

## **Second Five-Year Review Report**

### **Pasley Solvents and Chemicals Site**

**Town of Hempstead  
Nassau County, New York**

**Prepared by  
U.S. Environmental Protection Agency**

**July 2009**



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## **List of Acronyms**

AOC	Administrative Order on Consent
AS	Air sparging
AS/SVE	Air sparging/soil vapor extraction
BGS	Below ground surface
CIC	Community Involvement Coordinator
CRA	Conestoga – Rovers & Associates
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
GAC	Granulated Activated Carbon
IC	Institutional Controls
MCL	Maximum Contaminant Level
MTA	Metropolitan Transportation Authority
MW	Monitoring Well
NCDOH	Nassau County Department of Health
NPL	National Priority List
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O & M	Operation and Maintenance
O & M Manual	Operation, Maintenance and Monitoring Manual
OSWER	Office of Solid Waste and Emergency Response
PCE	Tetrachloroethylene
PLC	Programmable Logic Controller
ppb	Parts per billion
PRG	Preliminary Remediation Goal
PRM	Post-Remediation Monitoring
PRPs	Potentially Responsible Parties
PVC	Polyvinyl chloride
RA	Remedial Action
RD	Remedial Design
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RPM	Remedial Project Manager
ROD	Record of Decision
SIC	Site Index Compound
SVE	Soil vapor extraction
TCE	Trichloroethylene
VOC	Volatile Organic Compound

## ***Executive Summary***

This is the second five-year review for the Pasley Solvents and Chemicals Superfund site (Site), located in the Town of Hempstead, Nassau County, New York. The remedy for the Site included treatment of soils and groundwater contaminated with volatile organic compounds (VOCs) by means of air sparging (AS)/soil vapor extraction (SVE). The Site achieved construction completion with the signing of the Preliminary Close-Out Report on September 30, 1999. The trigger for this five-year review is the date of the previous five-year review report, signed on August 5, 2004.

The assessment of this five-year review found that the remedy was constructed in accordance with the requirements of the Record of Decision (ROD) and the ROD Amendment. The immediate threats have been addressed and the remedy was found to be protective of human health and the environment in the short term.



## Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name (from WasteLAN): Pasley Solvents and Chemicals Site		
EPA ID (from WasteLAN): NYD991292004		
Region: 2	State: NY	City/County: Garden City/Nassau
SITE STATUS		
NPL status: <input checked="" type="checkbox"/> Final <input type="checkbox"/> Deleted <input type="checkbox"/> Other (specify)		
Remediation status (choose all that apply): <input type="checkbox"/> Under Construction <input checked="" type="checkbox"/> Constructed <input type="checkbox"/> Operating		
Multiple OUs?* <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Construction completion date: September 1999
Are portions of this site in use or suitable for reuse? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A		
REVIEW STATUS		
Lead agency: <input checked="" type="checkbox"/> EPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency		
Author name: Sherrel D. Henry		
Author title: Remedial Project Manager	Author affiliation: EPA	
Review period:**08/2004 to 06/2009		
Date(s) of site inspection April 28, 2009		
Type of review: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span><input checked="" type="checkbox"/> Post-SARA <input type="checkbox"/> Pre-SARA</span> <span><input type="checkbox"/> NPL-Removal only</span> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span><input type="checkbox"/> Non-NPL Remedial Action Site</span> <span><input type="checkbox"/> NPL State/Tribe-lead</span> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span><input type="checkbox"/> Regional Discretion</span> <span><input type="checkbox"/> Statutory</span> </div>		
Review number: <input type="checkbox"/> 1 (first) <input checked="" type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify)		
Triggering action: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span><input type="checkbox"/> Actual RA On-Site Construction at OU #1</span> <span><input type="checkbox"/> Actual RA Start at OU# _____</span> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span><input type="checkbox"/> Construction Completion</span> <span><input checked="" type="checkbox"/> Previous Five-Year Review Report</span> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span><input type="checkbox"/> Other (specify)</span> </div>		
Triggering action date (from WasteLAN): 08/05/2004		
Does the report include recommendation(s) and follow-up action(s)? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no Is human exposure under control? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not yet determined Is contaminated groundwater under control? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not yet determined Is the remedy protective of the environment? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not yet determined Acres in use or suitable for reuse: 1 acre <input type="checkbox"/> restricted <input checked="" type="checkbox"/> unrestricted		

\*\* [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

**Issue(s), Recommendations and Follow-Up Actions**

The ROD and ROD Amendment were intended to remediate the soil so that the Site property, which does not currently have permanent structures present, could be used without restriction. Therefore, no institutional controls (ICs) were required for the Site in the ROD or the ROD Amendment. In January 2006, ten soil vapor samples were taken by EPA's contractor to assess potential vapor intrusion from the subsurface if a building were constructed at the Site in the future. Three of the ten samples had elevated levels of vapors suggesting that a potential vapor intrusion problem may exist in the future, if a building were constructed. A cost-effective approach for addressing this issue would be the implementation of vapor mitigation measures at the time of building construction. Alternatively, the property owner may perform sampling to demonstrate a mitigation system is not needed. To document the need to address potential vapor intrusion at the Site, EPA expects to issue an Explanation of Significant Differences.

EPA will meet with the current owner of the Site to discuss the need in the future for potential vapor mitigation measures or sampling to assess vapor intrusion at the Site if construction is intended. EPA will send a copy of the second Five-Year Review Report for the Site and an explanatory letter about potential vapor intrusion to the Building Department for the Town of Hempstead and confirm that the Building Department will place a "red flag" on the Site property in its computer system. EPA had sought the cooperation of the Building Department which has agreed to "red flag" the property in its computer system. The "red flag" would provide notice of a potential vapor intrusion problem to anyone seeking a construction permit and provide notice to EPA that a permit is being sought to erect a building on the Site. This action by the Building Department would ensure that before a building permit is granted, the owner would either have to agree to install a mitigation system or demonstrate through sampling that a mitigation system is not needed. EPA will evaluate the proposed mitigation system or sampling results supporting the contention that a mitigation system is not needed. After its review, EPA will send a letter to the party seeking the permit and to the Building Department either accepting the proposed mitigation system or concluding that no mitigation system is needed based on the sampling results.

