SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN

FOR

AMERICAN DRIVE-IN CLEANERS OF HEWLETT, INC.

1345 PENINSULA BOULEVARD
HEWLETT, NEW YORK

Site No.: 130228

Index No.: CO 1-20180509-116

PREPARED FOR

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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PREPARED BY

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Final
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Professional Engineer Certification

I, John V. Soderberg, certify that I am currently a NYS registered professional engineer [as defined in 6 NYCRR Part 375] , and that this Supplemental Remedial Investigation Work Plan (SRIWP) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

John Soderberg, P.E

Signature

SEAL:

8/27/18

NYS P.E License No.: 049975

Dated: August 27, 2018

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1.0 INTRODUCTION

This Supplemental Remedial Investigation Work Plan (SRIWP) has been developed pursuant to the requirements of an executed Order on Consent (OOC) dated June 25, 2018. Previously the site was listed under the Voluntary Cleanup Agreement (June, 2003) between the New York State Department of Environmental Conservation, Division of Environmental Remediation (DER), and American Drive-In Cleaners of Hewlett, Inc., the Volunteer. The site has formally transitioned to an Order on Consent as of the June 25, 2018 date. The site is located at 1345 Peninsula Boulevard, Hewlett, New York 11557 (see Figure 1), fully described as Section 038, Block 446, Lot Nos. 61, 63, 70 and 72.

1.1 Purpose

The purpose of the SRIWP is to:

- determine the current nature and delineate the extent of contamination in groundwater and soil gas on-site and emanating from the site;
- collect and evaluate on and off-site groundwater and soil gas data to evaluate the current potential impact to public health and the environment;
- Identify collected data needed for monitoring natural attenuation, potential feasible cleanup technologies and presumptive remedies.

A detailed approach to meet the listed objectives are discussed in Section 5.0.

2.0 SITE HISTORY

2.1 Physical Site Description

Site Name: American Drive-In Cleaners of Hewlett, Inc.
Owner: Mr. Bertram Moreida, President of American Drive-In Cleaners of Hewlett, Inc.
Location: 1345 Peninsula Boulevard, Hewlett, New York 11557, Latitude 40º 38'40" N, Longitude 73º42'7"W
Former Voluntary Cleanup Agreement: Site No.: V-00616-1

2.2 Site Description, History of Ownership and Land Use

The American Drive-In Cleaners of Hewlett, Inc. (American Drive-In Cleaners) site is situated on a triangular shaped parcel approximately 0.06090 acres in size located on the south side of Peninsula Boulevard and 432.28 feet east of the intersection of Mill Road and Peninsula Boulevard (Figures 1 and 2). The eastern boundary of the site abuts the Rockaway Branch right-of-way of the Long Island Rail Road (LIRR). The LIRR tracks are installed in a north/south direction and parallel to Harris Avenue located to the east of this right-of-way.

The site is developed with a one-story slab-on-grade approximately10,000 ft^2 cinder block/ brick-faced building that encompasses more than 60 percent of the footprint of the subject parcel. The building is situated along the eastern boundary of the parcel. The building shape is an irregular triangle and measures between 144 feet and 164 feet in the north/south direction and between 35 feet and 178 feet in the east/west direction. The south rear-side of the building measures approximately 50-feet in the east/west direction. The front side (entrance) of the property is at the south side of Peninsula Boulevard. The undeveloped portion of the property, to the west and south of the building, is asphalt paved for parking.

In an interview with Mr. Moreida on October 3, 2003, he indicated that the subject property had been developed from vacant land circa 1958-59 for use as a dry cleaner. He purchased solely the dry cleaning business at the subject property in 1960 and the real estate (the subject property) in1965 from the Estate of Philip Basser. He further indicated that the original portion of the building (northern portion) was constructed in 1958-59 with two minor additions to the southern portion of the building in 1963 (boiler room) and circa 1985 (dry cleaning machine room).

2.3 Adjacent Property Land Use

The Peninsula Boulevard corridor and surrounding areas have been used for commercial purposes and residential housing since before the date of development of the subject property. (see Figures 2 and 3). In particular, the adjacent properties' current uses include:

North: Directly to the north is Peninsula Boulevard. A strip shopping center is present on the north side of Peninsula Boulevard with various retail/commercial operations such as the following: jewelry store, liquor store, food restaurant, hair cutting salon, nail salon, clothing store, butcher, florist, shoe store, electronic store, optical store, stationary stores, video store, toy shop, bakery and a large supermarket (Foodtown located at 1368 Peninsula Boulevard). A ballfield and associated park are located to the north of the shopping center.

South: The areas to the southeast and southwest of the subject property are predominantly residential. A u-shaped residentially-developed street is present to the southwest (Chestnut Drive) with additional residential development along Harris Avenue to the southeast.

East: Directly to the east of the subject property is the elevated portion of the railroad tracks of the Long Island Railroad. Further to the east is residential development along Harris Avenue.

West: Directly to the west is a commercial bank building (HSBC). Further to the west is a Sunoco Gasoline Station, a Shell Gasoline Station, a hair cutting salon and another dry cleaners (Mill Road Drive-In Dry Cleaners), along Mill Road. To the northwest, along Peninsula Boulevard, a commercial retail zone exists. Further to the west-southwest is residential development

2.4 Geographic Setting

Previous investigators have concluded that the Laurentide continental ice sheet deposited two major terminal moraines on Long Island during the Wisconsinan stage of the Pleistocene Epoch (Cadwell, 1989). These moraines formed two lines of hills that trend generally east-west along the island. American Drive-In Cleaners of Hewlett, Inc. lies in the outwash plain south of the confluence of the Harbor Hill and Ronkonkoma moraines and is within the drainage area of the south shore bays of Long Island.

2.5 Hydrogeology

A concise and accurate description of the geology, physiography and drainage of Nassau County is found in the Soil Survey of Nassau County, New York (USDA).

Relevant excerpts of this study are included below. Nassau County is part of the Coastal Plain physiographic province. The county is characterized by undulating or rolling landscapes in the northern part and a flat plain with a gently southward tilt in the southern part. A lobe of rolling topography protrudes farther to the south along the eastern edge of the county. Extensive tidal areas and marshes are just south of the plain and a barrier beach and dunes form the southern outline of the county.

Elevation in the county ranges from sea level to about 340 feet above sea level near the eastern edge of the county, just south of NYS Route 25. The landforms at the higher elevations were deposited as a terminal moraine. These areas have irregular topography that is crossed by deep glacial drainage channels near the north shore. These channels empty into deep bays on the north shore. The steepest relief is along drainage channels or on the side slopes adjacent to the bays. An outwash plain, which is to the south of the terminal moraine, has a maximum elevation of about 180 feet just northeast of Hicksville and slopes gradually to the south some 8 to 10 miles, finally reaching tidal area at sea level.

Nassau County is underlain by bedrock, but most of it is at a depth of several hundred feet. The closest surficial bedrock is to the west in the boroughs of Bronx and Queens in New York City and areas to the northwest in Westchester County near Long Island Sound. From these areas of surface exposure, the rock surface dips to the southeast to form a solid basement below Nassau County. Most of the bedrock consists of Cretaceous sedimentary layers. Some of the older rocks in the area are the 200 million year old Triassic red beds and lava flows off New Jersey and Connecticut and Cambrian metamorphic rocks in the New York City area that are 450 million years old.

During the late Cretaceous Period the sediments from the eroding Appalachian Highlands were carried by streams and rivers to low-lying coastal areas. The sand, silt and clay of the Raritan and Magothy formations, which form the foundation of Long Island, were deposited as deltas in areas of shallow water. The Raritan formation is below sea level and the Magothy formation is at the surface of several sites along the north shore. The Magothy is the primary potable water supply aquifer on Long Island.

During the Tertiary Period the area of Long Island was uplifted above sea level and the Cretaceous sediments were eroded and dissected by streams and rivers. The valley now occupied by Long Island Sound was cut by a major river and smaller tributary streams formed valleys which are now the north shore bays.

During the Pleistocene Epoch of the Quaternary Period, several major glacial advances into the northern United States occurred. This epoch is divided into four major glacial stages. From oldest to youngest, they are: Nebraskan, Kansan, Illinoisan and Wisconsinan. During the Illinoisan advance, the ice sheet reached a position just north of the Long Island area. Outwash sand and gravel, of the Jameco gravel formation, was deposited by meltwater streams. Following the Illinoisan stage, sea level rose close to its present level and a clay (Gardiner clay) containing marine fossils was deposited in the shallow coastal waters surrounding Long Island.

During the Wisconsinan glacial advance the ice reached a position represented on most of Long Island by the Ronkonkoma terminal moraine. In the latter part of this stage, the ice sheet receded from a point east of Lake Success and established a new position along the north shore marked by the Harbor Hill terminal moraine. West of Lake Success this lobe of ice overrode the Ronkonkoma moraine and pushed as far south as Staten Island. This caused the terminal moraine/deposits in Nassau County to form a wide band of irregular topography occupying the northern half of the county, while in adjacent Suffolk County the terminal moraine deposits were far enough apart to be two distinct landforms separated by a flat plain. During the Wisconsinan advance sea level dropped about 350 feet below its current elevation to expose a broad flat coastal plain.

As the climate again warmed, about 11,000 years ago, the Wisconsinan period ended and the Holocene, or present, period began. The ice sheet receded to its present polar limits and sea level rose to its present level. Currents and wave action modified the outwash plain to create the present-day shoreline.

These overlying Pleistocene deposits, referred to as the Upper Glacial aquifer, is a highly prolific aquifer and consists of three distinct units. The oldest and deepest unit is a sand and gravel layer associated with the Ronkonkoma ice sheet. After the recession of the ice sheet sea level rose to near its' present level. During this interstadial period, marine and/or lacustrine sediments were deposited over the Ronkonkoma deposits, a clay bed at the base, separated from an upper clay bed by a band of silty sandy beds. Overlying the clay is a terminal moraine and adjacent outwash deposits associated with the Harbor Hill ice sheet.

Direction and rate of groundwater flow are controlled by the rate and distribution of water entering and leaving the aquifer systems, the geometry of these systems and the distribution of water transmitting and storage properties of these aquifer systems. Based upon a projection from review of Nassau County Water Table Maps,

local groundwater flow direction in the shallowest aquifer (the Upper Glacial aquifer) is expected to be in the south (either southwest or southeast) dependent upon local discharge patterns to surface water headwater areas. Published literature values for estimated average hydraulic conductivity for the Upper Glacial Aquifer is 270 feet per day horizontal with rates of 27 feet per day for vertical flow. Previous work performed by BEI proximate to the study area has determined the depth to groundwater within the Upper Glacial aquifer as approximately 5-10 feet below grade surface (bgs). Previous groundwater flow surveys conducted have documented flow direction to the northwest, possibly due to the PSW (N-01346) to the northwest changing the gradient. An updated groundwater flow survey will be conducted and will include: updated casing elevations and also current depth to water measurements.

The subject property is located within the boundaries of Hydrogeologic Zone VII: South Shore Shallow Flow Discharge System. Zone VII is located south of the Magothy recharge zone on the South Shore and discharges to Nassau and western Suffolk South Shore bays where tidal exchange facilitates the dilution and dispersion of contaminants. Zone VII is a shallow flow zone, thus contamination from activities in Zone VII will mainly affect the Glacial aquifer. Zone VII contains a number of streams that feed the South Shore bays. These streams are important recreationally, ecologically and as a freshwater source to South Shore bays.

