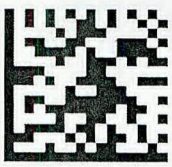

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Ecosystems Strategies, Inc.

Environmental Services and Solutions

60 Worrall Avenue, Poughkeepsie, NY 12603-2332

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January 18, 2002

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JAN 2 2 2002

NYS-DEC
REGION 3-NEW PALTZ

David Traver
NYSDEC – Region 3, Spill Unit
Division of Environmental Remediation
21 South Putt Corners Road
New Paltz, NY 12561-1696

Re: Summary Report of Subsurface Investigation performed on the Sakmann Restaurant Corporation Property located at US Route 9W, Hamlet of Fort Montgomery, Town of Highlands, Orange County, New York.
ESI File: SF01123.30
NYSDEC Spill Number: 0107005

Dear Mr. Traver:

Enclosed please find the Summary Report of Subsurface Investigation for the above-referenced site. If you have any questions or comments, please call me at 845-452-1658.

Sincerely,

ECOSYSTEMS STRATEGIES, INC.

Paul H. Ciminello
President

PHC:cpr
Enclosure

cc: C. Sakmann
S. McKee
HydroScience, Inc.

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SUMMARY REPORT OF

SUBSURFACE INVESTIGATION

Performed on the Sakmann Restaurant Corporation Property

Located on U.S. Route 9W
Hamlet of Fort Montgomery, Town of Highlands,
Orange County, New York
(NYSDEC SPILL NUMBER 0107005)

January 9, 2002

Prepared By:

ECOSYSTEMS STRATEGIES, INC.
60 Worrall Avenue
Poughkeepsie, New York 12603
(845) 452-1658

ESI File Number: SF01123.30

SUMMARY REPORT OF

SUBSURFACE INVESTIGATION

Performed on the Sakmann Restaurant Corporation Property

Located on U.S. Route 9W
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(NYSDEC SPILL NUMBER 0107005)

January 9, 2002

ESI File Number: SF01123.30

Prepared By:
Ecosystems Strategies, Inc.
60 Worrall Avenue
Poughkeepsie, New York 12603

Prepared For:
Scenic Hudson Land Trust, Inc.
9 Vassar Street
Poughkeepsie, New York 12601

The undersigned has reviewed this Report and certifies to Scenic Hudson, Inc.
that the information provided in this document
is accurate as of the date of issuance by this office.

Any and all questions or comments, including requests for additional information,
should be submitted to the undersigned.

Paul H. Ciminello
President

TABLE OF CONTENTS

1.0 INTRODUCTION 1

1.1 Purpose
1.2 Limitations
1.3 Site Location and Description
1.3.1 Site Hydrogeology
1.3.2 Site Topography
1.4 Previous Environmental Reports
1.5 Objectives

2.0 SUBSURFACE INVESTIGATION 4

2.1 Summary of Services
2.2 Field Work Methodology
2.2.1 Site Preparation Services
2.2.2 Extension of Soil Cores
2.3 Sample Collection and Analysis
2.3.1 Sample Collection and Submission
2.3.2 Action Levels
2.3.3 Analysis and Results

3.0 CONCLUSIONS AND RECOMMENDATIONS 10

TABLES

Table 1: Field Observations
Table 2: Summary of Detected VOCs in Soil Samples (Garage Repair Bays)

APPENDICES

A Maps
B Previous Environmental Reports
C Laboratory Reports

1.0 INTRODUCTION

1.1 Purpose

This Summary Report of Subsurface Investigation ("Report") chronicles field work performed by Ecosystems Strategies, Inc. ("ESI") on the Sakmann Restaurant Corporation property located at U.S. Route 9W, Hamlet of Fort Montgomery, Town of Highlands, Orange County, New York. The work summarized in this Report was performed to address potential environmental liabilities on specified portions of the subject property identified during a combined Phase I and II investigation conducted by ESI (see Section 1.4, Previous Environmental Reports, below).

The specific purpose of this Report is to summarize the work performed by ESI to document the presence or absence of subsurface soil contamination on the subject property and to suggest, if appropriate, further investigative and/or remedial options regarding identified on-site contamination.

This Report describes all field work methodologies for the work conducted by this office, includes discussions of the resulting analytical data from collected samples, and provides conclusions and recommendations drawn from the field work and analytical data.

1.2 Limitations

This written analysis summarizes the site characterization activities conducted on a specified portion of the Sakmann Restaurant Corporation property located at U.S. Route 9W, Hamlet of Fort Montgomery, Town of Highlands, Orange County, New York and is not relevant to other portions of this property or any other property. It is a representation of those portions of the property analyzed as of the respective dates of field work. This Report cannot be held accountable for activities or events resulting in contamination after the dates of field work.

Services summarized in this Report were performed in accordance with generally accepted practices and established NYSDEC protocols. Unless specifically noted, the findings and conclusions contained herein must be considered not as scientific certainties, but as probabilities based on professional judgement.

1.3 Site Location and Description

The subject property as defined in this Report consists of the approximately 1.5-acre Sakmann Restaurant Corporation property and structures located at U.S. Route 9W, Hamlet of Fort Montgomery, Town of Highlands, Orange County, New York. A map depicting the location of the subject property is provided in Appendix A of this Report.

The subject property is an irregularly shaped parcel which has approximately 350 feet of frontage on the eastern side of U.S. Route 9W and approximately 150 feet of frontage on the northern side of Mine Dock Road. The southern third of the subject property is vacant forested land. The northern two-thirds of the parcel contain two, one-story structures: the Trading Post Restaurant and a former gasoline station currently operated as Carmine's Automotive Repair ("Garage"). A paved parking lot is present to the west of the restaurant. The Garage is surrounded by paved parking areas to the south and west and by open areas of graded, gravelly fill to the north and east.

The specified portion of the property on which the subsurface investigation was conducted (hereafter referred to as the "Site") consists of the repair bays and basement of the Garage (locations previously identified as containing, or likely to contain, petroleum and chlorinated hydrocarbon contamination) and exterior portions of the subject property located immediately east of the Garage basement. A Field Work Map indicating specific site characteristics is located in Appendix A of this Report.

1.3.1 Site Hydrogeology

No site-specific investigation of groundwater depth or direction of flow is known to have been performed on the subject property; therefore, no documented determinations are provided in this Report. Observations made during two separate subsurface investigations (see Section 1.4, Previous Environmental Reports, below) did not reveal the presence of on-site groundwater. Review of The United States Department of Agriculture Soil Conservation Service's Soil Survey of Orange County, New York ("Soil Survey"), dated October 1981, indicated that depth to groundwater is likely to be greater than five feet below surface grade (bsg) on portions of the subject property containing deep soils and that shallow groundwater may be seasonally perched above bedrock on portions of the subject property containing shallow soils. Based on observations of the topography of the surrounding area, shallow groundwater is likely to flow in an easterly or southeasterly direction, towards drainage-ways flowing east toward the Hudson River.

1.3.2 Site Topography

Information on the subject property's topography was obtained from the review of the United States Geological Survey (USGS) Topographic Map of the Peekskill, New York Quadrangle (dated 1957, photorevised 1981) and observations made by this office.

According to the above-referenced topographic map, the topography of the area in the vicinity of the Site slopes moderately to steeply downward to the east (toward the Hudson River, located approximately 0.25 mile to the east) and to the south (toward a small easterly flowing stream tributary to the Hudson River located approximately 0.05 mile south). Surface elevations on the subject property range from approximately 140 feet above mean sea level (msl) on the northwestern portion to approximately 80 feet above msl on the extreme southern property line. According to observations made during the subsurface investigation of the subject property, the topography in the vicinity of the Site is relatively level. The differences noted above between observed and reported topographic conditions suggest that landfilling activities have occurred on-site. According to available information, the subject property has been subject to historic landfilling activities.

1.4 Previous Environmental Reports

A Combined Phase I and II Environmental Site Assessment ("Phase I and II ESA") of the Sakmann Restaurant Corporation property was conducted by ESI in September 2001. During the course of the investigation, ESI personnel observed overt evidence of waste oil contamination in the Garage basement and noted the presence of a repair bay floor drain in close proximity to the basement which contained standing waste oil. The tenants of the Garage reported to ESI personnel that this drain was receiving wastewater discharges containing de-greasers. Subsurface soils in the vicinity of the floor drain were sampled during the investigation and were found to contain multiple volatile organic compounds (VOCs) at concentrations above action levels (including MTBE and chlorinated hydrocarbons).

Based on these findings, the Phase I and II ESA concluded:

- that significant contamination warranting remedial action existed beneath the concrete slab;
- that these levels of contamination were required to be reported to the NYSDEC. The NYSDEC was contacted by personnel from HydroScience, Inc. (an environmental contractor engaged by the owner of the subject property) on October 5, 2001, and relevant information on the presence of petroleum contamination on the subject property was submitted to that agency. The NYSDEC has issued file number 0107005 for this spill event.
- that although the vertical and lateral extent of the contamination was not known it was likely that significant contamination was limited to subsurface soils in close proximity to the floor drain; and
- that the source of the subsurface contamination (and the visible contamination in the basement) was likely to be the discharge of oil and chlorinated solvents to the northern Garage repair bay floor drain.

The Phase I and II ESA recommended that additional borings be extended at the Garage floor slab and at the exterior perimeter of the slab to further characterize and define the extent of subsurface contamination and that contaminated soils located under the Garage slab should be excavated and properly removed off-site or should be properly treated *in-situ*.

On October 25, 2001 personnel from HydroScience extended a soil boring through the Garage floor drain to a depth of approximately six to seven feet below surface grade. According to information provided to this office by HydroScience, the floor drain was not connected to any subsurface conduit and appeared to discharge directly to soils located beneath the concrete floor slab. Chlorinated hydrocarbons (tetrachloroethylene and trichloroethylene) and xylenes were found above action levels in soils collected from this location. These findings support the conclusion of the Phase I and II ESA that contaminants have entered soils located beneath the Garage floor slab via discharges to the floor drain. The floor drain was reportedly sealed by HydroScience personnel following their subsurface investigation.

Relevant portions of the Phase I and II ESA and laboratory data from the HydroScience subsurface investigation of the floor drain are presented in Appendix B of this Report.

1.5 Objectives

The services conducted by ESI, which are summarized in this Report (See Section 2.0, below), were performed to determine the presence or absence of environmental liabilities resulting from the above-referenced previously identified areas of concern. The objectives of the work conducted by ESI were:

- To document the presence or absence, and the vertical and horizontal extent, of petroleum and/or chlorinated hydrocarbon contaminants in subsurface soils (and if applicable, groundwater) located near the Garage repair bay floor drain and under the slab of the Garage basement; and
- To suggest, if appropriate, further investigative and/or remedial options regarding identified subsurface or surface contamination.