**Protectiveness Statement**

The remedy implemented for the Site is protective of human health and the environment in the short term. Treatment of VOC-contaminated soils and ground water by AS/SVE addressed the threat posed by the Site. There is currently no unacceptable risk posed by the potential for vapor intrusion at the Site. However, elevated levels of vapors which were detected suggest that a potential vapor intrusion problem may exist in the future, if a building were constructed at the Site.

The remedy will be protective in the long term once restrictions are placed on the Site by the Town of Hempstead Building Department.



## **I. Introduction**

This five-year review was conducted pursuant to Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §9601 *et seq.* and 40 CFR 300.430(f)(4)(ii) and in accordance with the Comprehensive Five-Year Review Guidance, Office of Solid Waste and Emergency Response (OSWER) Directive 9355.7-03B-P (June 2001). The purpose of a five-year review is to ensure that implemented remedies are protective of public health and the environment and that they function as intended by the decision documents. This document will become part of the Site file.

This is the second five-year review for the Pasley Solvents and Chemicals Site (Site or Pasley Site). Following the completion of construction of the Site remedy on September 30, 1999, the first five-year review was completed and the associated report issued by the U. S. Environmental Protection Agency (EPA) on August 5, 2004.

At the conclusion of the first five-year review, it was determined that remediation was complete and that no further five-year reviews were necessary. However, based on the results of soil gas samples taken at the Site, and the potential for vapor intrusion from the subsurface if a building were constructed there in the future, it was determined that a second five-year review was appropriate. In accordance with the Section 1.3.3 of the five-year review guidance (OSWER Directive 9355.7-03B-P, June 2001), subsequent five-year reviews are triggered by the signature date of the previous five-year review report. The trigger for this five-year review is the date of the previous five-year review report, signed on August 5, 2004.

## **II. Site Chronology**

Table 1, attached, summarizes site-related events from discovery to present.

## **III. Background**

### *Site Location*

The Pasley Site is located in the Town of Hempstead in Nassau County, New York.

### *Physical Characteristics*

The Site property measures 75 feet by 275 feet with a fenced boundary on the north, east and south sides and is located at 565 Commercial Avenue, Town of Hempstead, Nassau County, New York. The Site lies between the borders of the political subdivisions of the Village of Garden City and Uniondale, in the Town of Hempstead (see Figure 1). A building and loading platform form the western boundary of the Site at the adjacent property.

### *Geology/Hydrogeology*

There are two distinct geological/hydrological formations in the Pasley Site study area, the Upper Glacial aquifer and the Magothy aquifer. The unconsolidated sand and gravel sediments encountered to a depth of 60 feet belong to the Upper Pleistocene undifferentiated glacial outwash deposits or Upper Glacial aquifer. The Magothy formation consists of fine sand often containing thin, discontinuous layers of silt and clay. The thickness of the Magothy aquifer is estimated at 400 to 500 feet in the Pasley Site study area. The Upper Glacial aquifer overlies the Magothy aquifer and the two may act as distinct aquifers, or as one aquifer, depending upon the degree of hydraulic connection between the two. The ground water in these aquifers flows in a southwesterly to south southwesterly direction depending upon depth.

#### *Land and Resource Use*

The immediate area has light industrial and commercial properties; residential communities are located within 1/4 mile of the Site. The predominant land use in the vicinity is industrial. It is estimated that 75 homes are located within a 1/4 mile radius of the Site and 1,800 homes are within one mile. Drinking water within the Town of Hempstead is provided by the Town of Hempstead municipal water supply. The only source of drinking water for residences in the Town is ground water. All public water supply wells in the Site area draw water from the deeper aquifer, the Magothy aquifer. Four public water supply wells that serve the residents near the Site are located within approximately two miles and are not impacted by the Site.

#### *History of Contamination*

From 1969 until 1982, the Site was occupied by the Pasley Solvents and Chemicals Company (Pasley) and was used as a chemical distribution facility. Activities at the Site included delivery and storage of chemicals in tanks on-site, and transfer of the chemicals to 55-gallon drums for delivery to customers. Used chemicals and empty drums were reportedly returned to the Site by some customers. These chemicals included a wide range of aromatics and halogenated aliphatic hydrocarbons, solvents, ketones and alcohols. The Site was owned by Commander Oil Corporation (Commander). Prior to 1969, the Site was occupied by Commander for distribution of fuel oils.

In 1980, Pasley applied for a New York State Department of Environmental Conservation (NYSDEC) permit to store and remove chemicals. The Nassau County Department of Health (NCDOH) collected soil samples from the Site. Analyses of the samples indicated that the soils were contaminated with VOCs.

The Site was purchased from Commander by Plato Holdings LLC in August 2003. Plato Holdings subsequently sold the Site to Yonah Reality in March 2007.



### *Initial Response*

In 1980, NCDOH referred the Site to NYSDEC and both agencies recommended that Pasley submit a plan for a remedial investigation and cleanup. In 1981, Lakeland Engineering performed a limited well drilling and ground-water sampling program. Five on-property and one off-property monitoring ground-water wells were installed and ground-water samples were collected by Lakeland and the New York State Department of Health (NYSDOH). Contaminants were detected above State drinking water standards. Based on the results of this investigation, the Site was placed on the National Priorities List (NPL) in June 1986.

### *Basis for Taking Action*

In 1988, a Remedial Investigation and Feasibility Study (RI/FS) was initiated to determine the nature and extent of site contamination and to evaluate alternatives for the mitigation of unacceptable risks associated with the soil and ground-water contamination. The analytical data generated during the Remedial Investigation (RI) showed extensive and significant organic and inorganic soil and ground-water contamination on-site. In addition, EPA performed a risk assessment that determined that actual or threatened releases of hazardous substances from the Site, if not addressed, could present an unacceptable threat to public health, welfare, or the environment.

