New York State Department of Environmental Conservation
625 Broadway • Albany NY 12233

Executive Summary

Former Majestic Garment Cleaners
740 Pine Street
Brooklyn, New York
Site # 2-24-035
Work Assignment # D004439-22

October 2010

Prepared By:

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0266384

MALCOLM PIRNIE

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Figures

1. Introduction

On behalf of the New York State Department of Environmental Conservation (NYSDEC), Malcolm Pirnie, Inc. (Malcolm Pirnie) has prepared this Executive Summary for investigation activities at the former Majestic Garment Cleaners Site, in Brooklyn, Kings County, New York (site) (Figures 1 and 2). Based on the previous discovery of petroleum constituents and chlorinated solvents in the soil and groundwater at the site, the nature and extent of the release and potential presence of soil vapor will be assessed during the investigation. This Executive Summary presents the understanding of site conditions to-date, site characterization approach, and field tasks that will guide the field work.

1.1. Background and Site History

The former Majestic Garment Cleaners site is located at 740 Pine Street at the intersection with Loring Avenue, Brooklyn, New York (Figure 2). The parcel is approximately 24,000 square feet and formerly operated as an industrial laundry and dry cleaning facility. The site formerly contained a large one-story brick building constructed in 1926 with a smaller attached one-story cinder block building on its north side built at a later date. The facility operated from 1926 through 2004. The site buildings were demolished in approximately 2007. Significant demolition debris remains on the site. Three underground storage tanks (USTs) were reportedly present and abandoned in-place within the footprint of the former masonry block building addition and potentially in the rear portion of the main building near the former loading dock (Anson, 2004). Additionally, it was reported that a UST under the south side of the former building may have contained tetrachloroethene (PCE) (Anson, 2004).

A Phase I Environmental Site Assessment (ESA) was conducted at the site in February 1998 by Middleton, Kontoska, Associates, Ltd. (MKA), followed by a focused sub-surface site investigation in May 1998 by ATC Associates, Inc. (ATC) which identified petroleum and chlorinated volatile organic compounds (VOCs) in both soil and groundwater. Petroleum-saturated soil was present in one boring in the area of the three USTs. Additional investigation activities were conducted by URS Corporation Group Consultants (URS) on behalf of the NYSDEC in late 2001which identified several locations with VOC and semi-volatile organic compound (SVOC) groundwater concentrations greater than the corresponding NYSDEC Class GA Standards. In particular, the groundwater sample from piezometer PZ-1 contained PCE at a concentration of 11,000 µg/L, as shown on Figure 3 which summarizes available

groundwater VOC data for the site. Figure 4 summarizes available soil VOC data for the site.

1.2. Geology and Hydrogeology

Based on previous work, much of the surficial soil at the site consists of urban fill composed of mixed sand, with varying amounts of gravel, brick, and concrete debris. The thickness of urban fill (i.e., debris, brick, etc.) at the site is approximately 8 feet below ground surface (bgs), which is underlain by organic rich clay and sand. The depth to groundwater observed during previous work is approximately 7-10 feet bgs with groundwater flow in the vicinity of the site thought to be generally southeast toward Jamaica Bay. It appears that a local hydraulic low near PZ-2 may have been due to dewatering beneath the building when the building was present and in use.

2. Site Investigation

The scope of work for the site investigation is designed to further characterize the magnitude and extent of contaminants associated with the former laundry and dry cleaning operations (i.e., chlorinated and petroleum-based VOCs and SVOCs), the potential for off-site migration of contaminants, and the potential for vapor intrusion. The base scope of work includes a geophysical survey, direct-push soil borings, soil and discrete groundwater sampling, installation of additional soil vapor points, and sampling of existing piezometers and soil vapor points.

An analytical laboratory approved by the New York State Department of Health (NYSDOH) under the Environmental Laboratory Approval Program (ELAP), and certified to perform NYSDEC Analytical Services Protocol (ASP) will analyze all samples collected during the investigation. Analytical results will be reported in ASP Category B data packages. A Data Usability Summary Report (DUSR) will be prepared upon the receipt of all analytical data to ensure that the quality of the data is sufficient to evaluate remedial alternatives. Sample collection, handling activities, and QA/QC sampling will be conducted in accordance with Malcolm Pirnie's Generic Quality Assurance Project Plan (QAPP), which has previously been submitted to the NYSDEC for work conducted under the NYSDEC State Superfund Standby Contract No. D004439.

2.1. Geophysical Survey

A geophysical survey will be conducted at the site using electromagnetic resistivity (ERM) and ground penetrating radar (GPR) methods to locate on-site utilities and assess the presence and location of possible USTs prior to drilling.

2.2. Subsurface Sampling

Subsurface soil samples will be collected from 10 locations across the site, as shown on Figure 5, to assess areas of concern and the likely migration route of potential subsurface contaminants.

2.2.1. Soil Borings

Soil borings will be drilled using direct-push drilling methods. Soil samples will be collected continuously from the ground surface to the final depth of each boring using a macro-core sampler. Upon retrieval, each macro-core will be opened and the soil will be screened using a PID, visually inspected for indications of contamination (e.g., staining

and/or sheens) and buried debris, and classified by the on-site field geologist. The final depth of each boring will be dependent on site-specific conditions.