2.6 Topography

The subject site is located approximately 25-30 feet above mean sea level and the National Geodetic Vertical Datum of 1929 (USGS-Lynbrook Quadrangle - Figure 2). The land surface is relatively flat within the study area with slope in topographic grade to the south-southwest towards proximate surface water (canals and bays).

2.7 Water Supply Wells

Berninger Environmental conducted an investigation on the potable (drinking) and non-potable water supply wells located within a half-mile radius of the subject site. Region I of the NYSDEC requires that all wells (potable supply and non-potable supply) which pump at least 45 gallons per minute must be permitted. A review of these records indicated that the Long Island Water Corporation (LIWC) is the distributer of potable water in the area of the subject site and one public supply well (N-01346) is located within approximately ½ mile of the study site. The location of this well is presented in Figure 4. This public supply well is located approximately ½

mile to the northwest and hydraulic down gradient of the site. The table below provides data on this well. An updated groundwater flow survey will be provided in order to determine if contamination emanating from the subject site is potentially impacting the PSW. More information on the updated survey is provided in section 4.0-Task 3.

Well Field Data

Well No.	Aquifer	Land Surface	Depth to Bottom	Depth to Screen
N-01346	Jameco	10 ft msl	160 ft bgs	135 ft bgs

2.8 Drainage Pattern

There are several proximate surface water areas relative to the study property. These include Motts Creek (closest), Willow Pond and Georges Creek within a one mile radius. Based upon an evaluation of topographic grade changes, the local surficial and hydraulic drainage pattern is likely into the drainage basin of Motts Creek (slightly up gradient) or Georges Creek, which ultimately discharge to the areas of the south shore bays and the Atlantic Ocean. The surface water bodies observed within a ½ mile radius of the site include only Motts Creek. The localized groundwater flow direction for the shallow Upper Glacial aquifer at the site is to the northwest as depicted in the localized groundwater flow survey. Figure-5.

2.9 Soils

According to the United States Department of Agriculture Soil Conservation Service and the Soil Survey of Nassau County, New York, the soils at the subject site are classified Us-Urban land Sudbury complex. This unit consists of urbanized areas and very deep, moderately well drained soils. This soil unit is noted to be on nearly level plains. The areas of this soil are variable in shape and are as much as several hundred acres each. Slope ranges from 0 to 3 percent. This unit consists of about 70 percent urbanized areas, 20 percent moderately well drained Sudbury soils and 10 percent other soils. The urbanized areas and Sudbury soils are so intermingled that it was not practical to map them separately. The urbanized areas are buildings, roads, driveways, parking lots and other manmade structures. Included with this soil, in mapping, are small areas of excessively drained to moderately well drained Udipsamments and well drained Riverhead soils. The Udipsamments are in areas of construction activity where sandy material has been mixed with the surface layer and

subsoil. The typical sequence, depth and composition of the layers of Sudbury soils are as follows:

Surface layer: Surface to 5-inches, dark reddish brown fine sandy loam

Subsoil: 5 to 18-inches, yellowish brown sandy loam

18+-inches, mottled, yellowish brown gravelly loamy sand

Substratum: 28-to 40-inches, mottled, pale brown very gravelly sand
40 to 60-inches, very pale brown, very gravelly sand

2.10 Infrastructure

During the interview with Mr. Moreida, the following site specific information regarding utilities and infrastructure relative to the subject property was established (see Figure 6). The property has been connected to the municipal sewer system since its development circa 1958-59. Therefore, all bathrooms and wastewater piping within the building have been and are connected to the on-site municipal sanitary system. No other in-situ drainage structure were identified within the building. The municipal sewer line enters the building at its northwest corner, at which location both natural gas and municipal water lines are also present.

Electric and telephone service enter the building from above ground poles. The property is served by natural gas (KeySpan), which is used predominantly for a dual-fired boiler steam generation and heating system. A 1,000 gallon No. 2 fuel oil above ground storage tank (AST), with secondary containment (lube cube-style) is present at the western exterior side of the building, near the interior boiler room. A small capacity on-site water supply well is used, in addition to municipal potable water, for make-up water for the non-contact cooling water system.

The hazardous materials storage area is a steel trailer located at the rear southern portion of the subject property, exterior and not joined to the building. The current and historic dumpster location is at the mid-central portion of the subject property. No storm water dry wells or catch basins were observed to be present on the subject property. Drainage appears to flow into Peninsula Boulevard and to perimeter areas of the subject property.

3.0 SUMMARY OF PAST INVESTIGATIONS

Information available to Berninger Environmental, Inc. (BEI) from an interview with Mr. Moreida indicated that the Nassau County Department of Health (NCDH) had previously inspected, collected and analyzed samples of wastewater emanating from boiler blow-down water and/or former evaporative water discharges and the shallow soils at the southeastern perimeter of the subject property. A discussion of these activities is provided below; BEI has

not been provided with actual copies of the NCDH inspection reports, with the exception of that data provided in Appendix B. These inspection reports have been requested under the Freedom of Information (FOIL) Process

3.1 NCDH Sampling 2002 Program

On January 15, 2002, Nassau County Department of Health (NCDH) collected samples of wastewater being discharged to a location outside the southeastern side of the site building. The water samples were collected from a wastewater stream caused by either former boiler blow-down and/or evaporator discharges from a unit located within the American Drive-In Cleaners. This sample analyzed by the NCDH laboratory detected a concentration of tetrachloroethylene (PCE) at a concentration of 7.3 parts per billion (ppb). A second round of sampling in March 2002 reported a concentration of 16 ppb.

On March 19, 2002 soil samples were also collected by NCDH at the same wastewater discharge location at the southeastern side of the building from a depth of 2 to 6-inches below grade surface (bgs). These soil samples reported concentrations of PCE up to 4,000 ppb. The same soil sample contained an elevated concentration of a breakdown product of PCE, known as cis-l,2-Dichloroethene (1,2-DCE) at a concentration of 7,400 ppb.

A soil gas study was also conducted during January of 2008 and the results concluded that neither PCE or TCE was detected in three (3) soil gas samples collected. The samples were collected south of the site within the backyard areas of the three (3) closest residences to the subject site. Please refer to Appendix-A for the complete soil gas sampling Report.

4.0 SUPPLEMENTAL WORK PLAN OBJECTIVES

The objective of this work plan is to provide detailed specifications for the performance of sample collection and analysis of groundwater (monitoring wells) and on and off-site soil gas to determine the horizontal and vertical extent of contamination of tetrachloroethylene (PCE) and its breakdown products to the satisfaction of the DER. The focus of the investigation work will include efforts to identify actual or potential impacts to sensitive receptors.

4.1 Potential Environmental Concerns

Based on the review of available documents supplied to BEI, the primary environmental concerns at the subject property are the potential for on and off-site soil gas migration and the potential impacts to groundwater from contaminated shallow soils from the prior discharge of wastewaters. The extent of the current groundwater contamination is unknown, but is anticipated to be within the area of former wastewater discharges.

4.2 Scope of Supplemental Investigation

BEI has defined the scope of the investigation into two (2) specific tasks. These tasks will be outlined as follows:

Task 1 - Monitoring Well Sampling (Groundwater Data)

Purpose: To determine the current on-site groundwater conditions using viable monitoring wells on-site. A total of ten (10) monitoring wells will be selected for sample analysis.

Specifications: Utilizing the currently viable monitoring wells located throughout the site and on the northern property line of the site, samples will be obtained using low-flow sampling techniques. Monitoring wells along the north property are multi-level sampling wells with depths of: 5-10'; 15-20' and 30-35'. Further information on the sample collection protocol is provided in section 5.0. Please see Figure-7 for the locations of the monitoring wells.

Task 2 - Soil Gas Investigation

Purpose: The main objective for determining concentrations of volatile organic compounds in soil gas is to assist in an evaluation of the potential for migration of vapors into off-site locations. The soil gas data may also be useful in determining where groundwater impacts may be present. Identifying preferential pathways will help in delineating extent of contamination.

Specifications: All soil gas samples will be collected in accordance with the New York State Health Department (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the

State of New York" protocols. The Geoprobe will be equipped with a Post-Run Tubing System (PRT) and soil gas samples will be collected from beneath whatever land surface materials (concrete, asphalt or grass) are encountered. The PRT tubing will be set at a minimum depth of 4 feet (bgs) and the point will be extracted from the probe rods. Upon extracting the probe point, the tubing exiting the probe rods, and the probe rod borehole will be sealed with bentonite or a hydraulic cement. The area around the soil gas sample collection point will be encompassed by a plastic container for the introduction of a tracer gas such as helium. Helium will be introduced via a tubing penetration into the plastic container as a tracer gas in order to quantify that no circumvention of air is occurring. The

plastic tracer container will be sealed to the ground surface and sealed where the tubing exits the container. A helium detector will be connected inline between the sample container sampling point to ensure that no more than ten percent (<10%) helium infiltrates the sampling media.

Subsequent to the introduction of helium tracer gas, the annular space will be purged a minimum of one volume of soil gas using a personal sampling pump. During purging and sampling, the flow rate will not exceed 0.2 liters per minute. A pre-set regulator and dedicated summa cannister will be used to procure the soil gas sample. The cannister will be labeled with all pertinent information for the laboratory. Again, the regulator used will ensure a flow rate less than 0.2 liters per minute. Sufficient volume will be collected to achieve the detection limits required. Sample collection procedure, quality assurance/quality control and equipment decontamination procedures are discussed in

Section 5.0. Please see Figure-8 for the locations of the proposed soil gas sampling locations.

Task 3 – Groundwater Gradient Survey

An updated groundwater flow survey will be conducted in order to confirm the groundwater flow of northwest. Casing elevations on a minimum of five (5) monitoring wells will be surveyed to the nearest one hundredth (.01') of a foot from the north side of the well casing. Depth to water (DTW) measurements will also be gauged from the north side of the well casing in order to determine the current water table gradient in the area of the subject site.

5.0 QUALITY ASSURANCE / QUALITY CONTROL PROCEDURES

Appropriate Quality Assurance /Quality Control (QA/QC) Procedures were developed to ensure that suitable and verifiable data results from sampling and analysis are maintained. To achieve this objective, the quality assurance procedures detailed in this section were adopted from NYSDEC, DER "Technical Guidance for Site Investigation and Remediation", May 3, 2010 and will be followed for all sampling and laboratory analysis activities.

5.1 Quality Assurance Requirements

The person responsible for conducting the investigation and/or remediation will ensure suitable and verifiable data results from sampling and analysis. To achieve this objective, the quality assurance procedures detailed in this section will be followed for all sampling and laboratory analysis activities. Quality Assurance/Quality Control procedures were developed to ensure that suitable and verifiable data will result from the prescribed sampling and analysis programs. The procedures to be implemented during the investigation are summarized below.

5.1.1 Sampling Personnel

The activities associated with the field sampling and analysis program will be performed under the supervision of a Quality Assurance Officer, in accordance with the NYSDEC, DER "Technical Guidance for Site Investigation and Remediation", May 2010. The samplers assigned will possess a minimum of two or more years' experience in environmental field work. Additionally, all samplers will have received the mandatory forty-hour Occupational Safety and Health Administration (OSHA) training on working with potentially hazardous materials and appropriate Hazard Communication Program and Right-To-Know training.