The risk assessment evaluated the following exposure pathways: direct contact and incidental ingestion of chemicals present in surface soils; ingestion of chemicals present in ground water; ingestion and inhalation during home use of chemicals present in ground water; and inhalation of chemicals that have volatilized from surface soils. Potentially exposed populations in all cases were the residents surrounding the Site and future Site workers. The risk assessment found that the non-cancer hazards exceeded EPA's goal of protection (Hazard Index = 1.0) from ingestion of on-site Upper Glacial aquifer water by on-site workers under a future scenario. The non-cancer HI was primarily due to chromium and trichloroethylene (TCE). The cancer risk at the Site for future on-site occupants was  $4 \times 10^{-4}$  based on ingestion of untreated ground water from the Upper Glacial aquifer in the vicinity of the Site. The total cancer risk for the child was  $9 \times 10^{-4}$  from ingestion of contaminated ground water from the Upper Glacial aquifer where TCE and chromium contributed significantly to the calculated risks. Cancer risks and non-cancer health hazards from direct contact with soil under future scenarios were within the risk range for soil contaminants; however, as noted in the ROD, if this contamination was not addressed, the contaminated soil would continue to contribute to further contamination of the ground water at the Site.

### *Enforcement Activities*

The performance of the RI/FS by Commander was accomplished through an Administrative Order on Consent (AOC), issued by EPA on August 19, 1988. EPA issued a ROD in April 1992, which selected remediation of the ground water by extraction, treatment and recharge of the treated ground water into the aquifer. Soil vapor extraction (SVE) was selected to treat contaminated soils. After the ROD was issued, notice letters and a draft Consent Decree were sent to Commander and Pasley for implementation of the remedy selected in the ROD. These parties declined to perform the selected remedial action. EPA then



obligated Superfund monies for performance of the Remedial Design which was conducted by Ebasco Services Inc., an EPA contractor, with EPA oversight.

Subsequently, Commander notified EPA that it believed that air sparging would be an effective means of remediating the ground water at approximately half the cost of the selected remedy. EPA evaluated all available information on the air sparging technology and gave approval for Commander to submit a work plan to conduct a pilot study to evaluate the effectiveness of air sparging at the Site. The results of the pilot study, which were documented in the Air Sparging/Soil Vapor Extraction (AS/SVE) Pilot Test Study Report, demonstrated that air sparging would be an effective means of remediating the ground water at the Site.

A ROD Amendment was subsequently issued in May 1995 which identified the remedial actions that would be undertaken to mitigate risks to human health and the environment as a result of Site contamination. The major difference between the ROD and the ROD Amendment was the method selected to remediate the ground water. The 1995 ROD Amendment selected remediation of the ground water by air sparging. An agreement was reached with Commander to perform the actions identified in the ROD Amendment with EPA oversight. It was memorialized in a Consent Decree for RD/RA entered by the District Court for the Eastern District of New York on January 26, 1996. The components of the ROD Amendment are summarized below.

## **IV. Remedial Actions**

### *Remedy Selection*

Based on the findings of the RI/FS, EPA signed a ROD in April 1992, which selected remediation of the ground water by extraction, treatment and recharge of the treated ground water into the aquifer. SVE was selected to treat contaminated soils. A ROD Amendment was subsequently issued in May 1995, selecting the following remedy:

- Remediation of the ground water by AS in the contaminated saturated zone underlying the property;
- Remediation of the on-property unsaturated zone soils and collection of AS vapors by SVE;
- Interception and remediation of the off-property ground-water plume by AS accompanied by SVE in the area of Cluster Park, a local park located near the facility;
- Implementation of a long-term ground-water monitoring program to track the migration and concentrations of the contaminants of concern; and
- Implementation of a remediation system monitoring program that would include vapor monitoring, ground-water monitoring and soil sampling.



## *Remedy Implementation*

In the Consent Decree, Commander agreed to perform the RD/RA selected in the ROD Amendment and pay past costs for cleaning up the Site. The Final Design Report was approved by EPA in April 1997. Conestoga - Rovers & Associates (CRA) (formerly known as TreaTek-CRA Company) was selected by Commander to design, construct, and operate the remedial system.

Following approval of the Remedial Action Work Plan on June 10, 1997, construction of the remedy started on June 26, 1997 and was completed on October 21, 1997.

The remediation system consisted of two SVE/AS systems: one on the Site property, and one off the Site property in Cluster Park. The system worked by introducing air into the aquifer to volatilize organic compounds and capture the organic vapors. The vapors from the on-property system were treated with granular activated carbon (GAC), prior to discharge. Rotary-vane AS compressors and rotary-lobe SVE blowers, housed in the on-property treatment building, were used to "push" and "pull" the air and soil vapor from both systems.

Under normal conditions, the on-property and off-property SVE/AS systems were automated and did not require continuous attention. The SVE and AS wells (except the off-property SVE wells) were connected to headers with automatic valves. Under normal operating conditions, the headers would operate alternately between idle and active service. Timers, programmed into the programmable logic controller (PLC), activated the automatic valves in a pre-determined sequence to pulse the wells. The PLC had auto-dial capability to notify the operator of a malfunction. In the event of a system malfunction, the PLC would fax an alarm report to the operator at the CRA Services office and/or at the contractor's home and appropriate action would be taken.

Major components of the constructed remedy include:

### *On-property*

- 19 AS wells, 2-inch polyvinyl chloride (PVC), screened 50-52-feet below ground surface (bgs)
- Eight shallow SVE wells, 2-inch PVC, screened 5-10 feet bgs
- Eight deep SVE wells, 4-inch PVC, screened 15-20 feet bgs
- Five monitoring well clusters
- Buried piping to each AS/SVE well
- 24 x 24-ft treatment building
- AS and SVE blowers, piping and controls
- GAC vapor treatment system
- Condensate collection and GAC treatment system
- Re-infiltration gallery
- Off-property AS and SVE blowers, piping, controls

### *Off-property*

- 15 AS wells, 2-inch PVC, screened 50-52 feet bgs
- Five SVE wells, 2-inch PVC, screened 15-20 feet bgs
- Six monitoring well clusters
- Buried piping to each AS/SVE well
- Buried distribution vault and controls

### *System Operation and Maintenance*

The Operation, Maintenance and Monitoring Manual (O&M Manual) was approved by EPA in November 1997. In accordance with the Consent Decree and the O&M Manual, the O&M period was to be performed for a minimum of five years to be followed by a Post-Remediation Monitoring period. O&M activities were initiated in November 1997.