2.2.2. Soil Sample Collection

Ten borings, as shown on Figure 5, will be drilled to evaluate the areas of concern on the site. The borings will be advanced to the water table or to refusal, whichever is encountered first. Up to two soil samples from each boring will be collected from the unsaturated interval containing the highest PID measurement and/or the greatest evidence of contamination (e.g., staining, sheens, and/or odor). If no contamination is evident, only the depth interval immediately above the water table or refusal depth will be collected for laboratory analysis. Soil samples will be analyzed for Target Compound List (TCL) VOCs by USEPA Method 8260B and TCL SVOCs by USEPA Method 8270C.

2.2.3. Discrete Groundwater Sample Collection

Groundwater will be sampled using direct-push methods at each soil boring location, as shown on Figure 5. At each boring location, a retractable-screen groundwater sampling device capable of collecting depth-discrete groundwater samples will be used. Groundwater samples will be collected at two depths per boring to correspond to the depth of the water table, which based on available data, is expected to be approximately 10 feet bgs, and approximately 25 feet bgs. Groundwater samples will be analyzed for TCL VOCs by USEPA Method 8260B and TCL SVOCs by USEPA Method 8270C.

2.3. Soil Vapor Sampling

Soil vapor and ambient outdoor air samples will be collected concurrently in accordance with NYSDEC and NYSDOH guidelines to evaluate the potential for soil vapor intrusion of VOCs. All air samples will be collected using 6-liter summa canisters equipped with pre-calibrated one-hour flow controllers. Samples from each monitoring point will be sent to a NYSDOH ELAP and NYSDEC ASP-certified analytical laboratory under chain-of-custody procedures for analysis of VOCs by USEPA Method TO-15. The proposed air sampling locations are shown on Figure 5.

2.3.1. Soil Vapor Point Samples

Eleven soil vapor points were previously installed at the site, however, some of these points are either no longer accessible or have been destroyed. New soil vapor points will be installed at locations based on consultation with the NYSDEC. The distribution of the soil vapor monitoring locations focuses on the location of the former USTs, known groundwater contamination, and potential adjacent receptors. The depth of each soil vapor point will be based on observed conditions including subsurface geology and depth to groundwater.

The canisters will be batch certified clean (in accordance with EPA Method TO-15) and under a vacuum pressure of no more than -25 inches of mercury (in Hg). Flow controllers will be set for a one-hour collection period. Upon completion of sampling, each canister will be checked for final vacuum pressure and shipped to the laboratory for analysis of VOCs using USEPA Method TO-15. Soil vapor sample results will be reported with full data deliverables.

2.3.2. Tracer Gas Test

A tracer gas test will be performed in accordance with NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006) to confirm that the soil vapor probes were constructed in a manner that minimize the entrainment of ambient air into the soil vapor samples. Helium will be used as the tracer gas since it is non-toxic, non-reactive, and provides a sensitive response that can be monitored using a portable helium detector. Tracer gas testing will be performed at all proposed soil vapor sampling locations. A small plastic container will be placed over the sampling point, filled with helium, and measured using a helium detector to ensure 100 percent concentration of helium in the enclosure. A syringe will be used to purge the sampling tube into a Tedlar® bag which will be tested using the helium detector and a PID. If high concentrations (greater than 10 percent) of tracer gas are observed in the Tedlar® bag, the probe seal will be enhanced to reduce the infiltration of air. Once the probe seal's integrity is confirmed, the 6-liter sampling canister with a vacuum gauge and flow controller will be connected to the sample tubing and the point sampled.

2.3.3. Ambient Air

One ambient air sample will be collected at the site, to both evaluate the potential on-site exposures resulting from VOCs in soil and groundwater in the vicinity of the site, and to establish background values for local ambient air quality. Sample collection will be performed concurrently with the collection of soil vapor samples.

2.4. Groundwater Sampling

Groundwater samples will be collected from each of the four existing piezometers at the locations shown on Figure 5. Prior to groundwater purging and sampling the depth to water and light non-aqueous phase liquid (LNAPL), if present, in each piezometer will be measured using an oil/water interface probe and recorded. Groundwater sampling will be conducted in accordance with the USEPA Low-Flow/Low-Purge Sampling Protocol (USEPA, 1998). To the extent practicable, groundwater purging rates will be low enough to prevent significant drawdown of the groundwater level in the piezometer. Water levels will be monitored during sampling to ensure that excessive draw down is not occurring. Each groundwater sample will be analyzed for TCL VOCs by USEPA Method 8260B and TCL SVOCs by USEPA Method 8270C.

To evaluate geochemical characteristics of the groundwater, and to evaluate the effectiveness of well purging, temperature, pH, oxidation-reduction potential, specific conductivity, turbidity, and dissolved oxygen will be measured during purging and immediately prior to groundwater sampling.

Purged groundwater will be temporarily contained in pre-cleaned five-gallon buckets prior to discharge to evaluate whether sheens and/or non-aqueous phase liquids (NAPLs) are present in the purge water and the purge water will be screened with a PID prior to discharge to the ground surface. In the event that sheens and/or NAPLs are observed during well development, purged water will be collected in UN-approved 55-gallon steel drums and staged on-site for characterization and proper disposal.

