations will be added to the Health and Safety Plan specifically for the Old Quogue Landfill.

A Community Air Monitoring Plan will be implemented for real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area during invasive activities on-site.

The specific field procedures to be used during this investigation are described in theFAP. That document describes the drilling methods, well installation and sampling methods, and handling of investigation-derived waste. TheQAPP describes the analytical procedures to be used by the laboratory in analyzing the groundwater samples.

4.1 SUBSURFACE UTILITY CLEARING

The local DIG SAFE service will be used to mark out subsurface utility lines near the proposed monitoring well locations. Monitoring well boring locations will be adjusted in the field as necessary to avoid subsurface obstructions and utilities. Each well boring location will also be hand-dug to 5-feet to ensure the location is clear of subsurface utilities. The proposed well locations are shown on Figure 1.

4.2 MONITORING WELL INSTALLATIONS

Following hand-clearing, the borings will be installed into the overburden using hollow-stem augers or another acceptable technique based on the conditions present. Alternate drilling techniques are described in the FAP. Soil samples will be collected continuously at each boring location. Samples will be physically described in the field using both the Burmeister and USCS soil classification systems. A photoionization detector will be used to record the The headspace readings of each soil sample.

The borings will be advanced to the first water-bearing zone that is considered acceptable for placing a monitoring well that will yield a volume of representative groundwater sufficient for sampling. Based on review of the USGS Long Island Depth to Water Viewer, depth to water is estimated to be between 28 and 39-feet. Monitoring wells will be constructed of 2-inch inside-diameter polyvinyl chloride (PVC) casing with a 5 or 10-foot long, #10-slot screen with the screen extending above the water table interface to allow for seasonal fluctuation of the water table. Each well will be completed with a locking protective casing with at least 3-feet of stick-up. Should shallow groundwater or other site conditions dictate, modifications to the well design will be made in the field by the supervising geologist.

Following installation, the new monitoring wells will be developed to remove material which may have settled in and around the well screen. Development will use methods described in the FAP. Following well development, the locations and elevations of the monitoring well PVC casings will be established relative to an arbitrary onsite datum using a Total Station surveying instrument.

Drilling equipment will be decontaminated by pressure washing between borings and before entering or leaving the site. Drill cuttings from borings will be spread along the ground adjacent to the borehole. However, soils that contain visible wastes, free product, NAPL, or are otherwise grossly contaminated will be containerized for subsequent characterization and disposal. Water generated during the investigation will be discharged to an unpaved area of the site.

4.3 GROUNDWATER AND SURFACE WATER SAMPLING

Once well installation and development are complete, a groundwater sample will be collected and analyzed as described in the FAP and QAPP. The wells will be purged prior to sampling, and all sampling equipment will be dedicated to that sampling location, or will be decontaminated between sampling locations using the methods provided in the FAP.

The groundwater samples will be analyzed for modified baseline VOCs, polycyclic aromatic hydrocarbons, 1,4-dioxane, perfluorinated compounds, baseline leachate indicators, and modified baseline metals. A complete list of analytical parameters is provided in Table 1.

5.0 INVESTIGATION REPORTING

Boring logs, groundwater sampling logs, analytical data, and a site work summary will be provided at the completion of field activities for the site.