There are four on-site ground-water monitoring wells that were monitored over the five-year period. A total of 19 rounds of ground-water samples were taken during that period. Samples were analyzed for the Site Index Compounds (SICs). The SICs are 1, 1-Dichloroethene, 1, 1-Dichloroethane, trans-1,2-Dichloroethene, Chloroform, 1,1,1-Trichloroethane, Toluene, Chlorobenzene, Ethylbenzene, and Xylenes. After the first two years of treatment, three of the ground-water monitoring wells had SIC concentrations that were reduced to nondetectable levels. The fourth well, MW-2S, located in the southwestern corner of the Site, required five years of treatment and implementation of contingency measures before the SICs (specifically xylene) were reduced below the cleanup levels. Contingency measures included shutting off the east side air sparging wells and diverting air to the area around, MW-2S. In addition, inorganic nutrients in the form of a commercial garden fertilizer (Miracid 30:10:10) were added to the west side well in an attempt to accelerate biological activity for further chemical reduction, and two more AS wells were installed in the area.

The SVE/AS system was shut down in October 2002 to test for any rebound of contamination in the ground water. Two additional rounds of samples were collected which showed no rebound of SICs in the Site ground water.

Seven off-site wells, located approximately 400 feet down gradient, were monitored over the same period. Four of these wells were placed upgradient of the SVE/AS off-site sparge curtain with the other three wells located downgradient of the sparge curtain. In the four upgradient wells, the levels of SICs were elevated during the first three years of O & M. These elevated SIC levels were reduced once contaminant levels on-site were reduced by the on-site treatment efforts. The three wells located downgradient of the sparge curtain did not detect SICs in 18 out of the 19 rounds of monitoring over the five-year period.

On-site soil validation sampling was done in two phases. The first phase was conducted in July 2000 to assess remedial progress. A total of 12 soil borings were advanced and tested for SICs. The results showed that, with the exception of an area near MW-2S, all soil samples met the cleanup values. The second phase of the soil sampling was conducted in April 2003. This effort was a targeted sampling effort



focusing on the area near MW-2S. The results showed SICs below the cleanup target, which was consistent with the monitoring results for the ground water in MW-2S.

The Notice of Completion and Final O&M Report were submitted by Commander in 2003. The report indicated that SICs met the cleanup standards as specified in ROD and ROD Amendment. Accordingly, EPA determined that the O&M was complete, and the Site could progress to the Post-Remediation Monitoring (PRM) phase. EPA authorized Commander to demobilize and remove all treatment equipment from the Site. A PRM Plan was submitted and was approved by EPA in January 2004. During the PRM phase, sampling was conducted semiannually for two years from 2004 to 2006. A total of four ground-water monitoring wells were sampled, one on-site and three downgradient. At the end of the two-year period, sampling results indicated that no further semiannual groundwater sampling would be necessary because the results of all samples collected indicated that all SIC compounds were below Site cleanup criteria.

## **V. Progress Since Last Five-Year Review**

The first five-year review was completed on August 5, 2004, pursuant to OSWER Directive 9355.7-03B-P. That review, conducted after the RA had been completed and O&M, and monitoring activities had commenced, determined that the RA as designed and constructed pursuant to the ROD and ROD Amendment, was performing satisfactorily and that the remedy implemented was protective of human health and the environment.

As EPA was preparing to delist the Site from the NPL (currently planned for 2010), questions arose concerning the adequacy of the data set that was being used for that decision, specifically, the newly identified inquiry into the soil vapor intrusion pathway. Since there was no building on the Site during remedial activities, the only structure being an office trailer on concrete blocks, the vapor intrusion pathway had not been considered. In response to this concern, EPA's contractor collected ten soil gas samples from beneath the asphalt parking lot on January 9 and 12, 2006. EPA Region 2 soil vapor sampling events typically sample sub-slabs or indoor air. However, that was not possible as the office trailer does not have a basement or slab. Therefore, sub-slab sampling could not be performed.

A preliminary evaluation of the soil gas data collected at the Site in 2006 identified trichloroethene (TCE) and tetrachloroethene (PCE) at concentrations of potential concern at three of the ten sampling locations on the Site. While this information is not predictive of a future indoor air problem, it was determined that in the future, if a building is constructed at the Site, an evaluation of potential vapor intrusion would need to be performed to demonstrate that vapor intrusion would not be a concern; alternatively the property owner could install vapor mitigation system at the time of construction.

Aside from the two-year PRM period, the 2004 five-year review did not identify specific recommendations or follow-up actions. Similarly, based on the monitoring activities and data collection since the last five-year review, there has been no change in Site conditions or the protectiveness of the remedy.

## **VI. Five-Year Review Process**

### *Administrative Components*

The five-year review team consisted of Sherrel Henry (Remedial Project Manager (RPM)), Kevin Lynch (Western New York Remediation Section Chief), Marian Olsen (Human Health Risk Assessor), Robert Alvey (Geologist), and Cecilia Echols (Community Involvement Coordinator or CIC) for EPA.

### *Community Involvement*

The EPA CIC for the Site, Cecilia Echols, published a notice in *Anton News* (*Three Village Times* and the *Floral Park Dispatch*), a local newspaper, on March 19, 2009, notifying the community of the initiation of the five-year review process. The notice indicated that EPA would be conducting a five-year review of the remedy for the Site to ensure that the implemented remedy remains protective of human health and the environment and is functioning as designed. The notice also indicated that after the five-year review process was completed, the Five-Year Review Report would be made available in the local Site repository. The notice, which includes the RPM's mailing address, email address, and telephone number, requests public comments or questions related to the five-year review process or to the Site.

### *Document Review*

The following documents, data, and information were reviewed in completing the five-year review:

- Record of Decision, EPA, April 24, 1992;
- Record of Decision Amendment, EPA, May 22, 1995;
- Consent Decree, Docket No. CV-95-4489, entered in U.S. District Court for the Eastern District of New York on January 26, 1996;
- Superfund Preliminary Close-Out Report, Pasley Site, September 1999;
- EPA Comprehensive Five-Year Review Guidance, June 2001;
- Notice of Completion Final O&M Report, August 2003;
- The Post-Remediation Monitoring Plan, January 15, 2004;
- Semiannual Ground-Water Sampling Summary Report July 2004;
- Semiannual Ground-Water Sampling Summary Report February 2005;
- Semiannual Ground-Water Sampling Summary Report July/August 2005;
- Soil Gas Sampling laboratory results, January 2006; and
- EPA CERCLIS database.

