

March 29, 2002

Ref: 06392.00022

Mr. Joseph White
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NYS Dept. of Environmental Conservation
Bureau of Hazardous Site Control
Division of Environmental Remediation
625 Broadway, 11th Floor
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**Re: Former Patchogue MGP Site
NYSDEC Site No. 1-52-182**

Dear Mr. White:

Enclosed please find four (4) electronic copies and one (1) hardcopy of the Final Preliminary Site Assessment report prepared for the referenced site by Vanasse Hangen Brustlin, Inc.

Please do not hesitate to contact Ted Leissing with any questions or comments.

Very truly yours,

VANASSE HANGEN BRUSTLIN, INC.

Christopher B. Poole, P.G.
Project Manager

Enclosure

CC: Director, NYSDEC-Region 1 - (One Report)
R. Mitchell, NYSDOH-BEEI - (Two Reports & One CD)
T. Leissing, KeySpan - (Four Reports & One CD)
L. Liebs, KeySpan - (One CD)
F. Murphy, KeySpan - (One CD)
S. Ostrow, O&P - (One CD)
D. Elkind, DSM&O - (One Report)
J. Bastedo, VHB - (One Report & One CD)
Project File - (One Report & One CD)

Former Patchogue MGP Site

**Village of Patchogue,
Suffolk County,
New York**

Prepared for **KeySpan Corporation
One MetroTech Center
Brooklyn, New York 11201-3850**

Prepared by ***VHB*/Vanasse Hangen Brustlin, Inc.
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Executive Summary

This report presents the results of a Preliminary Site Assessment (PSA) conducted at the former Patchogue Manufactured Gas Plant (MGP) Site ("the site") by Vanasse Hangen Brustlin, Inc. (VHB) on behalf of KeySpan Corporation (KeySpan). The site is located on a land-locked parcel south of Main Street, east of River Avenue and adjacent to Patchogue Creek in the Village of Patchogue, Town of Brookhaven, Suffolk County, New York.

The site operated as a small gas works from the turn of the 20th century through 1914 when the site was reportedly modified to a gas distribution facility. Emergency water gas production occurred at the site from 1922 through 1925. The Long Island Lighting Company (LILCO) sold the property on March 3, 1976, following its use as an MGP and gas distribution facility. The site is now used as a refrigeration-scrap storage yard, parts of which are overgrown with brush and trees. The surrounding area is commercial and residential. The site is expected to remain in its current state.

The PSA was conducted under an Order on Consent (OC), Index Number D1-0001-99-05, between KeySpan and the New York State Department of Environmental Conservation (NYSDEC). The site has been provided with the unique identifier 1-52-182 by the NYSDEC. The field work was performed based on a NYSDEC-approved work plan and related addenda.

The overall objective of this PSA was to provide NYSDEC with a document containing sufficient information to determine whether MGP-related chemical constituents and structures are present at the site. This information will enable NYSDEC to make recommendations regarding additional investigation and possible remediation which may be required at the site.

The PSA consisted of a detailed record review, site reconnaissance, field survey, sample collection, sample analysis, and reporting. Site sampling activities included surface soil, subsurface soil, groundwater, surface water and sediment sampling and analysis. All samples were analyzed for benzene, ethylbenzene, toluene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), Resource Conservation and Recovery Act (RCRA) Metals and Total Cyanide (TCN). One groundwater sample collected upgradient of the site was analyzed for the complete Target Constituent List (TCL) of Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs), Pesticides, Polychlorinated Biphenyls (PCBs), RCRA Metals and TCN. All samples were collected by VHB and analyzed by Severn Trent Laboratories (STL).

Evidence of former site structures and typical above-ground waste sources were not identified at the site. However, evidence of the foundations of former site structures (e.g. the 60,000 CF gas holder and purifier house) and MGP-related materials (e.g. tar seams, black and blue stained soils with petroleum/naptha odors, brick and glass fragments) were identified during the PSA field program.

Laboratory analysis of the samples collected at the site indicate the following:

- the presence of BTEX in a limited number of sample media - surface and subsurface soils;
- the presence of PAHs in several sample media - surface and subsurface soils, groundwater and sediment; and
- the presence of inorganic constituents in all sample media - surface and subsurface soils, groundwater, surface water and sediment.

It is also important to note that chlorinated VOCs (total 1,2-DCE, PCE and TCE) were detected at concentrations less than the NYSDEC principal organic contaminant standard for groundwater in the sample collected upgradient of the site. Based on this information it is possible that upgradient facilities have contributed and/or are contributing to the environmental degradation at the site.

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Introduction

Report Organization

Vanasse Hangen Brustlin, Inc. (VHB) has prepared this report for KeySpan Corporation (KeySpan). The report summarizes field work and analytical data collected by VHB on behalf of KeySpan during the performance of a Preliminary Site Assessment (PSA) at the former Patchogue Manufactured Gas Plant (MGP) Site (“the site”).

Section 1 of this report provides an introduction to this report, purposes, and objectives, site layout, background and history, and the results of Record Reviews as described in the work plan. Section 2 summarizes the field activities. Section 3 presents the analytical data obtained from analysis of the samples collected during the field activities. Section 4 provides conclusions based on the data collected during the investigation. Section 5 summarizes the references used during the generation of this PSA report. Section 6 is a certification that the work was performed in substantial compliance with the approved work plan.

Purpose

KeySpan executed an Order on Consent (OC), Index Number D1-0001-99-05, effective September 30, 1999 with the New York State Department of Environmental Conservation (NYSDEC) for the development and implementation of a PSA for the site. The site has also been provided with the unique identifier 1-52-182 by the NYSDEC.

An initial data submittal of site background information on the Patchogue Site was submitted to NYSDEC in November 1999. The data submittal was made as required under the OC and in an effort to provide sufficient information for a complete PSA for the site. In January 2000, NYSDEC provided a written response to the initial data submittal. NYSDEC indicated that the submittal was not sufficient for the purpose of a complete PSA and that additional subsurface investigation was required.

VHB prepared a work plan for the site to address NYSDEC comments, and submitted the work plan to NYSDEC on behalf of KeySpan in May 2001. The work

plan included surface soil, subsurface soil, groundwater, surface water and sediment sampling. KeySpan received comments on the work plan from the NYSDEC and New York State Department of Health (NYSDOH) in a correspondence dated June 29, 2001.

A July 10, 2001 correspondence to the NYSDEC addressed the comments. This communication also served as an addendum to the May 2001 work plan adding test trenches to the proposed scope of work for the PSA field program. In addition, the installation locations of selected soil boring locations were modified to minimize the collection of redundant data. KeySpan received formal notification to proceed with the work plan from NYSDEC on July 11, 2001. Field work commenced July 16, 2001 and concluded July 20, 2001. This report summarizes the data and activities from the aforementioned field effort.

Objective

The overall objective of this PSA was to provide NYSDEC with an assessment of Site conditions sufficient enough to determine whether MGP-related chemical constituents and structures, associated with previous site usage, are present at the site. This information will enable NYSDEC to make recommendations regarding additional investigation and possible remediation which may be required at the site.

Location

The site is located in a mixed commercial, residential area of the Village of Patchogue, Town of Brookhaven, Suffolk County, New York (lat: 40° 45' 50"; long: - 73° 01' 20"). Its elevation is less than 10 feet above mean sea level (MSL). It is located on a land-locked parcel, south of Main Street and east of River Avenue along the Patchogue Creek just south of where the creek exits Patchogue Lake and crosses Main Street. The topography of the site is essentially flat. Figure 1-1 presents the location of the site on Long Island.

Site History

Information on the site was available from *Brown's Directory* for the years between 1904 and 1930. Ownership of the facility was through the Patchogue Gas Company, either independently (1904 through 1926) or under the control of the Long Island Lighting Company (LILCO) (1927). Routine water gas production stopped in 1914; high-pressure gas purchased from Suffolk Gas & Electric (Bay Shore) was distributed from the Patchogue plant from 1915 through 1917. From 1918, the gas supplier is identified only as LILCO. From 1922 through 1925, emergency water gas production occurred at the site.

The identification of retorts on the earliest Sanborn maps of the site implies that the initial production process was coal gassification, although the Lowe water gas process was reported in *Brown's Directory* and a boiler is depicted in the retort house. Due to the time when production started, water gas is more likely to be the process used.

A 1910 Sanborn map shows customary equipment for coal gas production, although water gas is the process identified in *Brown's Directory*. However, the shift to distribution of purchased gas in 1915 would have eliminated the need for gas production on site. Based upon a review of a 1926 Sanborn map, a group of seven horizontal aboveground storage tanks (ASTs) were installed at the site sometime after 1910. These tanks are in addition to the one tank shown on the 1910 Sanborn map. According to documentation maintained by KeySpan, these ASTs were utilized for additional gas storage capacity at the site. It should be noted that all of the ASTs are incorrectly labeled as "Oil Tanks" on the Sanborn maps.

The initial (60,000 cf) gas holder on the site is consistent with the limited production of water gas at the facility. The later gas sphere stored gas under high pressure and is consistent with the use of the Patchogue facility for distribution of gas produced elsewhere. The short duration of gas production (approximately 10 years) at the site should also have limited the production of gas manufacturing by-products.

LILCO sold the property on March 3, 1976, following its service as an MGP and gas distribution facility, but retained 7,800 square feet of easements for existing facilities. The name of the current on-site business is Miton Ltd. The area of the former MGP is now used as a refrigeration-scrap storage yard, and is expected to remain in its current state. VHB currently has no information regarding the events that led to the site's current disposition. Parts of the site are overgrown with brush and trees. The surrounding area is commercial and residential. North of the site is a commercial/industrial area, and south of the site is a residential area. A tractor-trailer repair shop and Patchogue Creek border the site to the east, while Costanza Marine Contractors lies to the west. An elementary school, River Avenue Elementary School, is located to the west of the site across River Avenue.

Records Review

Record reviews were conducted by KeySpan staff prior to initiation of field work. The results of the record review provided some insights into the history of the gas plant as described in the history section. However, no additional information regarding the demolition of the plant or disposition of site demolition debris were found.

KeySpan initiated and managed communications with adjacent local residents, businesses and government representatives prior to commencement of the field work and throughout the duration of the project.

Summary of Field Activities

Overview

As required under the OC, KeySpan “as a good corporate citizen, has agreed to investigate the site to determine whether, in fact, the contamination at the site constitutes a significant threat to the environment.” Based on visual inspection, there are no typical waste sources above-ground at the site. Regarding the potential for underground or covered structures and/or disposal areas, there is no information confirming or denying their existence or potential to act as sources. Based on the foregoing, VHB designed a field investigation program to identify and characterize potential sources of chemical constituents in surface soil, subsurface soil, groundwater, surface water, and sediment. The field investigation program is detailed in the NYSDEC approved PSA Work Plan for the site dated May 2001 and an Addendum dated July 10, 2001.

The field investigation consisted of several subtasks including: site reconnaissance, surface soil sampling, subsurface soil sampling, groundwater sampling, surface water sampling, sediment sampling, test trench sampling, and a field survey. On July 16, 2001, VHB mobilized a field team to the site. The site investigation team included two technical specialists from VHB, and a Geoprobe and Case Bobcat crew from VHB’s subcontractor Zebra Environmental Corp. (Zebra). An additional technical specialist from VHB was also on site to provide support during test trench excavation, observation, and sampling. A representative from the NYSDEC visited the site on July 18 and 19, 2001. Investigation work, including the field survey, was substantially complete by July 20, 2001.

A summary of all samples collected as part of this field investigation can be found on Table 2-1. Figure 2-1 presents a graphical summary of the spatial locations of all of the sample points installed during this PSA field program in relation to roadways, property limits, and existing and former site structures. Finally, the following paragraphs summarize each of the individual field subtasks completed at the site.

Site Reconnaissance

At the commencement of field investigation work, VHB performed a thorough site reconnaissance. The purpose of the site reconnaissance was for the field team to familiarize themselves with the site, identify sample areas, adjust sample locations based on existing conditions, review utility clearances, identify potential Health and Safety concerns, and determine if there were any areas of existing environmental degradation which may/or may not be associated with potential chemical constituents from the former MGP.

Specific reconnaissance activities included inspection of the site and peripheral areas; inspection and screening for organic vapors of storm sewers, manholes, and drainage inlets; and inspection of existing operations at and adjacent to the site. Findings, summaries, and conclusions associated with site reconnaissance were documented in the field log book.

Significant findings during the reconnaissance included:

- No evidence of former MGP structures and/or above-ground waste sources were identified at the site. The site is surrounded with a fence that limits access to the property. However, a locking gate, or other security feature, is not present at the primary location in the northeast corner of the property where the site is accessed;
- The site is completely covered with scrap refrigeration parts, equipment and materials potentially suggesting the presence of contemporary chemical constituents not associated with former MGP operations, *e.g.* refrigerant fluids which may contain polychlorinated biphenyls (PCBs) and/or mercury;
- Access to the majority of the on-site areas with proposed sample points and test trenches was possible with little to no modification and/or clearing of existing scrap materials;
- Off-site third party access would be required for a number of the sample point clusters, *e.g.* clusters PASB-01, -08, -10, etc.;
- Proposed surface water and sediment sample locations would be accessible by traversing Patchogue Creek; and
- One extra surface water/sediment sample group (PASW/SD-04) would be collected in a overflow pond identified to the south/southwest of the site.

Surface Soil Sampling

Based on the results of the field reconnaissance and the sampling protocol in the work plan, VHB located thirteen surface soil sampling points. The points were located such that they were biased toward areas of potential environmental degradation and/or high exposure pathways based on visual observation. Sample

locations were marked with pink pin flags. The surface soil sample locations were numbered PASS-01 through PASS-12 and PASS-14. Surface soil sample PASS-13 was changed to a sediment/surface water sample after the discovery of a ponded area south/southwest of the site. The samples were located as follows (also refer to Figure 2-1):

- PASS-01 - Northwest corner of site
- PASS-02 - Northeast corner of site
- PASS-03 - 80 Feet south of PASS-1
- PASS-04 - Northern portion site
- PASS-05 - 50 Feet south of PASS-4
- PASS-06 - 80 feet south of PASS-2
- PASS-07 - 40 Feet south of PASS-6
- PASS-08 - Southwest of site fence line in wooded area
- PASS-09 - Southeast corner of site
- PASS-10 - Southwest corner of site
- PASS-11 - Southern site boundary between PASS-9 and PASS-10
- PASS-12 - 80 feet south of PASS-9 along Patchogue Creek
- PASS-14 - 80 Feet south of PASS-12 along Patchogue Creek

Samples were collected, handled, packaged, shipped, and analyzed as specified in the work plan. The samples were collected from 0-2-inches below ground surface (bgs). Samples were collected using dedicated polystyrene scoops and transferred directly to glass sample containers. Upon collection, the samples were screened for organic vapors, and inspected for purposes of determining the physical characteristics of the soil, presence of foreign debris, and the presence of potential MGP materials or other constituents.

The samples were labeled and packaged in coolers, cooled to 4° C, and sent via Federal Express to Severn Trent Laboratories (STL) for analysis. Surface soil samples were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), Resource Conservation and Recovery Act (RCRA) Metals (Total Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium and Silver) and Total Cyanide (TCN). A duplicate sample was collected from PASS-10 for Quality Assurance/Quality Control (QA/QC) analysis. Refer to Table 2-1 for a sample summary, Section 3 for analytical results, and sample information records for each sample which are presented in Appendix A.

Subsurface Soil Sampling

A total of fourteen soil borings were installed for the purpose of collecting soil samples. The borings were numbered PASB-01 through PASB-12, PASB-14 and PASB-15. A soil boring designated PASB-13 was not installed at the site. Soil

borings PASB-14 and PASB-15 were added to the PSA field program based on findings in the field. Soil borings were located as follows (also refer to Figure 2-1):

- PASB-01 - Northwest corner of site
- PASB-02 - Northeast corner of site
- PASB-03 - 80 Feet south of PASB-1
- PASB-04 - Northern portion of site
- PASB-05 - 50 Feet south of PASB-4
- PASB-06 - 80 feet south of PASB-2
- PASB-07 - 40 Feet south of PASB-6
- PASB-08 - Southwest of site fence line in wooded area
- PASB-09 - Southeast corner of site
- PASB-10 - Southwest corner of site
- PASB-11 - 80 Feet south of PASB-9 along Patchogue Creek
- PASB-12 - 80 Feet south of PASB-11 along Patchogue Creek
- PASB-14 - 80 feet southeast of PASB-3
- PASB-15 - 30 feet south of PASB-7

Boring locations were adjusted as necessary in the field based on accessibility or upon encountering refusal. Boring PASB-12 required adjustment due to wetland conditions at the originally proposed location.

Zebra performed drilling services at the site with an ATV-mounted Geoprobe®. All borings except PASB-08, PASB-10 and PASB-12 were advanced via direct push technology to depths of 8 to 12 feet bgs. The other borings indicated above were hand augured due to lack of access for the drill rig. Continuous core samples were collected, screened for organic vapors, and inspected for purposes of determining the physical characteristics of the soil, presence of foreign debris, and the presence of potential MGP wastes or other constituents. The borings were logged consistent with the Unified Soil Classification System (USCS). Boring log details are attached in Appendix A. Cuttings from each soil boring were used to backfill the borings.

Based on the work plan, discrete samples were collected from the interval(s) exhibiting the highest degree of potential for constituents related to former MGP activities based on visual and instrument response with each interval being a maximum of 2-feet in length. One sample was collected from each boring for chemical analysis.

The samples were labeled and packaged in coolers, cooled to 4° C, and sent via Federal Express to STL for analysis. Subsurface soil samples were analyzed for BTEX, PAHs, RCRA Metals and TCN. A duplicate sample was collected from PASB-08 for QA/QC analysis. Refer to Table 2-1 for a sample summary and Section 3 for analytical results.

Groundwater Sampling

A total of seven temporary monitoring wells were installed at the site also using direct push technology. These wells were installed to assess the potential for both on-site migration from upgradient sources and off-site migration as a result of historical gas manufacturing operations at the site. The wells were numbered PAGP-01 through PAGP-07. Refer to Figure 2-1 for the well locations. The temporary wells were installed with 1-inch PVC screened between 3 and 12 feet bgs depending on local groundwater elevation. All of the wells, except PAGP-06, were installed per the work plan. Well PAGP-06 was moved further south because the original location was in the center of a ponded wetland area. Also, due to collapsing sands, the well was installed in the upper two feet of material. Monitoring well construction diagrams can be found in Appendix A.

The wells were allowed to stabilize for 48-hours prior to sampling. Prior to sampling, groundwater elevations relative to the north side of the installed casings were collected. These elevations were tied to an assigned local datum via a subsequent field survey. Groundwater elevation data collected during the period July 17 through 19, 2001 are summarized in Table 2-2.