2.5. Investigation Derived Waste

Investigation derived wastes will be handled in accordance with the NYSDEC Proposed Decision TAGM Disposal of Contaminated Groundwater Generated During Site Investigations and the Final TAGM – Disposal of Drill Cuttings. Soil cuttings that show no evidence of contamination (i.e., greater than background PID measurements, odors, or staining) will be returned to the boreholes upon the completion of drilling at each of these locations. If required, soil and/or groundwater will be contained in U.N.-approved 55-gallon drums. The drums will be properly labeled with their contents until they can be properly disposed off-site. Final disposal of any containerized soil cuttings and/or groundwater will be based on the results of soil and groundwater samples collected from the site.

3. Reporting

An investigation report will be prepared and submitted to the NYSDEC for review and comment. The report will include the following:

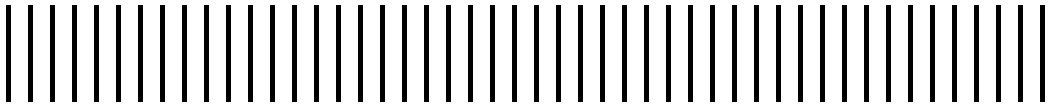
- Discussion of field investigation activities and technologies.
- Discussion of the physical characteristics of the site, including groundwater flow patterns.
- Presentation of analytical results for all media sampled.
- Quality assurance/quality control evaluation of the analytical data including the results of the data quality review.
- Discussion of the nature and extent of contaminants.
- Comparison of analytical results to background concentrations and applicable regulatory standards and objectives.
- Supporting data, including analytical data packages, field log forms, and monitoring well construction diagrams.

4. References

Anson Environmental, Ltd., 2004, Soil and Groundwater Investigation Work Plan, Former Majestic Garment Cleaners, Brooklyn, New York

New York State Department of Environmental Conservation
Executive Summary
Former Majestic Garment Cleaners