TABLE 1 – ANALYTICAL PARAMETERS

Parameter	Method	Parameter	Method
Leachate Indicators		**PAHs + 1,4-Dioxane**	
Ammonia	350.1 / SM20 4500NH3 B/D	Acenaphthene	8270D SIM
Chemical Oxygen Demand	410.4	Acenaphthylene	8270D SIM
Total Organic Carbon	EPA 9060 / SM20 5310B/C	Anthracene	8270D SIM
Total Dissolved Solids	SM20 2540C	Benzo(a)anthracene	8270D SIM
Sulfate	300	Benzo(a)pyrene	8270D SIM
Alkalinity	SM20 2320B	Benzo(b)fluoranthene	8270D SIM
Chloride	300	Benzo(g,h,i)perylene	8270D SIM
Bromide	300	Benzo(k)fluoranthene	8270D SIM
Total hardness as CaCO3	SM20 2340C	Chrysene	8270D SIM
		Dibenzo(a,h)anthracene	8270D SIM
Inorganics		Fluoranthene	8270D SIM
Aluminum	SW6010C	Fluorene	8270D SIM
Antimony	SW6010C	Indeno(1,2,3-cd)pyrene	8270D SIM
Arsenic	SW6010C	Naphthalene	8270D SIM
Barium	SW6010C	Phenanthrene	8270D SIM
Boron	SW6010C	Pyrene	8270D SIM
Beryllium	SW6010C	1-4-Dioxane	8270D SIM
Cadmium	SW6010C		
Calcium	SW6010C	**Perfluorinated Compounds**	
Chromium	SW6010C	N-ethyl perfluorooctane sulfonamidoacetic acid	Modified 537
Cobalt	SW6010C	N-methyl perfluorooctane sulfonamidoacetic acid	Modified 537
Copper	SW6010C	Perfluorobutanesulfonic acid (PFBS)	Modified 537
Iron	SW6010C	Perfluorodecanoic acid (PFDA)	Modified 537
Lead	SW6010C	Perfluorododecanoic acid (PFDoA)	Modified 537
Magnesium	SW6010C	Perfluoroheptanoic acid (PFHpA)	Modified 537
Manganese	SW6010C	Perfluorohexanesulfonic acid (PFHxS)	Modified 537
Nickel	SW6010C	Perfluorohexanoic acid (PFHxA)	Modified 537
Potassium	SW6010C	Perfluorononanoic acid (PFNA)	Modified 537
Selenium	SW6010C	Perfluorooctanesulfonic acid (PFOS)	Modified 537
Silver	SW6010C	Perfluorooctanoic acid (PFOA)	Modified 537
Sodium	SW6010C	Perfluorotetradecanoic acid (PFTeA)	Modified 537
Thallium	SW6010C	Perfluorotridecanoic Acid (PFTriA)	Modified 537
Vanadium	SW6010C	Perfluoroundecanoic acid (PFUnA)	Modified 537
Zinc	SW6010C		
Mercury	SW7470A		
Mercury	E1631		
Dissolved Mercury	E1631		

TABLE 1 – ANALYTICAL PARAMETERS
(Continued)

Parameter	Method	Parameter	Method
Volatiles			
Acetone	SW8260C	Ethylbenzene	SW8260C
Acrylonitrile	SW8260C	2-Hexanone	SW8260C
Benzene	SW8260C	Bromomethane	SW8260C
Bromochloromethane	SW8260C	Chloromethane (Methyl chloride)	SW8260C
Bromodichloromethane	SW8260C	Dibromomethane	SW8260C
Bromoform	SW8260C	Methylene chloride	SW8260C
Carbon disulfide	SW8260C	2-Butanone (Methyl ethyl ketone)	SW8260C
Carbon tetrachloride	SW8260C	Idomethane (Methyl iodide)	SW8260C
Chlorobenzene	SW8260C	4-Methyl-2-pentanone (Methyl isobutyl ketone)	SW8260C
Chloroethane	SW8260C	Styrene	SW8260C
Chloroform	SW8260C	1,1,1,2-Tetrachloroethane	SW8260C
Dibromochloromethane	SW8260C	1,1,2,2-Tetrachloroethane	SW8260C
1,2-Dibromo-3-chloropropane	SW8260C	Tetrachloroethene	SW8260C
1,2-Dibromoethane (Ethylene dibromide)	SW8260C	Toluene	SW8260C
1,2-Dichlorobenzene	SW8260C	1,1,1-Trichloroethane	SW8260C
1,4-Dichlorobenzene	SW8260C	1,1,2-Trichloroethane	SW8260C
trans-1,4-Dichloro-2-butene	SW8260C	Trichloroethene	SW8260C
1,1-Dichloroethane	SW8260C	Trichlorofluoromethane	SW8260C
1,2-Dichloroethane	SW8260C	1,2,3-Trichloropropane	SW8260C
1,1-Dichloroethene	SW8260C	Vinyl acetate	SW8260C
cis-1,2-Dichloroethene	SW8260C	Vinyl chloride	SW8260C
trans-1,2-Dichloroethene	SW8260C	o-Xylene	SW8260C
1,2-Dichloropropane	SW8260C	m,p-Xylene	SW8260C
cis-1,3-Dichlororpropene	SW8260C	Xylenes, Total	SW8260C
trans-1,3-Dichlororpropene	SW8260C		