2.0 SUBSURFACE INVESTIGATION

2.1 Summary of Services

In order to achieve the objective specified in Section 1.5 above, the following services were conducted by ESI on selected portions of the Site:

- Extended nine soil borings at interior portions of the Garage to a maximum depth of approximately eight feet below grade in the vicinity of the former floor drain located in the northern repair bay and other areas potentially impacted by historic site usage;
- Extended two soil borings at the Garage basement floor to a maximum depth of approximately eight feet below grade;
- Extended one soil boring at the exterior of the Garage near the eastern basement wall to a maximum depth of approximately nine feet below grade; and
- Documented the on-site presence or absence of contamination through sampling and laboratory analysis of subsurface soil samples for volatile organic compounds (VOCs) and PCBs.

This Report is divided into individual sections that describe the field work conducted by ESI on the subject property (Section 2.2), laboratory analysis of samples (Section 2.3), and conclusions and recommendations (Section 3.0).

2.2 Field Work Methodology

2.2.1 Site Preparation Services

Prior to the initiation of field work, a request for a complete utility markout of the subject property was submitted by ESI as required by New York State Department of Labor regulations. Confirmation of underground utility locations was secured and a field check of the utility markout was conducted prior to the extension of soil cores.

2.2.2 Extension of Soil Cores

ESI personnel extended nine soil borings at interior portions of the Garage (repair bays) on November 29, 2001 and extended three soil borings at or near the Garage basement floor on December 18, 2001. A narrative description of the location of these borings is presented in Table 1. A Field Investigation Map indicating the boring locations and associated selected site features is provided in Appendix A of this Report.

All manual soil borings were extended by ESI personnel using a hand-held direct push sampling spoon equipped with a slide hammer and 1½ -inch outer diameter disposable acetate sleeves used to prevent the cross contamination of soil samples. Sampling was conducted at each boring location at two-foot intervals to a maximum depth of approximately eight to nine feet below grade or until refusal was reached. The sampling spoon was decontaminated prior to the initiation of field work and after the collection of each sample. Decontamination procedures were consistent with established United States Environmental Protection Agency (USEPA) and NYSDEC protocols.

A MiniRAE 2000 (Model PGM 7600) photo-ionization detector (PID) was utilized by ESI personnel to screen all encountered material for the presence of any volatile organic vapors where appropriate. Prior to the initiation of field work, this PID was properly calibrated to read parts per million calibration gas equivalents (ppm-cge) of isobutylene in accordance with protocols set forth by the equipment manufacturer.

An assessment of subsurface soil characteristics, including soil type the presence of foreign materials, field indications of contamination (e.g., unusual coloration patterns, or odors), and instrument indications of contamination (i.e., PID readings) was mace by ESI personnel during the extension of each soil coring. ESI personnel maintained independent field logs documenting the physical characteristics, PID readings and any field indications of contamination for all encountered material at each boring location. Relevant information from ESI logs for each boring location is summarized in Table 1.

Samples of soil material were collected from each of the soil borings where appropriate (see Section 2.3.1 for specifics regarding sample collection methodology). Notations were made regarding the sampled material's physical characteristics (e.g., color, odor, etc.). At each sample location a sufficient volume of material was collected for the known required analyses and for any potential additional analyses. Subsurface soils encountered during the extension of the soil borings in the Garage repair bays and basement generally consisted of tan or brown coarse to medium sandy soil layers with varying degrees of moisture. Groundwater was not encountered during the extension of the soil cores.

Table 1: Field Observations

SAMPLE POINT	LOCATION [1,2,3]	DEPTH	SOIL CHARACTERISTICS	PID (ppb)	FIELD OBSERVATIONS
2HB-5	6.6' east 3.0' north	0 - 2' (sample)	Poor recovery, moist light brown medium to coarse sand	0.4	No evidence of contamination
		2 - 4' (sample)	Poor recovery, moist light brown medium to coarse sand	0.3	No evidence of contamination
		4 - 5' (sample) Refusal at 5'	Moist light brown medium to coarse sand, wet and dark near 6'	0.9	Strong petroleum odor
2HB-6	3.3' east 2.8' south	0 - 2'	No recovery	N/A	N/A
		2 - 3' (sample)	Dark gray loose moist medium to coarse sand grading to brown dense wet sand	38.0	Possible staining, strong petroleum odor
		3 - 5' (sample)	Dark brown moist medium to coarse sand	N/A	Strong petroleum odor and staining
		6 - 7' (sample)	Dark brown moist medium to coarse sand at 6' grading to tan dry loose sand	40.3	Strong petroleum odor and staining near 6'
2HB-7	1.25' south	0 - 2' (sample) Refusal at 2'	Dark brown moist medium to coarse sand	99.1	Staining and strong petroleum and "sweet" odors
2HB-8	0.2' west 2.7' north	0 - 2' (sample)	Dark brown moist to very moist medium to coarse sand	N/A	Staining and strong petroleum and "sweet" odors
		2 - 4' (sample) Refusal at 4'	Dark brown very moist medium to coarse sand	N/A	Heavy staining, sticky soil and strong petroleum and "sweet" odors
2HB-9	5.3' west 0.4' north	1.5 – 2.5' (sample)	Poor recovery, dark brown moist medium to coarse sand	N/A	Staining and strong petroleum odor
		2.5 - 4.5' (sample)	Poor recovery, dark brown moist medium to coarse sand (slightly drier than 1.5 - 2.5')	N/A	Less staining and odor than at 1.5 - 2.5'
		4.5 - 6.5' (sample)	Dark brown moist medium to coarse sand grading to tan loose sand	N/A	Dark soil stained, slight petroleum odor
		6.5 - 8.5' (sample)	tan dry loose medium to coarse sand with layer of coal fragments/ash grading to slightly moist light brown sand with pebbles	N/A	Possible slight petroleum odor

SAMPLE POINT	LOCATION [1,2,3]	DEPTH	SOIL CHARACTERISTICS	PID (ppb)	FIELD OBSERVATIONS
2HB-10	9.5' south	Aborted, refusal at surface immediately below slab	Shallow layer of wet/sticky dark brown medium to coarse sand observed immediately below slab	N/A	Obvious petroleum contamination on soil surface
2HB-10a	8.5' south	Aborted, refusal at surface immediately below slab	N/A	N/A	N/A
2HB-11	1.7' east 8.6' south	0 - 2' (sample)	Tan slightly moist loose medium to coarse sand	N/A	Possible slight petroleum odor
		3 - 5' (sample)	Poor recovery, tan slightly moist loose medium to coarse sand	N/A	No evidence of contamination
2HB-12	6.8' west 8.0' south	0 - 2' (sample)	Poor recovery, tan slightly moist loose medium to coarse sand	N/A	No evidence of contamination
		2 - 5'	No recovery	N/A	N/A
		5.5 - 7.5' (sample)	Tan slightly moist loose medium to coarse sand	N/A	No evidence of contamination
2HB-13	9.2' west 3.0' south	0 - 2' (sample)	Tan slightly moist loose medium to coarse sand with some coal fragments and brown sand/pebbles	N/A	No evidence of contamination
		3 - 5' (sample) Refusal at 5'	Tan slightly moist clayey dense medium to coarse sand	N/A	No evidence of contamination
B-1	20' west 6' north	0 - 2'	No recovery	N/A	N/A
		2 – 4' (sample)	Poor recovery, tan slightly moist loose medium to coarse sand	N/A	No evidence of contamination
		4 – 5' Refusal at 5' (sample)	Poor recovery, tan slightly moist loose medium to coarse sand	N/A	No evidence of contamination
B-2	7' west 6' north	0 - 2'	No recovery	N/A	N/A
		2 – 4'	No recovery	N/A	N/A
		4 – 6' (sample)	Poor recovery, tan slightly moist loose medium to coarse sand	N/A	No evidence of contamination
B-3	3' east 20' north	7 – 9' (sample)	Brown to tan slightly moist loose medium to coarse sand with brown to gray rock fragments	N/A	No evidence of contamination

Notes:
1. All borings extended at the Garage repair bays ("2HB" series) are located relative to the center of the former floor drain in the northern repair bay (located 16.5' east and 6.0' south of the northern end of the northern repair bay overhead door at western wall of Garage).
2. All interior borings extended at the Garage basement floor ("B1" and "B2") are located relative to the southeastern corner of the basement.
3. Boring "B-3" is located relative to the southeastern exterior corner of the Garage building.

N/A = not available

2.3 Sample Collection and Analysis

2.3.1 Sample Collection and Submission

All soil samples collected during the November 29, 2001 and December 18, 2001 field work conducted by ESI were obtained in a manner consistent with NYSDEC sample collection protocols. Decontaminated stainless steel trowels and dedicated gloves were used at each sample location to place the material into jars pre-cleaned at the laboratory. Prior to and after the collection of each material sample, the sample collection instrument was decontaminated to avoid cross-contamination between samples. Decontamination procedures were consistent with established USEPA and NYSDEC protocols.

After sample collection, the sample containers were placed in a cooler prior to transport to the laboratory. The soil samples were transported via overnight delivery to York Analytical Laboratories, Inc., a New York State Department of Health-certified laboratory (ELAP Certification Number 10854) for chemical analyses. Appropriate chain-of-custody procedures were followed.

Submission of samples for laboratory analysis was based on observations made by ESI personnel during the extension of the soil cores, including the presence or absence of elevated PID readings, unusual odors, discoloration, or any other unusual patterns. A sufficient number of samples were submitted for analysis to document the presence or absence of subsurface contamination beneath the Garage repair bays and basement floor.

Soil samples from boring locations 2HB-5, 2HB-6 and 2HB-9 through 2HB-13 were submitted for analysis of volatile organic compounds (VOCs) using USEPA Methods 8021 or 8010. Samples from boring locations 2HB-7 and 2HB-8 were submitted for analysis of volatile organic compounds (VOCs) using USEPA Methods 8021 and analysis of PCBs using USEPA Method 8080. Soil samples from boring location 2HB-8 were also submitted for TCLP analysis of VOCs using USEPA Methods 8021.

2.3.2 Action Levels

The term "action level," as defined in this Report, refers to the concentration of a particular contaminant above which remedial actions are considered more likely. The overall objective of setting action levels is to assess the integrity of on-site soils relative to conditions that are likely to present a threat to public health, given the existing and probable future uses of the site. On-site soils with contaminant levels exceeding these action levels are considered more likely to warrant remediation. No independent risk assessment was performed as part of this investigation.

