Existing Conditions

Recent information provided by the DEC shows that LNAPL has been reported in a single off-site monitoring well (MW5) located in the sidewalk along the east side of Kent Avenue adjacent to the Arkansas Chemical Site (Arkansas Site).

- MW5 is located approximately 8 ft from the excavated area of the Arkansas Site and 116 feet north of Flushing Avenue.

- MW5 has consistently shown free phase oil in the wells which has ranged in apparent thickness from 0.5 ft (when vacuumed out on a weekly basis) to 6 ft (initial reading). Actual LNAPL thickness has not been determined. The most recent data is 11/8/18 (see EAR monitoring report attached).

- The DEC had been performing weekly LNAPL removal events in MW5 from 3/1/18 through 3/29/18 which reduced accumulations to 0.5 ft. The removal events were reduced to quarterly from 3/29/18 through 10/30/18 which resulted in accumulations of 1.17 to 2.44 ft. It appears that events may have then switched to weekly from 10/30/18 to 11/8/18. The frequency following 11/8/18 is not known.

- There are three monitoring wells between MW5 and the 376 Flushing Ave (Former NY Cleaning and Dyeing) site. MW8, OB3 and OB4. These wells are located 28, 80 and 110 ft south of MW5 respectively. There has never been any LNAPL reported in these wells. There are no soil boring logs associated with these wells.

- The depth to water in the vicinity of MW5 as measured at MW8 is approximately 8 ft below grade (See EAR monitoring summary attached). The groundwater flow direction is to the west-northwest (see attached).

- Previously there were no borings installed off-site (Arkansas Site) and no known attempt to establish the current off-site smear zone. There does not appear to have been any monitoring of off-site drawdown during the construction dewatering at the Arkansas Site to evaluate dewatering effects on the smear zone.

Evaluation of Current LNAPL "Smear Zone"

- Dewatering at the Arkansas Site occurred to a depth greater than 15 ft to facilitate excavation to 15 ft. In several grids along the lower half of the west property line (adjacent to MW5). See grid 15 in the FER (**Figure 1** attached). Most of the surrounding grids were excavated to 11 ft. This confirms that the water table was lowered approximately 8 feet in this area of the Arkansas Site approximately 8 feet away from MW5.

- The PWGC Project manager confirmed that the purpose in excavating grids 15, 22 and 29, along the southern 2/3^{rds} of the west property line to a depth of 15 ft, was to remove the LNAPL smear zone at the Arkansas Site (see email / excavation plan attached).

- The dewatering and excavation described above at the Arkansas Site places the smear zone in the vicinity of MW5 at about 7 to 8 ft below the water table assuming the DTW in this area is 8 ft below grade.

- According to the drill log for SB9 (attached), the smear zone is at least 12 feet overall (greater than 16 ft depth).

- Based on water level data from the DEP property at 350 Flushing Avenue, fluctuations in historic groundwater levels would be in the 3-4 ft range over the last 10 years. Based on the depth of the smear zone at the Former NY Cleaning and Dyeing Site (Rose Castle) the water table was approximately 10-15 feet lower at some point in the past.

- A soil boring recently advanced near MW5 established a vertical smear zone extending from approximately 7 ft to 20 ft (10-11 feet below the water table). The smear zone is within a silty-clay layer that extends from 4 ft to 20 ft (see photos attached).

- The existing smear zone at the Arkansas Site and the vicinity of MW5 has been established to be at least 15-16 feet total depth. This is based on:
  - soil boring logs from the RI (SB9-boring log),
  - the on-site excavation depth (15 ft total) adjacent to MW5 which was necessary to remove the smear zone,
  - on-site construction dewatering depth and historic trend in water table elevation.
  - physical examination of a soil boring near MW5.

- The capillary fringe (attached table) will reduce the effects of drawdown since the LNAPL layer is several feet above the water table.