5.1.2 Sampling Equipment

Individual QA/QC measures will be implemented for each of the types of equipment, field screening instruments, sample containers, etc. used in the performance of the sampling program as follows:

5.1.3 Geoprobe

Prior to arrival on the subject property and between sample locations, all equipment associated with the Geoprobe drilling system will be decontaminated by a physical scrub with detergent (Alconox) and potable water solution and rinsing them with potable water of demonstrated environmental quality.

5.1.4 Glassware

All sample glassware will be "Level A" certified decontaminated-containers supplied by a NYSDOH-Certified Commercial Laboratory. Samples analyzed for media potentially containing VOCs will be placed in Teflon-lined containers. All samples (except the soil gas samples) will be preserved by cooling them to a temperature of approximately four degrees Celsius during maintenance prior to transport to laboratory.

5.1.5 Sample Documentation

To establish and maintain proper sample documentation control, the following sample identification and chain-of custody procedures will be followed:

5.1.5.1 Sample Identification

Sample identification will be executed by use of a sample tag, log book and Chain-of-custody forms. Said documentation will provide the following information: 1) the project code; 2) the sample laboratory number; 3) the sample preservation; 4) the date the sample was secured from the source media; 5) the time the sample was secured from the source media; and 6) the person who secured the sample from the source media.

5.1.5.2 Chain-of Custody Procedures

Due to the evidential nature of samples, possession will be traceable from the time the samples are collected until they are received by the testing laboratory. A sample is considered under custody if it: is in a person's possession; it is in a person's view, after being in possession; if it is in a person's possession and they locked it up; or, it is in a designated secure area. When transferring custody, the individuals relinquishing and receiving the samples will sign, date and note the time on the Chain-of Custody form.

5.1.5.3 Laboratory-Custody Procedures

A designated sample custodian will accept custody of the delivered samples and verify that the information on the sample tags matches that on the Chain-of-Custody Records. Pertinent information as to delivery, pick-up, courier, etc., will be entered in the "remarks" section. The custodian will enter the sample tag data into a bound logbook. The laboratory custodian will use the sample tag number, or assign a unique laboratory number to each sample tag, and assure that all samples will be transferred to the proper analyst or stored in the appropriate source area. The laboratory custodian will distribute samples to the appropriate analysts. Laboratory personnel will be responsible for the care and custody of samples, from the time they are received, until the sample is exhausted or returned to the sample custodian. All identifying data sheets and laboratory records will be retained as part of the permanent documentation. Samples

received by the laboratory will be retained until after analysis and quality assurance checks are completed.

5.2 Soil Gas Sample Collection

The soil gas sampling will be conducted using a Geoprobe direct push sampling rig equipped with a Post-Run Tubing system. Once the desired depth is reached, new polyethylene tubing fitted with a PRT adaptor will be inserted down into the rods to the depth of the point holder and attached. The soil gas will then be extracted through the polyethylene tubing by a personal sampling pump. During purging and sampling, the flow rate will not exceed 0.2 liters per minute. A pre-set regulator and dedicated summa cannister will be used to procure the soil gas sample. The cannister will be labeled with all pertinent information for the laboratory. Again, the regulator used will ensure a flow rate less than 0.2 liters per minute. Sufficient volume will be collected to achieve the detection limits required and all samples will be analyzed at a NYS ELAP certified laboratory via EPA method TO-15 for VOCs.

5.3 Groundwater Sample Collection (Monitoring Wells)

The groundwater sampling will be conducted utilizing previously installed on-site monitoring wells. Once the desired depth to water is reached, new polyethylene tubing will be inserted down through the well screen to the desired depth. The groundwater will then be extracted through the polyethylene tubing by a peristaltic pump until 3 to 5 times the approximate volume in the probe rod has been purged. The retrieved samples will be placed in new laboratory supplied 40 ml teflon cap glass vials. The samples will be stored in a cooler containing ice to maintain a temperature of 4º Celsius and delivered under strict chain-of-custody to a NYSDOH ELAP-certified laboratory providing Category ASP-B deliverables. Purged development water will be contained in a DOT approved 55 gallon drum. Upon completion of the project, a liquid sample from the drum(s) will be analyzed for disposal characterization by an NYSDOH ELAP-certified laboratory. EPA low flow procedures will be executed. Low flow procedures help to isolate the screened interval water from the overlying stagnant casing water allowing for most of the sample water to be drawn directly from the adjacent formation. Typical flow rates consist of collecting groundwater at a flow rate of 100ml-500 ml per minute. Groundwater grab samples will be collected from at least 2’ above the bottom of the screened interval. BEI will lower a new 3/8” poly-tube through the probe rods (very slowly) to 2’ above the bottom of the slotted screen in order to purge and sample groundwater using a peristaltic pump with the flow

rate mentioned above. The groundwater is then extracted through the tubing until purging parameters reach stabilization. The retrieved samples will be placed in a laboratory supplied analyte free 40 ml vials with hydrochloric acid (HCL) preservative. The samples will be stored in a cooler containing ice to maintain a temperature of 4º Celsius and delivered under strict chain-of-custody to a NYSDOH ELAP-certified laboratory providing Category B deliverables. Samples will be analyzed by EPA method 8260 for VOCs.

5.4 Laboratory Analysis Requirements

5.4.1 *Certification and Data Acceptance*

Laboratories performing analysis will conform to the following:

For the analysis of any aqueous samples for a parameter or category of parameters for which laboratory certification exists pursuant to NYSDOH ELAP Certification, the laboratory will be certified for that specific parameter or category of parameters pursuant to NYSDOH ELAP Certification.

5.5 1,4 Dioxane and PFAS Analysis

The 1,4 Dioxane and polyfluoroalkyl substances PFAS testing will be conducted at the following monitoring well locations, including: one (1) up gradient location (MW-1) and also MW-2 and MW-3. Please refer to Figure-7 for the locations of these wells. The guidance for collecting groundwater and analysis of the above is attached in Appendix-C of this Work Plan.

6.0 Health and Safety Plan (HASP)

The site specific Health and Safety Plan developed and approved under the initial Remedial Investigation Work Plan will be adhered to by all personnel involved in the investigation.

Incorporated into the plan is a section on community health and safety with measures to ensure the public living and working near the site, including facility employees or visitors, are protected from exposure to site contaminants during intrusive activities or on-site treatment actions.

7.0 COMMUNITY AIR MONITORING PLAN

A Community Air Monitoring Plan (CAMP) provides for real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The

CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

7.1 Continuous Monitoring

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching and the installation of soil borings or monitoring wells.

7.2 Periodic Monitoring

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park or adjacent to a school or residence.

7.3 VOC Monitoring, Response Levels and Actions

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** basis or as otherwise specified. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

8.0 PROJECT SCHEDULE AND REPORTING

BEI will be prepared to mobilize to the site within 2-4 weeks after approval of the SRIWP. If access agreements are needed to perform the off-site work this time frame may need to be extended. BEI will notify the DEC 5 days prior to the work start date.

All data generated from the supplemental investigation work will be included in a Supplemental Investigation Remedial Investigation Report (SRIR) including: data from all on-site monitoring wells (PFAS and 1,4 Dioxane) ; data from soil gas samples collected at north property line and off-site to the north along Peninsula Boulevard.

FIGURES

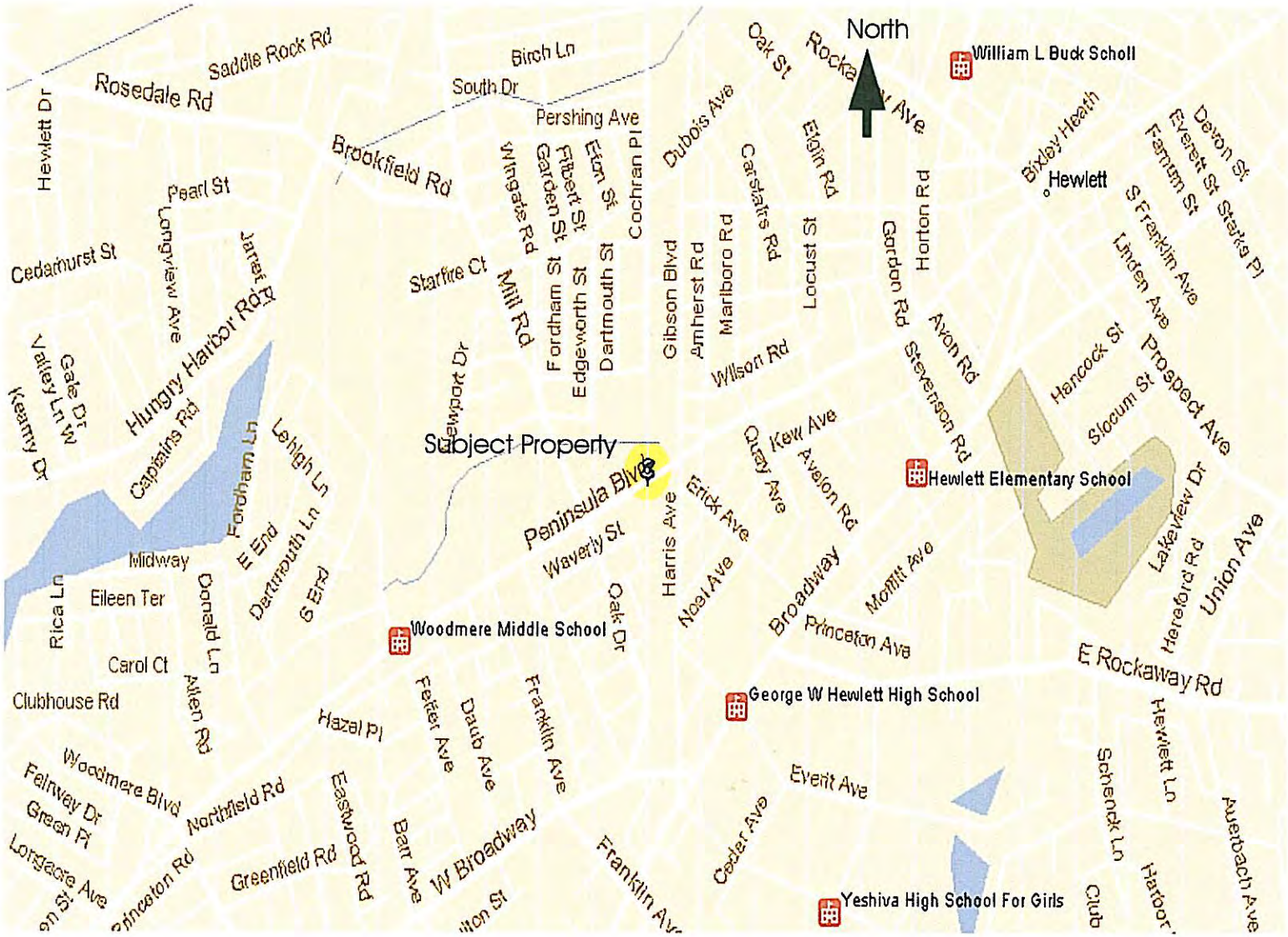
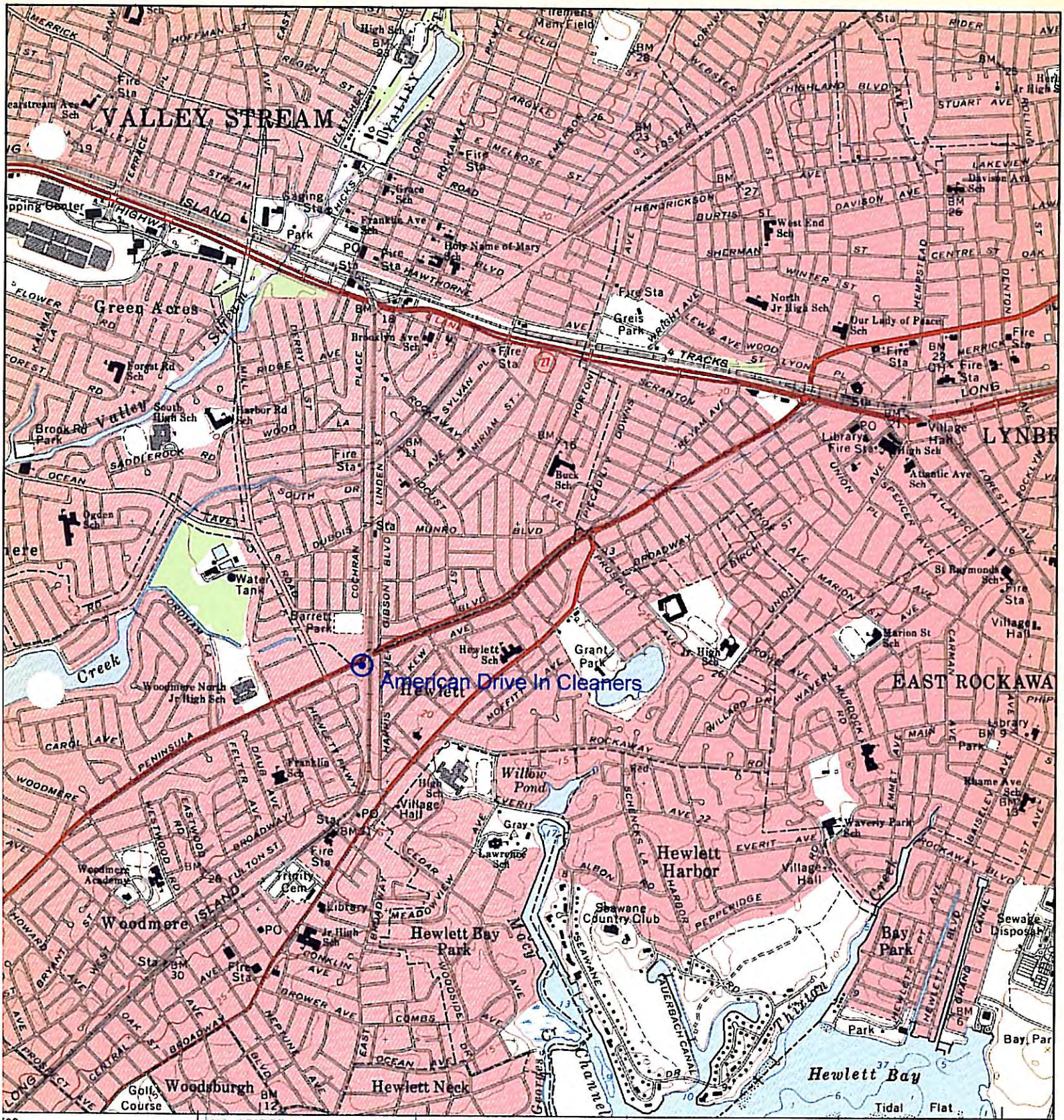