The action levels identified in this Report for petroleum hydrocarbons in soils are determined based on the NYSDEC's Technical and Administrative Guidance Memorandum #4046 dated January 24, 1994 ("TAGM") as modified by subsequent, relevant NYSDEC Records of Decision (ROD).

2.3.3 Analysis and Results

Provided below is a summary of the results of the laboratory analyses conducted on samples collected from locations 2HB-5 through 2HB-13 and B-1 through B-3. All detected compounds with their respective action levels are provided in either the following narrative or are summarized in Table 2 (see page 9). Complete copies of the Laboratory Reports are included as Appendix C. Recommendations regarding detected contaminants are located in Section 3.0 of this Report, Conclusions and Recommendations.

VOCs

Chlorinated hydrocarbons, BTEX compounds, MTBE and several other VOCs were detected above NYSDEC action levels in subsurface soils surrounding the former floor drain (2HB6

through 2HB9). The highest contaminant levels were found at 2HB8 0-2' (located between the former floor drain and the basement wall) and included tetrachloroethylene at 79,000 ppb, benzene at 7,500 ppb, MTBE at 2,100 ppb and total xylenes at 57,000 ppb. (Note: 1,2-dichloroethane, trichloroethylene and 1,2-dichloroethylene are reported as non-detected at this location; elevated laboratory detection limits, however, may be masking concentrations of these compounds).

Soil samples from 2HB5 (located at the northeast corner of the northern repair bay near the basement wall) contained low levels of chlorinated hydrocarbons (e.g. tetrachloroethylene at 160 ppb) and several VOCs below NYSDEC action levels. With the exception of soil sample 2HB-12 (5.5-7.5') that contained toluene at six ppb, samples from 2HB-9 (6.5-8.5') and 2HB11 through 2HB13 (located relatively distant from the former floor drain) contained no detected VOCs.

Laboratory data from sampling locations at the Garage repair bays generally show a significant decrease in contaminant concentrations with increasing depth and lateral distance from the location of the former floor drain. All detectable concentrations of VOCs in samples collected at depths greater than five feet bsg were below action levels; however, laboratory analysis of a soil sample collected from approximately six to seven feet beneath the floor drain by HydroScience (see Appendix B, Previous Environmental Reports) indicated detectable concentrations of chlorinated hydrocarbons (Tetrachloroethylene at 17,000 ppb and Trichloroethylene at 700 ppb) and total xylenes (2560 ppb) at or above action levels. These findings support the conclusion that significant VOC contamination (including chlorinated hydrocarbons) exists in soils located under the concrete slab; this contamination, however, appears to be limited to the area of the northern Garage repair bay in the vicinity of the former floor drain and is likely to be generally restricted to the upper eight feet of the soil column.

TCLP laboratory data for soil samples from 2HB8 detected elevated levels of several VOCs (tetrachloroethylene, toluene and xylenes), suggesting the potential for migration of these materials in water entering subsurface soils. These findings support the conclusion that the "free product" present in Garage basement is likely to contain contaminants (including chlorinated hydrocarbons) identified in soils located under the northern repair bay concrete slab.

Three soil samples were collected from beneath the Garage basement floor. Low levels of MTBE (6 ppb) and 1,3,5-trimethylbenzene (6 ppb) were detected at concentrations below action levels at B-1 (4-5'). Low levels of MTBE (27 ppb), 1,3,5-trimethylbenzene (5 ppb), tetrachloroethylene (27 ppb) and toluene (5 ppb) were detected at concentrations below action levels at B-2 (4-6'). No VOCs were found above specified method detection limits in soil sampled at B-1 (0.5-4'). Low levels of MTBE (13 ppb) were detected at B3 (7-9'), located exterior to the eastern basement wall. These findings support the conclusion that contamination present under the Garage repair bay floor does not significantly extend beneath the basement slab and that it is unlikely that contaminants present in the basement have significantly migrated to exterior subsurface soils. It is possible, however, that soils located underneath the southern margin of the basement slab in close proximity to the former floor drain are contaminated with VOCs.

PCBs

Two samples exhibiting strong field indications of contamination, 2HB-7 (0-2') and 2HB-8 (2-4'), were analyzed for total weight PCBs using USEPA Method 8080. The TAGM action level for PCBs in subsurface soils is 10 ppm. PCBs were not detected in sample 2HB-8 (2-4') above specified method detection limits. Total PCBs were detected in soil sample 2HB-7 (0-2') at 1.16 ppm, significantly below the action level. Previous testing of subsurface soils in the vicinity of the floor drain (see Appendix B, Previous Environmental Reports) indicated no detectable concentrations of PCBs at HB-2 (4-5.5') and HB-3 (4-6'), and very low detectable concentrations of PCBs (less than 0.06 ppm) at HB-4 (0.5-2.5) and HB-4 (4.5-6.5'). These findings support the conclusion that significant PCB contamination is not present in subsurface soils located beneath the Garage repair bays.

Table 2: Summary of Detected VOCs in Soil Samples (Garage Repair Bays)
(All results measured in µg/kg-ppb. Results in bold exceed designated action levels.)

Compound (USEPA Method 8021)	Action Level[1]	Sample Identification											
		2HB5 0-2'	2HB5 2-4'	2HB5 4-5'	2HB6 2-3'	2HB6 4-5'	2HB6 6-7'	2HB7 0-2'	2HB8 0-2'	2HB8 2-4'	2HB9 1.5-2.5'	2HB9 4.5-6.5'	2HB12 5.5-7.5'
Benzene	60	NA	NA	ND	ND	ND	ND	41	7,500	110	ND	ND	ND
n-Butylbenzene	10,000	NA	NA	ND	1,800	140	51	70	4,300	2,400	42	52	ND
sec-Butylbenzene	10,000	NA	NA	ND	ND	160	15	ND	1,200	570	25	13	ND
tert-Butylbenzene	10,000	NA	NA	ND	1,200	510	ND	95	4,000	2,100	ND	21	ND
1,2-Dichloroethane	100	ND	ND	ND	ND	ND	ND	ND	ND[3]	ND	ND	ND	ND
1,2-Dichloroethylene	400	ND	ND	55	3,400	2,500	250	350	ND[3]	440	500	120	ND
Ethylbenzene	5,500	NA	NA	ND	2,600	1,200	130	360	9,800	4,600	ND	35	ND
Isopropylbenzene	2,300	NA	NA	ND	420	180	18	39	1,300	660	14	13	ND
p-Isopropyltoluene	10,000	NA	NA	ND	250	ND	13	18	2,000	1,400	23	13	ND
Methyl tert-butyl ether (MTBE)	120	NA	NA	7	ND	ND	ND	84	2,100	260	58	11	ND
Naphthalene	13,000	NA	NA	ND	6,100	2,700	280	490	13,000	8,800	ND	130	ND
n-Propylbenzene	3,700	NA	NA	ND	1,500	630	60	120	5,200	2,600	15	28	ND
Tetrachloroethylene	1,400	160	69	39	11,000	4,100	570	3,200	79,000	35,000	4,200	930	ND
Toluene	1,500	NA	NA	ND	3,000	1,600	200	1,000	25,000	8,400	39	140	6
Trichloroethylene	700	18	ND	ND	140	ND	33	430	ND[3]	2,200	ND	ND	ND
1,2,4-Trimethylbenzene	10,000[2]	NA	NA	5,400	13,000	5,400	29	990	36,000	19,000	12	230	ND
1,3,5-Trimethylbenzene	3,300[2]	NA	NA	ND	4,100	1,900	170	270	11,000	5,500	210	140	ND
o-Xylene	1,200	NA	NA	ND	6,100	2,900	310	820	17,000	8,500	310	250	ND
p-&m-Xylenes	1,200	NA	NA	ND	12,000	5,200	47	1,600	40,000	19,000	9	230	ND
Total Xylenes	1,200	NA	NA	ND	18,100	8,100	357	2,420	57,000	27,500	319	480	ND

Notes:

1. Source: NYSDEC Technical and Administrative Guidance Memorandum #4046 ("TAGM") dated January 24, 1994 as modified by subsequent, relevant NYSDEC Records of Decision (RODs).
2. Source: NYSDEC Spill Technology and Remediation Series (STARS) Memo #1, July 1993.
3. Elevated laboratory detection limits may be masking the presence of these compounds.

ND = Not Detected
NA = Not Analyzed

3.0 CONCLUSIONS AND RECOMMENDATIONS

This office has completed the services summarized in Section 2.0 on specified portions of the approximately 1.5-acre Sakmann Restaurant Corporation property located at U.S. Route 9W, Hamlet of Fort Montgomery, Town of Highlands, Orange County, New York. Services included the extension of twelve (12) soil borings at the on-site Garage to further document the extent of confirmed subsurface soil contamination in the vicinity of a floor drain and to document the presence or absence of subsurface soil contamination beneath the basement slab.

Based on the services provided and data generated, the following conclusions and recommendations (in bold) have been made.

1. A Combined Phase I and II Environmental Site Assessment ("Phase I and II ESA") of the Sakmann Restaurant Corporation property conducted by ESI in September 2001 reported the presence of subsurface VOC contamination in the vicinity of the northern Garage repair bay to a depth of approximately six feet. Additional testing was recommended to a) further define the lateral and vertical extent of subsurface contamination at the Garage repair bays; b) document the presence or absence of contamination under the basement portion of the building; and c) provide guidance on the likelihood of groundwater contamination from documented organic contaminants.

   The Phase I and II ESA documented soil contamination at levels warranting the reporting of a spill event to the NYSDEC. The NYSDEC was contacted by HydroScience personnel on October 5, 2001, and relevant information on the presence of petroleum contamination on the subject property was submitted to that agency. The NYSDEC has issued file number 0107005 for this spill event. This spill file is currently classified by the NYSDEC as having an "active" status.

   It is recommended that this Report be made available to the NYSDEC. All future investigative and remedial work at this Site should be submitted for review (and, as appropriate, for approval) by the NYSDEC to facilitate closure of spill file number 0107005. It is further recommended that any remedial work be conducted in conjunction with a Voluntary Cleanup Agreement or Consent Order.

   Estimated administrative costs: [redacted]

2. Borings were extended at interior locations of the basement (B1 and B2) and near the exterior eastern wall of the basement (B3) to document the presence or absence of hydrocarbon and chlorinated solvent contamination beneath the basement slab. No overt signs of contamination were detected at any of these borings. No significant levels of VOCs were detected in soil samples submitted for laboratory analysis. These findings support the conclusion that contamination present under the Garage repair bay floor does not significantly extend beneath the basement slab and that it is unlikely that contaminants present in the basement have significantly migrated to exterior subsurface soils.