### *Monitoring and Data Review*

A review of the data collected over the five-year period of O&M and the two-year PRM period indicates that SICs have met the cleanup standards for both ground water and soil as specified in the ROD, Amended ROD and the Consent Decree. During the operation of the AS/SVE system, the vapor from each of 16 on-property and five off-property extraction wells were monitored on a monthly basis. Air discharge, prior to carbon treatment, from the SVE system was monitored on a monthly basis in order to demonstrate the



effectiveness of the SVE system to remove VOCs from soil. The nine ground-water monitoring wells were monitored quarterly for the first three years, then semi-annually for the remaining two years.

After approximately two years of operation, the on-property monitoring wells showed reduction in the concentration of SICs. The results of ground-water sampling indicate that ground water from monitoring well; MW- 9701 was reduced from a total VOC concentration of 4,112 parts per billion (ppb) of SICs in September 1997 to nondetectable levels for the last eight quarters of sampling. The total VOC concentration from MW-9704R was also reduced from 7,496 ppb of SICs to nondetectable levels for the last eight quarters of sampling. For MW-9705, the total VOC concentration of 644 ppb of SICs was reduced to nondetectable levels for the last twelve quarters of sampling. Monitoring well MW-2S was reduced from a total SIC VOC concentration of 6,914 ppb to 4 ppb. These levels are below the cleanup levels identified in the ROD and ROD Amendment

The off-property sparge curtain worked as designed over the five-year operational period. The curtain successfully contained and treated SICs. Analytical results from all three monitoring wells downgradient of the sparge curtain have had concentrations of SICs at nondetectable levels or below Maximum Contaminant Levels, the concentrations established under the Safe Drinking Water Act for ground water, for the twelve straight quarters sampled.

As indicated in the approved Post-Remediation Monitoring Plan dated January 15, 2004, five wells; one on-site, MW-2S, and four off-site wells, MW-1S (upgradient), MW-9720, MW-9722 and MW-9723, were to be sampled for a two-year period. MW-1S was found to be destroyed some time after the January 22, 2004 sampling event, and has since been closed along with MW-1I and MW-1D due to construction activities of the property owner. Due to these circumstances, only four wells, one on-site, MW-2S, and three off-site wells, MW-9720, MW-9722 and MW-9723, were sampled during the two-year PRM period. Samples were collected in July 2004, February 2005, and July/August 2005. The wells were analyzed for volatile organic SICs, as well as non-site index compounds, acetone, TCE, benzene and PCE.

A summary of the sample results for the July 2004, data is presented in Table 2. The results show all SIC levels below the cleanup standards. A summary of the sample results for the February 2005 data is presented in Table 3. The results from the February 2005 sample event show all SIC levels below the Site cleanup criteria levels, with the exception of toluene. Since toluene had not been detected in previous sample rounds, and the toluene concentration decreased with the order that the samples were collected and analyzed, its presence was attributed to laboratory contamination.

A summary of sample results for July 2005 and August 2005 sampling events is presented in Tables 4 and 5, respectively. The results from the July 25, 2005 event show all SIC levels below the Site cleanup criteria levels, with the exception of 1,1-dichloroethene, which was detected at 10 micrograms per liter ( $\mu\text{g/l}$ ) in MW-2S. Since 1,1-dichloroethene has not been detected since the system startup period, resampling of MW-2S was performed on August 19, 2005. The results for all three samples collected indicate that all SIC levels, including 1,1-dichloroethene, are below site cleanup criteria.

### *Site Inspection*

Sherrel Henry, RPM, and Robert Alvey, Geologist, conducted a Site inspection on April 28, 2009. Adam DiPinto, representing the new owner of the Site, Yonah Reality, was also present at the Site inspection. During the inspection, no problems regarding the Site that would impact the protectiveness of the remedy were observed.

### *Interviews*

No specific interviews were conducted for this review. However, prior to conducting the Site inspection, contact was made with Commander and Yonah Reality.

### *Institutional Controls*

It was the intent of the ROD and ROD Amendment to remediate the soils so that the Site could be used without restriction. Therefore, no institutional controls were required for the Site. However, results of soil gas samples taken at the Site from beneath the parking lot suggest that if a building is constructed on the Site in the future, a vapor mitigation system may be needed to prevent potential vapor intrusion in the building; alternatively, additional sampling and evaluation would be needed to demonstrate that a vapor mitigation system is not warranted.

Plato Holding LLC bought the property from Commander in August 2003 and concluded negotiations with the Metropolitan Transit Authority (MTA) to utilize the Site as a Police Station. The Site was paved and an office trailer was placed on concrete blocks. It is still being utilized by the MTA. Plato Holding sold the property to Yonah Reality in March 2007. It is Yonah Reality's intent to continue to use the property as a police station.

## **VII. Technical Assessment**

### **Question A: Is the remedy functioning as intended by the decision documents?**

Yes. The primary objectives of the 1992 ROD, as modified by the 1995 ROD Amendment, are to address the source of contamination at the Site, the contamination in the surface soils, and ground water contamination attributable to the Site. By treating the VOC-contaminated soils and ground water via AS/SVE, the principal threat posed by the Site was addressed. Sampling results obtained for both the soil and ground water verified that all SICs have met the cleanup standards as specified in the ROD, the Amended ROD and the Consent Decree. These actions interrupt the direct exposure pathways of direct contact with the contaminated ground water and soils.



**Question B: Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives used at the time of the remedy still valid?**

a. Soil. The exposure assumptions and toxicity values that were used to estimate the potential cancer risks and non-cancer hazards in the risk assessment supporting the 1992 ROD for human health followed EPA's Risk Assessment Guidance for Superfund. The process that was used in the human health risk assessment is still valid. Since soils were treated using SVE, the human exposure pathways have been interrupted. If a current risk assessment were performed, different chemicals and exposure pathways would be evaluated due to changed Site conditions as a result of the Remedial Action.