Groundwater samples were collected from each of the monitoring wells using *Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures*. Samples were properly packaged and shipped to STL for analysis. Samples PAGP-01 through PAGP-06 were analyzed for BTEX, PAHs, RCRA Metals and TCN. Sample PAGP-07 was analyzed for Target Compound List (TCL) Volatile Organic Compounds (VOCs), Semivolatile Organic Compounds (SVOCs), PCBs, Pesticides and RCRA Metals and TCN. Refer to Table 2-1 for a sample summary and Section 3 for analytical results. Monitoring well sample data forms for each groundwater sample are presented in Appendix A.

Surface Water Sampling

Based on results of the field reconnaissance and the sampling protocol in the work plan, VHB located three surface water sampling points. These samples were collocated with the sediment samples collected in Patchogue Creek. After access to additional properties along River Avenue was gained, a fourth surface water sample was added in the field due to the identification of an overflow pond located south/southwest of the site. This pond is considered a potential exposure pathway since shallow groundwater from the site may discharge to it. The surface water sample locations were numbered PASW-01 through PASW-04. The samples were located as follows (also refer to Figure 2-1):

- PASW-01 - upstream of site
- PASW-02 - adjacent to southern boundary of the site

- PASW-03 - downstream of site
- PASW-04 - pond area south/southwest of site

The surface water samples were collected, handled, packaged, shipped, and analyzed as specified in the work plan. The samples were collected before the sediment samples to minimize the introduction and/or suspension of particulate matter in the water column. The samples were labeled and packaged in coolers, cooled to 4° C, and sent via Federal Express to STL for analysis. Surface water samples were analyzed for BTEX, PAHs, RCRA Metals and TCN. A duplicate sample was collected from PASW-04 for QA/QC analysis. Refer to Table 2-1 for a sample summary, Section 3 for analytical results, and sample information records for each sample which are presented in Appendix A.

Sediment Sampling

Based on results of the field reconnaissance and the sampling protocol in the work plan, VHB located three sediment sampling points. These samples were collected from sediment deposition areas in Patchogue Creek. After access to additional properties along River Avenue was gained, a fourth sediment sample was added in the field due to the identification of an overflow pond located south/southwest of the site. This pond is considered a potential exposure pathway since shallow groundwater from the site may discharge to it. The sediment sample locations were numbered PASD-01 through PASD-04. The samples were located as follows (also refer to Figure 2-1):

- PASD-01 - upstream of site
- PASD-02 - adjacent to southern boundary of the site
- PASD-03 - downstream of site
- PASD-04 - pond area south/southwest of site

Samples were collected, handled, packaged, shipped, and analyzed as specified in the work plan. The samples were collected from the upper two inches of sediment. Samples were collected using dedicated polystyrene scoops and transferred directly to glass sample containers. The samples were labeled and packaged in coolers, cooled to 4° C, and sent via Federal Express to STL for analysis. Sediment samples were analyzed for BTEX, PAHs, RCRA Metals and TCN. A duplicate sample was collected from PASD-04 for QA/QC analysis. Refer to Table 2-1 for a sample summary, Section 3 for analytical results, and sample information records for each sample which are presented in Appendix A.

Test Trench Sampling

Three shallow, narrow test trenches were installed at the site. The test trenches were designated PATT-A/A', PATT-B/B', and PATT-C/C'. Refer to Figure 2-1 for test trench locations. Due to both the inherent space and size restrictions at the site, the test trenches were excavated with a Case Bobcat equipped with a narrow trenching bucket. The test trenches were excavated per the work plan addendum dated July 10, 2001. The test trenches were logged consistent with the USCS. Soil removed from the test trenches was returned to the subsurface as fill following completion of excavation activities. As an additional precaution and to eliminate potential exposure concerns associated with the subsurface soils, KeySpan restored these test trenches to grade with six inches of clean, compacted bluestone. Test trench details are included in Appendix A.

Seven composite soil samples were collected along the length of the three test trenches. Generally, soil samples were collected in areas revealing evident residual impact (e.g. stained soils, sheens, tars/oils, odors and/or elevated PID readings) potentially attributable to former MGP operations. Specifically, the samples were biased towards areas revealing elevated PID readings, evidence of staining and/or evidence of odors (refer to Figure 3-5 for further details). The samples were labeled and packaged in coolers, cooled to 4° C, and sent via Federal Express to STL for analysis. The subsurface soil samples collected from the test trenches were analyzed for BTEX, PAHs, RCRA Metals and TCN. Refer to Table 2-1 for a sample summary and Section 3 for analytical results.

Field Survey

At the completion of the investigation, a VHB survey field crew performed a survey of the site. Survey work was completed on July 20, 2001. Survey work included the location of all sample points and selected site features, e.g. existing buildings, for vertical and horizontal control. All vertical sample point elevations were relative to an assigned benchmark and were surveyed to the nearest 0.01-foot. Historical site drawings and figures and current property tax maps provided by KeySpan were used as the source of the base map for this survey. All sample locations were located on this base map. Refer to Figure 2-1 for details regarding the survey.

Deviations from the Work Plan

The following modifications to the initially proposed scope of work for the PSA were incorporated as a result of NYSDEC comments:

- The elimination of a data validation subtask since the utilization of *Category B* laboratory deliverables would allow such analysis at a future date, if required;
- The removal of a wetland inspection;
- The addition of three test trenches; and
- The adjustment of proposed installation locations of selected sample clusters to prevent collection of redundant data.

Field activities associated with the Patchogue PSA were performed in compliance with the NYSDEC approved work plan. Samples collected during this investigation were located, collected, handled, analyzed, and reported as specified in the work plan and associated Quality Assurance Project Plan. Depths of subsurface borings and temporary monitoring wells were modified as necessary in the field to yield appropriate data. Significant deviations/modifications to the work plan which were executed during the completion of the PSA field program are detailed below:

- Surface soil sample PASS-13 was changed to sediment/surface water sample PASD/SW-04. This sample was collected in an overflow pond located south/southwest of the site found during the initial reconnaissance performed after access to this area was granted through residences located along River Avenue. The pond is considered a potential exposure pathway since shallow groundwater from the site may discharge to it.
- Sample cluster PASB-12, PAGP-06, and PASS-14 was moved further south from its originally proposed location due to the presence of ponded water in this area. This sample cluster was completed essentially at the initial proposed collection location of surface soil sample PASS-13, which is discussed above.
- Subsurface soil borings PASB-14 and PASB-15 were added to the program based on visual findings in borings PASB-04 through PASB-07.
- No duplicate groundwater sample was collected since the duplicate containers were used to collect the additional surface water sample discussed above. This omission is not significant and did not affect the overall quality of the analytical data collected as a component of this PSA field program.

Investigation Analytical Results

Overview

The following sections summarize the results of the samples collected for analysis over the course of the PSA field investigation program. The discussion is broken down into discrete sections for surface soil, subsurface soil, groundwater, surface water, sediment, and test trenches. Each section also describes the specific analytes found, potential source, and the potential impact to human health and the environment.

Analytical data for the specific media/matrices described above are presented for review in detailed summary tables included at the end of this report.

Surface Soil Sample Results

A total of 13 surface soil samples were collected over the course of the investigation. All of the surface soil samples were submitted to STL for analysis under standard chain-of-custody protocol. All of the surface soil samples were analyzed for BTEX, PAHs, RCRA Metals and TCN. The analytical results generated from these samples are summarized in the following paragraphs. Figure 3-1 presents a graphical summary of the analytical results detected in the surface soil samples.

Concentrations of BTEX were only detected in one of the 13 surface soil samples. In particular, a total BTEX concentration of 0.004 milligrams per kilogram (mg/kg), or parts per million (ppm), was detected in sample PASS-06 (0-2"). It should be noted that this concentration was estimated below method detection limits (MDLs). Table 3-1 presents a summary of the surface soil sample BTEX results.

Concentrations of PAHs and potentially carcinogenic PAHs (CPAHs) were detected in only 5 of the 13 surface soil samples. Generally, the levels of PAHs and CPAHs detected in the samples ranged from relatively low to moderately high. In particular, total PAH concentrations ranged from 1.03 mg/kg in sample PASS-11 (0-2") to 250.40 mg/kg in sample PASS-14 (0-2"). Likewise, total CPAH concentrations detected in the samples ranged from 0.22 mg/kg in sample PASS-11 (0-2") to 82.00 mg/kg in sample PASS-14 (0-2"). A total of 7 of the 13 surface soil samples were reanalyzed

due to matrix interference as reported in the laboratory case narrative. The initial results for these samples were used for a comparison and evaluation basis. Table 3-2 presents a summary of the surface soil sample PAH results.

All of the surface soil samples contained concentrations of inorganic constituents. The concentrations of metals in these samples were generally detected at ranges consistent with Eastern United States and New England soil background levels. Exceptions to this include arsenic, lead and mercury levels detected in sample PASS-12 (0-2"), and mercury levels in samples PASS-07 (0-2") and PASS-08 (0-2"). TCN and selenium were not detected in any of the 13 surface soil samples. A summary of the inorganic constituent results for the surface soil samples can be found in Table 3-3.

Subsurface Soil Sample Results

A total of 14 subsurface soil borings were advanced during the PSA field program. The physical characteristics of the soil borings were recorded in the field logbook upon collection along with relevant organoleptic and instrument screening data. The grain size distribution of the subsurface soil matrix at the site generally ranges from fine to medium sands with lesser amounts of coarse sand and gravels. Organic silts and fine silty-sand layers are also prevalent at the site. However, these layers appear to be discontinuous and localized in extent, and would most likely not provide a substantial mechanism for retardation of the deeper distribution of chemical constituents at the site. Detailed drilling reports for the 14 soil borings can be located in Appendix A. Review of these reports indicate that residual impact (e.g. stained soils, sheens, tars/oils, odors and/or elevated PID readings), potentially attributable to former MGP operations, was detected at soil borings PASB-04, PASB-05, PASB-06, and PASB-07 at depths generally ranging from 3 to 11 feet bgs.

A total of 15 subsurface soil samples collected from the 14 soil borings were selected for chemical analysis by STL under standard chain-of-custody protocol. All of the samples were analyzed for BTEX, PAHs, RCRA Metals and TCN. The analytical results generated from these samples are summarized in the following paragraphs. Figure 3-2 presents a graphical summary of the analytical results detected in the subsurface soil samples collected from the soil borings.

BTEX was detected in 8 of the 15 subsurface soil samples selected for analysis during the PSA field program. Total BTEX ranged from an estimated concentration of 0.01 mg/kg (all constituents estimated below MDLs) in sample PASB-02 (4-6') to 70.77 mg/kg in sample PASB-06 (4-6'). The initial analysis of samples PASB-04 (4-6') and PASB-06 (3.5-5.5') exceeded the calibration range of the instrument, likely due to the presence of residual impact (e.g. elevated PID readings, staining, sheens) in the samples, and as a result both samples were reanalyzed at a secondary dilution factor. The secondary data were used for a comparison and evaluation basis. Refer to Table 3-4 for a summary of the subsurface soil sample BTEX results.

Concentrations of PAHs were detected in 14 of the 15 subsurface soil samples selected for chemical analysis, while CPAHs were detected in 13 of the 15 samples. Total PAH concentrations ranged from 0.626 mg/kg in sample PASB-01 (8-10') to 1,772.70 mg/kg in sample PASB-05 (5-7'). Likewise, total CPAH concentrations ranged from 0.369 mg/kg in sample PASB-01 (8-10') to 369.70 mg/kg in sample PASB-05 (5-7'). Initial analysis of 3 samples [PASB-04 (4-6'), PASB-05 (5-7') and PASB-07 (9-10.5')] exceeded the calibration range of the instrument, likely due to the presence of residual impact (e.g. elevated PID readings, staining, sheens) in the samples, and as a result the samples were reanalyzed at a secondary dilution factor. The secondary data from these samples were used for a comparison and evaluation basis. Additionally, a total of 9 of the 15 subsurface soil samples were reanalyzed due to matrix interference as reported in the laboratory case narrative. The initial results for these samples were used for a comparison and evaluation basis. Table 3-5 presents a summary of the subsurface soil sample PAH results.

All 15 of the subsurface soil samples contained concentrations of inorganic constituents. The concentrations of metals in these samples were generally detected at ranges consistent with Eastern United States soil background levels. Exceptions to this include arsenic levels detected in samples PASB-05 (5-7') and PASB-09 (4-6'); lead and mercury levels in sample PASB-10 (2-4'); and the lead level detected in sample PASB-11 (2-5'). TCN was detected in samples PASB-06 (3.5-5.5') and PASB-09 (4-6'). A summary of the inorganic constituent results for the subsurface soil samples can be found in Table 3-6.

Groundwater Sample Results

Groundwater samples were collected from all of the 7 temporary monitoring wells installed during the PSA field program. As stated previously, the temporary monitoring wells were installed to assess the potential for both on-site migration from upgradient sources and off-site migration as a result of historical MGP operations at the site. Six of the samples (PAGP-01 through PAGP-06) were analyzed for BTEX, PAHs, RCRA Metals and TCN. Sample PAGP-07 was analyzed for TCL VOCs, SVOCs, PCBs, Pesticides, RCRA Metals and TCN. One laboratory provided trip blank which followed the groundwater samples throughout the collection process was also submitted for analysis of VOCs only. All of these samples were submitted to STL for analysis under standard chain-of-custody protocol. The analytical results generated from these samples are summarized in the following paragraphs. Figure 3-3 presents a graphical summary of the analytical results detected in the groundwater samples.

Concentrations of BTEX were not detected in any of the 6 groundwater samples PAGP-01 through PAGP-06. PAHs were only detected in 2 of these 6 samples and CPAHs in 1 of these 6 samples all at concentrations estimated below MDLs. Total

PAH concentrations in the samples ranged from 3 to 4 micrograms per liter (ug/L), or parts per billion (ppb), in samples PAGP-02 and PAGP-03, respectively. The total CPAH concentration detected in sample PAGP-02 was 3 ug/L. Sample PAGP-02 was reanalyzed due to matrix interference as reported in the laboratory case narrative. The initial results for this sample were used for a comparison and evaluation basis. Refer to Tables 3-7 and 3-8 for a summary of the groundwater sample BTEX and PAH data, respectively.

Low concentrations of inorganic constituents were detected in all 6 groundwater samples PAGP-01 through PAGP-06. Total lead concentrations of 55 and 77 ug/L were detected in samples PAGP-04 and PAGP-02, respectively. Refer to Table 3-9 for a summary of the inorganic constituent results.

As indicated previously, sample PAGP-07 was analyzed for the complete TCL list and RCRA Metals and TCN. This temporary well point was installed upgradient of the site adjacent to West Main Street. Analysis of this sample did not reveal concentrations of any SVOCs, PCBs or Pesticides. Dissolved barium was detected in the sample at a concentration of 52 ug/L. Additionally, minor estimated concentrations of chlorinated VOCS (total 1,2-dichloroethene, tetrachloroethene and trichloroethene) were detected in this sample. Refer to Table 3-10 for a summary of all of the analytical results for this sample.

Surface Water Sample Results

A total of 4 surface water samples were collected during the PSA field program. Samples PASW-01 through PASW-03 were collected in Patchogue Creek. Sample PASW-04 was collected in a pond identified during the initial reconnaissance performed prior to the commencement of the field work. All of the surface water samples were submitted to STL where they were analyzed for BTEX, PAHs, RCRA Metals and TCN under standard chain-of-custody protocol. One laboratory provided trip blank which followed the samples throughout the collection process was also submitted for analysis of BTEX only. The analytical results from these samples are summarized in the following paragraphs. Figure 3-4 presents a graphical summary of the analytical results detected in the surface water samples.

It should be noted that Patchogue Creek south of West Main Street (NYS Route 27A) is identified by the NYSDEC as a class "SC" surface water body, meaning that its best usage is *"fishing and other uses except primary contact recreation or the taking of shellfish for market purposes."*

Concentrations of BTEX and PAHs were not detected in any of the 4 surface water samples PASW-01 through PASW-04. Refer to Tables 3-11 and 3-12 for a summary of the surface water sample BTEX and PAH data, respectively.

Barium was the only inorganic constituent detected in all 4 surface water samples. A number of other inorganic constituents were also detected in sample PASW-04. Refer to Table 3-13 for a summary of the inorganic constituent results.

Sediment Sample Results

A total of 4 sediment samples, designated PASD-01 through PASD-04, were collected during the PSA field program. These samples were collocated with the surface water samples discussed above. All of the sediment samples were submitted to STL where they were analyzed for BTEX, PAHs, RCRA Metals and TCN under standard chain-of-custody protocol. The analytical results generated from these samples are summarized in the following paragraphs. Figure 3-4 presents a graphical summary of the analytical results detected in the sediment samples.

Concentrations of BTEX were not detected in any of the 4 sediment samples. PAHs and CPAHs were detected in 3 of the 4 sediment samples and the field duplicate of sample PASD-04. A number of the PAH and CPAH constituents detected in the samples were detected at estimated levels below MDLs. Total PAH concentrations ranged from 0.09 mg/kg in sample PASD-04 D to 19.68 mg/kg in sample PASD-03. Likewise, total CPAH concentrations ranged from 0.09 mg/kg in sample PASD-04 D to 10.43 mg/kg in sample PASD-03. Refer to Tables 3-14 and 3-15 for a summary of the sediment sample BTEX and PAH data, respectively.

All of the sediment samples revealed moderately low concentrations of inorganic constituents. The concentrations of the metals detected in these samples were also generally consistent. Cadmium, mercury, selenium, silver and cyanide were not detected in any of the samples at concentrations above MDLs. An arsenic concentration of 6.8 mg/kg was detected in sample PASD-01. Lead concentrations ranging from 34.4 to 87.2 mg/kg were detected in samples PASD-02 through PASD-04. Refer to Table 3-16 for a summary of the sediment sample inorganic constituents results.

Test Trench Sample Results

A total of 3 shallow, narrow test trenches were installed at the site during the PSA field program. Evidence of the foundations of former site structures (e.g., the 60,000 CF gas holder and purifier house) and MGP-related materials (e.g., tar seams, black and blue stained soils with petroleum/naphtha odors, brick and glass fragments) were encountered in the test trenches. A total of 7 composite soil samples were collected from the test trenches for chemical analysis. Generally, the samples were biased towards areas revealing elevated PID readings, evidence of staining and/or odors potentially attributable to former MGP operations. All of these samples were submitted to STL where they were analyzed for BTEX, PAHs, RCRA Metals and

TCN under standard chain-of-custody protocol. The analytical results generated from these samples are summarized in the following paragraphs. Figure 3-5 presents a graphical summary of the analytical results detected in the samples, as well as descriptive information regarding test trench/sample depths, water table depths, screening results and soil characterizations/physical observations.

BTEX was detected in all 7 of the composite samples collected from the test trenches and selected for analysis during the PSA field program. Total BTEX ranged from an estimated concentration of 0.001 mg/kg (samples C'+27' to C'40'N and C' to C'+10'N) to 1.327 mg/kg (sample C+30'S DL). The initial analysis of samples A'+16'E and C+30'S exceeded the calibration range of the instrument, likely due to the presence of residual impact (e.g. tar) in the samples, and as a result both samples were reanalyzed at a secondary dilution factor. The secondary data were used for a comparison and evaluation basis. Refer to Table 3-17 for a summary of the test trench subsurface soil sample BTEX results.