   No remediation of soils located beneath the basement slab is recommended; however, see Conclusion and Recommendation number 3, below. The Garage basement should be properly cleaned and all contaminated debris materials should be disposed of according to all applicable regulations.

   Estimated cost of basement cleaning (excluding removal of any potential asbestos containing materials): [redacted]

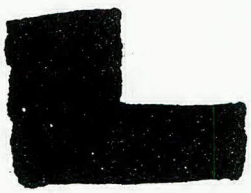
3. Chlorinated hydrocarbons, BTEX compounds, MTBE and several other VOCs were detected above NYSDEC action levels in subsurface soils surrounding the former floor drain. Laboratory data from these sampling points indicates that contamination tends to diminish with increasing depth. These findings support the conclusion that significant VOC contamination (including chlorinated hydrocarbons) exists in soils located under the concrete slab; this contamination,

however, appears to be limited to the area of the northern Garage repair bay in the vicinity of the former floor drain and is likely to be generally restricted to the upper eight feet of the soil column. It is possible that soils located underneath the basement slab, in close proximity to the southern basement wall, are also contaminated with VOCs. It is estimated that the total volume of contaminated soil warranting remedial action is between 70 and 120 cubic yards. These soils have been contaminated as a result of the discharge of a hazardous material (tetrachloro-ethylene, a.k.a. "PCE") into the floor drain and all soils generated at this Site will need to be managed as hazardous wastes. For budgetary purposes, it is assumed that all soils will require pretreatment prior to land disposal.

It is recommended that contaminated soils located under the Garage slab and under the Garage basement slab near the southern basement wall be excavated and properly removed off-site. PCE levels indicate that soils will require pretreatment in order to be properly disposed of at a permitted repository.

Estimated costs of removal of contaminated soil:

Soil excavation
Laboratory charges
Professional fees
Soil Transport and disposal (@$360/ton)
Total costs



4. TCLP laboratory data document the potential for contaminants to migrate to on-site groundwater if the current barrier layer (i.e. the Garage building) is removed. Current groundwater data confirm the absence of these contaminants.

It is recommended that remedial actions include periodic monitoring of the on-site groundwater supply well to document the continued absence of contamination. The installation of groundwater monitoring wells is not recommended at this time.

Estimated cost of three years of monitoring: [redacted]

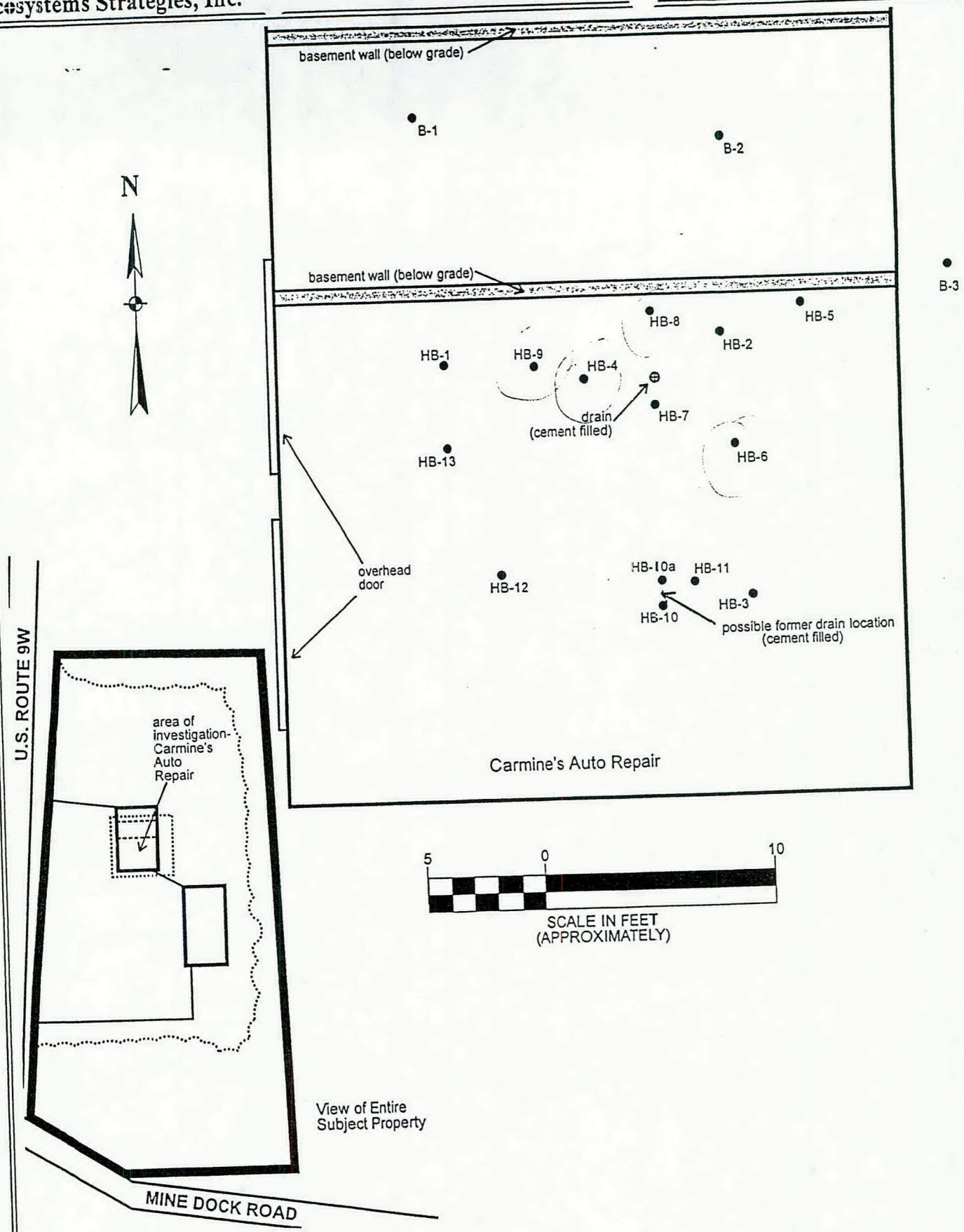
5. Related field work conducted by HydroScience, Inc. indicates that the northern Garage repair bay floor drain is not connected to any subsurface pipes which lead to the septic system. The floor drain, therefore, may be a drywell as per USEPA regulations.

It is recommended that the floor drain be closed in accordance with USEPA guidelines.

Estimated costs of closure of the floor drain are included in the above recommendations.

Appendix A

Maps



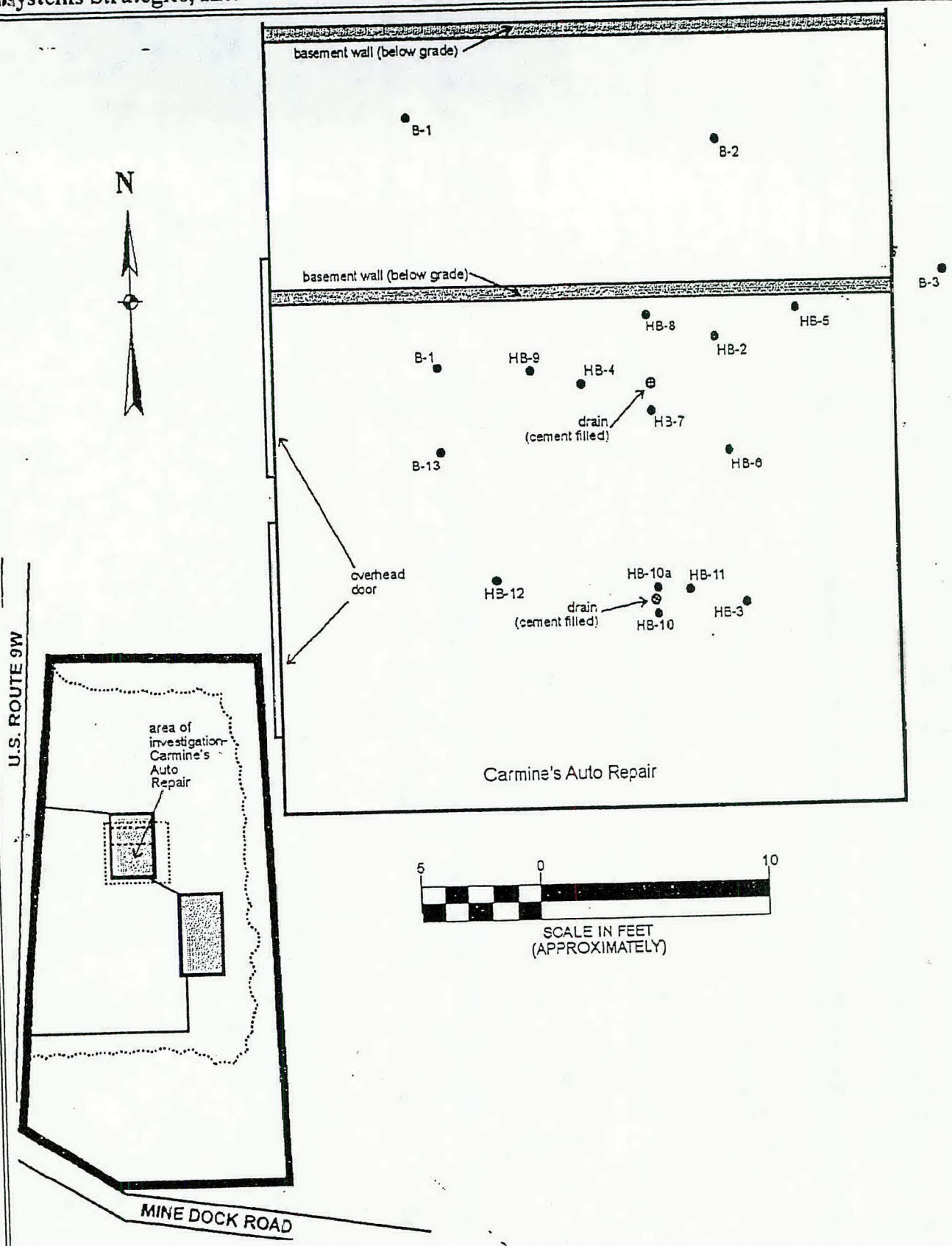
All feature locations are approximate.
Map based on Town of Highland tax map and field observations.

Field Work Map - December 2001

Sakmann Restaurant Corporation
U.S. Route 9W
Hamlet of Fort Montgomery, Town of Highland
Orange County, New York

Legend:
subject property border
hand boring location HB-6

ESI File: SF01123.20
January 2002
Scale as shown
Appendix A



All feature locations are approximate.
Map based on Town of Highland tax map and field observations.