Figures



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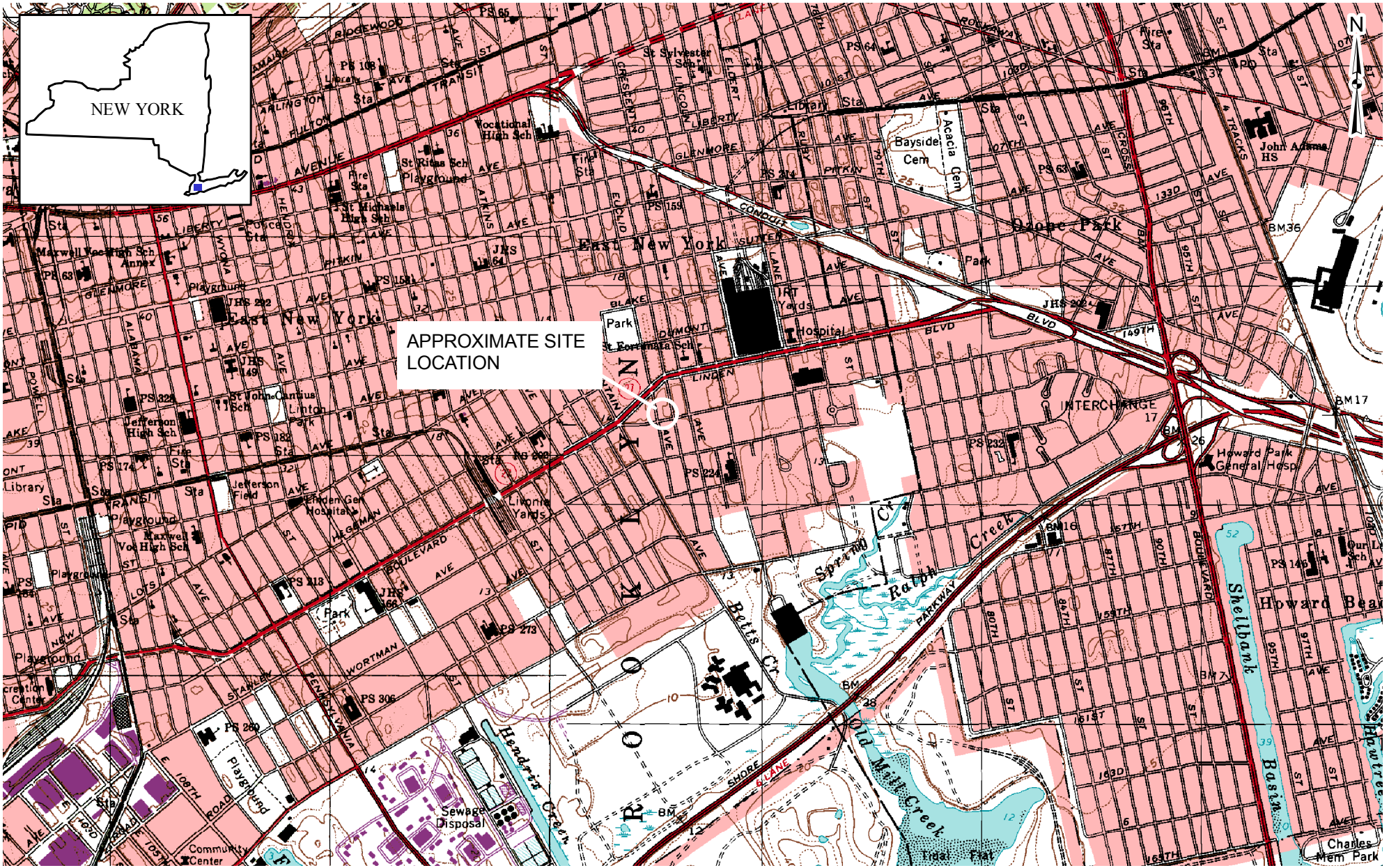
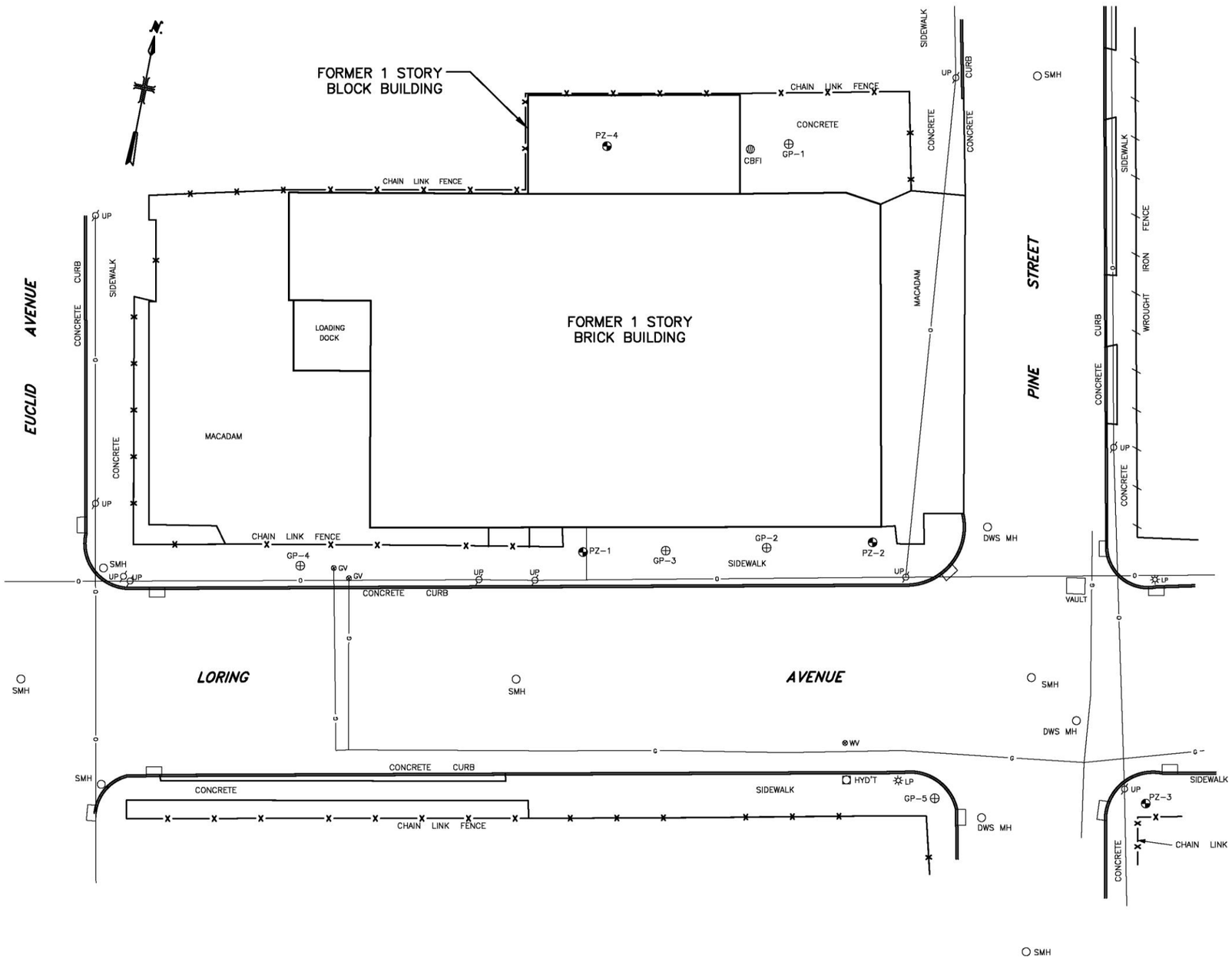
M:\GISMOD\0266384\Majestic Cleaners Site Map.mxd



MALCOLM PIRNIE	NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION FORMER MAJESTIC CLEANERS SITE (# 2-24-035) BROOKLYN, KINGS COUNTY, NEW YORK	**SITE LOCATION**	MALCOLM PIRNIE, INC. SEPTEMBER 2010 **FIGURE 1**



LEGEND

- PZ-# PIEZOMETER WELL
- GP-# GEOPROBE POINT
- —x— CHAIN LINK FENCE
- —/— WROUGHT IRON FENCE
- UP UTILITY POLE
- —o— OVERHEAD WIRE
- DWS MH DRAINAGE MANHOLE
- CB CATCH BASIN
- CBFI CATCH BASIN FIELD INLET
- LP LIGHT POLE
- —E— UNDERGROUND ELECTRIC LINE AS MARKED
- —G— UNDERGROUND GAS LINE AS MARKED
- GV GAS VALVE
- WV WATER VALVE
- HYD'T HYDRANT
- SMH SEWER MANHOLE

NOTES

1. DATE OF FIELD SURVEY: NOVEMBER 30, 2001 AND UPDATE ON JANUARY 25, 2002 (SAMPLE POINT GP-4 ONLY)
2. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM, NAD 83
3. VERTICAL DATUM: NGVD 88
4. HORIZONTAL AND VERTICAL DATUMS FROM GPS OBSERVATIONS

15 0 15 30

SCALE: 1" = 30'

SOURCE: 2001/2002, YEC INC., SURVEY PERFORMED FOR URS CORP.