Soil Conditions near MW5

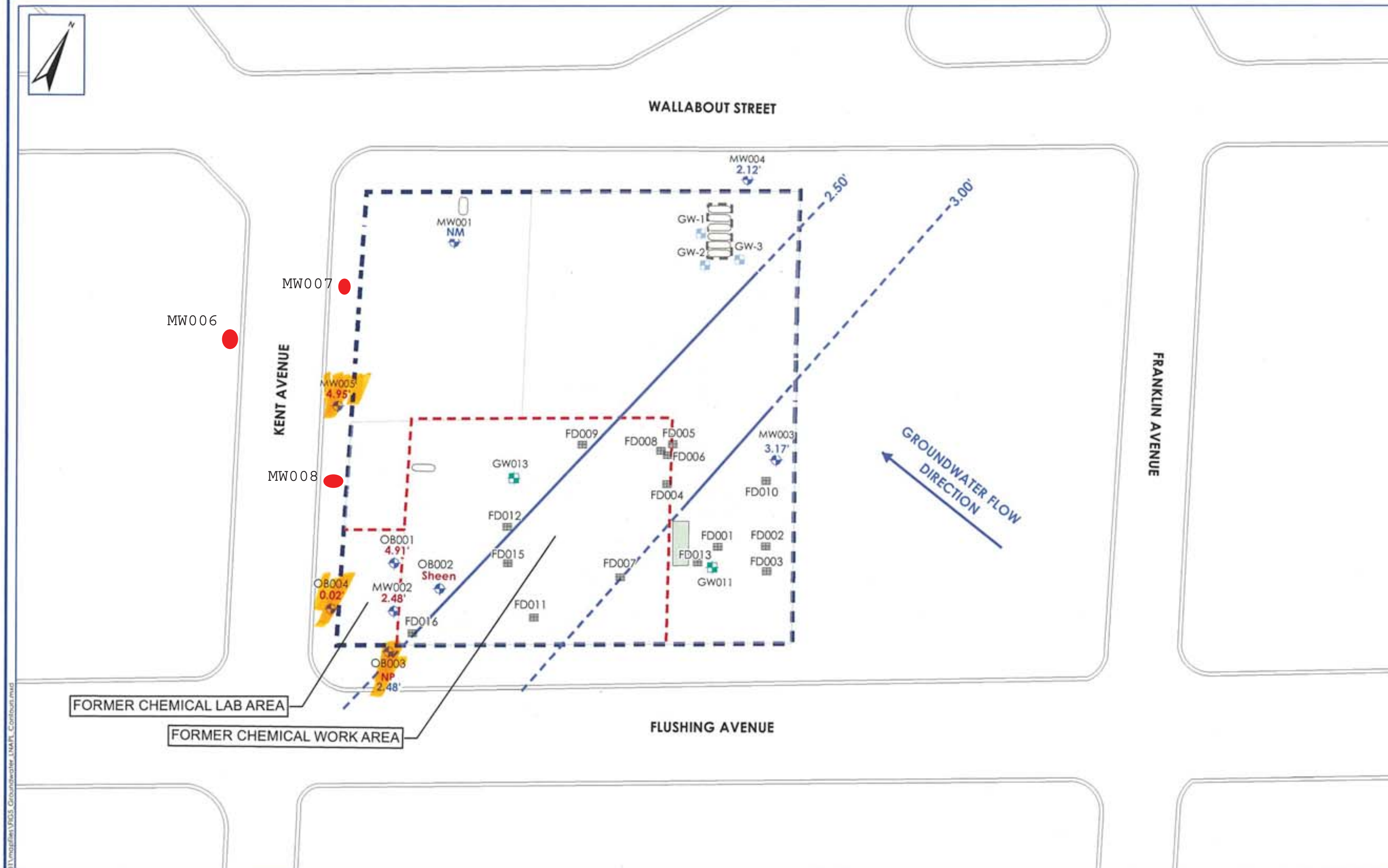
- Previously there were no borings close to MW5. However, almost all of the boring logs from the cross-section plot describe a low plasticity silty clay at 8 ft below grade. Such silty-sand and silty-clay conditions will impede both vertical and horizontal movement of LNAPL.

- The boring SB19 which is closest to MW5, describes fill materials in the 0-4, 4-8 and 8-12 ft cores with no native soil encountered. All descriptions for the 0-4 ft, 4-8 ft and 8-12 ft cores, however, are based on only a 1.5-ft sample return for each interval. This makes the depth of the fill unreliable. Furthermore, there is no description at all of material from the 12-16 ft interval. Consequently, the information in this boring log does not disprove the presence of silty-sand clay below the fill.

- A soil boring recently advanced near MW5 (5 ft north) to a depth of 25 ft below grade clearly shows silty soil and clay from approximately 4 ft below grade to a depth of 20 ft. A 13” clay zone was also reported in the 20-25 ft core. The residual smear zone is within this upper clay zone from about 7 ft to 20 ft below grade (see photos attached).

- Based on the boring advanced near MW5 the smear zone extends well below the water table. Lowering the water table under these conditions will enhance product recovery efforts and shorten the time to complete remediation of the off-site LNAPL.

FIGURES



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E-mail: INFO@PWGROSSER.COM

● Well Location

- Monitoring Well Location
- Observation Well Location
- 2012 Groundwater Sampling Location
- 2006 Groundwater Sampling Location
- Pit
- Actual Groundwater Contour
- Inferred Groundwater Contour
- Former Chemical Work/Lab Area
- Underground Storage Tank Locations
- Sub-Surface Vault
- Former Building
- Approximate UST Location
- Lot 1 Proposed Development Site
- Curbline

DRAWING INFORMATION:

Project:	RAB1301	Designed by:	CC
Date:	9/20/2013	Drawn by:	BB
Scale:	AS SHOWN	Approved by:	AL