Field Work Map - December 2001

Sakmann Restaurant Corporation
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Legend:
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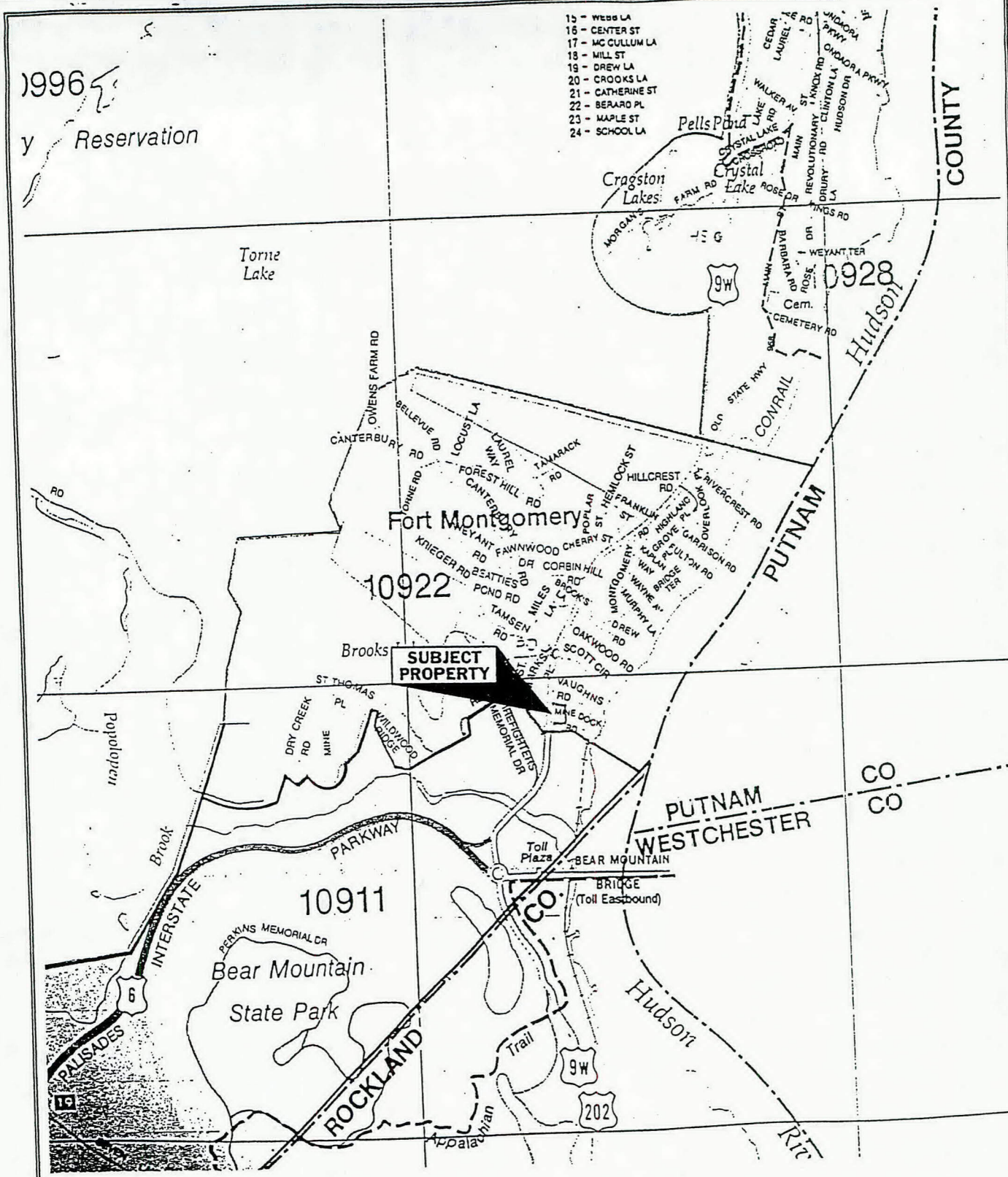
January 2002
Scale as shown
Appendix A



Source: Hagstrom Map Company, 1997

Site Location Map
U.S. Route 9W
Hamlet of Fort Montgomery, Town of Highlands,
Orange County, New York

N

ESI File : SF01123.30

Date: December 2001

Page: Appendix A

Appendix B

Previous Environmental Reports

4.0 Phase Two Investigation

4.1 Areas of Concern

The work described in this section was performed on specified portions of the subject property to address several potential environmental areas of concern identified during the initial phase one investigation conducted by this office. These areas of concern are as follows:

- the identification in the HydroScience Report of a subsurface layer of overtly contaminated soils at northeastern portions of the subject property;
- the presence of a drain in the garage floor. As discussed below, this drain is apparently a drywell used for the disposal of waste oil and wastewater which contains industrial degreasers. Soils located under the garage floor slab are likely to be contaminated with petroleum products, solvents, and/or other chemicals;
- the observation of visible staining on the southern basement wall, the presence of waste oil and water on the basement floor and the statement by the tenant of the garage that water enters the basement after the garage floors are washed. These observations suggest that oil and wastewater are entering the basement from beneath the garage floor. Contaminated fluids present in the basement could potentially migrate vertically or horizontally to external subsurface soils;
- the presence of a septic system of unknown configuration tc the east of the garage. This system was considered by this office to be a potential receiving point for petroleum and/or chemical wastes discharged into interior conduits such as floor drains; and
- the utilization of an on-site groundwater supply well to provide potable water for the subject property. On-site potable well-water could potentially be negatively impacted by the on-site presence of historic fill materials, known on-site petroleum contamination (garage basement) and/or known MTBE contamination in off-site local groundwater.

4.2 Summary of Field Work Services

In order to address the concerns identified above, intrusive environmental investigative work was conducted on the subject property. This work consisted of the following:

- the extension of soil cores to the north of the garage building in the vicinity of previously identified contaminated soils to document the presence or absence of organic compounds, metals, and PCBs and the nature of on-site fill materials. Eight soil cores (GP1 through GP8) were extended using a direct-push, track-mounted Geoprobe;
- the extension of soil cores to the east of the garage building in the vicinity of the septic tank to document the presence or absence of organic compounds, metals, and PCBs. Two soil cores (GP9 and GP10) were extended using a direct-push, track-mounted Geoprobe;
- the extension of soil cores inside the garage to document the presence or absence of organic compounds, metals, and PCBs under the concrete slab. Four soil cores (HB1 through HB4) were extended using a hand-held, direct push Geoprobe equipped with a slide hammer.

- the collection of 17 soil samples from 14 corings. Based upon field observations, eight of these samples were submitted for laboratory analysis. These samples were analyzed for one or more of the following: total RCRA metals, VOCs plus MTBE (USEPA method 8021), PAHs (USEPA method 8270) and PCBs (USEPA method 8020);

- the sampling of the on-site potable water supply well for the presence or absence of volatile organic hydrocarbons to determine if on-site groundwater had been impacted. Water samples were collected from the garage bathroom faucet and were submitted for laboratory analysis for VOCs plus MTBE (USEPA method 524.2, water).

All field work documented in this ESA was performed on September 27, 2001 by ESI personnel or designated contractors under the supervision of ESI personnel. Exterior soil corings were extended by Todd Syska, Inc., and interior soils corings were extended by ESI personnel.

A Field Work Map indicating the coring locations and associated selected site features is provided in Appendix A of this ESA.

4.3 Field Work Methodology

4.3.1 Utility Markout

Prior to the initiation of field work, a request for a complete utility markout of the Site was submitted by ESI as required by New York State Department of Labor regulations. Confirmation of underground utility locations was secured and a field check of the utility markout was conducted prior to the extension of soil cores.

4.3.2 Equipment Decontamination and Calibration

Prior to the initiation of field work, all field equipment was properly decontaminated in accordance with NYSDEC guidelines, and all field instruments were properly calibrated in accordance with procedures set forth by the equipment manufacturer(s). A MiniRAE 2000 (Model PGM 7600) photo-ionization detector (PID) was used for on-site screening of organic vapors. The PGM 7600 PID was calibrated to read parts per million calibration gas equivalents (ppm-cge) of isobutylene.

4.3.3 Field Work Logs

An assessment of subsurface soil characteristics, including soil type, the presence of foreign materials, field indications of contamination (e.g., unusual coloration patterns or odors), and instrument indications of contamination (i.e., PID readings) was made by ESI personnel during the extension of each soil coring. ESI personnel maintained independent field logs documenting the physical characteristics, PID readings and any field indications of contamination for all encountered material at each coring location. Relevant information from ESI logs for each coring location is summarized in each task section.

4.3.4 Sample Collection

All soil and water samples were collected in a manner consistent with NYSDEC sample collection protocols (see Soil and Water sections, below). After sample collection, the sample containers were placed in a cooler prior to transport to the laboratory. All soil and water samples (accompanied by properly completed chain of custody records) were transported via overnight courier to York Analytical Laboratories, Inc., a New York State Department of Health-certified laboratory (ELAP Certification Number 10854), for chemical analyses.

Notations were made regarding the sampled material's physical characteristics (e.g., material composition, color, odor, etc.). At each sample location and for each sample type (soil and liquid) a sufficient volume of material was collected for the known required analyses and for any potential additional analyses.

ESI personnel maintained field logs documenting the physical characteristics, PID readings, and any field indications of contamination for all encountered material at each coring location. Relevant information from ESI logs for each coring location is summarized in Section 4.4.1, below.

4.3.4.1 Soil

All exterior soil corings (GP-1 through GP-10) were extended using a direct-push, track-mounted Geoprobe operated by Todd Syska, Inc. Soil samples were collected over continuous four foot intervals to a depth of eight to 12 feet bsg or until drill refusal. The sampling spoon was equipped with disposable acetate sleeves to prevent the cross contamination of soil samples. All sample collection equipment was properly decontaminated prior to the initiation of sampling and between sample locations to avoid cross-contamination. The MiniRAE 2000 PID was utilized to screen the soils encountered during the extension of the soil cores to document the presence or absence of any volatile organic vapors.

All interior manual corings (HB-1 through HB-4) were extended by ESI personnel using a hand-held direct push sampling spoon equipped with a slide hammer. Sampling was conducted at 2-foot intervals to a maximum depth of eight feet below grade or until refusal was reached. The sampling spoon was equipped with disposable acetate sleeves to prevent the cross contamination of soil samples. All sample collection equipment was properly decontaminated prior to the initiation of sampling and between sample locations to avoid cross-contamination.