After the ROD was signed, several toxicity values were revised. Comparison of screening level Preliminary Remediation Goals (PRGs), concentrations in soils associated with a cancer risk of  $1 \times 10^{-6}$  (one in a million) and a noncancer Hazard Index = 1.0) for residential and industrial land uses to the remediation goals identified in the ROD indicate that the risk-based remediation goals are consistent with those presented in the ROD based on direct contact (*i.e.*, ingestion and dermal contact with contaminated soils). This comparison found that the remediation goals remain protective.

b. Ground Water. The evaluation of ground water focused on two primary exposure pathways - direct ingestion of ground water as a potable water source and potential vapor intrusion if a building were constructed over the plume (see Section c below). The evaluation of the direct contact pathway showed that all nearby residents are receiving public water from the Town of Hempstead municipal supply which is screened in the deeper Magothy Aquifer. Four public water supply wells that serve the residents near the Site are located within approximately two miles. The ground-water remediation goals selected in the ROD were the Maximum Contaminant Levels established under the Safe Drinking Water Act and these remain protective. The remedy is protective for this potential exposure pathway.

c. Vapor Intrusion. Soil gas vapor samples were taken from the Site on January 9 and 12, 2006 by EPA's contractor. A total of 10 samples were collected across the Site from below the existing asphalt. Subslab samples could not be taken as the only structure on the property is an office trailer, utilized as a Police Station by the MTA, which does not have slab construction. The soil gas samples were collected at depths of 15 feet and 35 feet. The laboratory results were compared to chemical-specific values from EPA Region 2 that are consistent with the *OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)*, November 2002. A preliminary evaluation of the data from three of the ten samples taken in 2006 identified the following contaminants and concentrations of potential concern in the event a building is constructed at the Site in the future.

Sample SGHP - 06	Trichloroethene (250 ug/m <sup>3</sup> , comparison value 50 ug/m <sup>3</sup> ) Tetrachloroethene (1,700 ug/m <sup>3</sup> , comparison value 1,000 ug/m <sup>3</sup> )
Sample SGPA - 07	Trichloroethene (5,600 ug/m <sup>3</sup> , comparison value 50 ug/m <sup>3</sup> ) Tetrachloroethene (19,000 ug/m <sup>3</sup> , comparison value 1,000 ug/m <sup>3</sup> )
Sample SGPA - 09	Trichloroethene (2,300 ug/m <sup>3</sup> , comparison value 50 ug/m <sup>3</sup> )

Tetrachloroethene (3,300 ug/m<sup>3</sup>, comparison value 1,000 ug/m<sup>3</sup>)

These chemicals were not identified as SICs for the ground water at Site in the ROD. This finding suggests that in the event a building is constructed on this property, additional sampling or a vapor mitigation system would be needed either to evaluate the situation or to prevent potential vapor intrusion into the future building.

The remediation goals in soil were compared to preliminary remediation goals under residential and industrial exposure scenarios established at a cancer risk of 10<sup>-6</sup> or a non-cancer Hazard Index = 1. This evaluation found that the remediation goals for the SICs are either at or below their respective remediation goals indicating that the goals remain protective. In addition, the MCLs established at the time of the ROD remain protective.

**Question C: Has any other information come to light that could call into question the protectiveness of the remedy?**

Based on the evaluation of the potential human exposures at the Site there is no new information that has been developed that could call into question the protectiveness of this remedy under current site conditions.

**VIII. Recommendations and Follow-up Actions**

A meeting will be held with Yonah Reality to inform this current owner that if a building is constructed at the Site in the future, a vapor mitigation system would be needed to prevent potential vapor intrusion in the building. Alternatively, additional sampling and evaluation would be needed to demonstrate that a vapor mitigation system is not warranted. See Table 6 for additional recommendations.

**IX. Protectiveness Statement**

The remedy implemented for the Site is protective of human health and the environment in the short term. Treatment of VOC-contaminated soils and ground water by AS/SVE addressed the threat posed by the Site. There is currently no unacceptable risk posed by the potential for vapor intrusion at the Site. However, elevated levels of vapors detected at the Site suggest that a potential vapor intrusion problem may exist in the future, in the event a building was constructed on the property.

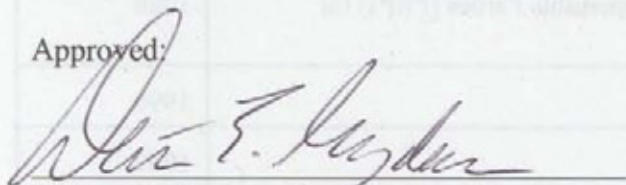
The remedy will be protective in the long term once restrictions are placed on the Site by the Town of Hempstead Building Department.



## X. Next Review

Based on the findings from this Five-Year Review, EPA concludes that the remediation is complete and that further Five-Year Reviews are necessary until appropriate measures are taken to address the potential vapor intrusion problem.

Approved:



Walter E. Mugdan, Director  
Emergency and Remedial Response Division  
EPA – Region 2

July 23, 2009

Date

<b>Table 1: Chronology of Site Events</b>	
<b>Event</b>	<b>Date</b>
Site Placed on National Priorities List (NPL)	1986
Administrative Order on Consent with Potentially Responsible Parties (PRPs) for Remedial Investigation/Feasibility Study (RI/FS)	1988
EPA Initiates RI/FS	1990
RI/FS Completed	1992
ROD Issued by EPA	1992
Air Sparging/Soil Vapor Extraction Pilot Test Performed by PRPs	1993
Air Sparging/Soil Vapor Extraction Pilot Test Study Report Approved by EPA	1994
ROD Amendment Issued by EPA	1995
Consent Decree between EPA and PRPs for Remedial Design/Remedial Action (RD/RA) Entered with Court	1996
Remedial Design (RD) Completed and Remedial Action (RA) Started	1997
RA Completed	1997
Operation and Maintenance (O&M) Started	1997
Preliminary Close-Out Report Issued	09/30/99
O&M completed	2003
Post-Remediation Monitoring Phase Started	2003
First Five-Year Review Report Completed	08/05/04
Final Close-Out Report Signed	09/22/04
Post-Remediation Monitoring Phase Completed	2005
Deletion from NPL	2010*