FIGURE NO: 5

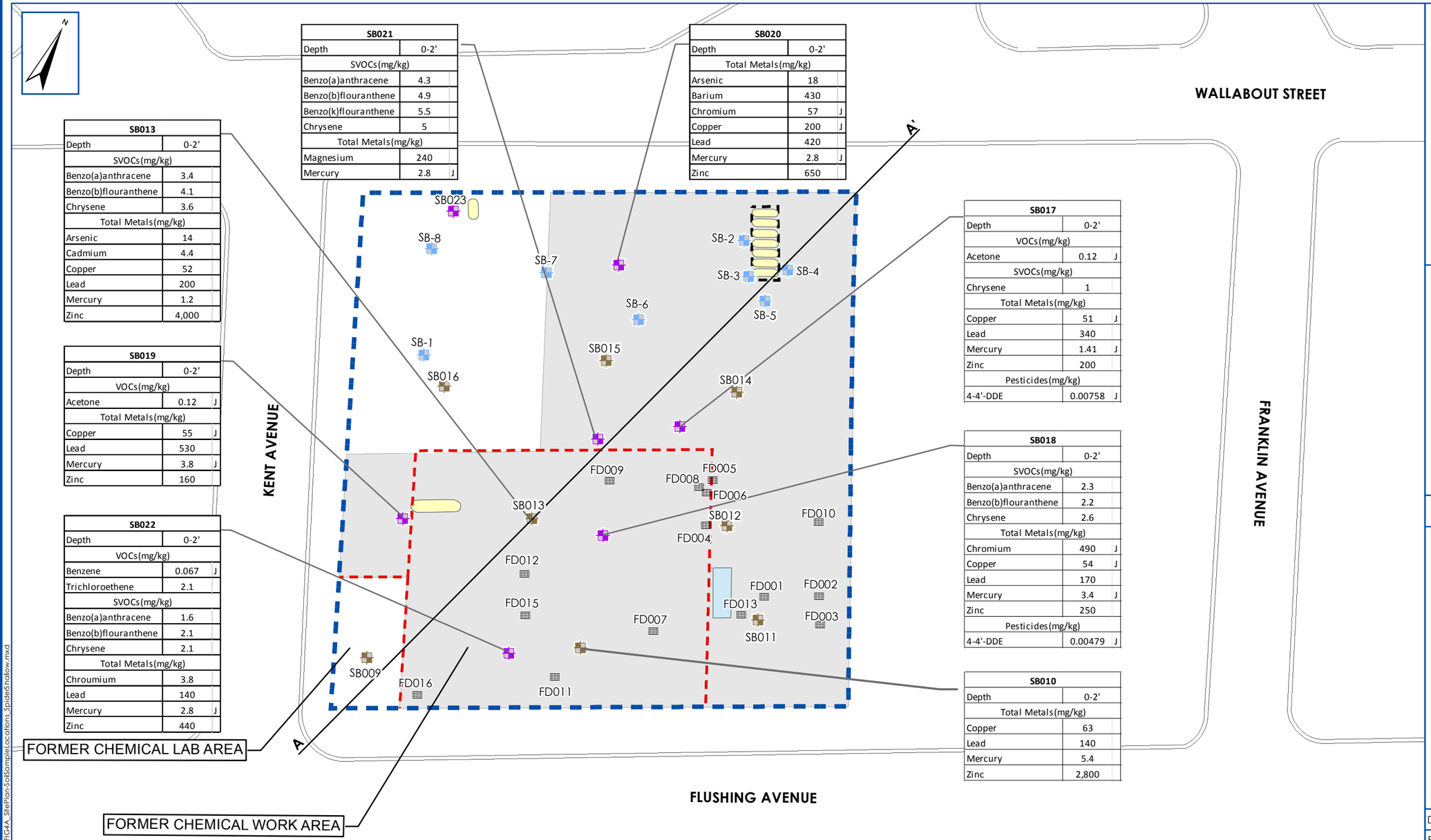
SHEET:

SITE PLAN - GROUNDWATER CONTOURS - SEPT. 18 2013

74 WALLABOUT STREET
BROOKLYN, NEW YORK

Scale: 0 – 50 – 100 – 150 – 200 Feet

3.10 Groundwater Elevation (feet) Based Upon Arbitrary Datum
0.07 LNAPL Thickness
NP No LNAPL



SB021	
Depth	0-2'
SVOCs(mg/kg)	
Benzo(a)anthracene	4.3
Benzo(b)flouranthene	4.9
Benzo(k)flouranthene	5.5
Chrysene	5
Total Metals(mg/kg)	
Magnesium	240
Mercury	2.8 J

SB020	
Depth	0-2'
Total Metals(mg/kg)	
Arsenic	18
Barium	430
Chromium	57 J
Copper	200 J
Lead	420
Mercury	2.8 J
Zinc	650

SB013	
Depth	0-2'
SVOCs(mg/kg)	
Benzo(a)anthracene	3.4
Benzo(b)flouranthene	4.1
Chrysene	3.6
Total Metals(mg/kg)	
Arsenic	14
Cadmium	4.4
Copper	52
Lead	200
Mercury	1.2
Zinc	4,000

SB017	
Depth	0-2'
VOCs(mg/kg)	
Acetone	0.12 J
SVOCs(mg/kg)	
Chrysene	1
Total Metals(mg/kg)	
Copper	51 J
Lead	340
Mercury	1.41 J
Zinc	200
Pesticides(mg/kg)	
4-4'-DDE	0.00758 J

SB019	
Depth	0-2'
VOCs(mg/kg)	
Acetone	0.12 J
Total Metals(mg/kg)	
Copper	55 J
Lead	530
Mercury	3.8 J
Zinc	160

SB018	
Depth	0-2'
SVOCs(mg/kg)	
Benzo(a)anthracene	2.3
Benzo(b)flouranthene	2.2
Chrysene	2.6
Total Metals(mg/kg)	
Chromium	490 J
Copper	54 J
Lead	170
Mercury	3.4 J
Zinc	250
Pesticides(mg/kg)	
4-4'-DDE	0.00479 J

SB022	
Depth	0-2'
VOCs(mg/kg)	
Benzene	0.067 J
Trichloroethene	2.1
SVOCs(mg/kg)	
Benzo(a)anthracene	1.6
Benzo(b)flouranthene	2.1
Chrysene	2.1
Total Metals(mg/kg)	
Chroumium	3.8
Lead	140
Mercury	2.8 J
Zinc	440

SB010	
Depth	0-2'
Total Metals(mg/kg)	
Copper	63
Lead	140
Mercury	5.4
Zinc	2,800

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- Pits
- 2006 Soil Boring Locations
- 2012 Soil Boring Locations
- 2013 Soil Boring Locations
- Former Chemical Work/Lab Area
- Sub-Surface Vault
- Underground Storage Tanks
- Approximate UST Location
- Lot 1 Proposed Development Site
- Former Building
- Curbline