All soil samples were collected in a manner consistent with NYSDEC sample collection protocols. Decontaminated stainless steel trowels and dedicated g oves were used at each sample location to place the material into jars pre-cleaned at the laboratory. Prior to and after the collection of each material sample, the sample collection instrument was decontaminated to avoid cross-contamination between samples. Decontamination procedures were consistent with established USEPA and NYSDEC protocols.

4.3.4.2 Well Water

Water from the on-site well was obtained from the bathroom faucet of the gasoline station building. VOC water samples were collected into two pre-prepared laboratory-supplied jars, preserved with hydrochloric acid, using standard sampling protocols after the faucet was allowed to run freely for approximately 20 minutes.

4.4 Field Work Observations

4.4.1 Soil Cores

Subsurface soils encountered on the subject property during the extension of soil corings generally consisted of gray, red, brown, and black sandy to gravelly soils containing varying amounts of fragmented fill materials in a generally dry condition. Field observations of overt signs of contamination (staining, odor and/or PID readings) were noted in samples from GP-3, GP-4, GP-5, GP-8, GP-10, HB-2, HB-3, and HB-4.

Field observations for all soil corings are described in detail in Table 5, below. A Field Investigation Map indicating the boring locations and associated selected site features is provided in Appendix A of this ESA.

Table 5: Field Observations of Soil Corings

CORING	LOCATION	DEPTH	SOIL CHARACTERISTICS	PID (ppb)	FIELD OBSERVATIONS
GP-1	50' north of garage, 33' east of U.S. Route 9W	0 - 4'	0-2' poor recovery 2-4' gray, brown, red and black medium to coarse dry sand, with stones, ash and brick	0.0	No evidence of contamination
		4 - 8' sample at 7-8'	4-6' poor recovery 6-8' dry to slightly moist gray sand to brown sandy clay, fragments of coal, brick and rock	0.0	No evidence of contamination
		8 - 12' sample at 10-12'	8-10' poor recovery 10-12' dry black to gray/brown fine to medium sand, gravel and brick fragments, soft moist white material at 12'	0.0	No evidence of contamination
GP-2	73' north of garage, 37' east of U.S. Route 9W	0 - 4' sample	dry to slightly moist gray sand to brown sandy loam, fragments of coal, brick and rock	0.0	No evidence of contamination
		4 - 8'	similar to above plus metal fragments	0.0	No evidence of contamination
GP-3	62' north of garage, 56' east of U.S. Route 9W	0 - 4' sample at 3-4'	0-2' poor recovery 3-4' dry to slightly moist gray sand to brown sandy loam, fragments of coal, brick and rock	14.7	slight petroleum odor, possible degraded asphalt
		4 - 5.4' (refusal) sample	similar to above	0.0	slight petroleum odor
GP-4	45' north of garage, 49' east of U.S. Route 9W	0 - 4' sample at 3-4'	0-3' poor recovery 3-4' gray dry sand and gravel, yellow and red brick fragments	2.9	Slight petroleum odor
		4 -6. 8' (refusal) sample at 5.8-6.8'	Black dry gravelly sand, brown and gray moist sandy loam, brick and stone fragments	2.1	Slight petroleum odor
GP-5	55' north of garage, 72' east of U.S. Route 9W	0 - 4'	0-2' poor recovery 2-4' brown moist clayey-loam, brick fragments, gray concrete fragments, moist gray sandy loam	0.1	No evidence of contamination
		4 - 8' Sample at 7-8'	4-7' poor recovery 7-8' brown moist clayey-loam, brick fragments, gray concrete fragments, moist dense brown to black loam	5.9	slight petroleum odor
		8-12'	Rock fragments, dry brown coarse sand, layer of black asphalt shingles at 9.5-10.5'	0.1	No evidence of contamination
GP-6	39' north of garage, 72' east of U.S. Route 9W	0 - 4' Sample at 3-4'	0-3' poor recovery 3-4' dry to slightly moist gray sand to brown sandy loam, fragments of coal, brick and rock	0.0	No evidence of contamination
		4 - 8'	4-7' poor recovery 7-8' dry gray coarse sand to brown sandy loam, fragments of brick and rock	0.0	No evidence of contamination
GP-7	59' north of	0 - 4'	0-2' poor recovery	0.0	No evidence of

CORING	LOCATION	DEPTH	SOIL CHARACTERISTICS	PID (ppb)	FIELD OBSERVATIONS
GP-8	34' north of garage, 88' east of U.S. Route 9W	0 - 4'	0-3' poor recovery 3-4' brown and gray coarse sand with brick fragments	0.0	No evidence of contamination
		4 - 8' Sample at 6.5-8'	Dense gray medium sandy loam with plastic and coal fragments	22.5	Slightly stained soils, no gross contamination
GP-9	southeast corner of garage, 15' north and 7.5' east	0 - 4' Sample	0-2' poor recovery 2-4' gravel and brown loam, possible roofing tar, small rocks and brick fragments, dry	0.0	No evidence of contamination
		4 - 7.9' (refusal)	Poor recovery, light brown to red coarse sandy loam, stones to 1"	0.0	No evidence of contamination
GP-10	southeast corner of garage, 23' north and 12.5' east	0 - 4' Sample	Gravel and gray to black loam, possible roofing tar, small rocks and brick fragments, dry	0.0	No evidence of contamination
		4 - 8'	Poor recovery, dry brown sandy loam, red brick fragments and stones to 1.5"	0.0	No evidence of contamination
HB-1	northwest corner of northern garage bay, 5' south and 6.5' east	2 - 4'	Drilled through concrete (4-6"), void of 1-4" under slab Poor recovery, slightly moist medium brown coarse sand and gravel	0.0	No evidence of contamination
		Refusal at 6'	No recovery	N/A	N/A
HB-2	northwest corner of northern garage bay, 3.75' south and 18.5' east	2-4'	Drilled through concrete (4-6"), void of 1-4" under slab, no recovery	N/A	N/A
		4-5.5' (refusal)	Dark sand with gravel, slightly moist	53.1	Staining, strong petroleum odor
HB-3	northwest corner of northern garage bay, 14.75' south and 20.5' east	4-6'	Drilled through concrete (4-6"), void of 1-4" under slab, brown medium sand, dry	0.7	Slight petroleum odor
HB-4	northwest corner of northern garage bay, 5.75' south and 13' east	0.5 -2.5' Sample	Drilled through concrete (4-6"), void of 1-4" under slab, poor recovery, dark sand with gravel, slightly moist	79.6	Staining, strong petroleum odor
		4.5 -6.5' Sample	Brown medium sand with gravel, dry to slightly moist	15.3	Slight staining and slight petroleum odor

Notes: N/A=not applicable

4.4.2 Groundwater Well Sampling

No visual, olfactory, or instrument indications of contamination were observed during the collection of the water sample.

4.5 Laboratory Analysis and Results

During the course of the field work described in Sections 4.2 and 4.3, above, multiple soil samples and a single well water samples were collected. These samples were submitted to the laboratory for analysis to document the presence or absence of contamination in on-site soils and well water.

4.5.1 Terminology

Action Levels

The term "action level," as defined in this ESA, is the concentration of a particular contaminant above which remedial actions are considered more likely. The overall objective of setting action levels is to assess the integrity of on-site soils and groundwater relative to conditions which are likely to present a threat to public health, given the existing and probable future uses of the site. On-site soils and well water with contaminant levels exceeding these action levels are considered more likely to warrant remediation. No independent risk assessment was performed as part of this investigation.

The action levels identified in this ESA for metals and organic compounds are based on the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) on Determination of Soil Cleanup Objectives and Cleanup Levels (January 24, 1994) as modified by subsequent, relevant NYSDEC Records of Decision (RODs). In accordance with standards set forth in the above-referenced document, all detected compounds are provided with their respective action levels.

Background Levels

The term "background level", as defined in this ESA is the concentration of a particular metal which is known to naturally occur in Eastern United States soils. The overall objective of setting background levels for metals in soil is to assess the concentrations of metals in on-site soils relative to those that are naturally occurring.

On-site soils with metal concentrations exceeding these background levels are considered more likely to have been affected by anthropogenic contributions. The background levels for metals provided in this ESA are based on the NYSDEC's TAGM (January 24, 1994) as modified by subsequent, relevant NYSDEC Records of Decision (RODs).

Background levels do not exist for refined petroleum hydrocarbons, and, therefore, no discussion of naturally occurring levels for these compounds is appropriate.

4.5.2 Submission and Analysis

Soils

Four soil samples collected from corings extended in the area north of the garage (GP-1, GP-3, GP-8 and GP-10) and four soil samples collected from corings extended in the garage repair bays (HB-2 - HB-4) were submitted for laboratory analysis. Each of these samples was collected from soil determined by ESI personnel in the field to be representative of possible soil contamination. A summary of soil samples submitted for laboratory analysis is presented below in Table 6.

Table 6: Summary of Requested Laboratory Analysis of Soil Samples

Sample ID	Laboratory Analysis Requested[1,2]
GP-1 (10-12')	PCBs
GP-3 (3-4')	VOCs plus MTBE, PAHs and Total RCRA Metals
GP-8 (6.5-8')	VOCs plus MTBE, PAHs, PCBs and Total RCRA Metals
GP-10 (0-4')	VOCs plus MTBE, PAHs, PCBs and Total RCRA Metals
HB-2 (4-5.5')	PAHs, PCBs and Total RCRA Metals
HB-3 (4-6')	VOCs plus MTBE, PAHs and PCBs
HB-4 (.5-2.5')	VOCs plus MTBE, PAHs, PCBs and Total RCRA Metals
HB-4 (4.5-6.5')	VOCs plus MTBE, PAHs and PCBs

Notes: 1) Laboratory protocols used are USEPA method 8260 for VOCs plus MTBE, USEPA Method 8270 for PAHs and USEPA method 8020 for PCBs

2) RCRA metals analyzed are arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver

Water

The water sample collected from the potable on-site water supply well was submitted for laboratory analysis of VOCs plus MTBE using USEPA method 524.2 (water).

4.5.2 Laboratory Results

Summarized laboratory data and observations based upon laboratory results are outlined in the following discussion and presented below in Table 7 and Table 8. Specific characteristics or trends in results are noted where applicable. Further discussion of the laboratory results may also be found in the Conclusions and Recommendations section of this ESA.

Soil

Garage floor corings: HB1 through HB4

Four soil cores (HB1 through HB4) were extended on the subject property inside the garage repair bays in order to characterize subsurface conditions under the concrete slab. Corings HB2 and HB4 were extended in close proximity to a floor drain observed to contain waste oil and reported to be a receptor for wastewater discharges containing de-greasers. Staining and a strong petroleum odor were noted in corings HB2 and HB4, located closest to the floor drain. A slight petroleum odor was noted in soil from HB3 and no field observations of contamination were noted in soil from HB1.