Figure 1 - Location Map for American Drive-In Cleaners
1345 Peninsula Boulevard, Hewlett, New York

No scale

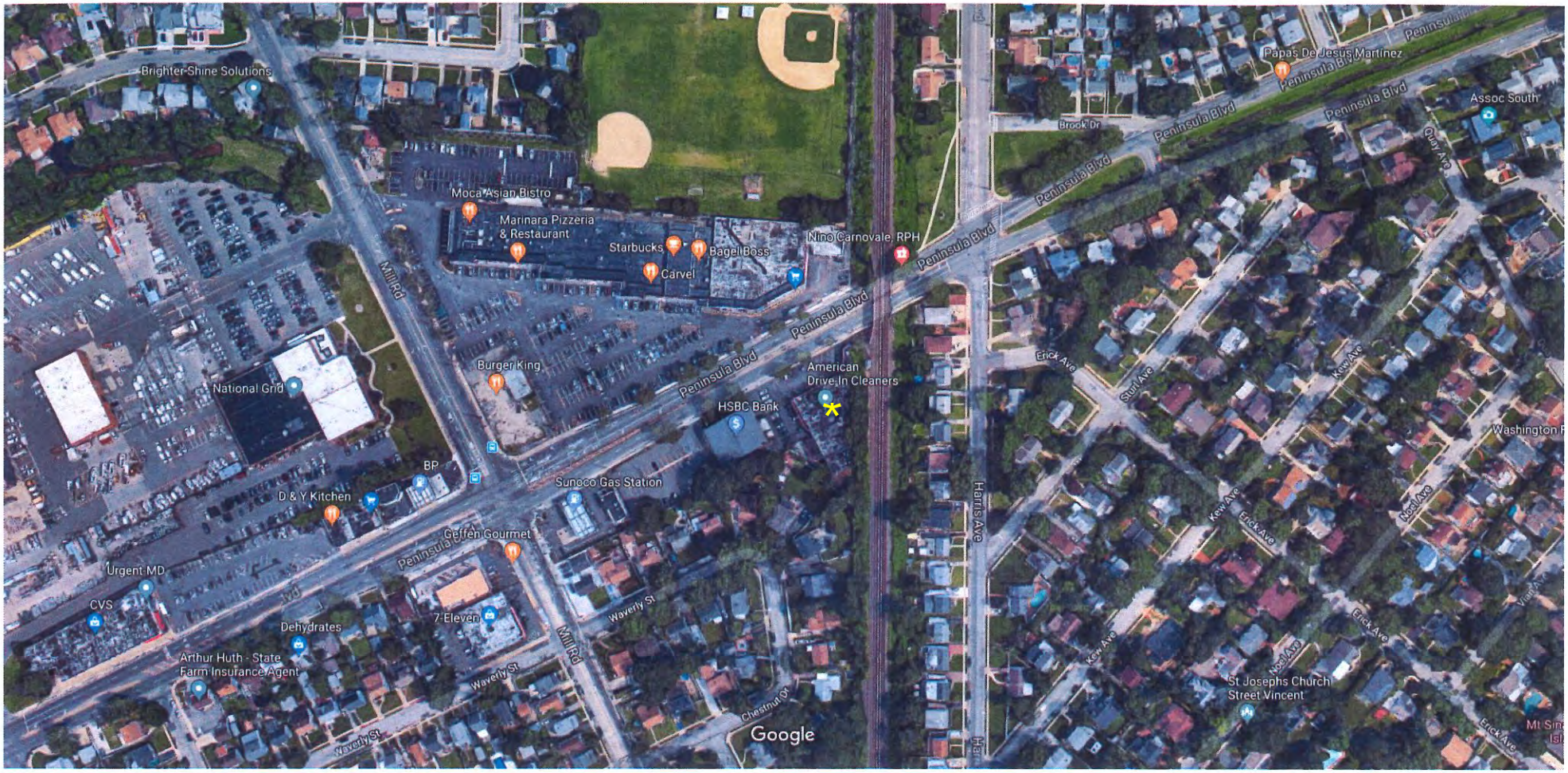


ıe: LYNBROOK
Date: 10/3/103
Scale: 1 inch equals 2000 feet

Location: 040° 38' 48.6" N 073° 41' 36.2" W
Caption: American Drive In Cleaners
1345 Peninsula Blvd.
Hewlett, NY 11557
Figure #2

Figure-2

Google Maps



Set a home address

Set a work address

Updated 3 min ago

Moderate traffic in this area
Typical conditions

Hewlett 83°

* site (yellow asterisk)