\* projected



TABLE 2

ANALYTICAL RESULTS SUMMARY  
PASLEY SOLVENTS SITE  
HEMPSTEAD, NEW YORK  
JULY 2004

Sample Location:		MW-2S	MW-2S	MW-9720	MW-9722	MW-9723
Sample ID:		GW-6461-72804-MW2S	GW-6461-72804-001	GW-6461-72804-9720	GW-6461-72804-9722	GW-6461-72804-9723
Sample Date:		7/28/2004	7/28/2004 Dupl.	7/28/2004	7/28/2004	7/28/2004
Parameter	Units					
<b>TVOICs</b>						
1,1-Dichloroethene	ug/L	5U	5U	5U	5U	5U
1,1-Dichloroethane	ug/L	1J	1J	5U	5U	5U
Trans-1,2-Dichloroethene	ug/L	5U	5U	5U	5U	5U
Chloroform (Trichloromethane)	ug/L	5U	5U	5U	5U	5U
1,1,1-Trichloroethane	ug/L	5U	5U	5U	5U	5U
Toluene	ug/L	5U	5U	5U	5U	5U
Chlorobenzene	ug/L	5U	5U	5U	5U	5U
Ethylbenzene	ug/L	5U	5U	5U	5U	5U
Xylene (total)	ug/L	2J	2J	5U	5U	5U
<b>Total TVOICs<sup>(1)</sup></b>		3	3	0	0	0
<b>Non-TVOICs</b>						
Acetone	ug/L	12	13	5U	5U	5U
Trichloroethene	ug/L	1J	1J	5U	5U	5U
Benzene	ug/L	0.7U	0.7U	0.7U	0.7U	0.7U
Tetrachloroethene	ug/L	6	6	5U	15	5U
<b>Total Non-TVOICs<sup>(1)</sup></b>		19	20	0	16	0
<b>Total Volatiles</b>		22	23	0	16	0

## Notes:

- (1) "U" values counted as zero in total.  
J Estimated.  
TVOICs Total Volatile Organic Index Compounds.  
U Non-detect at associated value.

TABLE 3  
ANALYTICAL RESULTS SUMMARY  
GROUNDWATER SAMPLING  
PASLEY SOLVENTS  
HEMPSTEAD, NEW YORK  
FEBRUARY 2005

Sample Location:		MW-2S	MW-2S	MW-9720	MW-9722	MW-9723
Sample ID:		GW-6461-0205-362	GW-6461-0205-363	GW-6461-0205-366	GW-6461-0205-365	GW-6461-0205-364
Sample Date:		2/9/2005	2/9/2005	2/9/2005	2/9/2005	2/9/2005
Parameter	Units		Dupl.			
<b>TVIOCs</b>						
1,1-Dichloroethene	ug/L	5U	5U	5U	5U	5U
1,1-Dichloroethane	ug/L	3J	3J	5U	5U	5U
Trans-1,2-Dichloroethene	ug/L	5U	5U	5U	5U	5U
Chloroform (Trichloromethane)	ug/L	5UJ	5UJ	5UJ	5UJ	5UJ
1,1,1-Trichloroethane	ug/L	5U	5U	5U	5U	5U
Toluene	ug/L	270J	200	49	60	72
Chlorobenzene	ug/L	5U	5U	5U	5U	5U
Ethylbenzene	ug/L	5U	5U	5U	5U	5U
Xylene (total)	ug/L	4J	4J	5U	1J	1J
<b>Total TVOICs<sup>(1)</sup></b>		2	207	49	61	73
<b>Non-TVOICs</b>						
Acetone	ug/L	5U	10	5U	5U	5U
Trichloroethene	ug/L	4J	4J	5U	2J	5U
Benzene	ug/L	0.7U	0.7U	0.7U	0.7U	0.7U
Tetrachloroethene	ug/L	23	20	2J	17	5U
<b>Total Non-TVOICs<sup>(1)</sup></b>	ug/L	27	34	2	19	0
<b>Total Volatiles</b>	ug/L	304	241	51	80	73

Notes:

(1) "U" values counted as zero in total.

J Estimated.

TVOICs Total Volatile Organic Index Compounds.

U Non-detect at associated value.



TABLE 4

**ANALYTICAL RESULTS SUMMARY  
PASLEY SOLVENTS  
HEMPSTEAD, NEW YORK  
JULY 2005**

Sample Location:		MW-9723	MW-9723	MW-9722	MW-2S	MW-9720
Sample ID:		GW-6461-0705-367	GW-6461-0705-368	GW-6461-0705-369	GW-6461-0705-370	GW-6461-0705-371
Sample Date:		7/25/2005	7/25/2005	7/25/2005	7/25/2005	7/25/2005
<i>Parameter</i>	<i>Units</i>		<i>Dupl.</i>			
<b>TVIOCs</b>						
1,1-Dichloroethene	ug/L	5U	5U	5U	10	5U
1,1-Dichloroethane	ug/L	5U	5U	5U	1J	5U
Trans-1,2-Dichloroethene	ug/L	5U	5U	5U	5U	5U
Chloroform (Trichloromethane)	ug/L	5U	5U	5U	5U	5U
1,1,1-Trichloroethane	ug/L	5U	5U	5U	1J	5U
Toluene	ug/L	5U	5U	5U	5U	5U
Chlorobenzene	ug/L	5U	5U	5U	5U	5U
Ethylbenzene	ug/L	5U	5U	5U	5U	5U
Xylene (total)	ug/L	5U	5U	5U	5U	5U
<b>Total TVIOCs<sup>(1)</sup></b>		0	0	0	12	0
<b>Non-TVOICs</b>						
Acetone	ug/L	5U	5U	5U	5U	5U
Trichloroethene	ug/L	5U	5U	5U	58	5U
Benzene	ug/L	0.7U	0.7U	0.7U	0.7U	0.7U
Tetrachloroethene	ug/L	5U	5U	4J	170	2J
<b>Total Non-TVOICs<sup>(1)</sup></b>	ug/L	0	0	4J	228	2J
<b>Total Volatiles</b>	ug/L	0	0	4J	240	2J

## Notes:

- (1) "U" values counted as zero in total.  
 J Estimated.  
 TVIOCs Total Volatile Organic Index Compounds.  
 U Non-detect at associated value.