Laboratory analysis of soil sampled from HB4 (0.5-2.5') indicated the presence of multiple VOCs above action levels including MTBE, BTEX compounds and chlorinated hydrocarbons (e.g., tetrachloroethylene, trichloroethylene, and [total] 1,2-dichloroethylene). Naphthalene (PAH) and PCBs were detected at below action levels. Arsenic (8.01 ppm) was detected at a concentration slightly above its action level of 7.5 ppm. A deeper sample from this coring (HB4, 4.5 - 6.5') contained VOCs and PAHs at concentrations below action levels.

Laboratory analysis of soil sampled from HB2 (4-5.5') indicated the presence of PAHs (naphthalene, phenanthrene, and pyrene) at concentrations below action levels (poor recovery at this location prevented analysis for VOCs). Samples from HB3 (4-6') contained one PAH (pyrene) at concentrations below action levels and contained no detectable VOCs.

Exterior Corings North of the Garage: GP-1, GP-3, and GP-8

Three soil samples from corings north of the garage were submitted for laboratory analysis. Fill materials were observed in all soil corings, and field observations of low level contamination were noted in corings from GP3 and GP8. Laboratory analysis of samples from GP3 (3-4') and GP8 (6.5-8') indicated the presence of several VOCs and PAHs at concentrations below action levels. Several PAHs [benzo(a) anthracene, benzo (a) pyrene, benzc (b) fluoranthene, benzo (k) fluoranthene, and chrysene] were found above action levels in soil sampled from GP3 (3-4'). This sample also contained arsenic at a concentration slightly above action levels. Lead (796 ppm) was found at a concentration exceeding its action level of 400 ppm in soil from GP8 (6.5-8'). Based on these findings, it is likely that soils in this area contain contaminated fill materials. This contamination, however, is considered by this office to be low-grade and limited in extent.

Exterior Corings East of the Garage: GP-10

One soil sample from corings north of the garage was submitted for laboratory analysis. Fill materials were observed in soil corings from this area. Laboratory analysis of a sample from GP10 (0-4') indicated the presence of one VOC (naphthalene) and several PAHs at concentrations below action levels. Several PAHs [benzo (a) anthracene, benzo (a) pyrene, benzo (b) fluoranthene, and benzo (k) fluoranthene] were found above action levels in this soil sample. Field observations, however, revealed no overt signs of contamination at this sample location. Based on these findings, it is likely that soil contamination in this area is low-grade and may be limited in extent.

Table 7 : Summary of Detected VOCs in Soil Samples
(All results measured in µg/kg-ppb. Results in bold exceed designated action levels.)

VOCs (USEPA Method 8260)	Action Level[1]	GP3 3-4'	GP8 6.5-8'	GP10 0-4'	HB4 0.5-2.5'	HB4 4.5-6.5	HB3 4-6'
1,2,4-Trimethylbenzene	3,300	ND	37	ND	1700	58	ND
1,2-Dichloroethylene (total)	300	ND	ND	ND	3100 (cis)	ND	ND
1,3,5-Trimethylbenzene	200	ND	14	ND	510	19	ND
Benzene	60	ND	ND	ND	190	ND	ND
Ethylbenzene	5,500	ND	ND	ND	810	ND	ND
Isopropylbenzene	2,300	ND	ND	ND	68	ND	ND
MTBE	120	ND	ND	ND	430	ND	ND
Naphthalene	13,000	11	31	8	530	14	ND
n-Butylbenzene	10,000	ND	ND	ND	110	ND	ND
n-Propylbenzene	3,700	ND	ND	ND	220	ND	ND
o-Xylene	NE	ND	ND	ND	1700	18	ND
p-&m-Xylenes	NE	ND	ND	ND	3700	38	ND

VOCs (USEPA Method 8260)	Action Level[1]	GP3 3-4'	GP8 6.5-8'	GP10 0-4'	HB4 0.5-2.5'	HB4 4.5-6.5	HB3 4-6'
Total Xylenes	1,200	ND	ND	ND	5400	56	ND
p-Isopropyltoluene	10,000	ND	ND	ND	26	ND	ND
Sec-Butylbenzene	10,000	ND	ND	ND	31	ND	ND
tert-Butylbenzene	1,300	ND	ND	ND	190	ND	ND
Tetrachloroethylene	1400	ND	ND	ND	5700	420	ND
Toluene	700	ND	ND	ND	3400	13	ND
Trichloroethylene	700	ND	ND	ND	3400	26	ND

Notes:
1. Source: NYSDEC Technical and Administrative Guidance Memorandum #4046 (TAGM) (January 24, 1994) as modified by subsequent, relevant NYSDEC Records of Decision (RODs).
ND = Not Detected
NE=Not Established

Table 8 : Summary of Detected PAHs in Soil Samples
(All results measured in µg/kg-ppb. Results in bold exceed designated action levels.)

		Sample Identification						
PAHs (USEPA Method 8270)	Action Level[1]	GP3 3-4'	GP8 6.5-8'	GP10 0-4'	HB4 0.5-2.5'	HB4 4.5-6.5'	HB2 4-4.5'	HB3 4-6'
Acenaphthene	50,000	ND	ND	ND	ND	ND	ND	ND
Anthracene	50,000	ND	ND	ND	ND	ND	ND	ND
Benzo (a) Anthracene	224	1800	ND	5000	ND	ND	ND	ND
Benzo (a) Pyrene	61	3000	ND	5200	ND	ND	ND	ND
Benzo (b) Fluoranthene	1,100	3500	ND	6200	ND	ND	ND	ND
Benzo (k) Fluoranthene	1,100	3700	ND	9600	ND	ND	ND	ND
Chrysene	400	2200	ND	ND	ND	ND	ND	ND
Dibenzo (a,h) Anthracene	14	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	50,000	2500	820	ND	ND	1900	ND	ND
Fluorene	50,000	ND	ND	3300	ND	ND	ND	ND
Indeno (1,2,3-construction and demolition) Pyrene	3,200	ND	ND	ND	ND	ND	ND	ND
Naphthalene	13,000	ND	ND	ND	2400	ND	3200	ND
Phenanthrene	50,000	ND	820	13000	ND	2100	2200	ND
Pyrene	50,000	3700	830	13000	ND	2300	1900	710

Notes: 1. Source: NYSDEC Division Technical and Administrative Guidance Memorandum #4046 (TAGM) (January 24, 1994) as modified by subsequent, relevant NYSDEC Records of Decision (RODs).
ND Not Detected above specified detection limit.

Water

No detectable concentrations of VOCs were identified in the water supply well sample submitted for analysis. The absence of contamination in this source supports the hypothesis that deep groundwater has not been impacted by the petroleum contamination identified in subsurface soils (see Soils subsection above).

5.0 Conclusions and Recommendations

This ESA has been performed in conformance with the scope and limitation of ASTM Practice E 1527-00 on the approximately 1.5-acre Sakmann Restaurant Corporation property and structures located at U.S. Route 9W, Town of Highlands, Orange County, New York, as described in Section 2.0, above. This Combined Phase I and Phase II ESA has revealed no evidence of potential recognized environmental conditions in connection with the property with the exception of the items detailed below. With respect to these conditions, the following conclusions and recommendations (in **bold**) are made. Cost estimates for proposed investigations and/or remedial actions are provided in *italics* where appropriate.

1. Information obtained during a review of historic photographs, municipal records, and information provided by the property representative indicates that the on-site automotive repair garage (currently occupied by Carmine's Auto Repair) has been present on the subject property since the late 1950s and was used as a gasoline station until the mid-1980s. Five gasoline underground storage tanks (USTs) were removed from the vicinity of this building in 1988. The on-site restaurant (the Trading Post) has been present on the subject property since the late 1960s. A 14-unit motel located to the southwest of the restaurant was present on the subject property from the late 1960s until its demolition in 1997-98. According to available information, no significant amounts of debris from the demolition of the motel structure remain on-site. According to Charles Sakmann, owner of the subject property, the northern two-thirds of the parcel has been subject to historic filling activities. The historic use of the subject property as a gasoline station, the former presence of petroleum product USTs, and the possible presence of fill materials and construction and demolition debris suggest that on-site soils (and possibly groundwater) may be impacted by petroleum, metal, or other forms of contamination.

   No further investigation of historic records is recommended. See the following paragraphs and Conclusion and Recommendation numbers 2 - 7, below.

   A subsurface investigation of the subject property was conducted by HydroScience, Inc. on May 19, 2000 to address issues of potential contamination of on-site soils from the operation of underground storage tanks (USTs), to investigate claims of the potential presence of buried waste oil drums on the portion of the subject property north of the garage, and to investigate soil conditions near the garage basement and former pump island. The HydroScience investigation confirmed that fill materials are present on-site and provided field observations and documentation of the presence of low levels of VOCs and PAHs in soils north of the garage and PAHs in soils near the abandoned restaurant UST.

   HydroScience concluded that there was no evidence of buried waste oil containers north of the garage, that there was no "adverse environmental impacts associated with the operation of former petroleum product USTs" (including the pump island), that petroleum contamination found near the restaurant is representative of historic fill materials and did not represent a release from the UST, that there were no indications of "significant impacts from basement conditions (i.e., waste oil contamination) beyond the foundation of the building", and that a limited layer of impacted fill materials exists north of the garage. HydroScience did not submit soils samples from this impacted layer, from near the septic tank, or from beneath the garage floor slab for laboratory analysis.

   Based on the HydroScience findings, the lack of a complete data set to delineate suspected areas of contamination and observations by ESI personnel of overt waste oil contamination in the garage basement, ESI conducted a subsurface investigation of the subject property on September 27, 2001 to further characterize on-site soils in the area of impacted fill material north of the garage, in the area of the septic tank east of the garage, and in the area immediately under the garage repair bays. Based on this work, the following conclusions summarized in Paragraph #2 - #5 are made.

2. Four soil cores (HB1 through HB4) were extended on the subject property inside the garage repair bays in order to characterize subsurface conditions under the concrete slab. Corings HB2 and HB4 were extended in close proximity to a floor drain observed to contain waste oil and reported to be a receptor for wastewater discharges containing de-greasers. No fill materials were observed in these soil corings. Staining and a strong petroleum odor were noted in soil corings (HB2 and HB4) located closest to the floor drains. Soil sampled from HB4 (0.5-2.5') contained multiple VOCs at concentrations above action levels (including MTBE and chlorinated hydrocarbons). These contaminants were either not present or were present below action levels in soil sampled from HB4 (4.5-6.5'). PAHs were present in soil sampled from HB2 at concentrations below action levels. No significant contamination was found in soils from HB3 (located approximately 12 feet south of the floor drain), and no field observations of contamination were noted in soils from HB1 (located west of the floor drain). Arsenic and chromium were detected in soils near the floor drain (HB2, 4-5.5' and HB4, 0.5-2.5') at concentrations slightly above action levels.