Concentrations of PAHs and CPAHs were also detected in all 7 of the composite samples collected from the test trenches and selected for analysis. Total PAH concentrations ranged from 9.50 mg/kg in sample A'+56'E to 614.08 mg/kg in sample A'+16'E. Likewise, total CPAH concentrations ranged from 2.89 mg/kg in sample A'+56'E to 301.90 mg/kg in sample A'+16'E. Refer to Table 3-18 for a summary of the test trench subsurface soil sample PAH results.

All 7 of the composite samples collected from the test trenches contained concentrations of inorganic constituents. The concentrations of metals in these samples were generally detected at ranges consistent with Eastern United States soil background levels. Selenium and silver were not detected above MDL in any of the samples. Arsenic, barium, cadmium and mercury were detected in a number of the test trench samples. The concentrations of cyanide detected in samples B+05'S (15 mg/kg) and C'+70' to C'+80'N (24.9 mg/kg) should also be mentioned. Refer to Table 3-19 for a summary of the test trench subsurface soil sample inorganic constituent results.

4

Summary of Findings

Conclusions

Based upon the work performed under this PSA we offer the following conclusions:

- The site operated as a small MGP facility, employing the Lowe water gas process, from the turn of the 20th century through 1914 when the site was reportedly modified to a distribution facility. Emergency water gas production occurred at the site from 1922 through 1925. A review of the process employed at the site indicates the presence of potential sources for VOCs and SVOCs.
- LILCO sold the property on March 3, 1976. The site is now used as a refrigeration-scrap storage yard, parts of which are overgrown with brush and trees. The surrounding area is commercial and residential. The site is expected to remain in its current state.
- During the site reconnaissance, evidence of above-ground structures and potential sources of chemical constituents associated with the former MGP were not identified. The site is surrounded with a fence that limits access to the property, however, a locking gate is not present.
- The current site usage suggests the potential presence of contemporary chemical constituents not associated with former MGP operations.
- Evidence of the foundations of former site structures and MGP-related materials were identified during the PSA field program.
- Surface soil samples were analyzed for BTEX, PAHs, RCRA Metals and TCN. The analytical results from the 13 samples indicate the following:
 - BTEX concentrations ranged from none detected (ND) to 0.004 mg/kg.
 - Total PAH concentrations ranged from ND to 250.40 mg/kg, while concentrations of the CPAH subset ranged from ND to 82.00 mg/kg.
 - Inorganic constituents were detected in these samples at levels generally accepted as background.
- Subsurface soil samples collected from the 14 soil borings were analyzed for BTEX, PAHs, RCRA Metals and TCN. Residual impact potentially attributable to former MGP operations was detected at soil borings PASB-04, PASB-05, PASB-06, and PASB-07 at depths generally ranging from 3 to 11 feet bgs. The analytical results from the 15 samples collected from the borings indicate the following:
 - BTEX concentrations ranged from ND to 70.77 mg/kg.

- Total PAH concentrations ranged from ND to 1,772.70 mg/kg, while concentrations of the CPAH subset ranged from ND to 369.70 mg/kg.
- Inorganic constituents were detected in these samples at levels generally accepted as background.
- Groundwater samples collected from 6 of the 7 wells (PAGP-01 through PAGP-06) were analyzed for BTEX, PAHs, RCRA Metals and TCN. Sample PAGP-07 was analyzed for TCL VOCs, SVOCs, PCBs, Pesticides, RCRA Metals and TCN. The analytical results of these samples indicate the following:
 - BTEX was not detected in any of the samples.
 - Total PAH concentrations ranged from ND to 4 ug/L, while concentrations of the CPAH subset ranged from ND to 3 ug/L.
 - Dissolved lead concentrations detected ranged from 55 to 77 ug/L.
 - An estimated total VOC concentration of 7 ug/L was quantified in sample PAGP-07, along with a dissolved barium concentration of 52 ug/L. No other analytes were detected in sample PAGP-07.
- Surface water samples were analyzed for BTEX, PAHs, RCRA Metals and TCN. The analytical results from the 4 samples indicate the following:
 - BTEX was not detected in any of the samples.
 - PAHs were not detected in any of the samples.
 - Dissolved lead and mercury were detected at maximum concentrations of 350 ug/L and 1.4 ug/L, respectively.
- Sediment samples were analyzed for BTEX, PAHs, RCRA Metals and TCN. The analytical results from the 4 samples indicate the following:
 - BTEX was not detected in any of the samples.
 - Total PAH concentrations ranged from ND to 19.68 mg/kg, while concentrations of the CPAH subset ranged from ND to 10.43 mg/kg.
 - Arsenic was detected at a maximum concentration of 6.8 mg/kg, while high lead concentrations ranged from 34.4 to 87.2 mg/kg.
- Subsurface soil samples collected from the 3 test trenches were analyzed for BTEX, PAHs, RCRA Metals and TCN. The 7 composite samples collected from the test trenches were generally biased towards areas revealing elevated PID readings, evidence of staining and/or odors potentially attributable to former MGP operations. The analytical results from the samples indicate the following:
 - BTEX concentrations ranged from 0.001 to 1.327 mg/kg.
 - Total PAH concentrations ranged from 9.5 to 614.08 mg/kg, while concentrations of the CPAH subset ranged from 2.89 to 301.90 mg/kg.
 - Inorganic constituents were detected in these samples at levels generally accepted as background.
- A total of 7 temporary monitoring wells were installed to assess the potential for both on-site migration from upgradient sources and off-site migration as a result of historical MGP operations at the site. The results of both the groundwater samples and soil samples recovered from the soil borings collocated with the temporary monitoring wells revealed low concentrations of target analytes. These results are not indicative of off-site migration issues, and further suggest that there are only minor concerns from on-site migration. However, the

potential for groundwater impact attributable to former MGP operations does exist given the residual impact (e.g. stained soils, sheens, tars/oils, odors and/or elevated PID readings) detected at the soil borings installed in the southeastern portion of the site.

5

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Vanasse Hangen Brustlin, Inc. (VHB), November 1999, Initial Data Submittal KeySpan Energy Corporation, Former Manufactured Gas Plant Sites, Order on Consent D1-0001-99-05, on Long Island, New York – Hempstead – Clinton Road, Babylon, Patchogue, Far Rockaway, Garden City.

Vanasse Hangen Brustlin, Inc. (VHB), May 2001, Preliminary Site Assessment Work Plan, Order on Consent D1-0001-99-05, Former Patchogue MGP Site.

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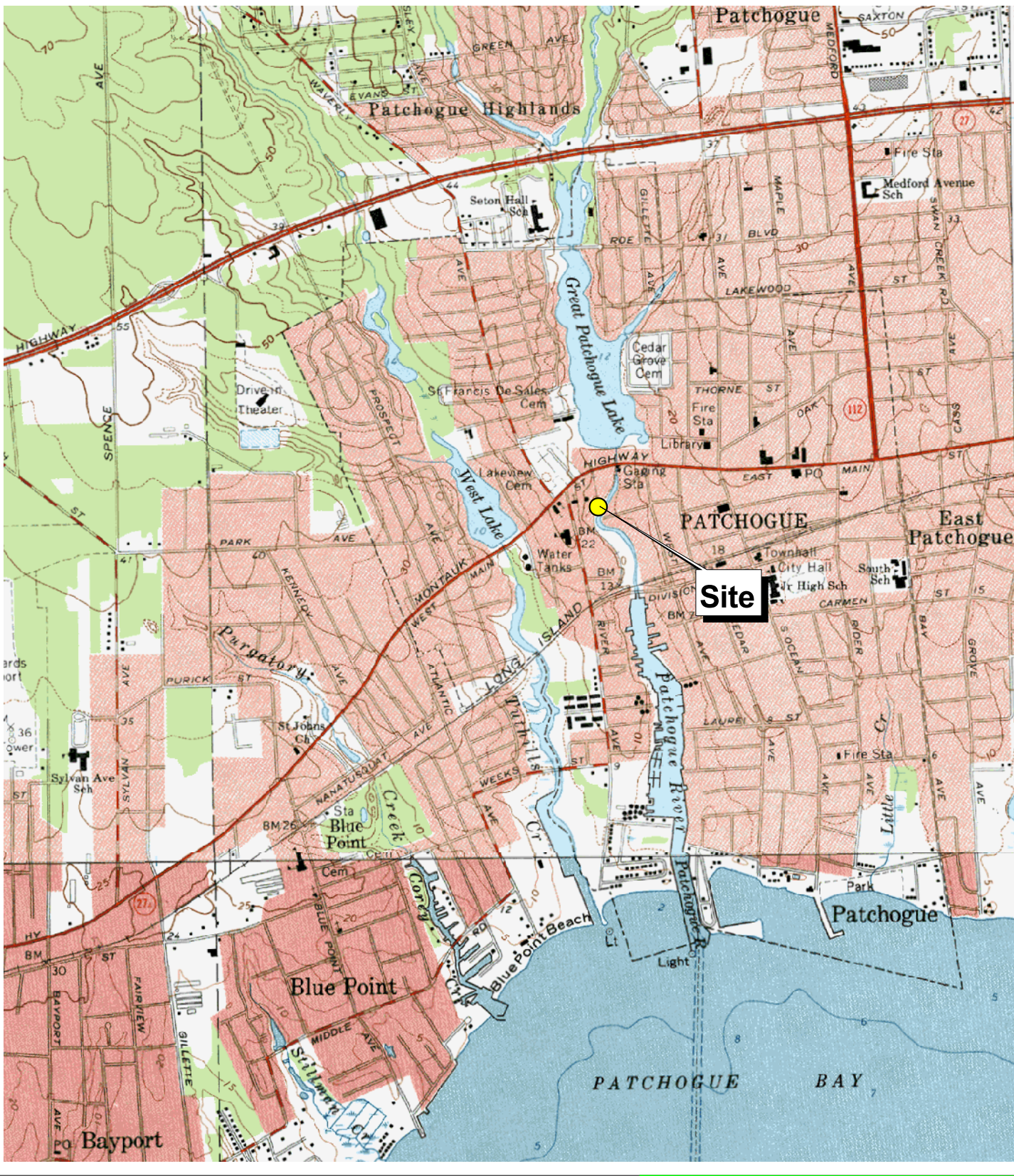
Certification

The following certification is required as prescribed in Order on Consent, Index Number D1-0001-99-05.

I, _____ responsible for the day to day performance of the field investigation program for the former Patchogue Manufactured Gas Plant site (NYSDEC site number 1-52-182) certify that the work was performed in substantial compliance with the approved Preliminary Site Assessment Work Plan, dated May 2001, and related addenda, dated July 10, 2001.

FIGURES

Section 1 Figures



Source: U.S.G.S Quadrangle Patchogue, NY (1967)

Vanasse Hangen Brustlin, Inc.

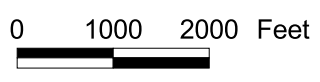
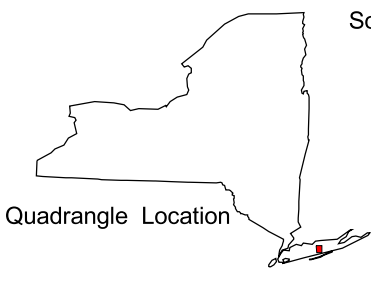
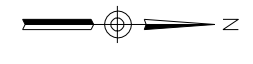
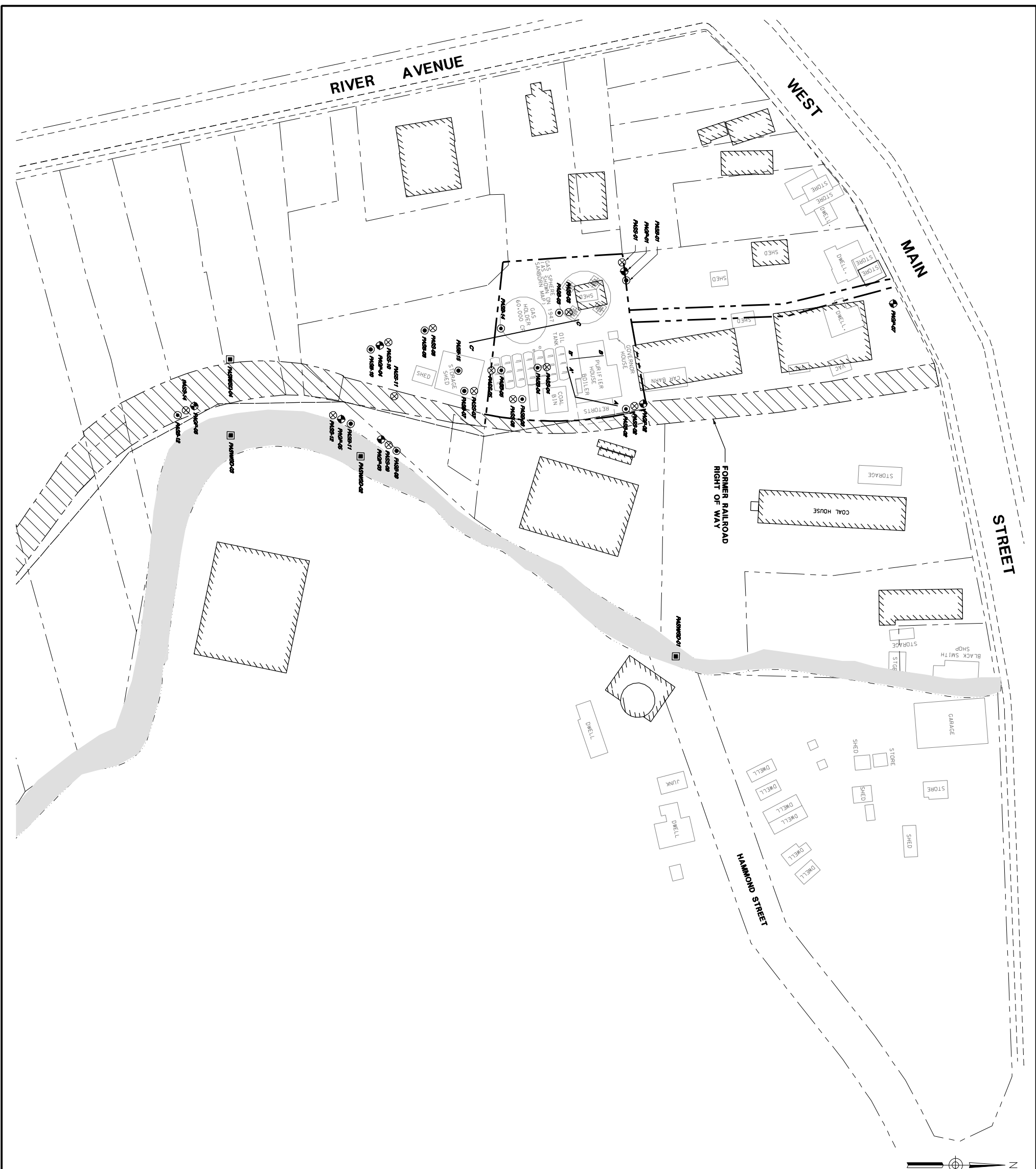


Figure 1-1
Site Location Map
Former Patchogue Manufactured
Gas Plant Site
Village of Patchogue, Town of Brookhaven
Suffolk County, New York

Section 2 Figures



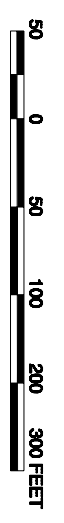
LEGEND

- ⊕ TRANSFORMER MONITORING WELL LOCATION
- ⊙ GAS BORING LOCATION
- ⊗ SURFACE SOIL SAMPLE LOCATION
- ▣ SURFACE WATER/SEWERAGE SAMPLER LOCATION
- ⬆ TEST TRENCH LOCATION
- FORMER PATCHOQUE MAP SITE
- EXISTING FENCE BOUNDARIES
- APPROXIMATE OPEN BOUNDARIES
- ▨ EXISTING STRUCTURE
- ▭ FORMER STRUCTURE
- ▨ FORMER RAILROAD RIGHT-OF-WAY

MAP REFERENCES

- 1) PROPERTY LINE INFORMATION WAS OBTAINED FROM A MAP TITLED COMPOSITE SURVEY ALONG THE OLD LONG ISLAND RAILROAD PROPERTY BETWEEN PATCHOQUE STATION AND W. MAIN ST. LOCATED AT PATCHOQUE, TOWN OF BROOKHAVEN, SUFFOLK COUNTY, STATE OF NEW YORK. SCALE 1"=40' DATED 5-5-88
- 2) OTHER REFERENCE SOURCES
 - AERIAL PHOTOGRAPH DATED 3-28-95
 - HISTORIC MAP OF THE SITE AND APPROXIMATE LOCATIONS OF THE FORMER MAP STRUCTURES BASED ON 1928 AND 1947 SANBORN FIRE INSURANCE MAPS
 - COPY OF PATCHOQUE TAX MAP PROVIDED BY KEYSPAN

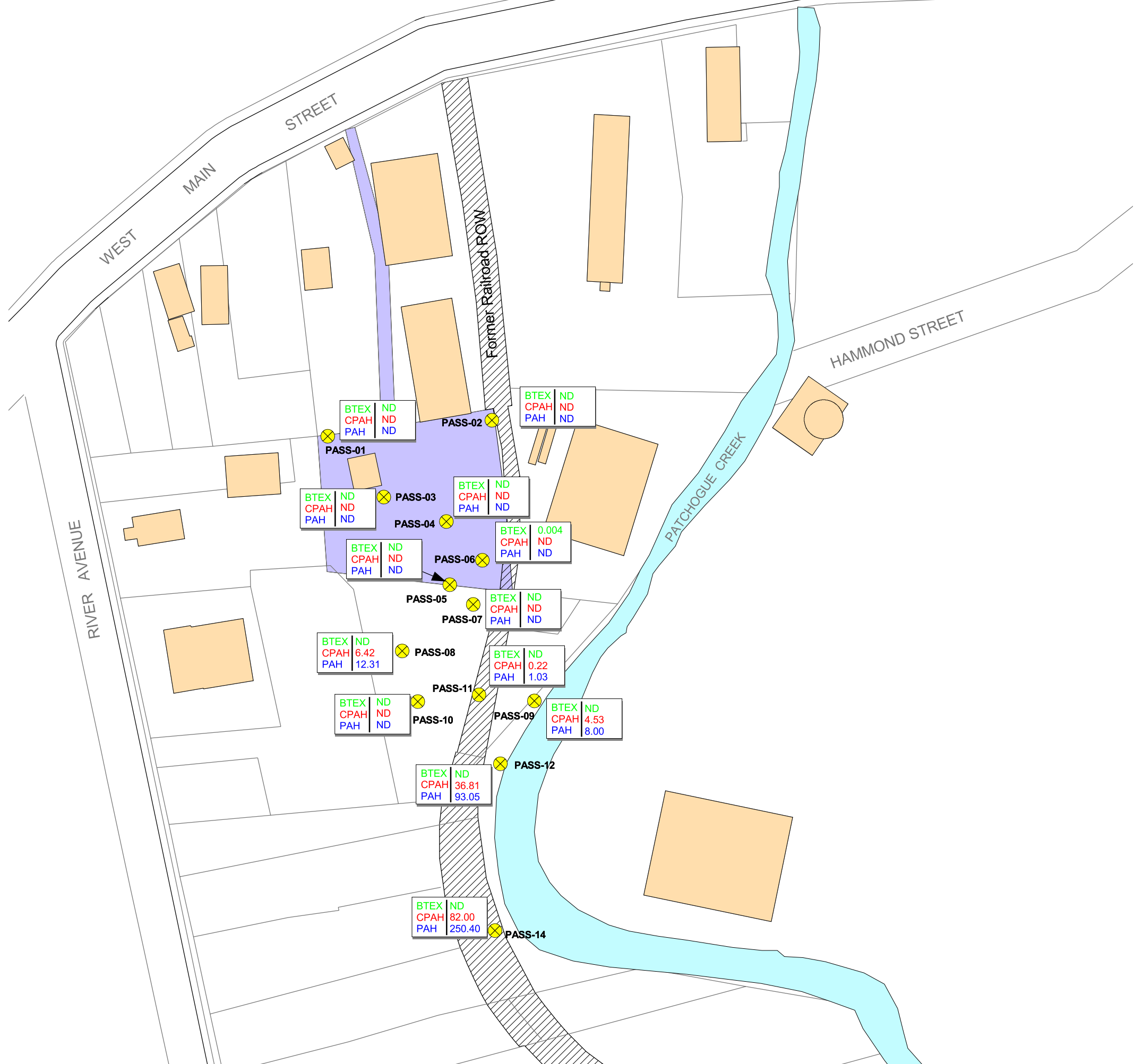
NOTE: THIS PLAN IS COMPILED FROM AVAILABLE EXISTING INFORMATION AND IS FOR CONCEPTUAL PLANNING ONLY. LINEWORK AND OTHER DATA SHOWN IS NOT TO BE CONSIDERED AS HAVING BEEN OBTAINED AS THE RESULT OF A CERTIFIED FIELD SURVEY, AND IS SUBJECT TO SUCH CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. SURVEY CONDUCTED RELATIVE TO AN ASSIGNED BENCHMARK, AND THE SCALE OF THIS DRAWING IS APPROXIMATE.