TABLE 5

ANALYTICAL RESULTS SUMMARY  
PASLEY SOLVENTS  
HEMPSTEAD, NEW YORK  
AUGUST 2005

Sample Location:		MW-2S	MW-2S	MW-2S
Sample Date:		8/19/2005	8/19/2005	8/19/2005
<i>Parameter</i>	<i>Units</i>			
<b>TVIOCs</b>				
1,1-Dichloroethene	ug/L	5U	5U	5U
1,1-Dichloroethane	ug/L	2J	2J	2J
Trans-1,2-Dichloroethene	ug/L	5U	5U	5U
Chloroform (Trichloromethane)	ug/L	5U	5U	5U
1,1,1-Trichloroethane	ug/L	2J	2J	2J
Toluene	ug/L	5U	5U	5U
Chlorobenzene	ug/L	5U	5U	5U
Ethylbenzene	ug/L	5U	5U	5U
Xylene (total)	ug/L	5U	5U	5U
<b>Non-TVOICs</b>				
Acetone	ug/L	5	6	7
Trichloroethene	ug/L	12	7	7
Benzene	ug/L	0.7U	0.7U	0.7U
Tetrachloroethene	ug/L	55	29	22

## Notes:

U Not present at or above the associated value.  
J Estimated concentration.  
TVOICs Total Volatile Organic Index Compounds.



**Table 6. Recommendations and Follow-up Actions**

Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Follow-up Actions: Affects Protectiveness (Y/N)	
				Current	Future
1. To document the need to address potential vapor intrusion at the Site, EPA expects to issue an Explanation of Significant Differences.	EPA	EPA	9/30/09	N	Y
2. Send a copy of the signed Five-Year Review Report and an explanatory letter about potential vapor intrusion at the Site to the Building Department of the Town of Hempstead confirming that the Department of Buildings will place a "red flag" on the property in its computer.	EPA	EPA	9/30/09	N	Y
3. Schedule a meeting with Yonah Reality to inform them that if a building is constructed on the Site in the future, a vapor mitigation system would be needed to prevent potential vapor intrusion in the building; alternatively, additional sampling and evaluation would be needed to demonstrate that a vapor mitigation system is not warranted.	EPA	EPA	10/30/09	N	N
4. Building Department Establish "Red Flag" on the Pasley Deed Notice to ensure that before a building permit is issued for the Pasley Site, the owner would either have to agree to install a mitigation system or demonstrate through sampling that a mitigation system is not needed.	Building Department of Town of Hempstead	EPA	12/30/09	N	Y

PASLEY SOLVENTS AND CHEMICALS  
TOWN OF HEMPSTEAD, NEW YORK  
SITE LOCATION MAP

MAP NOT TO SCALE

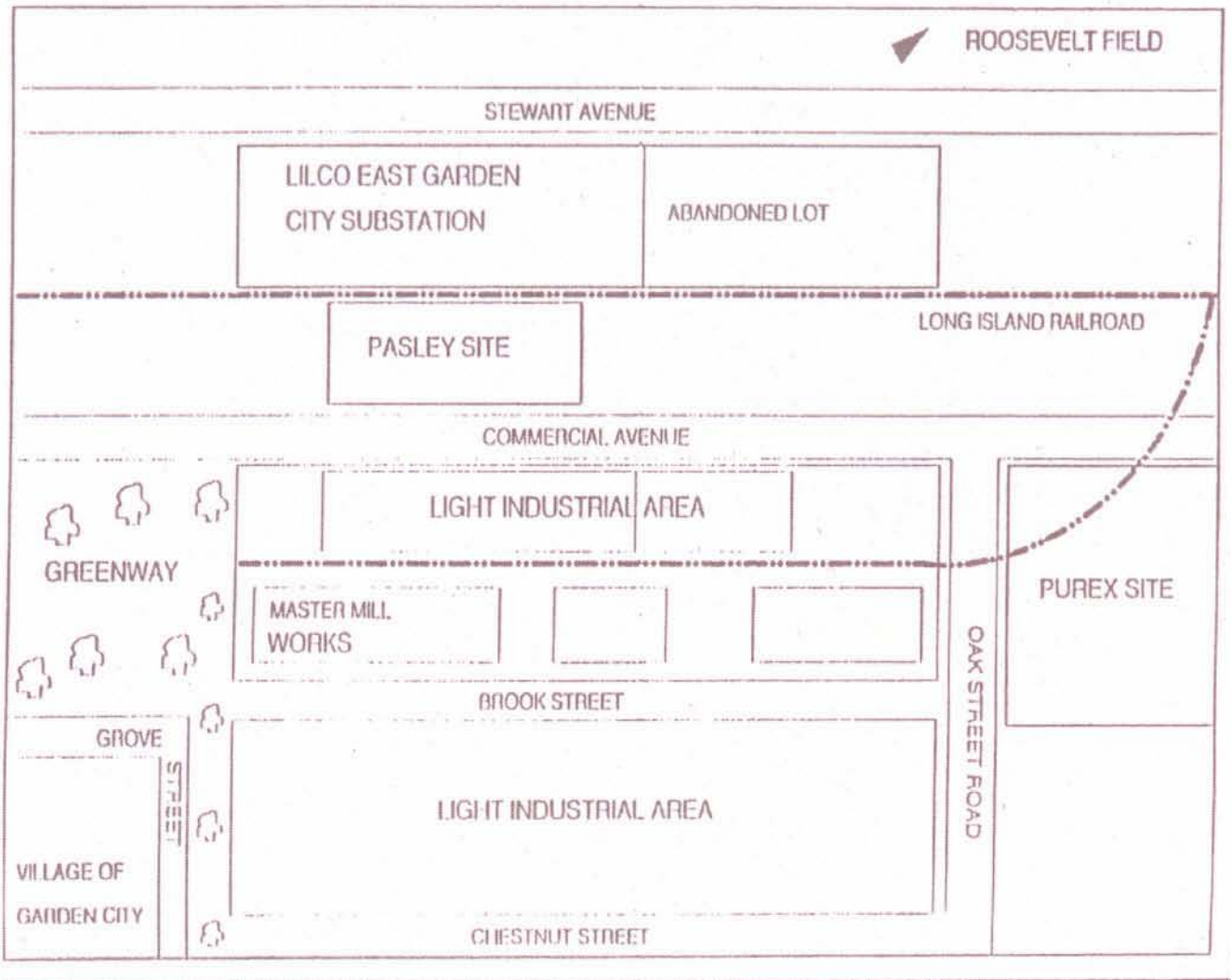


Figure 1