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

MAJESTIC CLEANERS SITE RI/FS

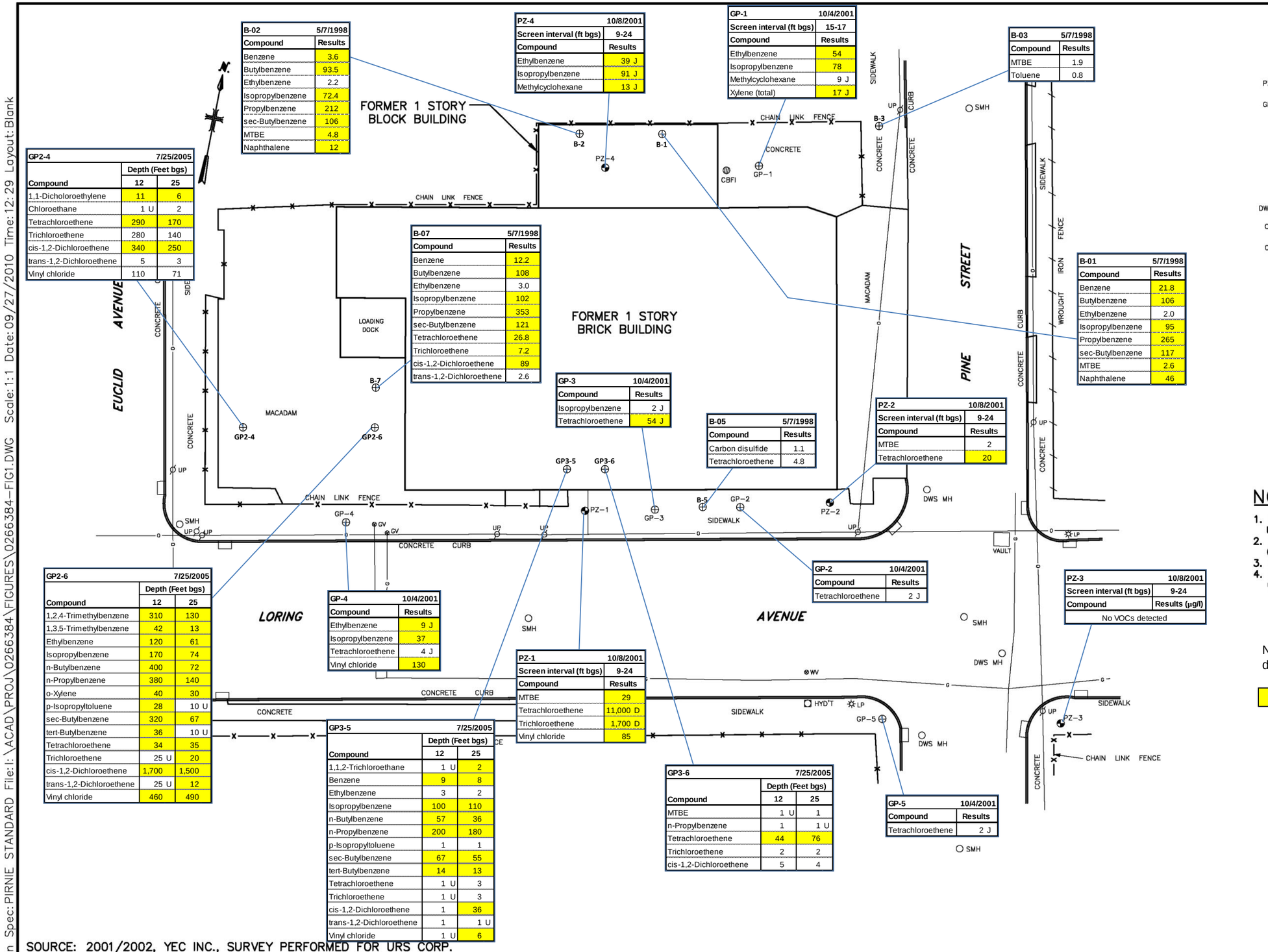
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK

SITE MAP

MALCOLM PIRNIE, INC.

SEPTEMBER 2010

FIGURE 2



B-02	5/7/1998
Compound	Results
Benzene	3.6
Butylbenzene	93.5
Ethylbenzene	2.2
Isopropylbenzene	72.4
Propylbenzene	212
sec-Butylbenzene	106
MTBE	4.8
Naphthalene	12

PZ-4	10/8/2001
Screen interval (ft bgs)	9-24
Compound	Results
Ethylbenzene	39 J
Isopropylbenzene	91 J
Methylcyclohexane	13 J

GP-1	10/4/2001
Screen interval (ft bgs)	15-17
Compound	Results
Ethylbenzene	54
Isopropylbenzene	78
Methylcyclohexane	9 J
Xylene (total)	17 J

B-03	5/7/1998
Compound	Results
MTBE	1.9
Toluene	0.8

GP2-4	7/25/2005	
	Depth (Feet bgs)	
Compound	12	25
1,1-Dicholoroethylene	11	6
Chloroethane	1 U	2
Tetrachloroethene	290	170
Trichloroethene	280	140
cis-1,2-Dichloroethene	340	250
trans-1,2-Dichloroethene	5	3
Vinyl chloride	110	71