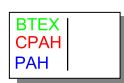


Vanasse Hangen Brustlin, Inc.
KEYSPAN ENERGY
PLAN PREPARED FOR FORMER PATCHOQUE MANUFACTURED GAS PLANT SITE VILLAGE OF PATCHOQUE, TOWN OF BROOKHAVEN SUFFOLK COUNTY, NEW YORK
SITE COMPILATION PLAN
SCALE: 1" = 50' DATE: MARCH 2002
FIGURE 2-1

Section 3 Figures

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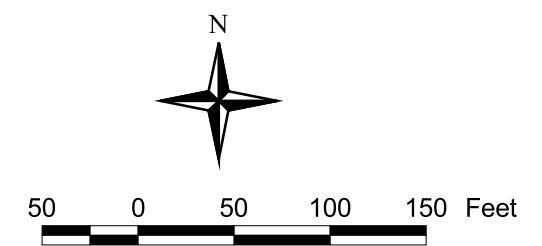
-  Surface Soil Sample
-  Summary of Selected Analytical Data
-  Former Patchogue MGP Site
-  Existing Structures

NOTE:
 -BTEX = Total Benzene, Toluene, Ethylbenzene, Xylenes (mg/kg)
 -CPAH = Total Carcinogenic Polycyclic Aromatic Hydrocarbons (mg/kg)
 -PAH = Total Polycyclic Aromatic Hydrocarbons (mg/kg)
 -ND = Not Detected at Quantitation Limits
 -Samples were collected at the site during the period July 16-18, 2001.

MAP REFERENCES

- 1) PROPERTY LINE INFORMATION OBTAINED FROM A MAP TITLED COMPOSITE SURVEY ALONG THE OLD LONG ISLAND RAILROAD PROPERTY BETWEEN PATCHOGUE SUBSTATION AND W. MAIN ST. LOCATED AT PATCHOGUE, TOWN OF BROOKHAVEN, SUFFOLK COUNTY, STATE OF NEW YORK. SCALE 1"=40' DATED 5-3-99
- 2) OTHER REFERENCE SOURCES:
 - AERIAL PHOTOGRAPH DATED 3-29-95
 - HISTORIC MAP OF THE SITE AND APPROXIMATE LOCATIONS OF THE FORMER MGP STRUCTURES BASED ON 1926 AND 1947 SANBORN FIRE INSURANCE MAPS
 - COPY OF PATCHOGUE TAX MAP PROVIDED BY KEYSpan

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VHB Vanasse Hangen Brustlin, Inc.

PLAN PREPARED FOR **KEYSPAN ENERGY**

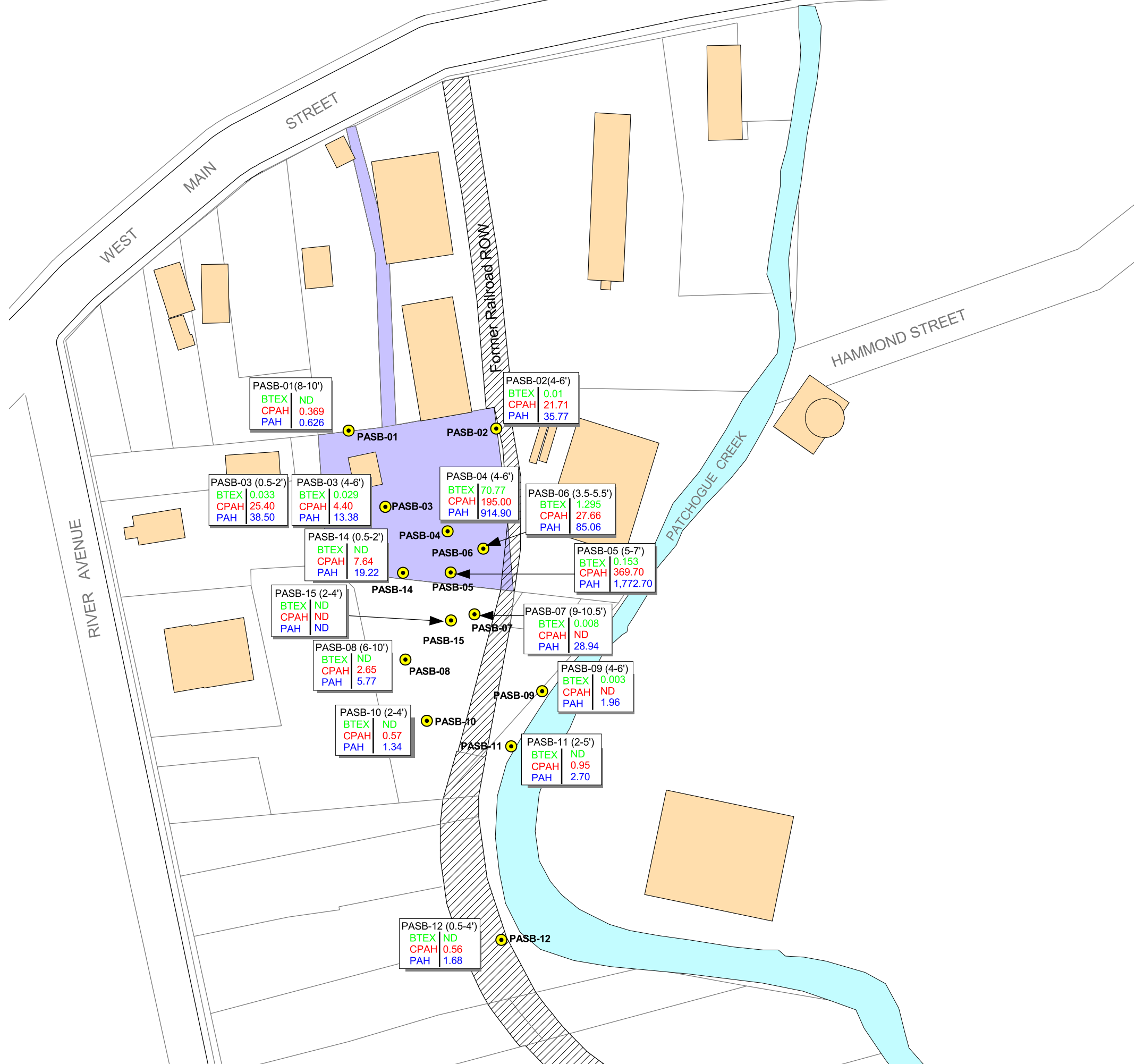
FORMER PATCHOGUE MANUFACTURED GAS PLANT SITE
 VILLAGE OF PATCHOGUE, TOWN OF BROOKHAVEN,
 SUFFOLK COUNTY, NEW YORK

**SURFACE SOIL SAMPLE
 ANALYTICAL RESULTS**

SCALE = 1:1200
 DATE: MARCH 2002

FIGURE 3-1

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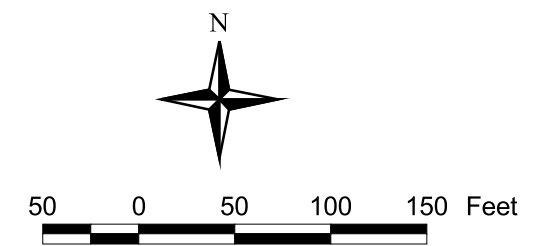
- Soil Boring Subsurface Soil Sample
- Summary of Selected Analytical Data
- Former Patchogue MGP Site
- Existing Structures

NOTE:
 -BTEX = Total Benzene, Toluene, Ethylbenzene, Xylenes (mg/kg)
 -CPAH = Total Carcinogenic Polycyclic Aromatic Hydrocarbons (mg/kg)
 -PAH = Total Polycyclic Aromatic Hydrocarbons (mg/kg)
 -ND = Not Detected at Quantitation Limits
 -Samples were collected at the site during the period July 16-18, 2001.

MAP REFERENCES

- PROPERTY LINE INFORMATION OBTAINED FROM A MAP TITLED COMPOSITE SURVEY ALONG THE OLD LONG ISLAND RAILROAD PROPERTY BETWEEN THE OLD LONG ISLAND RAILROAD SUBSTATION AND W. MAIN ST. LOCATED AT PATCHOGUE, TOWN OF BROOKHAVEN, SUFFOLK COUNTY, STATE OF NEW YORK. SCALE 1"=40' DATED 5-3-99
- OTHER REFERENCE SOURCES:
 -AERIAL PHOTOGRAPH DATED 3-29-95
 -HISTORIC MAP OF THE SITE AND APPROXIMATE LOCATIONS OF THE FORMER MGP STRUCTURES BASED ON 1926 AND 1947 SANBORN FIRE INSURANCE MAPS
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VHB Vanasse Hangen Brustlin, Inc.

PLAN PREPARED FOR KEYSpan ENERGY

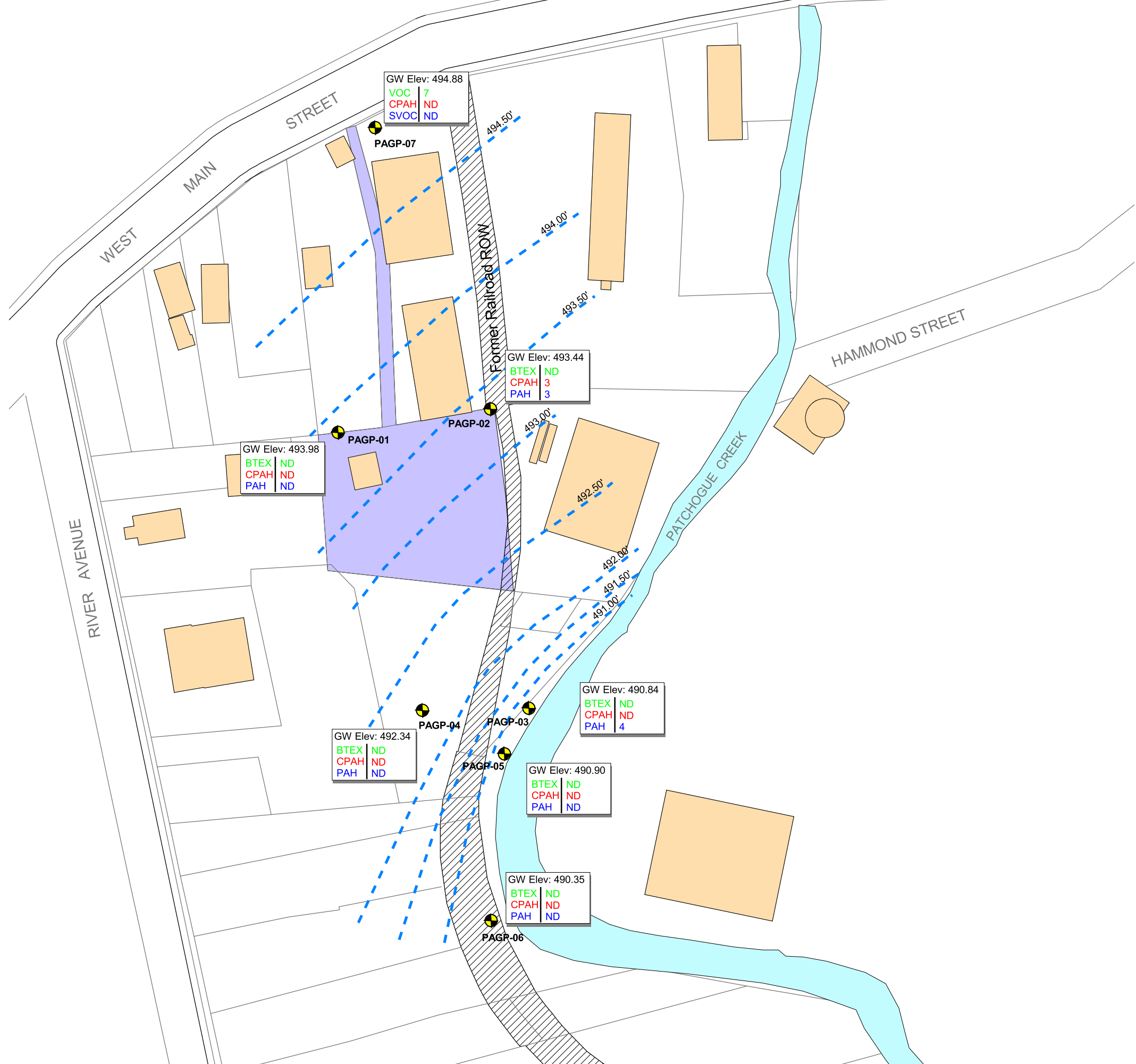
FORMER PATCHOGUE MANUFACTURED GAS PLANT SITE VILLAGE OF PATCHOGUE, TOWN OF BROOKHAVEN, SUFFOLK COUNTY, NEW YORK

SOIL BORING SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS

SCALE = 1:1200
DATE: MARCH 2002

FIGURE 3-2

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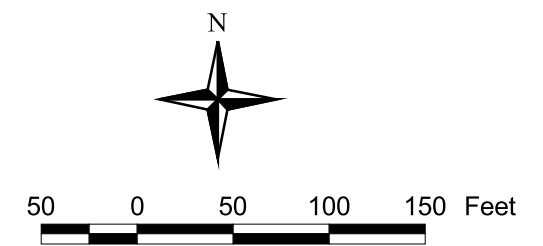
- Temporary Monitoring Well
- Summary of Selected Analytical and Groundwater Elevation Data
- Former Patchogue MGP Site
- Existing Structures
- Inferred Groundwater Contour and Groundwater Elevation

NOTE:
 -BTEX = Total Benzene, Toluene, Ethylbenzene, Xylenes (ug/L)
 -CPAH = Total Carcinogenic Polycyclic Aromatic Hydrocarbons (ug/L)
 -PAH = Total Polycyclic Aromatic Hydrocarbons (ug/L)
 -VOC = Total Volatile Organic Constituents (ug/L)
 -SVOC = Total Semivolatile Organic Constituents (ug/L)
 -ND = Not Detected at Quantitation Limits
 -GW Elev = Groundwater Elevation (ft.)
 -Samples were collected at the site during the period July 19-20, 2001.

MAP REFERENCES

- 1) PROPERTY LINE INFORMATION OBTAINED FROM A MAP TITLED COMPOSITE SURVEY ALONG THE OLD LONG ISLAND RAILROAD PROPERTY BETWEEN PATCHOGUE SUBSTATION AND W. MAIN ST. LOCATED AT PATCHOGUE, TOWN OF BROOKHAVEN, SUFFOLK COUNTY, STATE OF NEW YORK. SCALE 1"=40' DATED 5-3-99
- 2) OTHER REFERENCE SOURCES:
 - AERIAL PHOTOGRAPH DATED 3-29-95
 - HISTORIC MAP OF THE SITE AND APPROXIMATE LOCATIONS OF THE FORMER MGP STRUCTURES BASED ON 1926 AND 1947 SANBORN FIRE INSURANCE MAPS
 - COPY OF PATCHOGUE TAX MAP PROVIDED BY KEYSpan

THIS PLAN IS COMPILED FROM AVAILABLE EXISTING INFORMATION AND IS FOR CONCEPTUAL PLANNING ONLY. LINEWORK AND OTHER DATA SHOWN IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A CERTIFIED FIELD SURVEY, AND IS SUBJECT TO SUCH CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. SURVEY CONDUCTED RELATIVE TO AN ASSIGNED BENCHMARK AND THE SCALE OF THIS DRAWING IS APPROXIMATE.