FIGURE-3

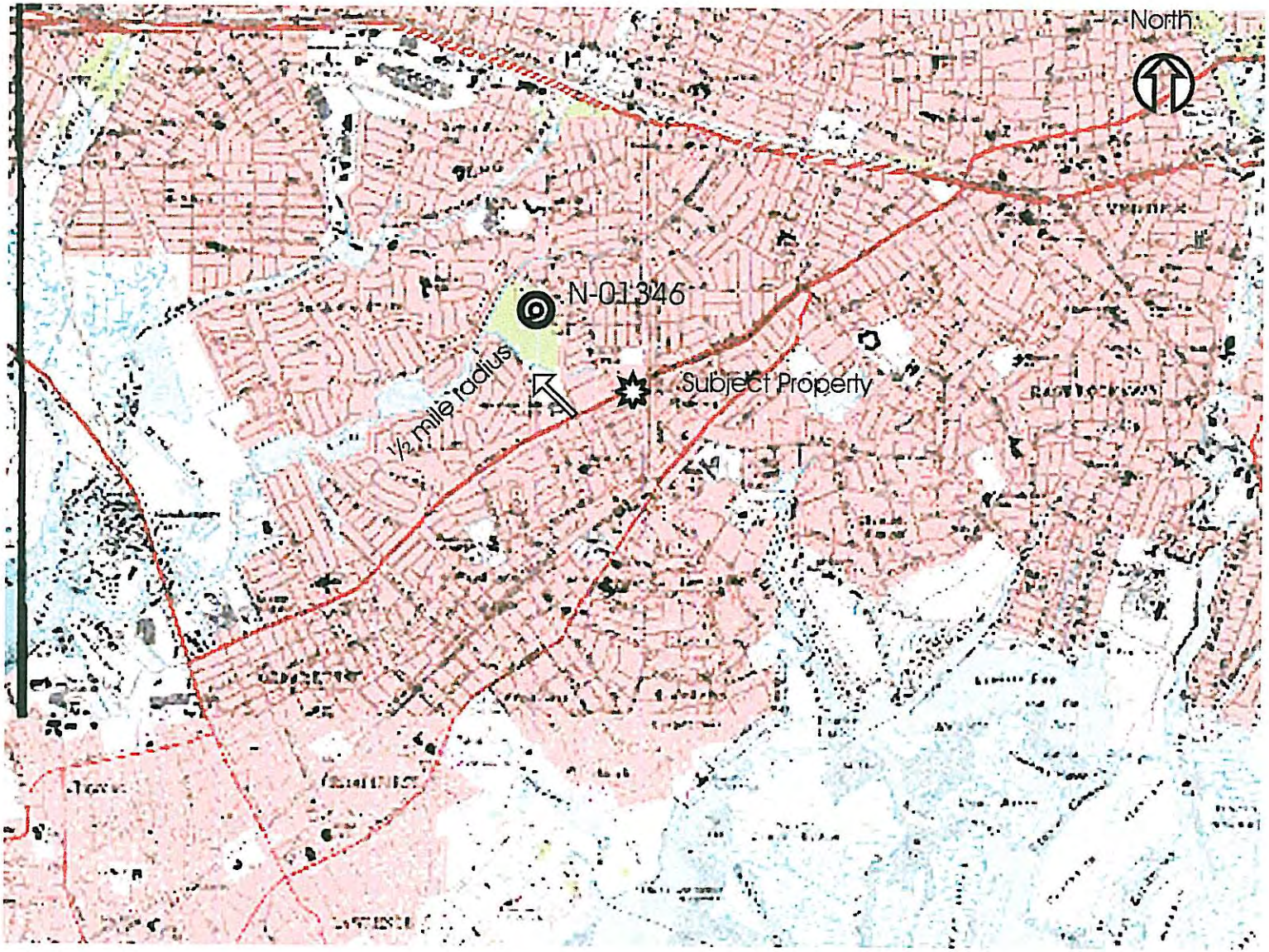
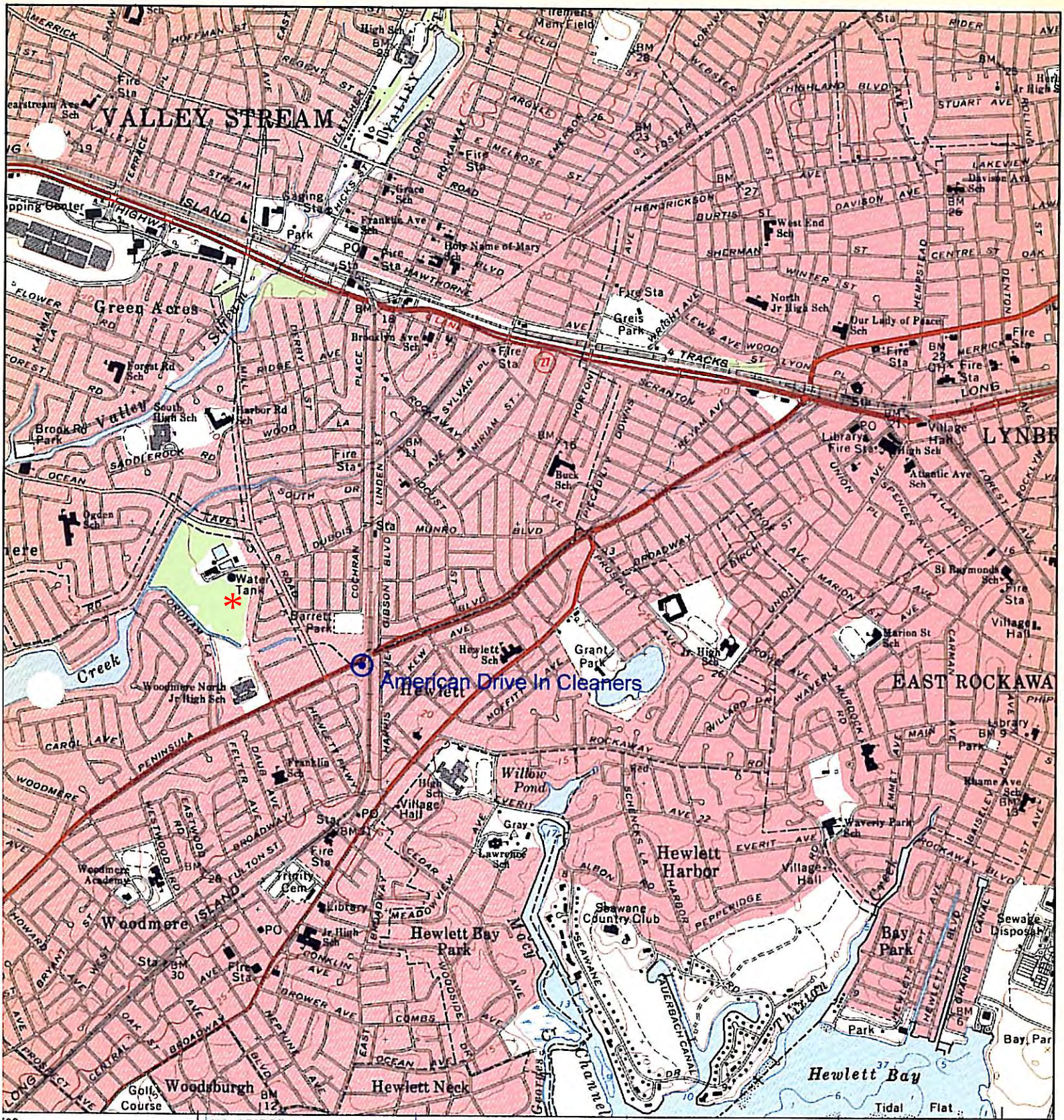


Figure 4 - Public Water Supply Well Location Map

1 inch = Approx. 3,200 feet



<Default> - 1 Markers, Length = 0 feet

le: LYNBROOK
Date: 10/3/103
Scale: 1 inch equals 2000 feet

Location: 040° 38' 48.6" N 073° 41' 36.2" W
Caption: American Drive In Cleaners
1345 Peninsula Blvd.
Hewlett, NY 11557
Figure #3

Figure-4 * Public Supply Water Well Location

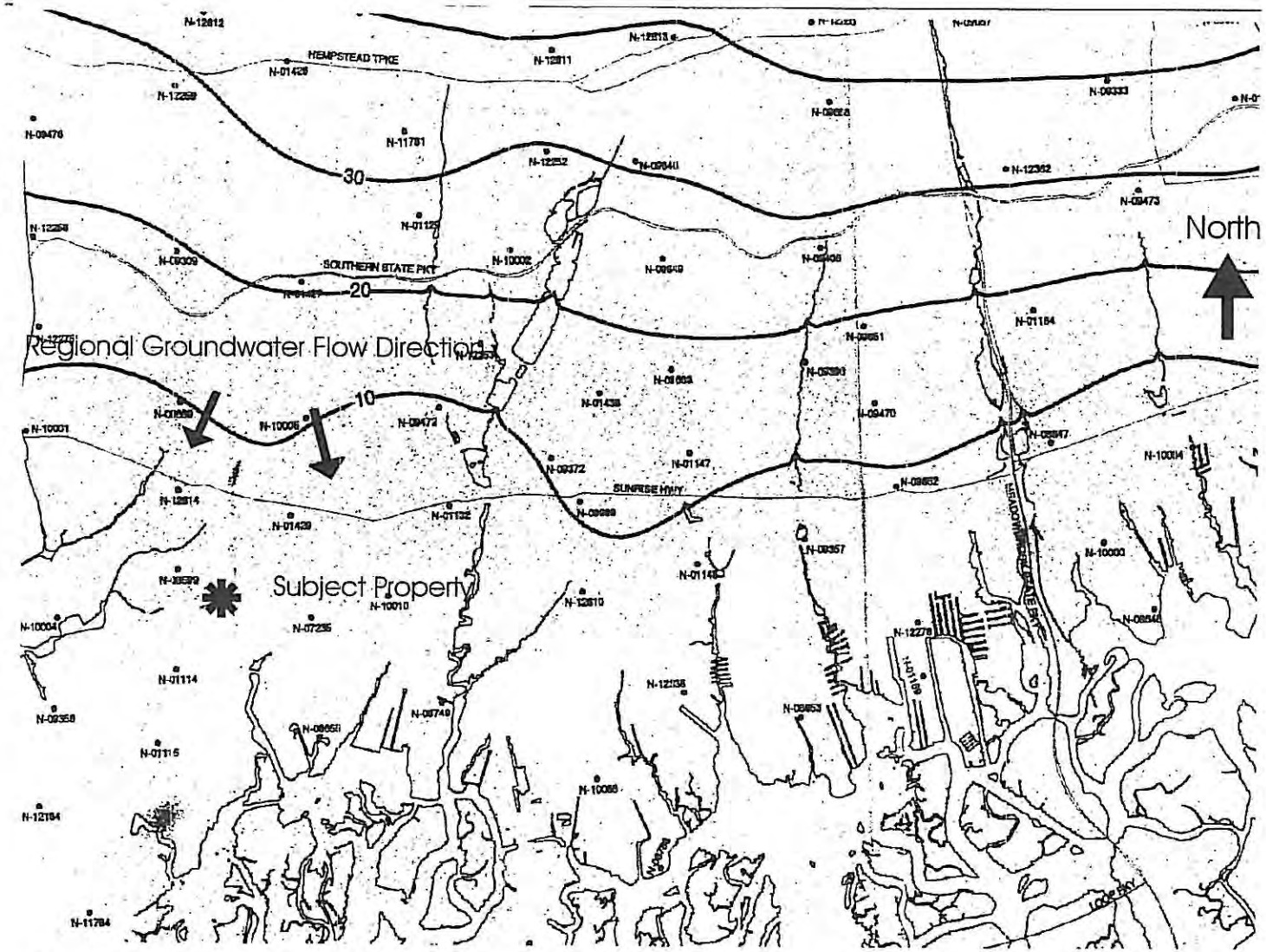
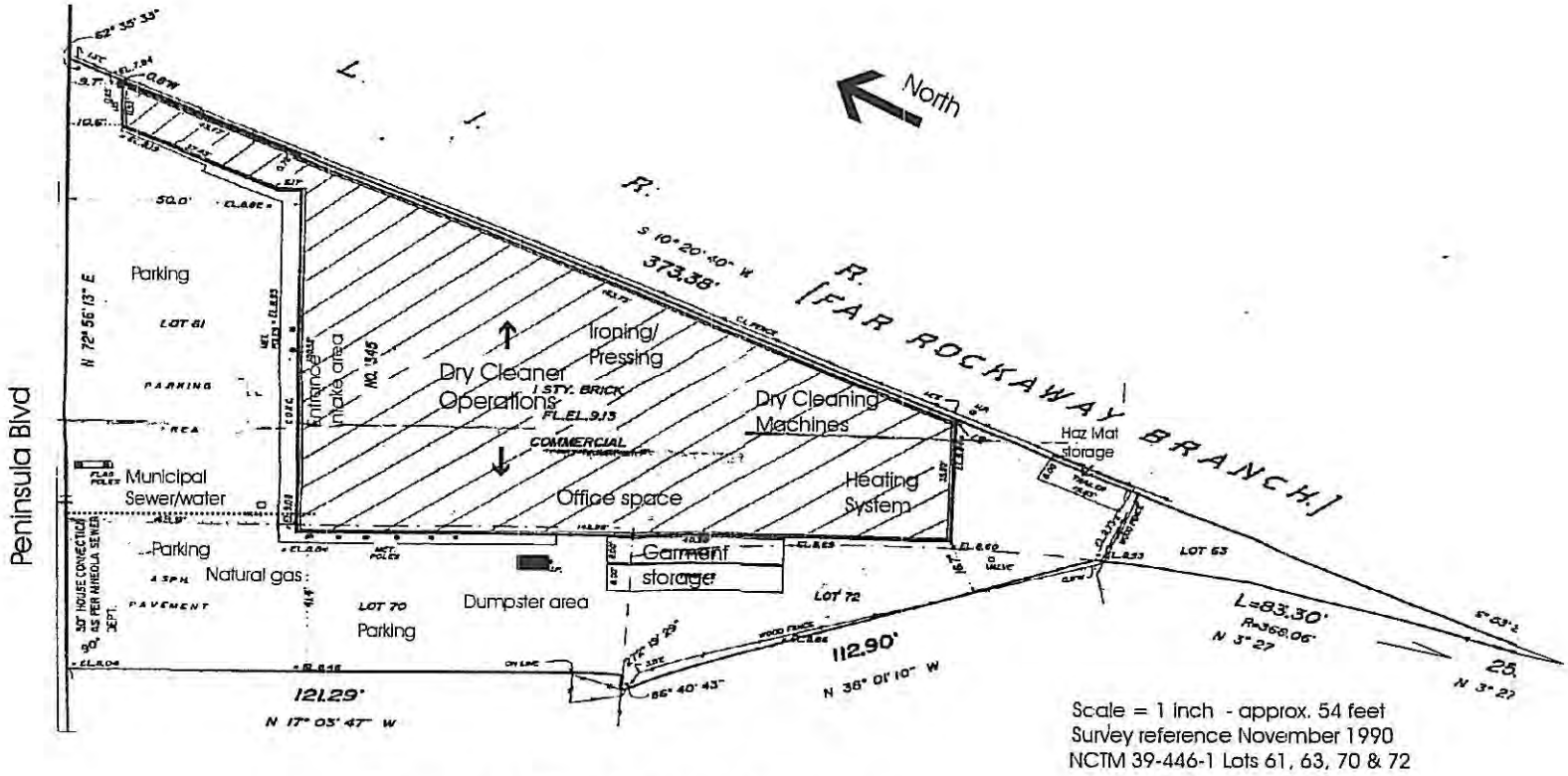