DRAWING INFORMATION:

Project:	RAB1301	Designed by:	CC
Date:	4/14/2014	Drawn by:	BB
Scale:	AS SHOWN	Approved by:	AL

FIGURE NO: 4-A

SHEET:

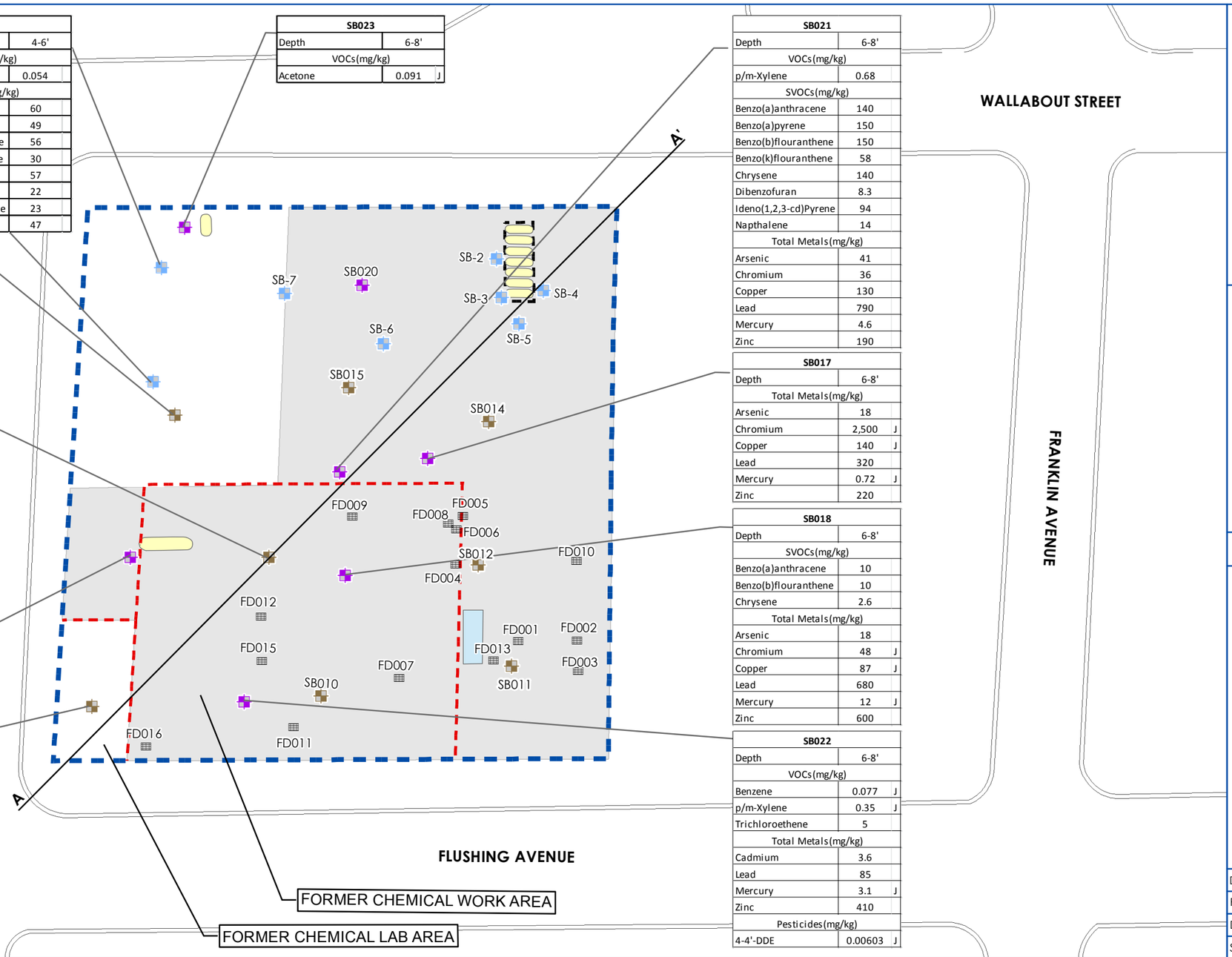
SITE PLAN - SHALLOW SOIL SAMPLING LOCATIONS

74 WALLABOUT STREET
BROOKLYN, NEW YORK

0 50 100 150 200 Feet

Note:
Analytes (VOCs, Metals, and Pesticides) shown exceed NYSDEC Unrestricted Use SCO.
Analytes (SVOCs) shown exceed NYSDEC Protection of Groundwater SCO.
J-The analyte was positively identified: the associated numerical value is the approximate concentration if the analyte in the sample.