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PLAN PREPARED FOR **KEYSPAN ENERGY**

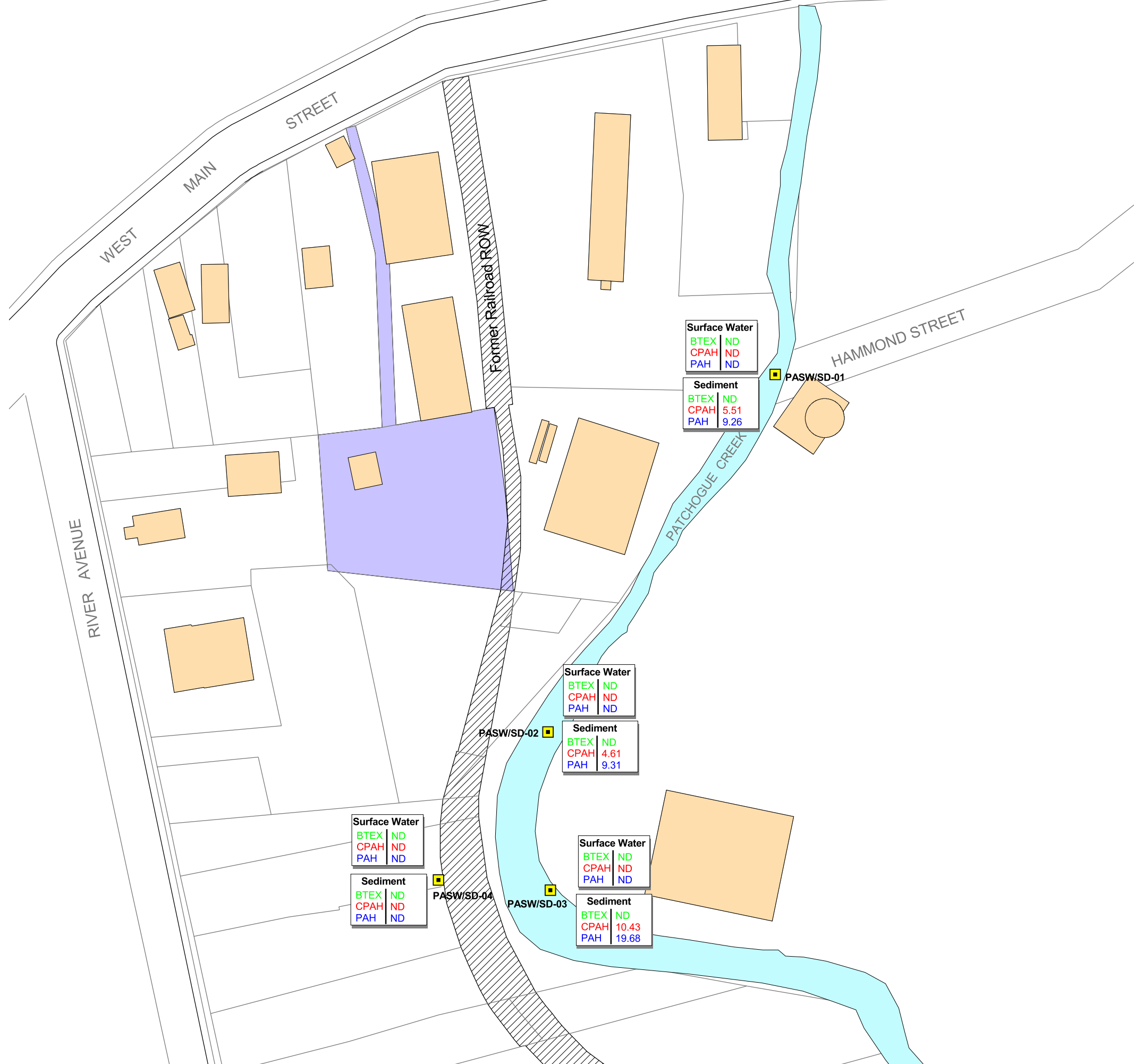
FORMER PATCHOGUE MANUFACTURED GAS PLANT SITE
 VILLAGE OF PATCHOGUE, TOWN OF BROOKHAVEN,
 SUFFOLK COUNTY, NEW YORK

**GROUNDWATER MONITORING DATA AND
 SAMPLE ANALYTICAL RESULTS**

SCALE = 1:1200
 DATE: MARCH 2002

FIGURE 3-3

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LEGEND

■ Surface Water/Sediment Sample

Summary of Selected Analytical Data
BTEX
CPAH
PAH

Former Patchogue MGP Site

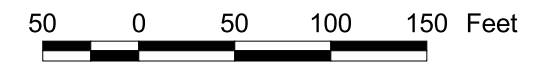
Existing Structures

NOTE:
 -BTEX = Total Benzene, Toluene, Ethylbenzene, Xylenes (surface water=ug/L; sediment=mg/kg)
 -CPAH = Total Carcinogenic Polycyclic Aromatic Hydrocarbons (surface water=ug/L; sediment=mg/kg)
 -PAH = Total Polycyclic Aromatic Hydrocarbons (surface water=ug/L; sediment=mg/kg)
 -ND = Not Detected at Quantitation Limits
 -Samples were collected at the site on July 18, 2001.

MAP REFERENCES

- PROPERTY LINE INFORMATION OBTAINED FROM A MAP TITLED COMPOSITE SURVEY ALONG THE OLD LONG ISLAND RAILROAD PROPERTY BETWEEN PATCHOGUE SUBSTATION AND W. MAIN ST. LOCATED AT PATCHOGUE, TOWN OF BROOKHAVEN, SUFFOLK COUNTY, STATE OF NEW YORK. SCALE 1"=40' DATED 5-3-99
- OTHER REFERENCE SOURCES:
 - AERIAL PHOTOGRAPH DATED 3-29-95
 - HISTORIC MAP OF THE SITE AND APPROXIMATE LOCATIONS OF THE FORMER MGP STRUCTURES BASED ON 1926 AND 1947 SANBORN FIRE INSURANCE MAPS
 - COPY OF PATCHOGUE TAX MAP PROVIDED BY KEYSpan

THIS PLAN IS COMPILED FROM AVAILABLE EXISTING INFORMATION AND IS FOR CONCEPTUAL PLANNING ONLY. LINEWORK AND OTHER DATA SHOWN IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A CERTIFIED FIELD SURVEY, AND IS SUBJECT TO SUCH CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. SURVEY CONDUCTED RELATIVE TO AN ASSIGNED BENCHMARK AND THE SCALE OF THIS DRAWING IS APPROXIMATE.



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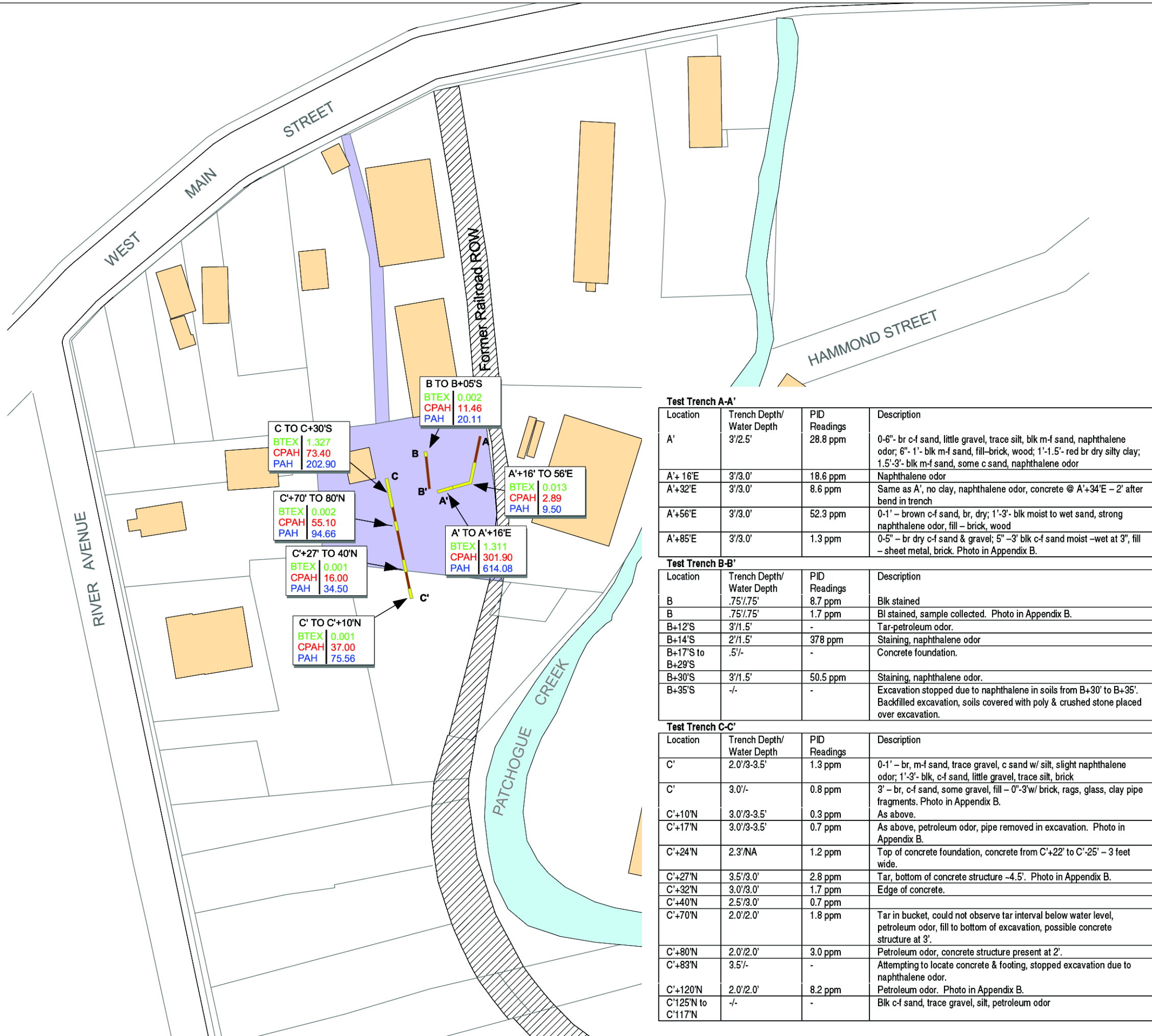
PLAN PREPARED FOR **KEYSPAN ENERGY**

FORMER PATCHOGUE MANUFACTURED GAS PLANT SITE
VILLAGE OF PATCHOGUE, TOWN OF BROOKHAVEN,
SUFFOLK COUNTY, NEW YORK

SURFACE WATER AND SEDIMENT SAMPLE ANALYTICAL RESULTS

SCALE = 1:1200
DATE: MARCH 2002

FIGURE 3-4



LEGEND

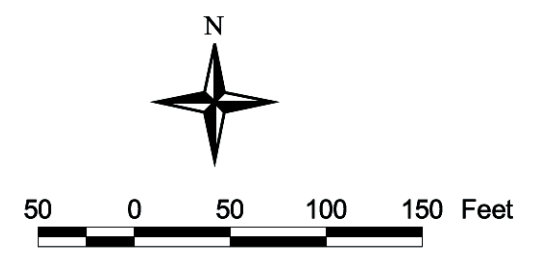
- Test Trench
- Test Trench Composite Sample Location
- BTEX
CPAH
PAH Summary of Selected Analytical Data
- Former Patchogue MGP Site
- Existing Structures

NOTE:
 -BTEX = Total Benzene, Toluene, Ethylbenzene, Xylenes (mg/kg)
 -CPAH = Total Carcinogenic Polycyclic Aromatic Hydrocarbons (mg/kg)
 -PAH = Total Polycyclic Aromatic Hydrocarbons (mg/kg)
 -ND = Not Detected at Quantitation Limits
 -Samples were collected at the site on July 19, 2001.

MAP REFERENCES

- PROPERTY LINE INFORMATION OBTAINED FROM A MAP TITLED COMPOSITE SURVEY ALONG THE OLD LONG ISLAND RAILROAD PROPERTY BETWEEN PATCHOGUE SUBSTATION AND W. MAIN ST. LOCATED AT PATCHOGUE, TOWN OF BROOKHAVEN, SUFFOLK COUNTY, STATE OF NEW YORK. SCALE 1"=40' DATED 5-3-99
- OTHER REFERENCE SOURCES:
 - AERIAL PHOTOGRAPH DATED 3-29-95
 - HISTORIC MAP OF THE SITE AND APPROXIMATE LOCATIONS OF THE FORMER MGP STRUCTURES BASED ON 1926 AND 1947 SANBORN FIRE INSURANCE MAPS
 - COPY OF PATCHOGUE TAX MAP PROVIDED BY KEYSpan

THIS PLAN IS COMPILED FROM AVAILABLE EXISTING INFORMATION AND IS FOR CONCEPTUAL PLANNING ONLY. LINEWORK AND OTHER DATA SHOWN IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A CERTIFIED FIELD SURVEY, AND IS SUBJECT TO SUCH CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. SURVEY CONDUCTED RELATIVE TO AN ASSIGNED BENCHMARK AND THE SCALE OF THIS DRAWING IS APPROXIMATE.



Test Trench A-A'

Location	Trench Depth/ Water Depth	PID Readings	Description
A'	3'/2.5'	28.8 ppm	0-6" - br c-f sand, little gravel, trace silt, blk m-f sand, naphthalene odor; 6" - 1'- blk m-f sand, fill-brick, wood; 1'-1.5' - red br dry silty clay; 1.5'-3' - blk m-f sand, some c sand, naphthalene odor
A'+16'E	3'/3.0'	18.6 ppm	Naphthalene odor
A'+32'E	3'/3.0'	8.6 ppm	Same as A', no clay, naphthalene odor, concrete @ A'+34'E - 2' after bend in trench
A'+56'E	3'/3.0'	52.3 ppm	0-1' - brown c-f sand, br, dry; 1'-3' - blk moist to wet sand, strong naphthalene odor, fill - brick, wood
A'+85'E	3'/3.0'	1.3 ppm	0-5" - br dry c-f sand & gravel; 5" - 3' blk c-f sand moist - wet at 3', fill - sheet metal, brick. Photo in Appendix B.

Test Trench B-B'

Location	Trench Depth/ Water Depth	PID Readings	Description
B	.75'/.75'	8.7 ppm	Blk stained
B	.75'/.75'	1.7 ppm	Blk stained, sample collected. Photo in Appendix B.
B+12'S	3'/1.5'	-	Tar-petroleum odor.
B+14'S	2'/1.5'	378 ppm	Staining, naphthalene odor
B+17'S to B+29'S	.5'/-	-	Concrete foundation.
B+30'S	3'/1.5'	50.5 ppm	Staining, naphthalene odor.
B+35'S	-/-	-	Excavation stopped due to naphthalene in soils from B+30' to B+35'. Backfilled excavation, soils covered with poly & crushed stone placed over excavation.

Test Trench C-C'

Location	Trench Depth/ Water Depth	PID Readings	Description
C'	2.0'/3-3.5'	1.3 ppm	0-1' - br, m-f sand, trace gravel, c sand w/ silt, slight naphthalene odor; 1'-3' - blk, c-f sand, little gravel, trace silt, brick
C'	3.0'/-	0.8 ppm	3' - br, c-f sand, some gravel, fill - 0"-3"w/ brick, rags, glass, clay pipe fragments. Photo in Appendix B.
C'+10'N	3.0'/3-3.5'	0.3 ppm	As above.
C'+17'N	3.0'/3-3.5'	0.7 ppm	As above, petroleum odor, pipe removed in excavation. Photo in Appendix B.
C'+24'N	2.3'/NA	1.2 ppm	Top of concrete foundation, concrete from C'+22' to C'-25' - 3 feet wide.
C'+27'N	3.5'/3.0'	2.8 ppm	Tar, bottom of concrete structure -4.5'. Photo in Appendix B.
C'+32'N	3.0'/3.0'	1.7 ppm	Edge of concrete.
C'+40'N	2.5'/3.0'	0.7 ppm	
C'+70'N	2.0'/2.0'	1.8 ppm	Tar in bucket, could not observe tar interval below water level, petroleum odor, fill to bottom of excavation, possible concrete structure at 3'.
C'+80'N	2.0'/2.0'	3.0 ppm	Petroleum odor, concrete structure present at 2'.
C'+83'N	3.5'/-	-	Attempting to locate concrete & footing, stopped excavation due to naphthalene odor.
C'+120'N	2.0'/2.0'	8.2 ppm	Petroleum odor. Photo in Appendix B.
C'125'N to C'117'N	-/-	-	Blk c-f sand, trace gravel, silt, petroleum odor

VHB Vanasse Hangen Brustlin, Inc.

PLAN PREPARED FOR **KEYSPAN ENERGY**

FORMER PATCHOGUE MANUFACTURED GAS PLANT SITE
 VILLAGE OF PATCHOGUE, TOWN OF BROOKHAVEN,
 SUFFOLK COUNTY, NEW YORK

**TEST TRENCH SUBSURFACE SOIL SAMPLE
 ANALYTICAL RESULTS**

SCALE = 1:1200
 DATE: MARCH 2002

FIGURE 3-5

TABLES

Section 2 Tables

**Table 2-1
Summary of Collected Samples and Analytical Parameters**

Sample Matrix	No. of Samples	Analytical Parameters	QA/QC Samples
Surface Soil	13	BTEX (8260B), PAHs (8270C), RCRA Metals (6010B/7471A) and Total Cyanide (9010B)	1 Duplicate
Subsurface Soil	15	BTEX (8260B), PAHs (8270C), RCRA Metals (6010B/7471A) and Total Cyanide (9010B)	1 Duplicate
Groundwater	6	BTEX (8260B), PAHs (8270C), RCRA Metals (6010B/7471A) and Total Cyanide (9010B)	1 Trip Blank
	1	TCL Volatile Organic Compounds (8260B), TCL Semivolatile Organic Compounds (8270C), TCL Pesticides (8081A), Polychlorinated Biphenyls (8082), RCRA Metals (6010B/7471A) and Total Cyanide (9010B)	
Surface Water	4	BTEX (8260B), PAHs (8270C), RCRA Metals (6010B/7471A) and Total Cyanide (9010B)	1 Duplicate 1 Trip blank
Sediment	4	BTEX (8260B), PAHs (8270C), RCRA Metals (6010B/7471A) and Total Cyanide (9010B)	1 Duplicate
Test Pits	7	BTEX (8260B), PAHs (8270C), RCRA Metals (6010B/7471A) and Total Cyanide (9010B)	---

BTEX = benzene, toluene, ethylbenzene, xylenes

PAHs = polycyclic aromatic hydrocarbons

RCRA = Resource Conservation and Recovery Act

TCL = Target Compound List

Table 2-2
Summary of Groundwater Monitoring Data

Monitoring Well Designation	Ground Surface Elevation	Depth to Water	Depth of Well	Water Table Elevation
PAGP-01	503.43 feet	9.45 feet	10.75 feet	493.98 feet
PAGP-02	494.24 feet	0.80 feet	5.25 feet	493.44 feet
PAGP-03	493.86 feet	3.02 feet	6.92 feet	490.84 feet
PAGP-04	494.74 feet	2.40 feet	6.80 feet	492.34 feet
PAGP-05	490.90 feet	0.00 feet	6.44 feet	490.90 feet
PAGP-06	491.82 feet	1.47 feet	2.89 feet	490.35 feet
PAGP-07	498.03 feet	3.15 feet	12.00 feet	494.88 feet

All ground surface elevations surveyed relative to an assigned benchmark.

All depth to water readings taken from ground surface.