B-07	5/7/1998
Compound	Results
Benzene	12.2
Butylbenzene	108
Ethylbenzene	3.0
Isopropylbenzene	102
Propylbenzene	353
sec-Butylbenzene	121
Tetrachloroethene	26.8
Trichloroethene	7.2
cis-1,2-Dichloroethene	89
trans-1,2-Dichloroethene	2.6

B-01	5/7/1998
Compound	Results
Benzene	21.8
Butylbenzene	106
Ethylbenzene	2.0
Isopropylbenzene	95
Propylbenzene	265
sec-Butylbenzene	117
MTBE	2.6
Naphthalene	46

GP-3	10/4/2001
Compound	Results
Isopropylbenzene	2 J
Tetrachloroethene	54 J

B-05	5/7/1998
Compound	Results
Carbon disulfide	1.1
Tetrachloroethene	4.8

PZ-2	10/8/2001
Screen interval (ft bgs)	9-24
Compound	Results
MTBE	2
Tetrachloroethene	20

GP-2	10/4/2001
Compound	Results
Tetrachloroethene	2 J

PZ-3	10/8/2001
Screen interval (ft bgs)	9-24
Compound	Results (µg/l)
No VOCs detected	

GP2-6	7/25/2005	
	Depth (Feet bgs)	
Compound	12	25
1,2,4-Trimethylbenzene	310	130
1,3,5-Trimethylbenzene	42	13
Ethylbenzene	120	61
Isopropylbenzene	170	74
n-Butylbenzene	400	72
n-Propylbenzene	380	140
o-Xylene	40	30
p-Isopropyltoluene	28	10 U
sec-Butylbenzene	320	67
tert-Butylbenzene	36	10 U
Tetrachloroethene	34	35
Trichloroethene	25 U	20
cis-1,2-Dichloroethene	1,700	1,500
trans-1,2-Dichloroethene	25 U	12
Vinyl chloride	460	490

GP-4	10/4/2001
Compound	Results
Ethylbenzene	9 J
Isopropylbenzene	37
Tetrachloroethene	4 J
Vinyl chloride	130

PZ-1	10/8/2001
Screen interval (ft bgs)	9-24
Compound	Results
MTBE	29
Tetrachloroethene	11,000 D
Trichloroethene	1,700 D
Vinyl chloride	85

GP3-5	7/25/2005	
	Depth (Feet bgs)	
Compound	12	25
1,1,2-Trichloroethane	1 U	2
Benzene	9	8
Ethylbenzene	3	2
Isopropylbenzene	100	110
n-Butylbenzene	57	36
n-Propylbenzene	200	180
p-Isopropyltoluene	1	1
sec-Butylbenzene	67	55
tert-Butylbenzene	14	13
Tetrachloroethene	1 U	3
Trichloroethene	1 U	3
cis-1,2-Dichloroethene	1	36
trans-1,2-Dichloroethene	1	1 U
Vinyl chloride	1 U	6

GP3-6	7/25/2005	
	Depth (Feet bgs)	
Compound	12	25
MTBE	1 U	1
n-Propylbenzene	1	1 U
Tetrachloroethene	44	76
Trichloroethene	2	2
cis-1,2-Dichloroethene	5	4

GP-5	10/4/2001
Compound	Results
Tetrachloroethene	2 J

LEGEND

- PZ-# PIEZOMETER WELL
- GP-# GEOPROBE POINT
- CHAIN LINK FENCE
- WROUGHT IRON FENCE
- UP UTILITY POLE
- OVERHEAD WIRE
- DWS MH DRAINAGE MANHOLE
- CB CATCH BASIN
- CBFI CATCH BASIN FIELD INLET
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NOTES

1. DATE OF FIELD SURVEY: NOVEMBER 30, 2001 AND UPDATE ON JANUARY 25, 2002 (SAMPLE POINT GP-4 ONLY)
2. HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM, NAD 83
3. VERTICAL DATUM: NGVD 88
4. HORIZONTAL AND VERTICAL DATUMS FROM GPS OBSERVATIONS

NOTE: Groundwater VOC concentrations for detected compounds given in µg/L.

= Concentration exceeds corresponding NYSDEC Class GA Standard.

15 0 15 30

SCALE: 1" = 30'

SOURCE: 2001/2002, YEC INC., SURVEY PERFORMED FOR URS CORP.