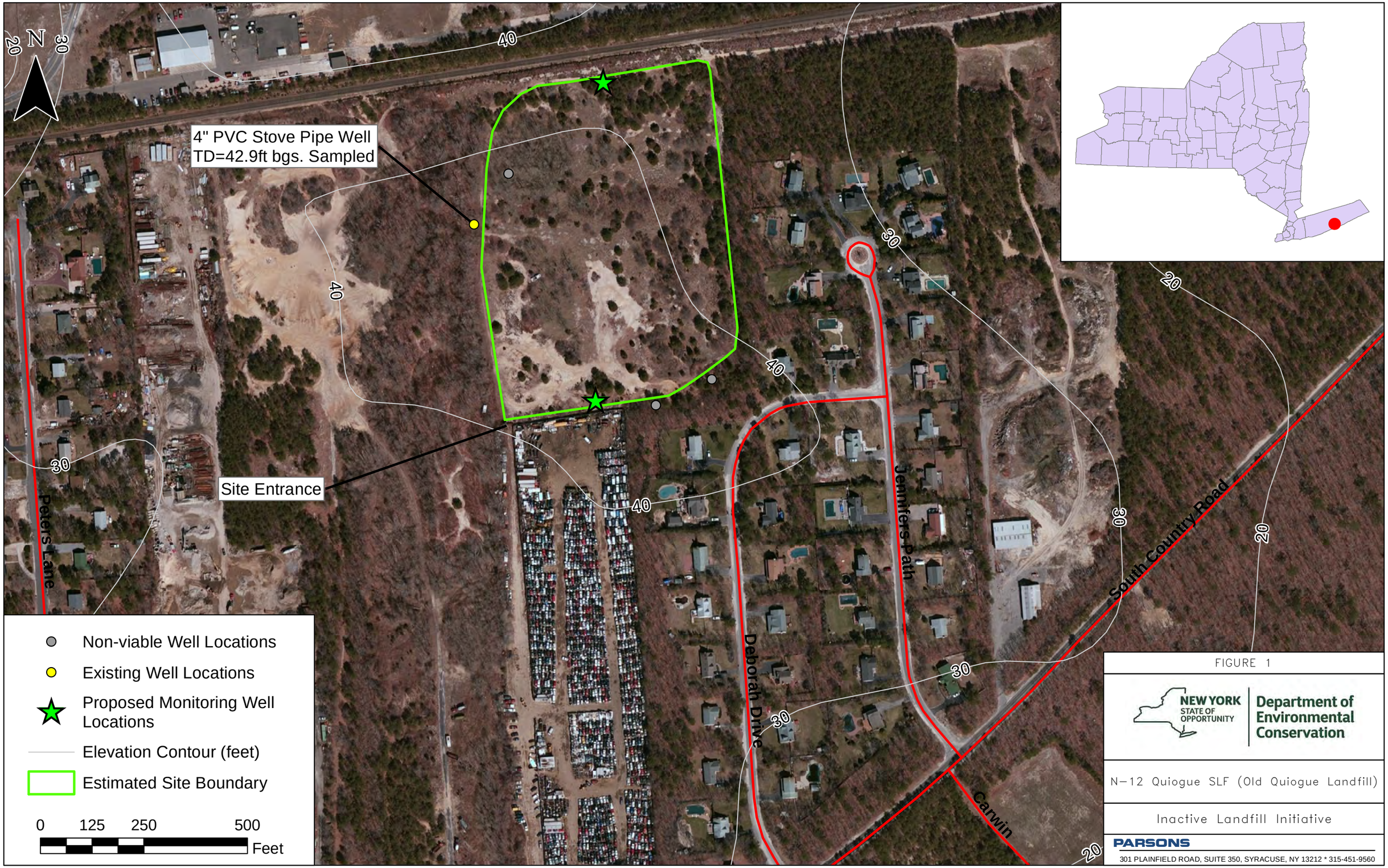

FIGURE 1

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

N-12 Quiogue SLF (Old Quiogue Landfill)

Inactive Landfill Initiative

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