Section 3 Tables

**Table 3-1 - Surface Soil Samples
Summary of Volatile Organic Constituent Results**

VHB Sample Designation	Units	PASS-01 (0-2)	PASS-02 (0-2)	PASS-03 (0-2)	PASS-04 (0-2)	PASS-05 (0-2)	PASS-06 (0-2)
Lab Sample Designation		A1680401	A1680402	A1680403	A1680404	A1680405	A1680406
Date Sampled		07/16/2001	07/16/2001	07/17/2001	07/17/2001	07/17/2001	07/17/2001
Benzene	mg/kg	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Ethylbenzene	mg/kg	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.002 J
Toluene	mg/kg	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Total Xylenes	mg/kg	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.002 J
Total BTEX	mg/kg	ND	ND	ND	ND	ND	0.004

VHB Sample Designation	Units	PASS-07 (0-2)	PASS-08 (0-2)	PASS-09 (0-2)	PASS-10 (0-2)	PASS-10 (0-2) D	PASS-11 (0-2)
Lab Sample Designation		A1680407	A1684706	A1680408	A1684703	A1684704	A1680409
Date Sampled		07/17/2001	07/18/2001	07/16/2001	07/18/2001	07/18/2001	07/16/2001
Benzene	mg/kg	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Ethylbenzene	mg/kg	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Toluene	mg/kg	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Total Xylenes	mg/kg	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Total BTEX	mg/kg	ND	ND	ND	ND	ND	ND

VHB Sample Designation	Units	PASS-12 (0-2)	PASS-14 (0-2)
Lab Sample Designation		A1680410	A1684708
Date Sampled		07/17/2001	07/18/2001
Benzene	mg/kg	0.005 U	0.005 U
Ethylbenzene	mg/kg	0.005 U	0.005 U
Toluene	mg/kg	0.005 U	0.005 U
Total Xylenes	mg/kg	0.015 U	0.015 U
Total BTEX	mg/kg	ND	ND

Total BTEX - Total Benzene, Toluene, Ethylbenzene, Xylenes

mg/kg - Milligrams Per Kilogram

U - Indicates compound was analyzed for, but not detected.

J - Indicates an estimated value.

ND - Not Detected

Table 3-2 - Surface Soil Samples
 Summary of Semivolatile Organic Constituent Results

VHB Sample Designation	Units	PASS-01 (0-2)	PASS-02 (0-2)	PASS-03 (0-2)	PASS-04 (0-2)	PASS-05 (0-2)	PASS-06 (0-2)
Lab Sample Designation		A1680401	A1680402	A1680403	A1680404	A1680405	A1680406
Date Sampled		07/16/2001	07/16/2001	07/17/2001	07/17/2001	07/17/2001	07/17/2001
2-Methylnaphthalene	mg/kg	1.5 U	1.3 U	0.33 U	0.33 U	0.33 U	0.92 U
Acenaphthene	mg/kg	1.5 U	1.3 U	0.33 U	0.33 U	0.33 U	0.92 U
Acenaphthylene	mg/kg	1.5 U	1.3 U	0.33 U	0.33 U	0.33 U	0.92 U
Anthracene	mg/kg	1.5 U	1.3 U	0.33 U	0.33 U	0.33 U	0.92 U
Benzo(ghi)perylene	mg/kg	1.5 U	1.3 U	0.33 U	0.33 U	0.33 U	0.92 U
Dibenzofuran	mg/kg	1.5 U	1.3 U	0.33 U	0.33 U	0.33 U	0.92 U
Fluoranthene	mg/kg	1.5 U	1.3 U	0.33 U	0.33 U	0.33 U	0.92 U
Fluorene	mg/kg	1.5 U	1.3 U	0.33 U	0.33 U	0.33 U	0.92 U
Naphthalene	mg/kg	1.5 U	1.3 U	0.33 U	0.33 U	0.33 U	0.92 U
Phenanthrene	mg/kg	1.5 U	1.3 U	0.33 U	0.33 U	0.33 U	0.92 U
Pyrene	mg/kg	1.5 U	1.3 U	0.33 U	0.33 U	0.33 U	0.92 U
<i>Benzo(a)anthracene</i>	<i>mg/kg</i>	<i>1.5 U</i>	<i>1.3 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.92 U</i>
<i>Benzo(a)pyrene</i>	<i>mg/kg</i>	<i>1.5 U</i>	<i>1.3 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.92 U</i>
<i>Benzo(b)fluoranthene</i>	<i>mg/kg</i>	<i>1.5 U</i>	<i>1.3 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.92 U</i>
<i>Benzo(k)fluoranthene</i>	<i>mg/kg</i>	<i>1.5 U</i>	<i>1.3 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.92 U</i>
<i>Chrysene</i>	<i>mg/kg</i>	<i>1.5 U</i>	<i>1.3 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.92 U</i>
<i>Dibenzo(a,h)anthracene</i>	<i>mg/kg</i>	<i>1.5 U</i>	<i>1.3 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.92 U</i>
<i>Indeno(1,2,3-cd)pyrene</i>	<i>mg/kg</i>	<i>1.5 U</i>	<i>1.3 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.92 U</i>
Total CPAHs	mg/kg	ND	ND	ND	ND	ND	ND
Total PAHS	mg/kg	ND	ND	ND	ND	ND	ND

Table 3-2 - Surface Soil Samples (Continued)
 Summary of Semivolatile Organic Constituent Results

VHB Sample Designation	Units	PASS-07 (0-2)	PASS-08 (0-2)	PASS-09 (0-2)	PASS-10 (0-2)	PASS-10 (0-2) D	PASS-11 (0-2)
Lab Sample Designation		A1680407	A1684706	A1680408	A1684703	A1684704	A1680409
Date Sampled		07/17/2001	07/18/2001	07/16/2001	07/18/2001	07/18/2001	07/16/2001
2-Methylnaphthalene	mg/kg	0.33 U	0.42 U	0.33 U	0.33 U	0.33 U	0.35 U
Acenaphthene	mg/kg	0.33 U	0.42 U	0.33 U	0.33 U	0.33 U	0.35 U
Acenaphthylene	mg/kg	0.33 U	0.42 U	0.33 U	0.33 U	0.33 U	0.35 U
Anthracene	mg/kg	0.33 U	0.42 U	0.33 U	0.33 U	0.33 U	0.35 U
Benzo(ghi)perylene	mg/kg	0.33 U	1.1	0.41	0.33 U	0.33 U	0.35 U
Dibenzofuran	mg/kg	0.33 U	1	0.33 U	0.33 U	0.33 U	0.35 U
Fluoranthene	mg/kg	0.33 U	1.8	1.2	0.33 U	0.33 U	0.47
Fluorene	mg/kg	0.33 U	0.59	0.33 U	0.33 U	0.33 U	0.35 U
Naphthalene	mg/kg	0.33 U	0.42 U	0.33 U	0.33 U	0.33 U	0.35 U
Phenanthrene	mg/kg	0.33 U	1.4	0.36	0.33 U	0.33 U	0.35 U
Pyrene	mg/kg	0.33 U	0.42 U	1.5	0.33 U	0.33 U	0.34 J
<i>Benzo(a)anthracene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>0.42 U</i>	<i>0.78</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.35 U</i>
<i>Benzo(a)pyrene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>2.5</i>	<i>0.92</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.35 U</i>
<i>Benzo(b)fluoranthene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>0.42 U</i>	<i>0.82</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.22 J</i>
<i>Benzo(k)fluoranthene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>0.52</i>	<i>0.56</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.35 U</i>
<i>Chrysene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>0.42 U</i>	<i>1.1</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.35 U</i>
<i>Dibenzo(a,h)anthracene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>1.3</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.35 U</i>
<i>Indeno(1,2,3-cd)pyrene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>2.1</i>	<i>0.35</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.35 U</i>
Total CPAHs	mg/kg	ND	6.42	4.53	ND	ND	0.22
Total PAHS	mg/kg	ND	12.31	8	ND	ND	1.03

Table 3-2 - Surface Soil Samples (Continued)
 Summary of Semivolatile Organic Constituent Results

VHB Sample Designation	Units	PASS-12 (0-2)	PASS-14 (0-2)
Lab Sample Designation		A1680410	A1684708
Date Sampled		07/17/2001	07/18/2001
2-Methylnaphthalene	mg/kg	0.69 U	0.9 U
Acenaphthene	mg/kg	0.6 J	0.9 U
Acenaphthylene	mg/kg	0.69 U	3.4
Anthracene	mg/kg	3	1.7
Benzo(ghi)perylene	mg/kg	1.9	23
Dibenzofuran	mg/kg	0.69 U	26
Fluoranthene	mg/kg	21	36
Fluorene	mg/kg	0.74	11
Naphthalene	mg/kg	0.69 U	28
Phenanthrene	mg/kg	12	32
Pyrene	mg/kg	17	7.3
<i>Benzo(a)anthracene</i>	<i>mg/kg</i>	<i>8.3</i>	<i>0.9 U</i>
<i>Benzo(a)pyrene</i>	<i>mg/kg</i>	<i>6.3</i>	<i>26</i>
<i>Benzo(b)fluoranthene</i>	<i>mg/kg</i>	<i>5.4</i>	<i>0.9 U</i>
<i>Benzo(k)fluoranthene</i>	<i>mg/kg</i>	<i>5</i>	<i>13</i>
<i>Chrysene</i>	<i>mg/kg</i>	<i>11</i>	<i>0.9 U</i>
<i>Dibenzo(a,h)anthracene</i>	<i>mg/kg</i>	<i>0.81</i>	<i>0.9 U</i>
<i>Indeno(1,2,3-cd)pyrene</i>	<i>mg/kg</i>	<i>0.69 U</i>	<i>43</i>
Total CPAHs	mg/kg	36.81	82
Total PAHs	mg/kg	93.05	250.4

Italicized compounds represent Carcinogenic Polycyclic Aromatic Hydrocarbons (CPAHs).

PAHs - Polycyclic Aromatic Hydrocarbons

mg/kg - Milligrams Per Kilogram

U - Indicates compound was analyzed for, but not detected.

J - Indicates an estimated value.

ND - Not Detected

**Table 3-3 - Surface Soil Samples
Summary of Inorganic Constituent Results**

VHB Sample Designation	Units	PASS-01 (0-2)	PASS-02 (0-2)	PASS-03 (0-2)	PASS-04 (0-2)	PASS-05 (0-2)	PASS-06 (0-2)	PASS-07 (0-2)
Lab Sample Designation		A1680401	A1680402	A1680403	A1680404	A1680405	A1680406	A1680407
Date Sampled		07/16/2001	07/16/2001	07/17/2001	07/17/2001	07/17/2001	07/17/2001	07/17/2001
Arsenic - Total	mg/kg	1.2	2	2.6	4	3	2.4	3.1
Barium - Total	mg/kg	30.2	33.2	28.4	38.9	47.9	48.8	105
Cadmium - Total	mg/kg	0.57 U	2	2.5	1.6	1.4	4.8	1.5
Chromium - Total	mg/kg	3.8	12.6	5.6	12.9	10.7	12.4	11.4
Lead - Total	mg/kg	106	79.9	26.8	33	42.2	49.6	73.9
Mercury - Total	mg/kg	0.1 U	0.1 U	0.11 U	0.12 U	0.11 U	0.14 U	0.3
Selenium - Total	mg/kg	3.4 U	3.1 U	3.4 U	3.5 U	3.6 U	4.1 U	3.3 U
Silver - Total	mg/kg	1.1 U	1 U	2.6	1.2 U	1.2 U	1.4 U	1.1 U
Cyanide - Total	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

VHB Sample Designation	Units	PASS-08 (0-2)	PASS-09 (0-2)	PASS-10 (0-2)	PASS-10 (0-2) D	PASS-11 (0-2)	PASS-12 (0-2)	PASS-14 (0-2)
Lab Sample Designation		A1684706	A1680408	A1684703	A1684704	A1680409	A1680410	A1684708
Date Sampled		07/18/2001	07/16/2001	07/18/2001	07/18/2001	07/16/2001	07/17/2001	07/18/2001
Arsenic - Total	mg/kg	6.9	6.8	1.2	1.4	2.4	35.3	9.4
Barium - Total	mg/kg	233	44.4	12.4	15.5	54.7	218	37
Cadmium - Total	mg/kg	1.1	0.51 U	0.55 U	0.59 U	1.4	3.2	0.84 U
Chromium - Total	mg/kg	18.9	5.4	4.1	4.5	6.3	33.6	7.6
Lead - Total	mg/kg	196	76.4	30.4	47.2	36.6	977	121
Mercury - Total	mg/kg	0.75	0.1 U	0.11 U	0.11 U	0.13 U	0.88	0.17
Selenium - Total	mg/kg	4.9 U	3.1 U	3.3 U	3.6 U	3.8 U	7.7 U	5 U
Silver - Total	mg/kg	1.6 U	1 U	1.1 U	1.2 U	1.3 U	2.6 U	1.7 U
Cyanide - Total	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

mg/kg - Milligrams Per Kilogram

U - Indicates element was analyzed for, but not detected.

**Table 3-4 - Subsurface Soil Samples
Summary of Volatile Organic Constituent Results**

VHB Sample Designation	Units	PASB-01 (8-10)	PASB-02 (4-6)	PASB-03 (0.5-2)	PASB-03 (4-6)	PASB-04 (4-6)	PASB-05 (5-7)
Lab Sample Designation		A1680411	A1680415	A1680412	A1684701	A1680413DL	A1680414
Date Sampled		07/16/2001	07/17/2001	07/17/2001	07/18/2001	07/17/2001	07/17/2001
Benzene	mg/kg	0.005 U	0.001 BJ	0.006 B	0.013 B	0.27 DJ	0.002 J
Ethylbenzene	mg/kg	0.005 U	0.003 J	0.016	0.005 U	26 D	0.066
Toluene	mg/kg	0.005 U	0.002 J	0.005	0.014	3.5 D	0.005
Total Xylenes	mg/kg	0.015 U	0.004 J	0.006 J	0.002 J	41 D	0.08
Total BTEX	mg/kg	ND	0.01	0.033	0.029	70.77	0.153

VHB Sample Designation	Units	PASB-06 (3.5-5.5)	PASB-07 (9.0-10.5)	PASB-08 (6-10)	PASB-08 (6-10) D	PASB-09 (4-6)	PASB-10 (2-4)
Lab Sample Designation		A1680416DL	A1680417	A1684702	A1684707	A1680418	A1684705
Date Sampled		07/17/2001	07/17/2001	07/18/2001	07/18/2001	07/17/2001	07/18/2001
Benzene	mg/kg	0.013 D	0.001 BJ	0.005 U	0.005 U	0.003 BJ	0.005 U
Ethylbenzene	mg/kg	0.53 D	0.003 J	0.005 U	0.005 U	0.005 U	0.005 U
Toluene	mg/kg	0.012 D	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Total Xylenes	mg/kg	0.74 D	0.004 J	0.015 U	0.015 U	0.015 U	0.015 U
Total BTEX	mg/kg	1.295	0.008	ND	ND	0.003	ND

VHB Sample Designation	Units	PASB-11 (2-5)	PASB-12 (0.5-4)	PASB-14 (0.5-2)	PASB-15 (2-4)
Lab Sample Designation		A1680419	A1684709	A1684713	A1684714
Date Sampled		07/17/2001	07/18/2001	07/18/2001	07/18/2001
Benzene	mg/kg	0.005 U	0.005 U	0.005 U	0.005 U
Ethylbenzene	mg/kg	0.005 U	0.005 U	0.005 U	0.005 U
Toluene	mg/kg	0.005 U	0.005 U	0.005 U	0.005 U
Total Xylenes	mg/kg	0.015 U	0.015 U	0.015 U	0.015 U
Total BTEX	mg/kg	ND	ND	ND	ND

Total BTEX - Total Benzene, Toluene, Ethylbenzene, Xylenes

mg/kg - Milligrams Per Kilogram

U - Indicates compound was analyzed for, but not detected.

J - Indicates an estimated value.

B - Analyte was found in the sample as well as the associated blank.

D - Compounds identified in an analysis at a secondary dilution factor.

ND - Not Detected

Table 3-5 - Subsurface Soil Samples
Summary of Semivolatile Organic Constituent Results

VHB Sample Designation	Units	PASB-01 (8-10)	PASB-02 (4-6)	PASB-03 (0.5-2)	PASB-03 (4-6)	PASB-04 (4-6)	PASB-05 (5-7)
Lab Sample Designation		A1680411	A1680415	A1680412	A1684701	A1680413DL	A1680414DL
Date Sampled		07/16/2001	07/17/2001	07/17/2001	07/18/2001	07/17/2001	07/17/2001
2-Methylnaphthalene	mg/kg	0.33 U	0.33 U	3.2 U	0.33 U	42 D	21 D
Acenaphthene	mg/kg	0.33 U	0.33 U	3.2 U	0.33 U	46 D	94 D
Acenaphthylene	mg/kg	0.33 U	0.37	3.2 U	0.33 U	8.3 D	17 D
Anthracene	mg/kg	0.025 J	0.3 J	3.2 U	0.17 J	160 D	210 D
Benzo(ghi)perylene	mg/kg	0.026 J	2.3	2.1 J	1.1	16 D	16 D
Dibenzofuran	mg/kg	0.33 U	0.33 U	3.2 U	1.9	2.6 D	6 D
Fluoranthene	mg/kg	0.098 J	4.6	4.3	1.7	92 D	200 D
Fluorene	mg/kg	0.33 U	0.33 U	3.2 U	0.71	38 D	100 D
Naphthalene	mg/kg	0.33 U	0.33 U	3.2 U	1.6	95 D	49 D
Phenanthrene	mg/kg	0.024 J	0.69	3.2 U	1.6	100 D	440 D
Pyrene	mg/kg	0.084 J	5.8	6.7	0.2 J	120 D	250 D
<i>Benzo(a)anthracene</i>	<i>mg/kg</i>	<i>0.051 J</i>	<i>3.8</i>	<i>4.4</i>	<i>0.33 U</i>	<i>41 D</i>	<i>84 D</i>
<i>Benzo(a)pyrene</i>	<i>mg/kg</i>	<i>0.059 J</i>	<i>3.7</i>	<i>3.7</i>	<i>1.4</i>	<i>34 D</i>	<i>61 D</i>
<i>Benzo(b)fluoranthene</i>	<i>mg/kg</i>	<i>0.14 J</i>	<i>6</i>	<i>10</i>	<i>0.33 U</i>	<i>18 D</i>	<i>25 D</i>
<i>Benzo(k)fluoranthene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>3.2 U</i>	<i>0.69</i>	<i>25 D</i>	<i>42 D</i>
<i>Chrysene</i>	<i>mg/kg</i>	<i>0.091 J</i>	<i>5.8</i>	<i>7.3</i>	<i>0.33 U</i>	<i>58 D</i>	<i>140 D</i>
<i>Dibenzo(a,h)anthracene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>0.51</i>	<i>3.2 U</i>	<i>0.71</i>	<i>5 D</i>	<i>3.7 D</i>
<i>Indeno(1,2,3-cd)pyrene</i>	<i>mg/kg</i>	<i>0.028 J</i>	<i>1.9</i>	<i>3.2 U</i>	<i>1.6</i>	<i>14 D</i>	<i>14 D</i>
Total CPAHs	mg/kg	0.369	21.71	25.4	4.4	195	369.7
Total PAHS	mg/kg	0.626	35.77	38.5	13.38	914.9	1772.7

Table 3-5 - Subsurface Soil Samples (Continued)
 Summary of Semivolatile Organic Constituent Results