Document Path: D:\GIS\Project\MAR\RAB\1301\mapfiles\FIG4A_SitePlan-SoilSampleLocations_SpideShallow.mxd



SB-1	
Depth	4-6'
VOCs(mg/kg)	
Acetone	0.058

SB016	
Depth	6-8'
SVOCs(mg/kg)	
2-Methylnapthalene	38
Total Metals(mg/kg)	
Copper	61
Lead	530
Mercury	0.54
Zinc	230
Pesticides(mg/kg)	
Alpha-BHC	0.0299 J

SB013	
Depth	6-8'
SVOCs(mg/kg)	
Benzo(a)anthracene	44
Benzo(a)pyrene	35
Benzo(b)flouranthene	51
Benzo(k)flouranthene	20
Chrysene	38
Dibenzofuran	9.2
Ideno(1,2,3-cd)Pyrene	19
Total Metals(mg/kg)	
Arsenic	38
Copper	110
Lead	220
Mercury	84
Selenium	10
Zinc	18,000

SB019	
Depth	6-8'
Total Metals(mg/kg)	
Mercury	0.77 J

SB009	
Depth	6-8'
VOCs(mg/kg)	
2-Butanone	0.24 J
SVOCs(mg/kg)	
Chrysene	1.3
Total Metals(mg/kg)	
Copper	120
Lead	390
Mercury	15
Zinc	140
Pesticides(mg/kg)	
4-4'-DDE	0.00776 J

SB-8	
Depth	4-6'
VOCs(mg/kg)	
Acetone	0.054
SVOCs(mg/kg)	
Benzo(a)anthracene	60
Benzo(a)pyrene	49
Benzo(b)flouranthene	56
Benzo(k)flouranthene	30
Chrysene	57
Dibenzofuran	22
Ideno(1,2,3-cd)Pyrene	23
Napthalene	47

SB023	
Depth	6-8'
VOCs(mg/kg)	
Acetone	0.091 J

SB021	
Depth	6-8'
VOCs(mg/kg)	
p/m-Xylene	0.68
SVOCs(mg/kg)	
Benzo(a)anthracene	140
Benzo(a)pyrene	150
Benzo(b)flouranthene	150
Benzo(k)flouranthene	58
Chrysene	140
Dibenzofuran	8.3
Ideno(1,2,3-cd)Pyrene	94
Napthalene	14
Total Metals(mg/kg)	
Arsenic	41
Chromium	36
Copper	130
Lead	790
Mercury	4.6
Zinc	190

SB017	
Depth	6-8'
Total Metals(mg/kg)	
Arsenic	18
Chromium	2,500 J
Copper	140 J
Lead	320
Mercury	0.72 J
Zinc	220

SB018	
Depth	6-8'
SVOCs(mg/kg)	
Benzo(a)anthracene	10
Benzo(b)flouranthene	10
Chrysene	2.6
Total Metals(mg/kg)	
Arsenic	18
Chromium	48 J
Copper	87 J
Lead	680
Mercury	12 J
Zinc	600

SB022	
Depth	6-8'
VOCs(mg/kg)	
Benzene	0.077 J
p/m-Xylene	0.35 J
Trichloroethene	5
Total Metals(mg/kg)	
Cadmium	3.6
Lead	85
Mercury	3.1 J
Zinc	410
Pesticides(mg/kg)	
4-4'-DDE	0.00603 J

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- Lot 1 Proposed Development Site
- Former Building
- Curbline

DRAWING INFORMATION:

Project:	RAB1301	Designed by:	CC
Date:	4/14/2014	Drawn by:	BB
Scale:	AS SHOWN	Approved by:	AL

SITE PLAN - INTERMEDIATE SOIL SAMPLING LOCATIONS

74 WALLABOUT STREET
BROOKLYN, NEW YORK

0 50 100 150 200 Feet

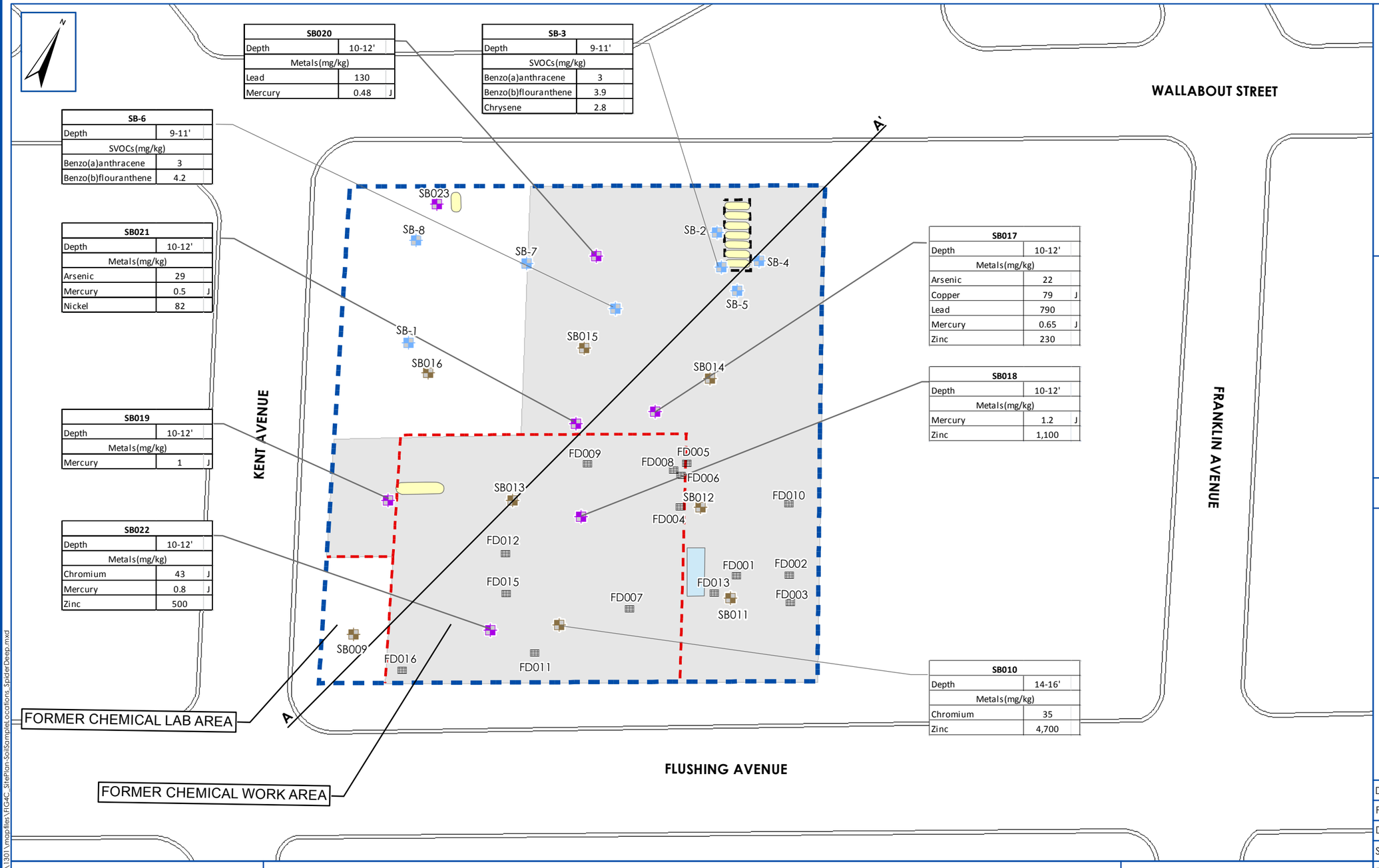
Note:
Analytes (VOCs, Metals, and Pesticides) shown exceed NYSDEC Unrestricted Use SCO.
Analytes (SVOCs) shown exceed NYSDEC Protection of Groundwater SCO.
J-The analyte was positively identified: the associated numerical value is the approximate concentration if the analyte in the sample.