   The horizontal and vertical extent of this contamination is not known; however, the data suggest that significant contamination is limited to subsurface soils in close proximity to the floor drain. The likely source of this subsurface contamination is the discharge of oil and chlorinated solvents to the floor drain; the outfall of this floor drain, however, has not been definitively determined. The presence of this contamination warrants active remedial measures.

   It is recommended that additional corings be extended at the garage floor slab and at the exterior perimeter of the slab to further characterize and define the extent of subsurface contamination. Contaminated soils located under the garage slab should be excavated and properly removed off-site or should be properly treated *in-situ*.

   Estimated cost of additional borings: $5,000 - $7,000

   Estimated cost of removal of contaminated soil: $50,000 - $70,000

   It is the opinion of ESI that these documented levels of contamination are required to be reported to the NYSDEC. The NYSDEC was contacted by HydroScience personnel on October 5, 2001, and relevant information on the presence of petroleum contamination on the subject property was submitted to that agency. The NYSDEC has issued file number 0107005 for this spill event.

   It is recommended that information in this ESA be made available to the NYSDEC. All future investigative and remedial work at this Site should be submitted for review (and, as appropriate, for approval) by the NYSDEC to facilitate closure of spill file number 0107005.

3. Two soil cores (GP9 and GP10) were extended on the subject property at the eastern wall of the garage to characterize on-site soils in close proximity to the garage septic tank and basement (an area of known petroleum contamination). Fill materials were observed in both soil corings. PAHs (benzo (a) anthracene, benzo (a) pyrene, benzo (b) fluoranthene, and benzo (k) fluoranthene) were found above action levels in soil sampled at GP10 (0-4'); however, no field observations of contamination were noted at this location. It is possible that these elevated PAH values were caused by the presence of roofing materials (i.e., tar) in the soil cores. Based on these findings, it is likely that soils in this area are not grossly contaminated by historic discharges to the septic system or from migration of waste oil and/or other chemicals from the basement or garage floor slab. No definitive statement can be made, however, regarding the integrity of on-site soils greater than eight feet bsg or soils at other locations along the perimeter of the basement and garage floor slab.

   It is recommended that additional soil cores be extended along the perimeter of the garage foundation to document the presence or absence of contamination. See Conclusion and Recommendation number 2, above.

   Estimated cost of additional corings: Included in Recommendation number 2, above

4. The drain located on the floor of the northern garage repair bay was observed to contain waste oil. According to Carmine Bateullo, tenant of the garage, discharges to this drain (which include industrial de-greasers) enter the garage basement. The southern basement wall (located near the floor drain) is heavily stained, and the basement floor is covered with several inches of water and oil. Based on these findings, the floor drain appears to discharge directly to subsurface soils located below the garage floor, and these discharges are a likely source of oil and water present in the basement. The presence of halogenated hydrocarbons in soils located near the floor drain supports the conclusion that chlorinated solvents used to clean the repair bay floor may be entering the garage basement. It is possible that contaminants present in the basement may migrate to exterior subsurface soils or groundwater.

   It is recommended that the garage basement be properly cleaned and that discharges of waste oil and de-greasers to the floor drain be discontinued. Additional corings should be extended under the basement slab to document subsurface soil integrity.

   Estimated cost of extending corings under basement: $ 3,000 to $5,000

   If the garage floor drain discharges directly to subsurface soils, the drain is likely to be considered by the USEPA as a Class V underground injection control (UIC) well. If classified as a UIC well, the operation of this drain would not be in compliance with federal UIC regulations (40 C.F.R. part 124 and parts 144-147).

   It is recommended that a determination be made as to the terminus of the garage floor drain and that a determination be made as to the need for USEPA involvement in this matter. If this floor drain is determined to be an UIC well, then the drain should be properly closed or an application be made to the EPA for its operation under current federal requirements. If possible, soil and groundwater in the immediate area of the drain terminus should be sampled to document the presence or absence of hydrocarbon contamination (see Conclusion and Recommendation number 2, above).

5. Eight soil cores (GP1 through GP8) were extended on the northern portion of the subject property in the area identified by HydroScience as containing impacted fill materials. Fill materials were observed in all soil corings. Field observations of low level petroleum contamination were noted in several corings at multiple depths. Laboratory analysis of samples from GP3 and GP8 indicated the presence of several VOCs and PAHs at concentrations below action levels. Several PAHs (benzo (a) anthracene, benzo (a) pyrene, benzo (b) fluoranthene, benzo (k) fluoranthene, and chrysene) were found above action levels in soil sampled from GP3. Arsenic and chromium were also detected in soil from GP3 at concentrations slightly above action levels. This data does not indicate a consistent pattern of contamination, and no definitive statement can be made as to the horizontal or vertical extent of contamination in this area. The contamination, however, is low-grade and is likely to be limited in extent. Removal of this soil is not warranted at this time.

   It is recommended that on-site soils located north of the garage be appropriately covered by topsoil or asphalt paving. Alternatively, these soils should be excavated and properly disposed of off-site.

   Estimated cost to cover soils: $10,000 - $15,000

6. Based on the subsurface investigations conducted by this office and by HydroScience, no definitive statement can be made as to the integrity of on-site shallow groundwater.

   No further investigation is recommended at this time. Additional soil testing should be conducted to provide guidance on the need for groundwater testing.

7. An abandoned fuel-oil UST of unknown capacity is located at the northwest corner of the Trading Post Restaurant. Field observations and the results of soil testing in the vicinity of this tank (as reported by HydroScience) suggest that this tank is not leaking but are not definitive. This UST is required to be registered with the NYSDEC if its storage capacity is over 1,100 gallons (6 NYCRR Parts 612-614).

   It is recommended that this tank be removed from the subject property or properly closed in place. Confirmatory soil sampling should be undertaken during removal/closure of the tank, or soil corings should extended prior to removal of the tank to document the presence or absence of contamination in on-site soils and (if encountered) groundwater.

   Estimated cost of tank closure: $5,000

8. The basement of the garage was noted to contain debris consisting of tires, trash, discarded mechanical equipment, and motor oil containers. Some of this material was noted to be coated with waste oil. The presence of discarded oil containers and oily debris materials represents a potential threat to the environmental integrity of the subject property.

   See Conclusion and Recommendation number 4, above.

   Approximately five cubic yards of debris consisting of mixed trash are present near the northern end of the restaurant, and less than one cubic yard of debris consisting of discarded automotive parts is present near the northern exterior wall of the garage. Approximately three yards of broken concrete block and brick are present at the northern edge of the subject property. Fill materials consisting of fragments of concrete, brick, stone, and/or asphalt are also exposed at the surface in this area and in the area that formerly contained the motel. None of these materials are likely to pose a significant threat to the environmental integrity of the subject property.

   It is recommended that all debris materials be segregated into appropriate waste streams (i.e., those which can be disposed of as solid waste and those which require special handling) and be disposed of in accordance with applicable regulations.

9. Asbestos-containing materials (ACMs) could potentially be present on the subject property. No asbestos survey is known to have been conducted. According to Carmine Bateullo, some mechanical equipment in the basement of the garage may contain asbestos insulation. The following suspect ACMs (in good condition) were noted in the Trading Post Restaurant during the site inspection: rolled linoleum flooring, 12" by 12" vinyl floor tiles and 12" by 12" adhesive ceiling tiles. Other building construction materials (e.g., roofing, plaster, etc.) found in both the garage and the restaurant could also potentially contain asbestos.

   No further investigation is recommended. It is recommended that any suspect material encountered during maintenance, renovation, or demolition activities be tested for asbestos or be treated as though it were asbestos in the absence of analytical data. All maintenance, renovation, or demolition activities should be conducted in accordance with applicable regulations.

10. Lead-based paint could potentially be present on the subject property. A lead-based paint survey is not known to have been conducted. All of the painted surfaces of the areas inspected by this office were in good condition at the time of the site inspection. However, no statement can be made by this office regarding the presence or absence of LBP in underlying layers of paint.

    No further investigation is recommended. It is recommended that any suspect material encountered during maintenance, renovation, or demolition activities be tested for lead or be treated as though it were lead-based paint in the absence of analytical data. All maintenance, renovation, or demolition activities should be conducted in accordance with all applicable regulations.

11. Given the date of construction of the on-site structure, PCBs could potentially be present in on-site fluorescent light fixture ballasts and hydraulic lift equipment located in the garage. According to Carmine Bateullo, oil tanks from hydraulic equipment no longer in use may be present under the southern repair bay concrete slab. No other equipment likely to contain PCBs was noted on the subject property during the site inspection. No significant concentrations of PCBs were detected in soil samples submitted for analysis as part of the on-site subsurface investigation.

    No further investigation is recommended. It is recommended that any equipment which could potentially contain PCBs or materials contaminated with PCBs encountered during maintenance, renovation, demolition, or soil excavation activities be handled, removed, and disposed of in accordance with applicable regulations.

12. A review of the NYSDEC spill database indicates that no spill events are reported for the subject property (with the exception of spill number 0107005, reported as a result of this investigation and referenced in Conclusion and Recommendation number 2, above). Seventeen spill events are reported to have occurred within 0.5 mile of the subject property. Based on a review of the materials spilled, intervening distances between the releases and the subject property, the presumed direction of groundwater flow, and other information located in the records reviewed, it is unlikely that these events, with the exception of the spills described below, have negatively impacted the subject property.

    Eight of the reported spill events involve the Sunoco Service Station property located approximately 0.25 mile north-northeast of the subject property. Two of the Sunoco spill events (# 0003187, reported May 22, 2000 and #9911116, reported October 6, 1999) involved the likely release of gasoline into groundwater. The Sunoco on-site potable water well (and off-site potable wells) are reportedly contaminated with MTBE. Given the presumed direction of shallow groundwater flow, it is unlikely that contamination from this site would have a significant environmental impact on the subject property; it is possible, however, given the proximity of the site to the subject property and the presence of regional shallow bedrock, that contaminants (especially highly volatile compounds such as MTBE) could reach the subject property. According to laboratory results, no VOCs (including MTBE) were detected in groundwater from the subject property's on-site potable well.

    No further action is recommended.

13. A utility company-owned, pole-mounted transformer was noted in close proximity to the subject property along the western side of U.S. Route 9W. The cleanup of a release from this transformer would be the responsibility of the utility company.

    No further investigation is recommended.