VHB Sample Designation	Units	PASB-06 (3.5-5.5)	PASB-07 (9.0-10.5)	PASB-08 (6-10)	PASB-08 (6-10) D	PASB-09 (4-6)	PASB-10 (2-4)
Lab Sample Designation		A1680416	A1680417DL	A1684702	A1684707	A1680418	A1684705
Date Sampled		07/17/2001	07/17/2001	07/18/2001	07/18/2001	07/17/2001	07/18/2001
2-Methylnaphthalene	mg/kg	3.8	1 D	0.33 U	0.33 U	0.36 U	0.33 U
Acenaphthene	mg/kg	2.6	13 D	0.33 U	0.33 U	0.36 U	0.33 U
Acenaphthylene	mg/kg	1	0.33 U	0.33 U	0.33 U	0.36 U	0.33 U
Anthracene	mg/kg	2.1	0.46 D	0.33 U	0.33 U	0.36 U	0.33 U
Benzo(ghi)perylene	mg/kg	2.4	0.33 U	0.55	0.89	0.36 U	0.14 J
Dibenzofuran	mg/kg	0.33 U	0.46 D	0.55	1	0.36 U	0.13 J
Fluoranthene	mg/kg	9.9	0.29 DJ	0.94	0.85	0.48	0.26 J
Fluorene	mg/kg	1.6	3.8 D	0.34	0.79	0.69	0.33 U
Naphthalene	mg/kg	16	1.4 D	0.33 U	0.81	0.36 U	0.33 U
Phenanthrene	mg/kg	5	8.2 D	0.74	1.2	0.23 J	0.24 J
Pyrene	mg/kg	13	0.33 D	0.33 U	0.16 J	0.56	0.33 U
<i>Benzo(a)anthracene</i>	<i>mg/kg</i>	<i>5.1</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.36 U</i>	<i>0.33 U</i>
<i>Benzo(a)pyrene</i>	<i>mg/kg</i>	<i>5.6</i>	<i>0.33 U</i>	<i>1</i>	<i>1.4</i>	<i>0.36 U</i>	<i>0.27 J</i>
<i>Benzo(b)fluoranthene</i>	<i>mg/kg</i>	<i>6.8</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.36 U</i>	<i>0.33 U</i>
<i>Benzo(k)fluoranthene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.25 J</i>	<i>0.59</i>	<i>0.36 U</i>	<i>0.33 U</i>
<i>Chrysene</i>	<i>mg/kg</i>	<i>7.6</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.36 U</i>	<i>0.33 U</i>
<i>Dibenzo(a,h)anthracene</i>	<i>mg/kg</i>	<i>0.66</i>	<i>0.33 U</i>	<i>0.4</i>	<i>0.59</i>	<i>0.36 U</i>	<i>0.33 U</i>
<i>Indeno(1,2,3-cd)pyrene</i>	<i>mg/kg</i>	<i>1.9</i>	<i>0.33 U</i>	<i>1</i>	<i>1.5</i>	<i>0.36 U</i>	<i>0.3 J</i>
Total CPAHs	mg/kg	27.66	ND	2.65	4.08	ND	0.57
Total PAHS	mg/kg	85.06	28.94	5.77	9.78	1.96	1.34

Table 3-5 - Subsurface Soil Samples (Continued)
Summary of Semivolatile Organic Constituent Results

VHB Sample Designation	Units	PASB-11 (2-5)	PASB-12 (0.5-4)	PASB-14 (0.5-2)	PASB-15 (2-4)
Lab Sample Designation		A1680419	A1684709	A1684713	A1684714
Date Sampled		07/17/2001	07/18/2001	07/18/2001	07/18/2001
2-Methylnaphthalene	mg/kg	0.33 U	0.33 U	0.33 U	0.33 U
Acenaphthene	mg/kg	0.24 J	0.33 U	0.33 U	0.33 U
Acenaphthylene	mg/kg	0.33 U	0.33 U	0.33 U	0.33 U
Anthracene	mg/kg	0.33 U	0.33 U	0.33 U	0.33 U
Benzo(ghi)perylene	mg/kg	0.33 U	0.18 J	2.1	0.33 U
Dibenzofuran	mg/kg	0.33 U	0.13 J	1.6	0.33 U
Fluoranthene	mg/kg	0.63	0.49	1.9	0.33 U
Fluorene	mg/kg	0.33 U	0.33 U	1.2	0.33 U
Naphthalene	mg/kg	0.33 U	0.33 U	1.6	0.33 U
Phenanthrene	mg/kg	0.26 J	0.32 J	2.8	0.33 U
Pyrene	mg/kg	0.62	0.33 U	0.38	0.33 U
<i>Benzo(a)anthracene</i>	<i>mg/kg</i>	<i>0.26 J</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>
<i>Benzo(a)pyrene</i>	<i>mg/kg</i>	<i>0.17 J</i>	<i>0.29 J</i>	<i>2.4</i>	<i>0.33 U</i>
<i>Benzo(b)fluoranthene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>
<i>Benzo(k)fluoranthene</i>	<i>mg/kg</i>	<i>0.24 J</i>	<i>0.33 U</i>	<i>1.1</i>	<i>0.33 U</i>
<i>Chrysene</i>	<i>mg/kg</i>	<i>0.28 J</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.33 U</i>
<i>Dibenzo(a,h)anthracene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.74</i>	<i>0.33 U</i>
<i>Indeno(1,2,3-cd)pyrene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>0.27 J</i>	<i>3.4</i>	<i>0.33 U</i>
Total CPAHs	mg/kg	0.95	0.56	7.64	ND
Total PAHs	mg/kg	2.7	1.68	19.22	ND

Italicized compounds represent Carcinogenic Polycyclic Aromatic Hydrocarbons (CPAHs).

PAHs - Polycyclic Aromatic Hydrocarbons

mg/kg - Milligrams Per Kilogram

U - Indicates compound was analyzed for, but not detected.

J - Indicates an estimated value.

D - Compounds identified in an analysis at a secondary dilution factor.

ND - Not Detected

**Table 3-6 - Subsurface Soil Samples
Summary of Inorganic Constituent Results**

VHB Sample Designation	Units	PASB-01 (8-10)	PASB-02 (4-6)	PASB-03 (0.5-2)	PASB-03 (4-6)	PASB-04 (4-6)	PASB-05 (5-7)
Lab Sample Designation		A1680411	A1680415	A1680412	A1684701	A1680413	A1680414
Date Sampled		07/16/2001	07/17/2001	07/17/2001	07/18/2001	07/17/2001	07/17/2001
Arsenic - Total	mg/kg	1.7	1.2 U	10.6	2.4	2.1	41.5
Barium - Total	mg/kg	17.2	5.9	122	6.3	10.8	21.4
Cadmium - Total	mg/kg	0.49 U	0.59 U	0.63 U	0.59 U	0.58 U	2.2
Chromium - Total	mg/kg	5	2.4 U	6.1	4.9	5	3.8
Lead - Total	mg/kg	40.7	9.1	269	22.4	30.7	242
Mercury - Total	mg/kg	0.1 U	0.11 U	0.42	0.11 U	0.12 U	0.21
Selenium - Total	mg/kg	3 U	3.5 U	3.8 U	3.5 U	3.5 U	4
Silver - Total	mg/kg	0.99 U	1.2 U	1.3 U	1.2 U	1.2 U	1.3 U
Cyanide - Total	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

VHB Sample Designation	Units	PASB-06 (3.5-5.5)	PASB-07 (9.0-10.5)	PASB-08 (6-10)	PASB-08 (6-10) D	PASB-09 (4-6)	PASB-10 (2-4)
Lab Sample Designation		A1680416	A1680417	A1684702	A1684707	A1680418	A1684705
Date Sampled		07/17/2001	07/17/2001	07/18/2001	07/18/2001	07/17/2001	07/18/2001
Arsenic - Total	mg/kg	3.3	1.2 U	2.2	7	31.6	5.6
Barium - Total	mg/kg	6.6	1.8	93.6	78.4	98.5	102
Cadmium - Total	mg/kg	0.58 U	0.62 U	0.65 U	0.63 U	3.2	0.66 U
Chromium - Total	mg/kg	3.1	6.8	5	11	33.8	26.2
Lead - Total	mg/kg	12.4	6.2 U	105	123	318	778
Mercury - Total	mg/kg	0.21	0.12 U	0.36	0.28	1.8	14.8
Selenium - Total	mg/kg	3.4 U	3.7 U	3.9 U	3.8 U	8.2 U	4 U
Silver - Total	mg/kg	1.2 U	1.2 U	1.3 U	1.2 U	2.8 U	1.3 U
Cyanide - Total	mg/kg	3.2	0.5 U	0.5 U	0.5 U	9.4	0.5 U

**Table 3-6 - Subsurface Soil Samples (Continued)
Summary of Inorganic Constituent Results**

VHB Sample Designation	Units	PASB-11 (2-5)	PASB-12 (0.5-4)	PASB-14 (0.5-2)	PASB-15 (2-4)
Lab Sample Designation		A1680419	A1684709	A1684713	A1684714
Date Sampled		07/17/2001	07/18/2001	07/18/2001	07/18/2001
Arsenic - Total	mg/kg	15.8	5.3	2.6	1.2 U
Barium - Total	mg/kg	83.4	25.6	460	3.7
Cadmium - Total	mg/kg	2.4	0.71 U	0.68	0.59 U
Chromium - Total	mg/kg	19.6	3.4	5	2.4 U
Lead - Total	mg/kg	631	21.3	115	5.9 U
Mercury - Total	mg/kg	0.12 U	0.14 U	0.17	0.12 U
Selenium - Total	mg/kg	4 U	4.2 U	3.3 U	3.5 U
Silver - Total	mg/kg	1.4 U	1.4 U	1.1 U	1.2 U
Cyanide - Total	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U

mg/kg - Milligrams Per Kilogram

U - Indicates element was analyzed for, but not detected.

**Table 3-7 - Groundwater Samples
Summary of Volatile Organic Constituent Results**

VHB Sample Designation	Units	PAGP-01	PAGP-02	PAGP-03	PAGP-04	PAGP-05	PAGP-06
Lab Sample Designation		A1692302	A1692303	A1692301	A1692312	A1692304	A1692313
Date Sampled		07/19/2001	07/19/2001	07/19/2001	07/20/2001	07/19/2001	07/20/2001
Benzene	ug/L	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	ug/L	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	ug/L	5 U	5 U	5 U	5 U	5 U	5 U
Total Xylenes	ug/L	15 U	15 U	15 U	15 U	15 U	15 U
Total BTEX	ug/L	ND	ND	ND	ND	ND	ND

Total BTEX - Total Benzene, Toluene, Ethylbenzene, Xylenes

ug/L - Micrograms Per Liter

U - Indicates compound was analyzed for, but not detected.

ND - Not Detected

**Table 3-8 - Groundwater Samples
Summary of Semivolatile Organic Constituent Results**

VHB Sample Designation	Units	PAGP-01	PAGP-02	PAGP-03	PAGP-04	PAGP-05	PAGP-06
Lab Sample Designation		A1692302	A1692303	A1692301	A1692312	A1692304	A1692313
Date Sampled		07/19/2001	07/19/2001	07/19/2001	07/20/2001	07/19/2001	07/20/2001
2-Methylnaphthalene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	ug/L	10 U	10 U	4 J	10 U	10 U	10 U
Acenaphthylene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(ghi)perylene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
<i>Benzo(a)anthracene</i>	<i>ug/L</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
<i>Benzo(a)pyrene</i>	<i>ug/L</i>	<i>10 U</i>	<i>1 J</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
<i>Benzo(b)fluoranthene</i>	<i>ug/L</i>	<i>10 U</i>	<i>0.7 J</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
<i>Benzo(k)fluoranthene</i>	<i>ug/L</i>	<i>10 U</i>	<i>1 J</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
<i>Chrysene</i>	<i>ug/L</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
<i>Dibenzo(a,h)anthracene</i>	<i>ug/L</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
<i>Indeno(1,2,3-cd)pyrene</i>	<i>ug/L</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
Total CPAHs	ug/L	ND	3	ND	ND	ND	ND
Total PAHs	ug/L	ND	3	4	ND	ND	ND

Italicized compounds represent Carcinogenic Polycyclic Aromatic Hydrocarbons (CPAHs).

PAHs - Polycyclic Aromatic Hydrocarbons

ug/L - Micrograms Per Liter

U - Indicates compound was analyzed for, but not detected.

J - Indicates an estimated value.

ND - Not Detected

**Table 3-9 - Groundwater Samples
Summary of Inorganic Constituent Results**

VHB Sample Designation	Units	PAGP-01	PAGP-02	PAGP-03	PAGP-04	PAGP-05	PAGP-06
Lab Sample Designation		A1692302	A1692303	A1692301	A1692312	A1692304	A1692313
Date Sampled		07/19/2001	07/19/2001	07/19/2001	07/20/2001	07/19/2001	07/20/2001
Arsenic - Total	ug/L	7 U	12	7.4	7 U	17	7 U
Barium - Total	ug/L	32	230	270	190	7.7	120
Cadmium - Total	ug/L	1 U	1	1 U	1 U	1 U	1 U
Chromium - Total	ug/L	2 U	11	2 U	7.3	2.2	2 U
Lead - Total	ug/L	10 U	77	12	55	10 U	10 U
Mercury - Total	ug/L	0.2 U	0.2 U	0.2 U	0.34	0.2 U	0.2 U
Selenium - Total	ug/L	10 U	10 U	10 U	10 U	10 U	10 U
Silver - Total	ug/L	3 U	3 U	3 U	3 U	3 U	3 U
Cyanide - Total	ug/L	5 U	5 U	18	5 U	5 U	5 U

ug/L - Micrograms Per Liter

U - Indicates element was analyzed for, but not detected.

Table 3-10 - PAGP-07 Sample Results

VHB Sample Designation	Units	PAGP-07
Lab Sample Designation		A1685506
Date Sampled		07/18/2001
TCL Volatile Organic Constituents (Method 8260)		
1,1,1-Trichloroethane	ug/L	5 U
1,1,2,2-Tetrachloroethane	ug/L	5 U
1,1,2-Trichloroethane	ug/L	5 U
1,1-Dichloroethane	ug/L	5 U
1,1-Dichloroethene	ug/L	5 U
1,2-Dichloroethane	ug/L	5 U
1,2-Dichloroethene (Total)	ug/L	1.1 J
1,2-Dichloropropane	ug/L	5 U
2-Butanone	ug/L	10 U
2-Hexanone	ug/L	10 U
4-Methyl-2-pentanone	ug/L	10 U
Acetone	ug/L	25 U
Benzene	ug/L	5 U
Bromodichloromethane	ug/L	5 U
Bromoform	ug/L	5 U
Bromomethane	ug/L	10 U
Carbon Disulfide	ug/L	5 U
Carbon Tetrachloride	ug/L	5 U
Chlorobenzene	ug/L	5 U
Chloroethane	ug/L	10 U
Chloroform	ug/L	5 U
Chloromethane	ug/L	10 U
cis-1,3-Dichloropropene	ug/L	5 U
Dibromochloromethane	ug/L	5 U
Ethylbenzene	ug/L	5 U
Methylene chloride	ug/L	5 U
Styrene	ug/L	5 U
Tetrachloroethene	ug/L	3.1 J
Toluene	ug/L	5 U
Total Xylenes	ug/L	15 U
trans-1,3-Dichloropropene	ug/L	5 U
Trichloroethene	ug/L	2.3 J
Vinyl acetate	ug/L	10 U
Vinyl chloride	ug/L	5 U
Total VOCs	ug/L	7

Total BTEX - Total Benzene, Toluene, Ethylbenzene, Xylenes

PAHs - Polycyclic Aromatic Hydrocarbons

Italicized compounds represent Carcinogenic Polycyclic Aromatic Hydrocarbons (CPAHs).

ug/L - Micrograms Per Liter

U - Indicates compound was analyzed for, but not detected.

J - Indicates an estimated value.

ND - Not Detected

VHB Sample Designation	Units	PAGP-07
Lab Sample Designation		A1685506
Date Sampled		07/18/2001
TCL Polychlorinated Biphenyls (Method 8082)		
Aroclor 1016	ug/L	0.5 U
Aroclor 1221	ug/L	0.5 U
Aroclor 1232	ug/L	0.5 U
Aroclor 1242	ug/L	0.5 U
Aroclor 1248	ug/L	0.5 U
Aroclor 1254	ug/L	0.5 U
Aroclor 1260	ug/L	0.5 U
TCL Pesticides (Method 8081)		
4,4'-DDD	ug/L	0.05 U
4,4'-DDE	ug/L	0.05 U
4,4'-DDT	ug/L	0.05 U
Aldrin	ug/L	0.05 U
alpha-BHC	ug/L	0.05 U
beta-BHC	ug/L	0.05 U
Chlordane	ug/L	0.5 U
delta-BHC	ug/L	0.05 U
Dieldrin	ug/L	0.05 U
Endosulfan I	ug/L	0.05 U
Endosulfan II	ug/L	0.05 U
Endosulfan Sulfate	ug/L	0.05 U
Endrin	ug/L	0.05 U
Endrin aldehyde	ug/L	0.05 U
gamma-BHC (Lindane)	ug/L	0.05 U
Heptachlor	ug/L	0.05 U
Heptachlor epoxide	ug/L	0.05 U
Methoxychlor	ug/L	0.05 U
Toxaphene	ug/L	1 U
Total Metals		
Arsenic - Total	ug/L	7 U
Barium - Total	ug/L	52
Cadmium - Total	ug/L	1 U
Chromium - Total	ug/L	2 U
Lead - Total	ug/L	10 U
Mercury - Total	ug/L	0.2 U
Selenium - Total	ug/L	10 U
Silver - Total	ug/L	3 U
Cyanide - Total	ug/L	5 U