FIGURE NO:

4-B

SHEET:

Document Path: D:\GIS\Projects\WR\RAB\1301\mapfiles\FIG4B_SitePlan-SoilSampleLocations_SpiderIntermediate.mxd



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E-mail: INFO@PWGROSSER.COM

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- 2013 Soil Boring Locations
- Former Chemical Work/Lab Area
- Sub-Surface Vault
- Underground Storage Tanks
- Approximate UST Location
- Lot 1 Proposed Development Site
- Former Building
- Curbline

DRAWING INFORMATION:

Project:	RAB1301	Designed by:	CC
Date:	04/30/2014	Drawn by:	BB
Scale:	AS SHOWN	Approved by:	AL

FIGURE NO: 4-C

SHEET:

SITE PLAN - DEEP SOIL SAMPLING LOCATIONS

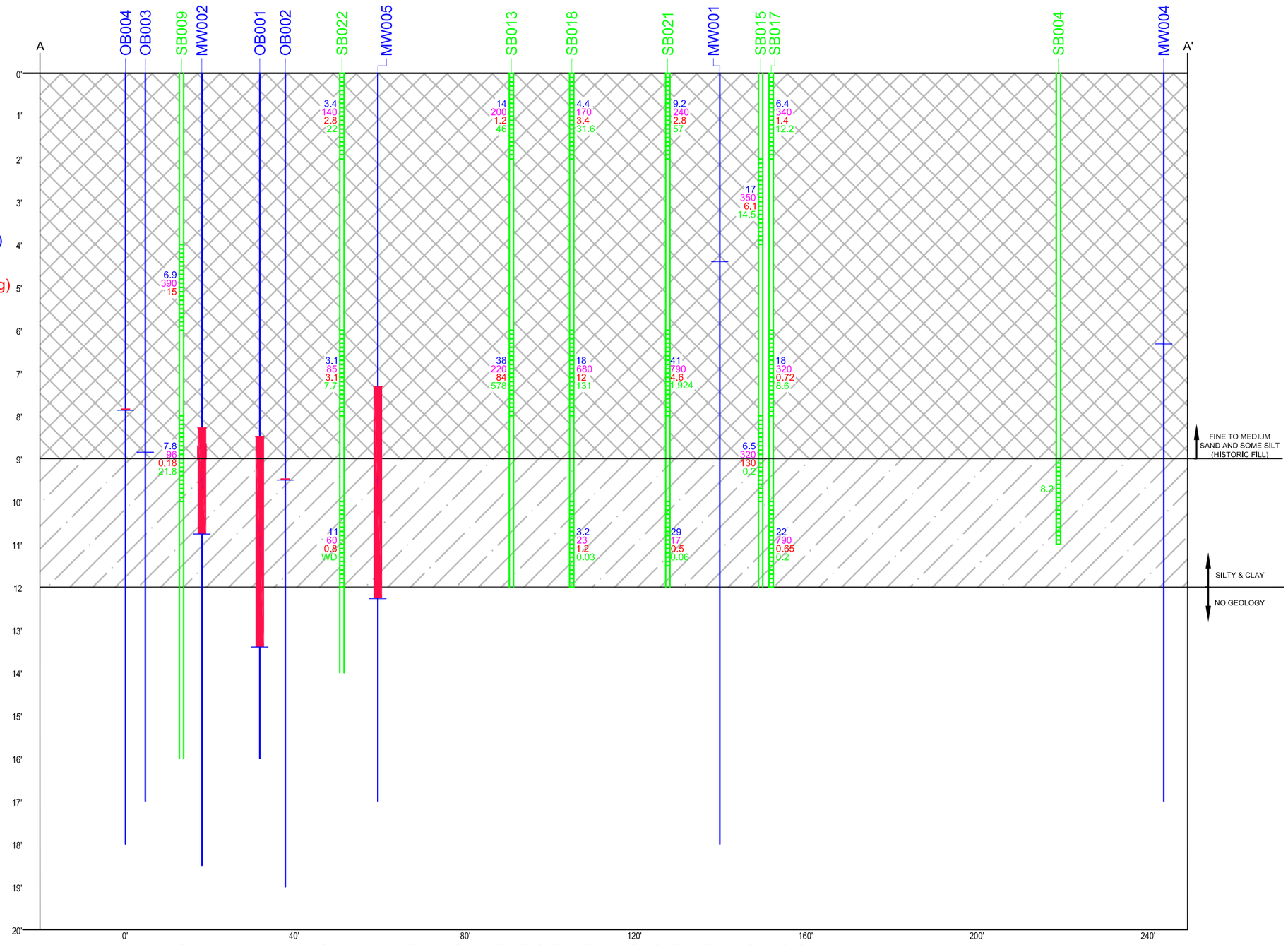
74 WALLABOUT STREET
BROOKLYN, NEW YORK

0 50 100 150 200 Feet

Note:
Analytes (VOCs, Metals, and Pesticides) shown exceed NYSDEC Unrestricted Use SCO.
Analytes (SVOCs) shown exceed NYSDEC Protection of Groundwater SCO.
J-The analyte was positively identified: the associated numerical value is the approximate concentration if the analyte in the sample.

Document Path: Z:\GIS\Projects\M-R\RAB\1301\mapfiles\FIG4C_SitePlan-SoilSampleLocations_SpiderDeep.mxd

X-SECTION



GENERALIZED GEOLOGIC CROSS SECTION A - A'

HORIZONTAL SCALE: 1"=25'

0 25' 50'

VERTICAL SCALE: 1"=2.5'

0 2.5' 5'

LEGEND

- WATER LEVEL
- LNAPL THICKNESS (ft)
- ARSENIC (mg/kg)
- LEAD (mg/kg)
- MERCURY (mg/kg)
- TSVOCs (mg/kg)

J:\Projects M-R\RAB Simon Dushinsky\RAB1301\CAD\A-A' Cross-Section.dwg (cross section A-A') Sep 23,2013-9:15am By: lund

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E-mail: INFO@PWGROSSER.COM

CONSULTANTS

DRAWINGS PREPARED FOR

74 WALLABOUT ST.
BROOKLYN, NY

REVISION	DATE	INITIAL	COMMENTS

DRAWING INFORMATION

PROJECT:	MAB1301	APPROVED BY:	KA
DESIGNED BY:	DE	DATE:	09-13-13
DRAWN BY:	AES	SCALE:	-

SHEET TITLE

CROSS SECTION A-A'

FIGURE NO 7

SHEET - OF -

BORING LOGS

Boring Designation:	SB009	**Logged By:**	CC
Site Address:	74 Wallabout Street Brooklyn, New York	**Project Manager:**	AL
Project Name:	74 Wallabout Street	**Project Number:**	RAB1203