MALCOLM PIRNIE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

MAJESTIC CLEANERS SITE RI/FS

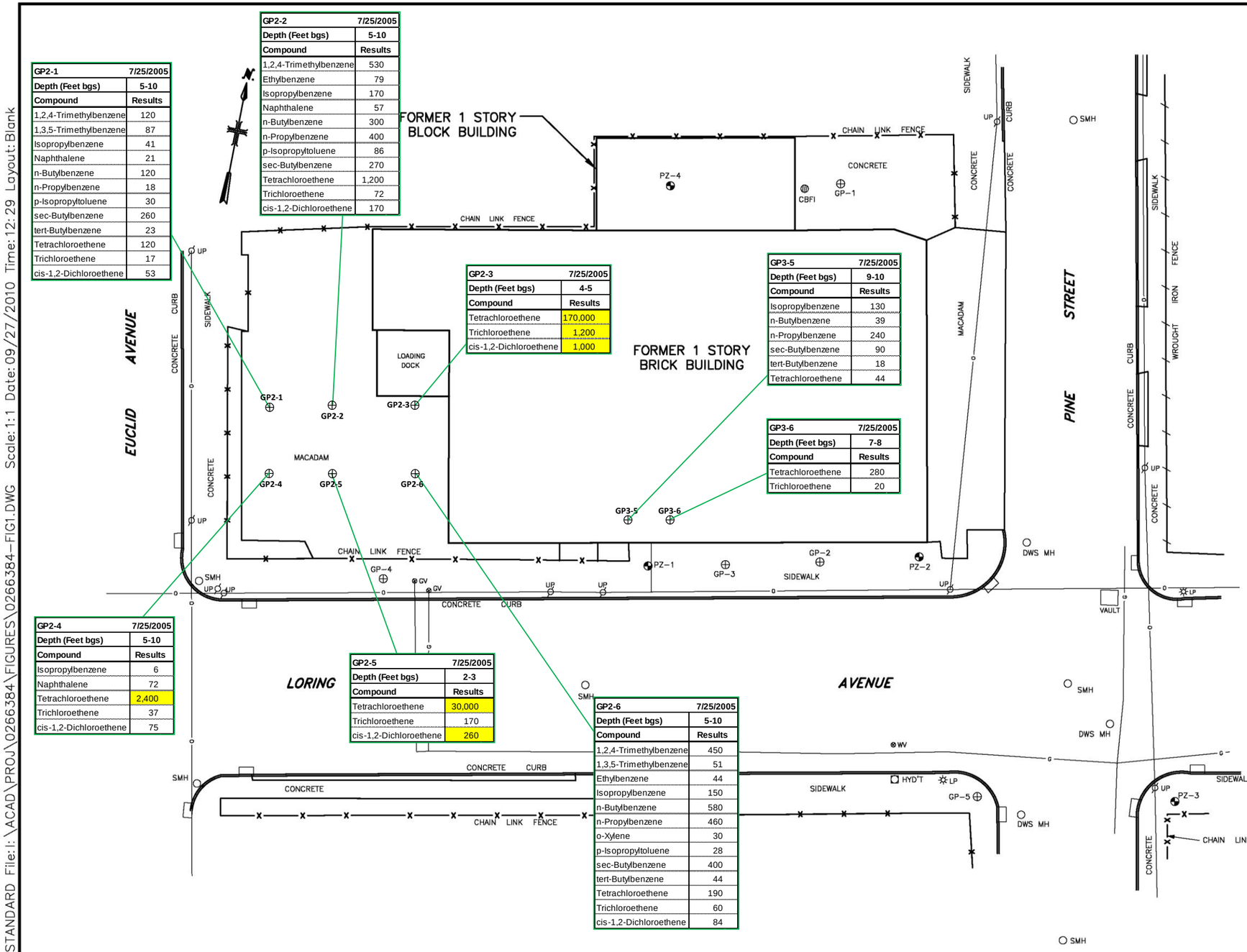
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK

SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER (VOCs)

MALCOLM PIRNIE, INC.

SEPTEMBER 2010

FIGURE 3



GP2-1	7/25/2005
Depth (Feet bgs)	5-10
Compound	Results
1,2,4-Trimethylbenzene	120
1,3,5-Trimethylbenzene	87
Isopropylbenzene	41
Naphthalene	21
n-Butylbenzene	120
n-Propylbenzene	18
p-Isopropyltoluene	30
sec-Butylbenzene	260
tert-Butylbenzene	23
Tetrachloroethene	120
Trichloroethene	17
cis-1,2-Dichloroethene	53

GP2-2	7/25/2005
Depth (Feet bgs)	5-10
Compound	Results
1,2,4-Trimethylbenzene	530
Ethylbenzene	79
Isopropylbenzene	170
Naphthalene	57
n-Butylbenzene	300
n-Propylbenzene	400
p-Isopropyltoluene	86
sec-Butylbenzene	270
Tetrachloroethene	1,200
Trichloroethene	72
cis-1,2-Dichloroethene	170

GP2-3	7/25/2005
Depth (Feet bgs)	4-5
Compound	Results
Tetrachloroethene	170,000
Trichloroethene	1,200
cis-1,2-Dichloroethene	1,000

GP3-5	7/25/2005
Depth (Feet bgs)	9-10
Compound	Results
Isopropylbenzene	130
n-Butylbenzene	39
n-Propylbenzene	240
sec-Butylbenzene	90
tert-Butylbenzene	18
Tetrachloroethene	44

GP3-6	7/25/2005
Depth (Feet bgs)	7-8
Compound	Results
Tetrachloroethene	280
Trichloroethene	20

GP2-4	7/25/2005
Depth (Feet bgs)	5-10
Compound	Results
Isopropylbenzene	6
Naphthalene	72
Tetrachloroethene	2,400
Trichloroethene	37
cis-1,2-Dichloroethene	75

GP2-5	7/25/2005
Depth (Feet bgs)	2-3
Compound	Results
Tetrachloroethene	30,000
Trichloroethene	170
cis-1,2-Dichloroethene	260

GP2-6	7/25/2005
Depth (Feet bgs)	5-10
Compound	Results
1,2,4-Trimethylbenzene	450
1,3,5-Trimethylbenzene	51
Ethylbenzene	44
Isopropylbenzene	150
n-Butylbenzene	580
n-Propylbenzene	460
o-Xylene	30
p-Isopropyltoluene	28
sec-Butylbenzene	400
tert-Butylbenzene	44
Tetrachloroethene	190
Trichloroethene	60
cis-1,2-Dichloroethene	84

LEGEND

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3. VERTICAL DATUM: NGVD 88
4. HORIZONTAL AND VERTICAL DATUMS FROM GPS OBSERVATIONS

NOTE: Soil VOC concentrations for detected compounds given in µg/kg.