Figure 5 - Groundwater Elevation Map with Subject Property



Parking

Figure 6 - Site Plan and Survey
American Drive-In Cleaners of Hewlett, Inc.
1345 Peninsula Boulevard, Hewlett, New York

Monitoring Wells MW-4, MW-5, & MW-6
Have Three Depths 5'-10', 15'-20' & 30'-35'

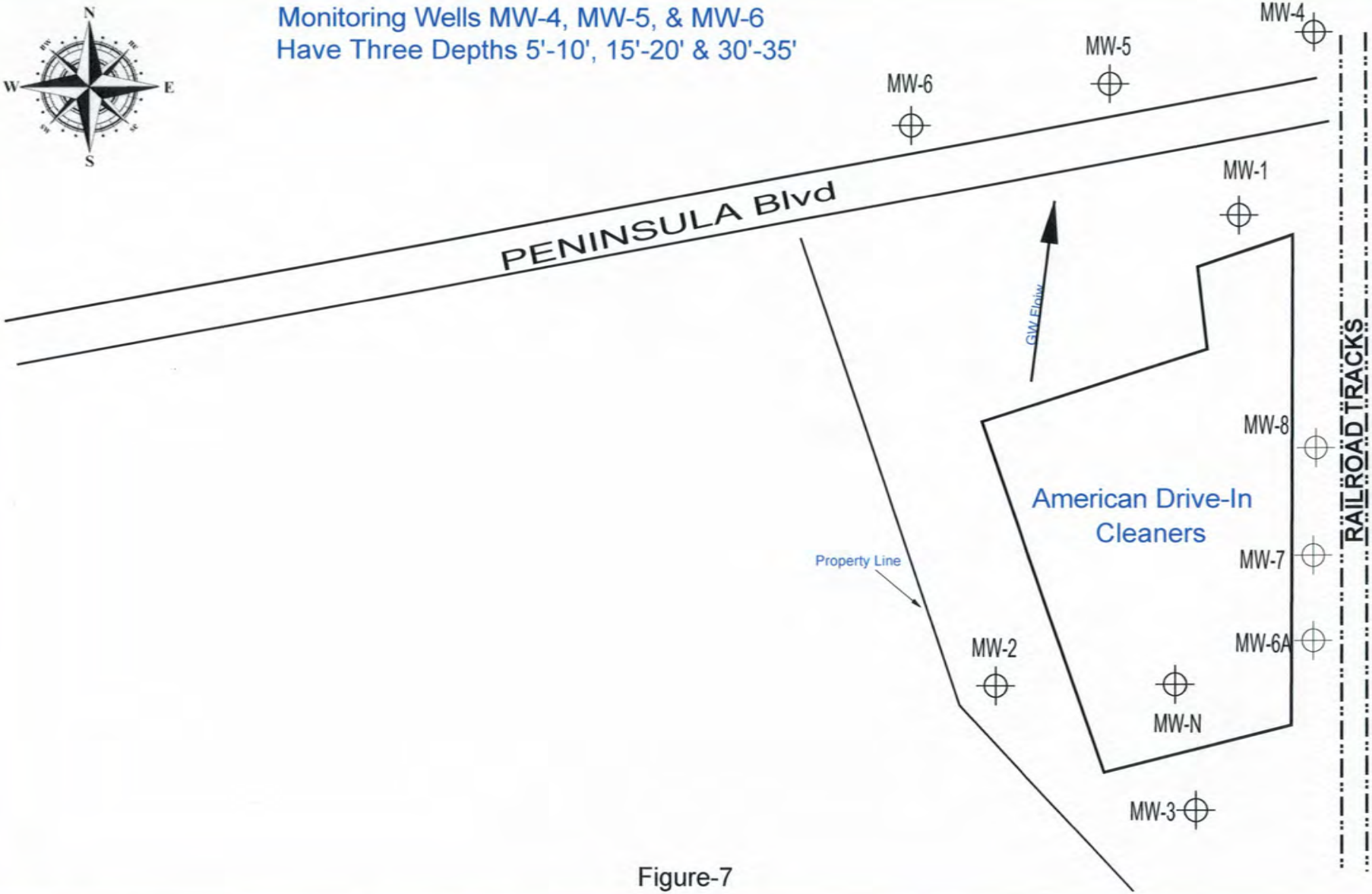


Figure-7

BEi Berninger Environmental
groundwater consultants, geologists and scientists
A WRS Environmental Services Company
Phone: 631 589 6521
17 Old Dock Road Yaphank, NY 11980

AMERICAN DRIVE-IN CLEANERS

MONITORING WELLS

DRAWN BY: WB

DATE 5/26/15

AMERICAN DRIVE-IN CLEANERS
13454 PENINSULA BLVD.
HEWLETT, NEW YORK

Berninger Environmental
BEi
groundwater consultants, geologists and scientists
A WRS Environmental Services Company
Phone: 631 589 6521
17 Old Dock Road Yaphank, NY 11980

AMERICAN DRIVE-IN CLEANERS
13454 PENINSULA BLVD.
HEWLETT, NEW YORK

DRAWN BY: jgh

DATE Aug 2018 jgh

Figure-8
Soil Gas Sampling
Proposed Locations

APPENDICES

Appendix-A

Previous Soil Vapor Intrusion Report

Berninger Environmental, Inc.

groundwater consultants and geologists
90 - B Knickerbocker Avenue **Phone: 631 • 589 • 6521**
Bohemia • New York • 11716 **Fax: 631 • 589 • 6528**

May 22, 2008

Mr. Mark Bufalini
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 11th Floor
Albany, New York 12233-7015

Re: American Drive-In Cleaners of Hewlett, Inc.
1345 Peninsula Boulevard
Hewlett, New York

Dear Mr. Bufalini:

Berninger Environmental, Inc. (BEI) is providing a summary report on behalf of our client, American Drive-In Cleaners of Hewlett, Inc., for soil vapor samples collected from the rear of three homes located adjacent to the dry cleaners on January 29, 2008.

Background

Berninger Environmental, Inc., under the direction of the New York State Department of Health (NYSDOH), and the NYSDEC obtained these soil gas samples to help assess whether the environmental contamination from operations at the dry cleaner (American Drive-In Cleaners) located at 1345 Peninsula Boulevard, Hewlett, New York has the potential to affect indoor air quality at three homes, located at 1310 Waverly Avenue (SG-1A), 1314 Waverly Avenue (SG-2A) and 1316 Waverly Avenue (SG-3A), Hewlett, New York.

Soil Vapor Migration Study

The three soil gas sampling locations (see attached figure) were installed to collect soil vapor samples in accordance with the February 2005 Draft New York State Department of Health(NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" protocols (revised 2006).

A hand operated direct drilling system (Geoprobe) was used to implant soil vapor sampling probes to the depths representative of potential vapor movement relative to the adjacent residence. However, at these properties groundwater is very shallow, less than four feet below grade surface (bgs), necessitating a completion of less than 5 feet bgs. Specifically, the Geoprobe equipped with Post-Run Tubing System (PRT), an expendable tip and teflon tubing was used to collect discrete soil gas samples from below grade at a depth of 2.5-3 ft bgs.

After setting up a sealed penetration using hydraulic cement around the top of the PRT, the area around the soil gas sample collection point was encompassed by a plastic container for the introduction of a helium tracer gas. Helium was introduced via a tubing penetration into the plastic container as a tracer gas in order to quantify that no circumvention of air is occurring.

Subsequent to the introduction of helium tracer gas, the annular space was purged a minimum of one to three volumes of soil gas using a personal sampling pump. During purging and sampling, the flow rate did not exceed 0.2 liters per minute. A pre-set regulator and dedicated summa cannister were used to procure the soil

gas sample. Again, the regulator used had a flow rate less than 0.2 liters per minute. Sufficient volume was collected to achieve the detection limits required to evaluate the data relative to the guidelines issued by the NYSDOH.

As specified by the NYSDEC, an ambient air sample was also collected. The ambient outdoor air sample was collected at a representative breathing height (3 to 5 feet above grade), at an upwind location - see attached figure. The ambient air regulator was set to obtain approximately four hours of sampling time; the vacuum readings required that the testing be stopped prior to four hours to ensure that a negative pressure remained. Direct field readings were performed for helium tracer to ensure that the soil gas vapor sample was not compromised due to exterior air circumvention. A sample is considered to be valid if <20 percent tracer gas is present.

After the required pressure changes were observed on the canister gauge, the canister was sealed, and packaged for transport. The field sampling team maintained the following sample log sheet which summarized the following:

a. sample identification,
b. date and time of sample collection,
c. sampling depth,
d. identity of samplers,
e. sampling methods and devices,
f. purge volumes,
g. volume of soil vapor extracted,
h. the type of canisters used, the vacuum before and after samples collected,
I. apparent moisture content (dry, moist, saturated, etc.) of the sampling zone, and
j. chain of custody protocols and records used to track samples from sampling point to analysis.

After collection, the sampling location was also field screened with a PID and a helium detector to provide real time data; this information was recorded in the field book. PID results were both less than 0.2 parts per million (ppm) response units and no helium above instrument detection limits were recorded**.**

Upon completion of the day's sample collection, the summa canisters were transported under strict chain-of-custody to an NYSDOH-ELAP certified laboratory H2M Laboratories, Inc. located in Melville, New York for VOC analysis by EPA Method TO-15 methodology. The shallow borings associated with soil vapor testing were abandoned by bentonite grout to grade.

Laboratory Analysis

The three samples were analyzed by H2M Laboratories, Inc., an NYSDOH ELAP-Certified laboratory. Summary data sheets are included in as an appendix of this report. An independent third party validation was performed on this data - see attached appendices. As the State of New York does not have any standards or criteria for concentrations of volatile chemicals in soil gas, the results of the laboratory analysis of the three soil gas samples were compared to the *Background Indoor Air Levels of Volatile Organic Compounds in Homes Sampled by the New York State Department of Health, 1989-1996* published by the NYSDOH Bureau of Toxic Substance Assessment in 1997 and included in the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*.

As indicated in Table 1, numerous VOCs were detected in each of the three soil gas samples. Of the VOCs present, particular focus was on the concentrations of Tetrachoroethene (PCE), a common dry-cleaning chemical and its typical breakdown products such as Trichloroethene (TCE).

PCE and TCE typically detected at concentrations of less than 100 mcg./cu.m and 5 mcg./cu.m, respectively, in soil gas exterior to a home, generally do not result in significant indoor air impacts. Furthermore, based upon NYSDOH recent long term studies on these types of compounds in indoor air, PCE and TCE can be typically detected at concentrations of 2.9 mcg./cu.m and 0.48 mcg./cu.m, respectively, or less in buildings not known to be affected by a chemical spill or other significant sources of these chemicals.

Based upon this comparison, at this time, no PCE or TCE concentrations were present in subsurface soil gas samples that exceeded any specifically identified NYSDOH requirements (matrix tables) at any of the three residences. Letters were developed for distribution to the three residences with an overview of NYSDOH Fact Sheets on these compounds that summarized these facts.