VHB Sample Designation	Units	PAGP-07
Lab Sample Designation		A1685506
Date Sampled		07/18/2001
TCL Semivolatile Organic Constituents (Method 8270)		
1,2,4-Trichlorobenzene	ug/L	10 U
1,2-Dichlorobenzene	ug/L	10 U
1,3-Dichlorobenzene	ug/L	10 U
1,4-Dichlorobenzene	ug/L	10 U
2,2'-Oxybis(1-Chloropropane)	ug/L	10 U
2,4,5-Trichlorophenol	ug/L	10 U
2,4,6-Trichlorophenol	ug/L	10 U
2,4-Dichlorophenol	ug/L	10 U
2,4-Dimethylphenol	ug/L	10 U
2,4-Dinitrophenol	ug/L	50 U
2,4-Dinitrotoluene	ug/L	10 U
2,6-Dinitrotoluene	ug/L	10 U
2-Chloronaphthalene	ug/L	10 U
2-Chlorophenol	ug/L	10 U
2-Methylnaphthalene	ug/L	10 U
2-Methylphenol	ug/L	10 U
2-Nitroaniline	ug/L	50 U
2-Nitrophenol	ug/L	10 U
3,3'-Dichlorobenzidine	ug/L	20 U
3-Nitroaniline	ug/L	50 U
4,6-Dinitro-2-methylphenol	ug/L	50 U
4-Bromophenyl phenyl ether	ug/L	10 U
4-Chloro-3-methylphenol	ug/L	10 U
4-Chloroaniline	ug/L	10 U
4-Chlorophenyl phenyl ether	ug/L	10 U
4-Methylphenol	ug/L	10 U
4-Nitroaniline	ug/L	50 U
4-Nitrophenol	ug/L	50 U
Acenaphthene	ug/L	10 U
Acenaphthylene	ug/L	10 U
Anthracene	ug/L	10 U
Benzo(ghi)perylene	ug/L	10 U
Benzoic acid	ug/L	50 U
Benzyl alcohol	ug/L	20 U
Bis(2-chloroethoxy) methane	ug/L	10 U
Bis(2-chloroethyl) ether	ug/L	10 U
Bis(2-ethylhexyl) phthalate	ug/L	10 U
Butyl benzyl phthalate	ug/L	10 U
Di-n-butyl phthalate	ug/L	10 U
Di-n-octyl phthalate	ug/L	10 U
Dibenzofuran	ug/L	10 U
Diethyl phthalate	ug/L	10 U
Dimethyl phthalate	ug/L	10 U
Fluoranthene	ug/L	10 U
Fluorene	ug/L	10 U
Hexachlorobenzene	ug/L	10 U
Hexachlorobutadiene	ug/L	10 U
Hexachlorocyclopentadiene	ug/L	10 U
Hexachloroethane	ug/L	10 U
Isophorone	ug/L	10 U
N-Nitroso-Di-n-propylamine	ug/L	10 U
N-nitrosodiphenylamine	ug/L	10 U
Naphthalene	ug/L	10 U
Nitrobenzene	ug/L	10 U
Pentachlorophenol	ug/L	50 U
Phenanthrene	ug/L	10 U
Phenol	ug/L	10 U
Pyrene	ug/L	10 U
<i>Benzo(a)anthracene</i>	ug/L	10 U
<i>Benzo(a)pyrene</i>	ug/L	10 U
<i>Benzo(b)fluoranthene</i>	ug/L	10 U
<i>Benzo(k)fluoranthene</i>	ug/L	10 U
<i>Chrysene</i>	ug/L	10 U
<i>Dibenzo(a,h)anthracene</i>	ug/L	10 U
<i>Indeno(1,2,3-cd)pyrene</i>	ug/L	10 U
Total CPAHs	ug/L	ND
Total SVOCs	ug/L	ND

**Table 3-11 - Surface Water Samples
Summary of Volatile Organic Constituent Results**

VHB Sample Designation	Units	PASW-01	PASW-02	PASW-03	PASW-04	PASW-04 D
Lab Sample Designation		A1685505	A1685504	A1685501	A1685502	A1685503
Date Sampled		07/18/2001	07/18/2001	07/18/2001	07/18/2001	07/18/2001
Benzene	ug/L	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	ug/L	5 U	5 U	5 U	5 U	5 U
Toluene	ug/L	5 U	5 U	5 U	5 U	5 U
Total Xylenes	ug/L	15 U	15 U	15 U	15 U	15 U
Total BTEX	ug/L	ND	ND	ND	ND	ND

Total BTEX - Total Benzene, Toluene, Ethylbenzene, Xylenes

ug/L - Micrograms Per Liter

U - Indicates compound was analyzed for, but not detected.

ND - Not Detected

**Table 3-12 - Surface Water Samples
Summary of Semivolatile Organic Constituent Results**

VHB Sample Designation	Units	PASW-01	PASW-02	PASW-03	PASW-04	PASW-04 D
Lab Sample Designation		A1685505	A1685504	A1685501	A1685502	A1685503
Date Sampled		07/18/2001	07/18/2001	07/18/2001	07/18/2001	07/18/2001
2-Methylnaphthalene	ug/L	10 U	10 U	10 U	10 U	10 U
Acenaphthene	ug/L	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	ug/L	10 U	10 U	10 U	10 U	10 U
Anthracene	ug/L	10 U	10 U	10 U	10 U	10 U
Benzo(ghi)perylene	ug/L	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	ug/L	10 U	10 U	10 U	10 U	10 U
Fluoranthene	ug/L	10 U	10 U	10 U	10 U	10 U
Fluorene	ug/L	10 U	10 U	10 U	10 U	10 U
Naphthalene	ug/L	10 U	10 U	10 U	10 U	10 U
Phenanthrene	ug/L	10 U	10 U	10 U	10 U	10 U
Pyrene	ug/L	10 U	10 U	10 U	10 U	10 U
<i>Benzo(a)anthracene</i>	<i>ug/L</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
<i>Benzo(a)pyrene</i>	<i>ug/L</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
<i>Benzo(b)fluoranthene</i>	<i>ug/L</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
<i>Benzo(k)fluoranthene</i>	<i>ug/L</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
<i>Chrysene</i>	<i>ug/L</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
<i>Dibenzo(a,h)anthracene</i>	<i>ug/L</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
<i>Indeno(1,2,3-cd)pyrene</i>	<i>ug/L</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>	<i>10 U</i>
Total CPAHs	ug/L	ND	ND	ND	ND	ND
Total PAHS	ug/L	ND	ND	ND	ND	ND

Italicized compounds represent Carcinogenic Polycyclic Aromatic Hydrocarbons (CPAHs).

PAHs - Polycyclic Aromatic Hydrocarbons

ug/L - Micrograms Per Liter

U - Indicates compound was analyzed for, but not detected.

ND - Not Detected

**Table 3-13 - Surface Water Samples
Summary of Inorganic Constituent Results**

VHB Sample Designation	Units	PASW-01	PASW-02	PASW-03	PASW-04	PASW-04 D
Lab Sample Designation		A1685505	A1685504	A1685501	A1685502	A1685503
Date Sampled		07/18/2001	07/18/2001	07/18/2001	07/18/2001	07/18/2001
Arsenic - Total	ug/L	7 U	7 U	7 U	11	7 U
Barium - Total	ug/L	24	24	24	190	100
Cadmium - Total	ug/L	1 U	1 U	1 U	13	4.8
Chromium - Total	ug/L	2 U	2 U	2 U	16	6.3
Lead - Total	ug/L	10 U	10 U	10 U	350	150
Mercury - Total	ug/L	0.2 U	0.2 U	0.2 U	1.4	0.67
Selenium - Total	ug/L	10 U	10 U	10 U	15	10 U
Silver - Total	ug/L	3 U	3 U	3 U	3 U	3 U
Cyanide - Total	ug/L	5 U	5 U	5 U	5 U	5 U

ug/L - Micrograms Per Liter

U - Indicates element was analyzed for, but not detected.

**Table 3-14 - Sediment Samples
Summary of Volatile Organic Constituent Results**

VHB Sample Designation	Units	PASD-01	PASD-02	PASD-03	PASD-04	PASD-04 D
Lab Sample Designation		A1684716	A1684715	A1684710	A1684711	A1684712
Date Sampled		07/18/2001	07/18/2001	07/18/2001	07/18/2001	07/18/2001
Benzene	mg/kg	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Ethylbenzene	mg/kg	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Toluene	mg/kg	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Total Xylenes	mg/kg	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Total BTEX	mg/kg	ND	ND	ND	ND	ND

Total BTEX - Total Benzene, Toluene, Ethylbenzene, Xylenes

mg/kg - Milligrams Per Kilogram

U - Indicates compound was analyzed for, but not detected.

ND - Not Detected

**Table 3-15 - Sediment Samples
Summary of Semivolatile Organic Constituent Results**

VHB Sample Designation	Units	PASD-01	PASD-02	PASD-03	PASD-04	PASD-04 D
Lab Sample Designation		A1684716	A1684715	A1684710	A1684711	A1684712
Date Sampled		07/18/2001	07/18/2001	07/18/2001	07/18/2001	07/18/2001
2-Methylnaphthalene	mg/kg	0.33 U	0.33 U	0.36 U	0.33 U	0.33 U
Acenaphthene	mg/kg	0.11 J	0.18 J	0.36 U	0.33 U	0.33 U
Acenaphthylene	mg/kg	0.33 U	0.33 U	0.36 U	0.33 U	0.33 U
Anthracene	mg/kg	0.4	0.14 J	0.27 J	0.33 U	0.33 U
Benzo(ghi)perylene	mg/kg	0.76	0.94	1.5	0.33 U	0.33 U
Dibenzofuran	mg/kg	0.53	0.77	1.4	0.33 U	0.33 U
Fluoranthene	mg/kg	0.55	1.3	2.9	0.33 U	0.33 U
Fluorene	mg/kg	0.15 J	0.27 J	0.65	0.33 U	0.33 U
Naphthalene	mg/kg	0.35	0.33 U	0.36 U	0.33 U	0.33 U
Phenanthrene	mg/kg	0.9	1.1	2.3	0.33 U	0.33 U
Pyrene	mg/kg	0.33 U	0.33 U	0.23 J	0.33 U	0.33 U
<i>Benzo(a)anthracene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.36 U</i>	<i>0.33 U</i>	<i>0.33 U</i>
<i>Benzo(a)pyrene</i>	<i>mg/kg</i>	<i>1.7</i>	<i>1.8</i>	<i>4.2</i>	<i>0.33 U</i>	<i>0.052 J</i>
<i>Benzo(b)fluoranthene</i>	<i>mg/kg</i>	<i>0.16 J</i>	<i>0.33 U</i>	<i>0.36 U</i>	<i>0.33 U</i>	<i>0.33 U</i>
<i>Benzo(k)fluoranthene</i>	<i>mg/kg</i>	<i>0.15 J</i>	<i>0.26 J</i>	<i>0.73</i>	<i>0.33 U</i>	<i>0.33 U</i>
<i>Chrysene</i>	<i>mg/kg</i>	<i>0.33 U</i>	<i>0.33 U</i>	<i>0.36 U</i>	<i>0.33 U</i>	<i>0.33 U</i>
<i>Dibenzo(a,h)anthracene</i>	<i>mg/kg</i>	<i>2</i>	<i>0.85</i>	<i>2.2</i>	<i>0.33 U</i>	<i>0.33 U</i>
<i>Indeno(1,2,3-cd)pyrene</i>	<i>mg/kg</i>	<i>1.5</i>	<i>1.7</i>	<i>3.3</i>	<i>0.33 U</i>	<i>0.038 J</i>
Total CPAHs	mg/kg	5.51	4.61	10.43	ND	0.09
Total PAHs	mg/kg	9.26	9.31	19.68	ND	0.09

Italicized compounds represent Carcinogenic Polycyclic Aromatic Hydrocarbons (CPAHs).

PAHs - Polycyclic Aromatic Hydrocarbons

mg/kg - Milligrams Per Kilogram

U - Indicates compound was analyzed for, but not detected.

J - Indicates an estimated value.

ND - Not Detected

**Table 3-16 - Sediment Samples
Summary of Inorganic Constituent Results**

VHB Sample Designation	Units	PASD-01	PASD-02	PASD-03	PASD-04	PASD-04 D
Lab Sample Designation		A1684716	A1684715	A1684710	A1684711	A1684712
Date Sampled		07/18/2001	07/18/2001	07/18/2001	07/18/2001	07/18/2001
Arsenic - Total	mg/kg	6.8	5.7	3.9	2.1 U	2.2 U
Barium - Total	mg/kg	18.6	60.2	13.5	13	7.1
Cadmium - Total	mg/kg	0.64 U	0.86 U	0.7 U	1 U	1.1 U
Chromium - Total	mg/kg	4.8	9.9	7.6	4.2 U	4.4 U
Lead - Total	mg/kg	30.6	87.2	49.8	56.7	34.4
Mercury - Total	mg/kg	0.13 U	0.17 U	0.12 U	0.21 U	0.19 U
Selenium - Total	mg/kg	3.8 U	5.1 U	4.2 U	6.3 U	6.6 U
Silver - Total	mg/kg	1.3 U	1.7 U	1.4 U	2.1 U	2.2 U
Cyanide - Total	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

mg/kg - Milligrams Per Kilogram

U - Indicates element was analyzed for, but not detected.

**Table 3-17 - Test Trench Samples
Summary of Volatile Organic Constituent Results**

VHB Sample Designation	Units	A'+16'E DL	A'+56'E	B+05'S	C+30'S	C' to C'+10'N	C'+27' to C'+40'N	C'+70' to C'+80'N
Lab Sample Designation		A1692311DL	A1692310	A1692309	A1692308DL	A1692305	A1692306	A1692307
Date Sampled		07/19/2001	07/19/2001	07/19/2001	07/19/2001	07/19/2001	07/19/2001	07/19/2001
Benzene	mg/kg	0.025 D	0.001 J	0.005 U	0.017 D	0.001 J	0.001 J	0.002 J
Ethylbenzene	mg/kg	1.2 D	0.005 U	0.002 J	0.71 D	0.005 U	0.005 U	0.005 U
Toluene	mg/kg	0.022 D	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	0.005 U
Total Xylenes	mg/kg	0.064 D	0.012 J	0.015 U	0.6 D	0.015 U	0.015 U	0.015 U
Total BTEX	mg/kg	1.311	0.013	0.002	1.327	0.001	0.001	0.002

Total BTEX - Total Benzene, Toluene, Ethylbenzene, Xylenes

mg/kg - Milligrams Per Kilogram

U - Indicates compound was analyzed for, but not detected.

J - Indicates an estimated value.

D - Compounds identified in an analysis at a secondary dilution factor.

**Table 3-18 - Test Trench Samples
Summary of Semivolatile Organic Constituent Results**

VHB Sample Designation	Units	A'+16'E	A'+56'E	B+05'S	C+30'S	C' to C'+10'N	C'+27' to C'+40'N	C'+70' to C'+80'N
Lab Sample Designation		A1692311	A1692310	A1692309	A1692308	A1692305	A1692306	A1692307
Date Sampled		07/19/2001	07/19/2001	07/19/2001	07/19/2001	07/19/2001	07/19/2001	07/19/2001
2-Methylnaphthalene	mg/kg	0.82 J	0.72 U	0.38 U	4.7	0.44 U	0.4 U	0.42 U
Acenaphthene	mg/kg	8	0.57 J	0.38 U	11	0.56	0.4 U	0.74
Acenaphthylene	mg/kg	14	0.72 U	0.67	4.4	1.5	0.34 J	1.4
Anthracene	mg/kg	24	0.47 J	0.26 J	7.2	1.7	0.94	1.5
Benzo(ghi)perylene	mg/kg	17	0.72 U	1.2	5.6	3.1	1.1	4.8
Dibenzofuran	mg/kg	0.66 J	0.72 U	0.38 U	1.2	0.44 U	0.4 U	0.42 U
Fluoranthene	mg/kg	68	0.89 J	2.4	8.6	9.8	5.5	9.8
Fluorene	mg/kg	12	0.58 J	0.56 U	9.8	1	0.22 J	0.6 J
Naphthalene	mg/kg	1.7	0.72 U	0.38 U	18	0.3 J	0.4 U	0.62
Phenanthrene	mg/kg	56	1.2	0.72	35	7.6	3.5	5.1
Pyrene	mg/kg	110	2.9	3.4	24	13	6.9	15
<i>Benzo(a)anthracene</i>	<i>mg/kg</i>	<i>58</i>	<i>0.7 J</i>	<i>1.7</i>	<i>8.2</i>	<i>6.6</i>	<i>3.2</i>	<i>10</i>
<i>Benzo(a)pyrene</i>	<i>mg/kg</i>	<i>42</i>	<i>0.52 J</i>	<i>1.7</i>	<i>20</i>	<i>6.8</i>	<i>2.6</i>	<i>8</i>
<i>Benzo(b)fluoranthene</i>	<i>mg/kg</i>	<i>50</i>	<i>0.69 J</i>	<i>4.2</i>	<i>15</i>	<i>6.6</i>	<i>2.1</i>	<i>10</i>
<i>Benzo(k)fluoranthene</i>	<i>mg/kg</i>	<i>66</i>	<i>0.72 U</i>	<i>0.38 U</i>	<i>12</i>	<i>4.9</i>	<i>3</i>	<i>7.9</i>
<i>Chrysene</i>	<i>mg/kg</i>	<i>63</i>	<i>0.98</i>	<i>2.6</i>	<i>11</i>	<i>8.4</i>	<i>3.8</i>	<i>14</i>
<i>Dibenzo(a,h)anthracene</i>	<i>mg/kg</i>	<i>6.9</i>	<i>0.72 U</i>	<i>0.26 J</i>	<i>2.2</i>	<i>1.1</i>	<i>0.3 J</i>	<i>1.5</i>
<i>Indeno(1,2,3-cd)pyrene</i>	<i>mg/kg</i>	<i>16</i>	<i>1.4 U</i>	<i>1</i>	<i>5</i>	<i>2.6</i>	<i>1</i>	<i>3.7</i>
Total CPAHs	mg/kg	301.9	2.89	11.46	73.4	37	16	55.1
Total PAHs	mg/kg	614.08	9.5	20.11	202.9	75.56	34.5	94.66

Italicized compounds represent Carcinogenic Polycyclic Aromatic Hydrocarbons (CPAHs).

PAHs - Polycyclic Aromatic Hydrocarbons

mg/kg - Milligrams Per Kilogram

U - Indicates compound was analyzed for, but not detected.

J - Indicates an estimated value.

**Table 3-19 - Test Trench Samples
Summary of Inorganic Constituent Results**

VHB Sample Designation	Units	A'+16'E	A'+56'E	B+05'S	C+30'S	C' to C'+10'N	C'+27' to C'+40'N	C'+70' to C'+80'N
Lab Sample Designation		A1692311	A1692310	A1692309	A1692308	A1692305	A1692306	A1692307
Date Sampled		07/19/2001	07/19/2001	07/19/2001	07/19/2001	07/19/2001	07/19/2001	07/19/2001
Arsenic - Total	mg/kg	18.9	1.2	15.2	1.2 U	13.3	17.6	40.2
Barium - Total	mg/kg	18.4	7.3	21	7	327	311	248
Cadmium - Total	mg/kg	0.63 U	0.57 U	0.81	0.62 U	1.2	2	0.94
Chromium - Total	mg/kg	2.5 U	2.4	7.2	2.8	7.7	7.4	9.1
Lead - Total	mg/kg	127	25.8	39.8	62.3	168	119	204
Mercury - Total	mg/kg	0.29	0.11 U	3.4	0.59	0.14 U	0.58	0.56
Selenium - Total	mg/kg	3.8 U	3.4 U	3.4 U	3.7 U	4 U	3.7 U	3.8 U
Silver - Total	mg/kg	1.3 U	1.1 U	1.1 U	1.2 U	1.3 U	1.2 U	1.3 U
Cyanide - Total	mg/kg	3.6	0.5 U	15	0.58	0.5 U	0.5 U	24.9

mg/kg - Milligrams Per Kilogram

U - Indicates element was analyzed for, but not detected.