= Concentration exceeds corresponding Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs).

15 0 15 30

SCALE: 1" = 30'

SOURCE: 2001/2002, YEC INC., SURVEY PERFORMED FOR URS CORP.

MALCOLM PIRNIE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

MAJESTIC CLEANERS SITE RI/FS

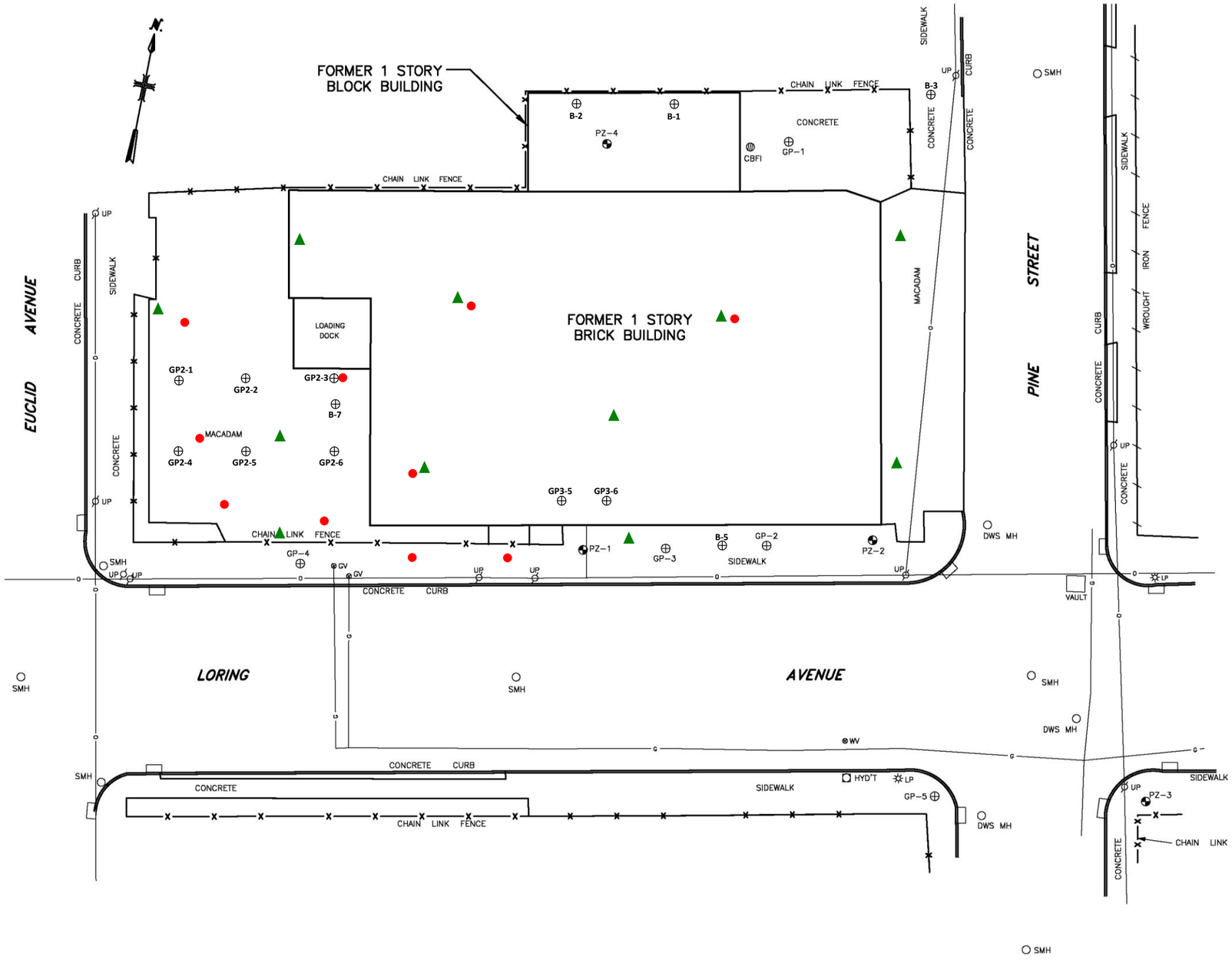
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK

SUMMARY OF DETECTED COMPOUNDS IN SOIL (VOCs)

MALCOLM PIRNIE, INC.

SEPTEMBER 2010

FIGURE 4



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- GV GAS VALVE
- WV WATER VALVE
- HYD'T HYDRANT
- SMH SEWER MANHOLE
- ● PROPOSED SOIL & GROUNDWATER SAMPLING LOCATION
- ▲ PROPOSED SOIL VAPOR SAMPLING LOCATION

NOTES

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15 0 15 30

SCALE: 1" = 30'

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MALCOLM PIRNIE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

MAJESTIC CLEANERS SITE RI/FS

BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK

PROPOSED SAMPLING LOCATIONS

MALCOLM PIRNIE, INC.

SEPTEMBER 2010

FIGURE 5