Summary and Conclusions

As required by the NYSDEC and NYSDOH, BEI has obtained subsurface soil gas data at the three closest adjoining residences in accordance with sampling guidelines for same. Based upon testing of these three properties, no PCE or TCE concentrations were identified present in subsurface soil gas samples that exceeded any specifically identified NYSDOH requirement for monitoring, mitigation, etc. at any of the three residences. Letters were developed for distribution to the three residences with an overview of NYSDOH Fact Sheets on these compounds that summarized these facts.

Please feel free to contact me if you have any questions.

Sincerely,
Berninger Environmental, Inc.

Walter Berninger
President/Consultant

enc.

Berninger Environmental, Inc.

groundwater consultants and geologists
90 - B Knickerbocker Avenue **Phone: 631 • 589 • 6521**
Bohemia • New York • 11716 **Fax: 631 • 589 • 6528**

Mr. Adam Hirsch August 07, 2008
1310 Waverly Street
Hewlett, New York

Re: Soil Vapor Sampling Results - Rear Yard
1310 Waverly Street, Hewlett, New York

Dear Mr. Hirsch:

Enclosed are the laboratory test results for the soil vapor samples collected from the rear of your home (SG-1A) on January 29, 2008. Berninger Environmental, Inc., under the direction of the New York State Department of Health (NYSDOH), obtained this soil gas sample to help assess whether the environmental contamination from operations at the dry cleaner (American Drive-In Cleaners) located at 1345 Peninsula Boulevard, Hewlett, New York has the potential to affect indoor air quality in your home. The soil gas sample was tested for Tetrachoroethene (PCE), a common dry cleaning chemical and its typical breakdown products such as Trichloroethene (TCE).

Soil Gas Sampling Results

In air, concentrations of PCE and TCE are measured in units of micrograms per cubic meter of air. These units are abbreviated as “mcg/cu.m”. PCE was detected at a concentration of 25.2J mcg./cu.m at a location selected within your backyard, between your residence and the dry cleaners. PCE was also detected in the outdoor air at 1.42J mcg./cu.m during this air sampling event. TCE was detected at a concentration of 0.27 mcg./cu.m at the soil gas sampling location. TCE was not detected in the outdoor air during this air sampling event.

According to NYSDOH studies, PCE and TCE typically detected at concentrations of less than 100 mcg./cu.m and 5 mcg./cu.m, respectively, in soil gas exterior to a home, generally do not result in significant indoor air impacts. Therefore, at this time, no specific requirements have been established with respect to your residence, other than possible future monitoring. Furthermore, based upon NYSDOH recent long term studies on these types of compounds in indoor air, PCE and TCE can be typically detected at concentrations of 2.9 mcg./cu.m and 0.48 mcg./cu.m, respectively, or less in buildings not known to be affected by a chemical spill or other significant sources of these chemicals.

Enclosed is an NYSDOH fact sheet entitled “Tetrachloroethene (PCE) in Indoor and Outdoor Air dated May 2003" which provides information about the NYSDOH guideline. Enclosed also is the NYSDOH fact sheet entitled “Trichloroethene in Indoor and Outdoor Air dated February 2005" which provides information about the NYSDOH guidelines. As the fact sheets explain, the guidelines are not a line between levels that cause health effects and those that do not. In addition, it is based on the assumption that people are continuously exposed to PCE or TCE in air all day, every day, for as long as a life time, which, is not likely the case for the typical occupancy of a residence.

If you have any health-related questions, please contact Ms. Katherine Comford, Public Health Specialist II of the New York State Department of Health (NYSDOH) at 1-518-402-7850**.** If you have any questions relating to the environmental investigation of the American Drive-In Cleaners site, please contact Mr. Mark Bufalini of the New York State Department of Environmental Conservation (NYSDEC) at 1-518-402-7850.

Sincerely,
Berninger Environmental, Inc.

Walter Berninger
President/Consultant
enc.

Berninger Environmental, Inc.

groundwater consultants and geologists
90 - B Knickerbocker Avenue **Phone: 631 • 589 • 6521**
Bohemia • New York • 11716 **Fax: 631 • 589 • 6528**

Mr. Ed Surillo August 07, 2008
1314 Waverly Street
Hewlett, New York

Re: Soil Vapor Sampling Results - Rear Yard
1314 Waverly Street, Hewlett, New York

Dear Mr. Surillo:

Enclosed are the laboratory test results for the soil vapor samples collected from the rear of your home (SG-2A) on January 29, 2008. Berninger Environmental, Inc., under the direction of the New York State Department of Health (NYSDOH), obtained this soil gas sample to help assess whether the environmental contamination from operations at the dry cleaner (American Drive-In Cleaners) located at 1345 Peninsula Boulevard, Hewlett, New York has the potential to affect indoor air quality in your home. The soil gas sample was tested for Tetrachoroethene (PCE), a common dry cleaning chemical and its typical breakdown products such as Trichloroethene (TCE).

Soil Gas Sampling Results

In air, concentrations of PCE and TCE are measured in units of micrograms per cubic meter of air. These units are abbreviated as “mcg/cu.m”. PCE was detected at a concentration of 3.32J mcg./cu.m at a location selected within your backyard, between your residence and the dry cleaners. PCE was also detected in the outdoor air at 1.42J mcg./cu.m during this air sampling event. TCE was not detected at the soil gas sampling location. TCE was also not detected in the outdoor air during this air sampling event.

According to NYSDOH studies, PCE and TCE typically detected at concentrations of less than 100 mcg./cu.m and 5 mcg./cu.m, respectively, in soil gas exterior to a home, generally do not result in significant indoor air impacts. Therefore, at this time, no specific requirements have been established with respect to your residence, other than possible future monitoring. Furthermore, based upon NYSDOH recent long term studies on these types of compounds in indoor air, PCE and TCE can be typically detected at concentrations of 2.9 mcg./cu.m and 0.48 mcg./cu.m, respectively, or less in buildings not known to be affected by a chemical spill or other significant sources of these chemicals.

Enclosed is an NYSDOH fact sheet entitled “Tetrachloroethene (PCE) in Indoor and Outdoor Air dated May 2003" which provides information about the NYSDOH guideline. Enclosed also is the NYSDOH fact sheet entitled “Trichloroethene in Indoor and Outdoor Air dated February 2005" which provides information about the NYSDOH guidelines. As the fact sheets explain, the guidelines are not a line between levels that cause health effects and those that do not. In addition, it is based on the assumption that people are continuously exposed to PCE or TCE in air all day, every day, for as long as a life time, which, is not likely the case for the typical occupancy of a residence.

If you have any health-related questions, please contact Ms. Katherine Comford, Public Health Specialist II of the New York State Department of Health (NYSDOH) at 1-518-402-7850. If you have any questions relating to the environmental investigation of the American Drive-In Cleaners site, please contact Mr. Mark Bufalini of the New York State Department of Environmental Conservation (NYSDEC) at 1-518-402-7850.

Sincerely,
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enc.

Berninger Environmental, Inc.

groundwater consultants and geologists
90 - B Knickerbocker Avenue **Phone: 631 • 589 • 6521**
Bohemia • New York • 11716 **Fax: 631 • 589 • 6528**

Mr. Nora Hsu August 07, 2008
1316 Waverly Street
Hewlett, New York

Re: Soil Vapor Sampling Results - Rear Yard
1316 Waverly Street, Hewlett, New York

Dear Mr. Hsu:

Enclosed are the laboratory test results for the soil vapor samples collected from the rear of your home (SG-3A) on January 29, 2008. Berninger Environmental, Inc., under the direction of the New York State Department of Health (NYSDOH), obtained this soil gas sample to help assess whether the environmental contamination from operations at the dry cleaner (American Drive-In Cleaners) located at 1345 Peninsula Boulevard, Hewlett, New York has the potential to affect indoor air quality in your home. The soil gas sample was tested for Tetrachoroethene (PCE), a common dry cleaning chemical and its typical breakdown products such as Trichloroethene (TCE).

Soil Gas Sampling Results

In air, concentrations of PCE and TCE are measured in units of micrograms per cubic meter of air. These units are abbreviated as “mcg/cu.m”. PCE was detected at a concentration of 2.03J mcg./cu.m at a location selected within your backyard, between your residence and the dry cleaners. PCE was also detected in the outdoor air at 1.42J mcg./cu.m during this air sampling event. TCE was detected at a concentration of 1.50 mcg./cu.m at the soil gas sampling location. TCE was not detected in the outdoor air during this air sampling event.

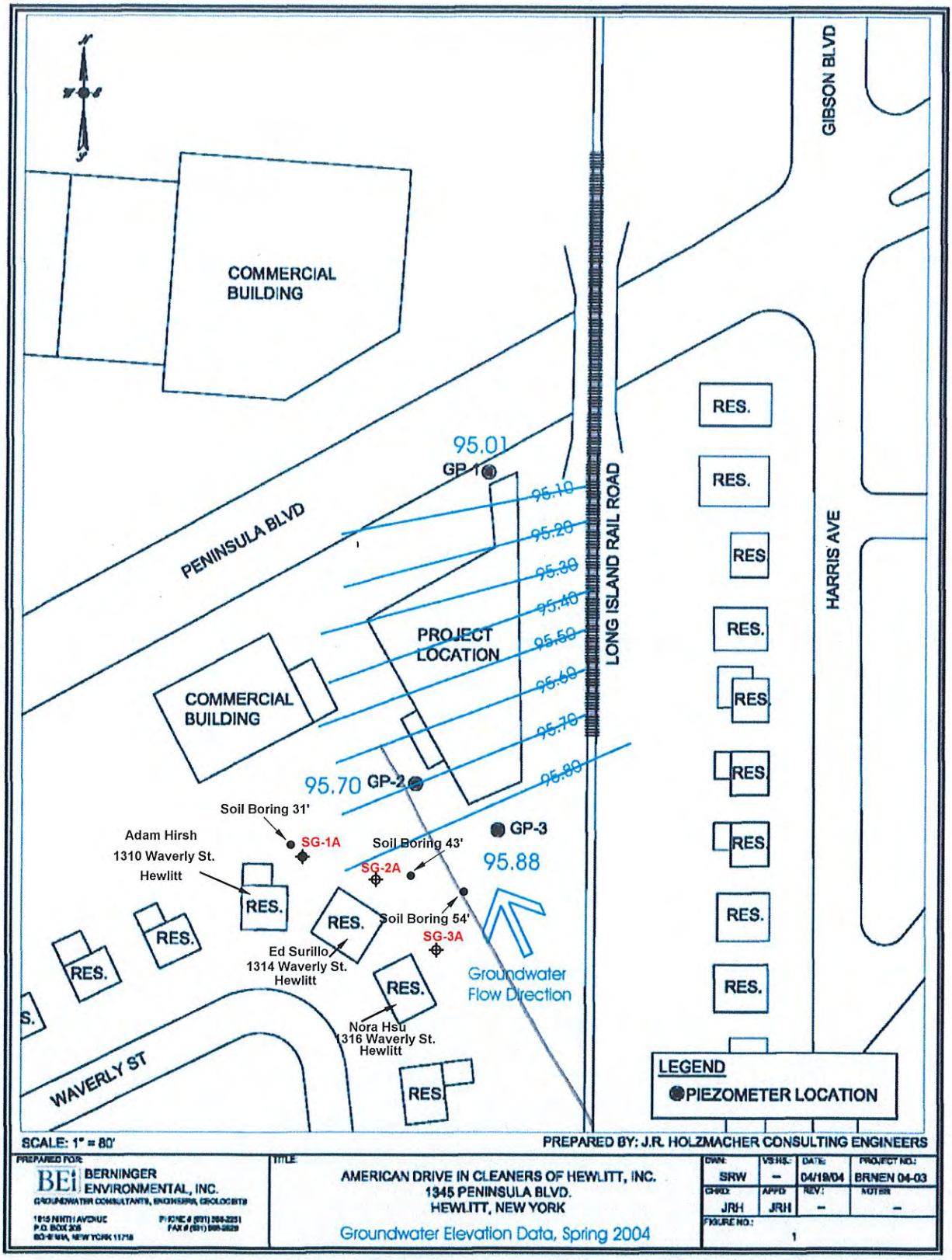
According to NYSDOH studies, PCE and TCE typically detected at concentrations of less than 100 mcg./cu.m and 5 mcg./cu.m, respectively, in soil gas exterior to a home, generally do not result in significant indoor air impacts. Therefore, at this time, no specific requirements have been established with respect to your residence, other than possible future monitoring. Furthermore, based upon NYSDOH recent long term studies on these types of compounds in indoor air, PCE and TCE can be typically detected at concentrations of 2.9 mcg./cu.m and 0.48 mcg./cu.m, respectively, or less in buildings not known to be affected by a chemical spill or other significant sources of these chemicals.