Drilling Contractor:	LVS Inc.	**Driller Name:**	Chris O'Shea
Drilling Method:	Geoprobe	**Borehole Diameter:**	2.0"
Sampling Method:	Macro-Core	**Borehole Depth:**	16'
Start Time:	11:10	**Completion Time:**	11:30
Start Date:	12/7/2012	**Completion Date:**	12/7/2012

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Color	Moisture Content	Soil Description	Notes
0	4	2.0		SM	brown	dry	silty sand(historic fill)	PID: 5.0 ppm
4	4	2.0		SM	brown	moist	silty sand (historic fill)	PID: 25.0 ppm petrol odor
8	4	3.0		CL	gray	very moist	low plasticity silt clay	PID: 87.0 ppm strong petrol odor
12	4	3.5		CL	gray	very moist	low plasticity silt clay	PID: 81.0 ppm strong petrol odor
16								
20								
24								

Boring Designation:	SB009	**Logged By:**	CC
Site Address:	74 Wallabout Street Brooklyn, New York	**Project Manager:**	AL
Project Name:	74 Wallabout Street	**Project Number:**	RAB1203
Drilling Contractor:	LVS Inc.	**Driller Name:**	Chris O'Shea
Drilling Method:	Geoprobe	**Borehole Diameter:**	2.0"
Sampling Method:	Macro-Core	**Borehole Depth:**	16'
Start Time:	11:10	**Completion Time:**	11:30
Start Date:	12/7/2012	**Completion Date:**	12/7/2012

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Color	Moisture Content	Soil Description	Notes
0	4	2.0		SM	brown	dry	silty sand(historic fill)	PID: 5.0 ppm
4	4	2.0		SM	brown	moist	silty sand (historic fill)	PID: 25.0 ppm petrol odor
8	4	3.0		CL	gray	very moist	low plasticity silt clay	PID: 87.0 ppm strong petrol odor
12	4	3.5		CL	gray	very moist	low plasticity silt clay	PID: 81.0 ppm strong petrol odor
16								
20								
24								

Boring Designation:	SB010	**Logged By:**	CC
Site Address:	74 Wallabout Street Brooklyn, New York	**Project Manager:**	AL
Project Name:	74 Wallabout Street	**Project Number:**	RAB1203
Drilling Contractor:	LVS Inc.	**Driller Name:**	Chris O'Shea
Drilling Method:	Geoprobe	**Borehole Diameter:**	2.0"
Sampling Method:	Macro-Core	**Borehole Depth:**	20'
Start Time:	7:50	**Completion Time:**	8:30
Start Date:	12/7/2012	**Completion Date:**	12/7/2012