Enclosed is an NYSDOH fact sheet entitled “Tetrachloroethene (PCE) in Indoor and Outdoor Air dated May 2003" which provides information about the NYSDOH guideline. Enclosed also is the NYSDOH fact sheet entitled “Trichloroethene in Indoor and Outdoor Air dated February 2005" which provides information about the NYSDOH guidelines. As the fact sheets explain, the guidelines are not a line between levels that cause health effects and those that do not. In addition, it is based on the assumption that people are continuously exposed to PCE or TCE in air all day, every day, for as long as a life time, which, is not likely the case for the typical occupancy of a residence.

If you have any health-related questions, please contact Ms. Katherine Comford, Public Health Specialist II of the New York State Department of Health (NYSDOH) at 1-518-402-7850**.** If you have any questions relating to the environmental investigation of the American Drive-In Cleaners site, please contact Mr. Mark Bufalini of the New York State Department of Environmental Conservation (NYSDEC) at 1-518-402-7850.

Sincerely,
Berninger Environmental, Inc.

Walter Berninger
President/Consultant
enc.


COMMERCIAL BUILDING
PENINSULA BLVD
95.01
GP-1
95.10
95.20
95.30
95.40
95.50
95.60
95.70
95.80
PROJECT LOCATION
LONG ISLAND RAIL ROAD
GIBSON BLVD
HARRIS AVE
RES.
COMMERCIAL BUILDING
95.70 GP-2
Soil Boring 31'
SG-1A
Adam Hirsh
1310 Waverly St.
Hewlitt
Soil Boring 43'
SG-2A
GP-3
95.88
Soil Boring 54'
SG-3A
Ed Surillo
1314 Waverly St.
Hewlitt
Groundwater Flow Direction
Nora Hsu
1316 Waverly St.
Hewlitt
WAVERLY ST
LEGEND
PIEZOMETER LOCATION
SCALE: 1" = 80'
PREPARED BY: J.R. HOLZMACHER CONSULTING ENGINEERS
PREPARED FOR:
BERNINGER ENVIRONMENTAL, INC.
GROUNDWATER CONSULTANTS, ENGINEERS, GEOLOGISTS
1515 NINTH AVENUE
P.O. BOX 205
BOHEMIA, NEW YORK 11716
PHONE # (631) 589-2251
FAX # (631) 589-2529
TITLE:
AMERICAN DRIVE IN CLEANERS OF HEWLITT, INC.
1345 PENINSULA BLVD.
HEWLITT, NEW YORK
Groundwater Elevation Data, Spring 2004
DWN: SRW
VS/HS: –
DATE: 04/19/04
PROJECT NO.: BRNEN 04-03
CHKD: JRH
APPD: JRH
REV: –
NOTES: –
FIGURE NO.: 1

Appendix-B

NCDOH Records

Nassau County Dept. of Health

Sampling at [redacted] American Drive in Garden City, Hewlett

Sample Date	Sample Location*	Sample Matrix	Detections	Concentration**
3/15/02	Rear of Bldg. (# 1)	Water	c-1,2 DCE	1.3
			TCE	1.4
			PCE	7.3
3/19/02	"	Water	c-1,2 DCE	0.7
			TCE	2.5
			PCE	16
3/19/02	"	Soil (2-6" depth)	c-1,2 DCE	7400
			PCE	4000
3/19/02	Below Evaporator Discharge (# 2)	Soil (2-6" depth)	PCE	390
3/19/02	Front of Building (# 3)	Water	None	
3/19/02	"	Soil (2-6" depth)	PCE	480

* Sample location numbers refer to attached site diagram.
** All results are in ppb

Appendix-C
1,4 Dioxane and PFAS sampling protocol

Groundwater Sampling for Emerging Contaminants

July 2018

Issue: NYSDEC has committed to analyzing representative groundwater samples at remediation sites for emerging contaminants (1,4-dioxane and PFAS) as described in the below guidance.

Implementation

NYSDEC project managers will be contacting site owners to schedule sampling for these chemicals. Only groundwater sampling is required. The number of samples required will be similar to the number of samples where "full TAL/TCL sampling" would typically be required in a remedial investigation. If sampling is not feasible (e.g., the site no longer has any monitoring wells in place), sampling may be waived on a site-specific basis after first considering potential sources of these chemicals and whether there are water supplies nearby.

Upon a new site being brought into any program (i.e., SSF, BCP), PFAS and 1,4-dioxane will be incorporated into the investigation of groundwater as part of the standard "full TAL/TCL" sampling. Until an SCO is established for PFAS, soil samples do not need to be analyzed for PFAS unless groundwater contamination is detected. Separate guidance will be developed to address sites where emerging contaminants are found in the groundwater. The analysis currently performed for SVOCs in soil is adequate for evaluation of 1,4-dioxane, which already has an established SCO.

Analysis and Reporting

Labs should provide a full category B deliverable, and a DUSR should be prepared by an independent 3rd party data validator. QA/QC samples should be collected as required in DER-10, Section 2.3(c). The electronic data submission should meet the requirements provided at: https://www.dec.ny.gov/chemical/62440.html ,

The work plan should explicitly describe analysis and reporting requirements.

PFAS sample analysis: Currently, ELAP does not offer certification for PFAS compounds in matrices other than finished drinking water. However, laboratories analyzing environmental samples (ex. soil, sediments, and groundwater) are required, by DER, to hold ELAP certification for PFOA and PFOS in drinking water by EPA Method 537 or ISO 25101.

Modified EPA Method 537 is the preferred method to use for groundwater samples due to the ability to achieve 2 ng/L (ppt) reporting limits. If contract labs or work plans submitted by responsible parties indicate that they are not able to achieve similar reporting limits, the project manager should discuss this with a DER chemist. Note: Reporting limits for PFOA and PFOS should not exceed 2 ng/L.

PFAS sample reporting: DER has developed a PFAS target analyte list (below) with the intent of achieving reporting consistency between labs for commonly reportable analytes. It is expected that reported results for PFAS will include, at a minimum, all the compounds listed. This list may be updated in the future as new information is learned and as labs develop new capabilities. If lab and/or matrix specific issues are encountered for any particular compounds, the NYSDEC project manager will make case-by-case decisions as to whether particular analytes may be temporarily or permanently discontinued from analysis for each site. Any technical lab issues should be brought to the attention of a NYSDEC chemist.

Some sampling using this full PFAS target analyte list is needed to understand the nature of contamination. It may also be critical to differentiate PFAS compounds associated with a site from other sources of these chemicals. Like routine refinements to parameter lists based on investigative findings, the full PFAS target analyte list may not be needed for all sampling intended to define the extent of contamination. Project managers may approve a shorter analyte list (e.g., just the UCMR3 list) for some reporting on a case by case basis.

1,4-Dioxane Analysis and Reporting: The method detection limit (MDL) for 1,4-dioxane should be no higher than 0.35 µg/l (ppb). Although ELAP offers certification for both EPA Method 8260 SIM and EPA Method 8270 SIM, DER is advising the use of method 8270 SIM. EPA Method 8270 SIM provides a more robust extraction procedure, uses a larger sample volume, and is less vulnerable to interference from chlorinated solvents.

Full PFAS Target Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonates	**Perfluorobutanesulfonic acid**	**PFBS**	**375-73-5**
	Perfluorohexanesulfonic acid	**PFHxS**	**355-46-4**
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanessulfonic acid	**PFOS**	**1763-23-1**
	Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluoroalkyl carboxylates	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	**PFHpA**	**375-85-9**
	Perfluorooctanoic acid	**PFOA**	**335-67-1**
	Perfluorononanoic acid	**PFNA**	**375-95-1**
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUA/PFUdA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTriA/PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTA/PFTeDA	376-06-7
Fluorinated Telomer Sulfonates	6:2 Fluorotelomer sulfonate	6:2 FTS	27619-97-2
	8:2 Fluorotelomer sulfonate	8:2 FTS	39108-34-4
Perfluorooctane-sulfonamides	Perfluroroctanesulfonamide	FOSA	754-91-6
Perfluorooctane-sulfonamidoacetic acids	N-methyl perfluorooctanesulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	2991-50-6

Bold entries depict the 6 original UCMR3 chemicals

Collection of Groundwater Samples for Per- and Polyfluoroalkyl Substances (PFAS) from Monitoring Wells Sample Protocol

Samples collected using this protocol are intended to be analyzed for perfluorooctanoic acid (PFOA) and other perfluorinated compounds by Modified (Low Level) Test Method 537.

The sampling procedure used must be consistent with the NYSDEC March 1991 Sampling Guidelines and Protocols http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf with the following materials limitations.

At this time acceptable materials for sampling include: stainless steel, high density polyethylene (HDPE) and polypropylene. Additional materials may be acceptable if proven not to contain PFAS. **NOTE: Grunfos pumps and some bladder pumps are known to contain PFAS materials (e.g. Teflon™ washers for Grunfos pumps and LDPE bladders for bladder pumps).** All sampling equipment components and sample containers should not come in contact with aluminum foil, low density polyethylene (LDPE), glass or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer. Standard two step decontamination using detergent and clean water rinse will be performed for equipment that does come in contact with PFAS materials. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials must be avoided. Many food and drink packaging materials and "plumbers thread seal tape" contain PFAS.

All clothing worn by sampling personnel must have been laundered multiple times. The sampler must wear nitrile gloves while filling and sealing the sample bottles.

Pre-cleaned sample bottles with closures, coolers, ice, sample labels and a chain of custody form will be provided by the laboratory.

1. Fill two pre-cleaned 250 mL HDPE or polypropylene bottle with the sample.
2. Cap the bottles with an acceptable cap and liner closure system.
3. Label the sample bottles.
4. Fill out the chain of custody.
5. Place in a cooler maintained at 4 ± 2º Celsius.

Collect one equipment blank for every sample batch, not to exceed 20 samples.

Collect one field duplicate for every sample batch, not to exceed 20 samples.

Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, not to exceed 20 samples.

Request appropriate data deliverable (Category A or B) and an electronic data deliverable.