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Color	Moisture Content	Soil Description	Notes
0	4	2.0		SM	dark brown	dry	silty sand(historic fill)	PID: 0.0 ppm
4	4	1.0		SW	dark brown	dry	fine to medium sands (historic fill)	PID: 0.0 ppm
8	4	3.0		CL	light brown	mosit	medium plasticity clay	PID: 0.0 ppm
12	4	4.0		CL	light brown	moist	medium plasticity clay	PID: 0.0 ppm
16				CL	grayish brown	very moist	medium plasticity clay	PID: 0.0 ppm
				CL	brown	wet	medium plasticity sandy clay	
20								
24								

Boring Designation:	SB011	**Logged By:**	CC
Site Address:	74 Wallabout Street Brooklyn, New York	**Project Manager:**	AL
Project Name:	74 Wallabout Street	**Project Number:**	RAB1203
Drilling Contractor:	LVS Inc.	**Driller Name:**	Chris O'Shea
Drilling Method:	Geoprobe	**Borehole Diameter:**	2.0"
Sampling Method:	Macro-Core	**Borehole Depth:**	20'
Start Time:	8:50	**Completion Time:**	9:40
Start Date:	12/7/2012	**Completion Date:**	12/7/2012

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Color	Moisture Content	Soil Description	Notes
0	4	2.0		SM	dark brown	dry	silty sand(historic fill)	PID: 0.0 ppm
4	4	3.0		SM	brown	dry	silty sand	PID: 0.0 ppm
8	4	3.0		CL	brown	wet	medium plasticity silty clay	PID: 0.0 ppm
						moist		
12	4	3.0		CL	grayish brown	wet	medium plasticity clay	PID: 0.0 ppm
16	4	4.0		CL	brown	very moist	low plasticity silty clay	PID: 0.0 ppm
20								
24								

Boring Designation:	SB012	**Logged By:**	CC
Site Address:	74 Wallabout Street Brooklyn, New York	**Project Manager:**	AL
Project Name:	74 Wallabout Street	**Project Number:**	RAB1203
Drilling Contractor:	LVS Inc.	**Driller Name:**	Chris O'Shea
Drilling Method:	Geoprobe	**Borehole Diameter:**	2.0"
Sampling Method:	Macro-Core	**Borehole Depth:**	12'
Start Time:	10:00	**Completion Time:**	10:30
Start Date:	12/7/2012	**Completion Date:**	12/7/2012

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Color	Moisture Content	Soil Description	Notes
0	4	3.0		SM	brown	dry	silty sand(historic fill)	PID: 0.0 ppm
4	4	1.5		SM	brown	dry	silty sand (historic fill)	PID: 0.0 ppm
8	4	2.0		CL	brown	dry	low plasticity silty clay	PID: 0.0 ppm
						wet		
12								
16								
20								
24								

Boring Designation:	SB013	**Logged By:**	CC
Site Address:	74 Wallabout Street Brooklyn, New York	**Project Manager:**	AL
Project Name:	74 Wallabout Street	**Project Number:**	RAB1203
Drilling Contractor:	LVS Inc.	**Driller Name:**	Chris O'Shea
Drilling Method:	Geoprobe	**Borehole Diameter:**	2.0"
Sampling Method:	Macro-Core	**Borehole Depth:**	12'
Start Time:	10:40	**Completion Time:**	11:00
Start Date:	12/7/2012	**Completion Date:**	12/7/2012

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Color	Moisture Content	Soil Description	Notes
0	4	2.5		SM	brown	dry	silty sand(historic fill)	PID: 0.0 ppm
4	4	3.0		SM	brown	dry	silty sand with broken red brick (historic fill)	PID: 0.0 ppm
8	4	3.0		SM	brown	wet	silt sand (historic fill)	PID: 0.0 ppm
				CL		wet	low plasticity silt clay	
12								
16								
20								
24								

Boring Designation:	SB014	**Logged By:**	CC
Site Address:	74 Wallabout Street Brooklyn, New York	**Project Manager:**	AL
Project Name:	74 Wallabout Street	**Project Number:**	RAB1203
Drilling Contractor:	LVS Inc.	**Driller Name:**	Chris O'Shea
Drilling Method:	Geoprobe	**Borehole Diameter:**	2.0"
Sampling Method:	Macro-Core	**Borehole Depth:**	12'
Start Time:	13:30	**Completion Time:**	13:50
Start Date:	12/7/2012	**Completion Date:**	12/7/2012

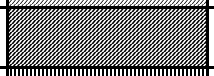
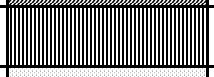
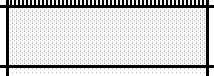
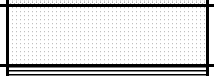
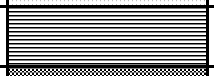
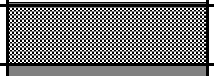
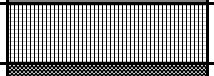
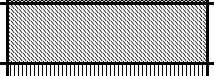
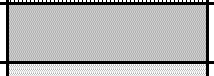
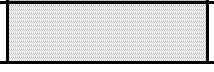
Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Color	Moisture Content	Soil Description	Notes
0	4	3.0		SM	dark gray	dry	silty sand(historic fill)	PID: 25.0 ppm
								petrol odor
4	4	3.0		SM	brown	dry	silty sand (historic fill)	PID: 85.0 ppm
								petrol odor
8	4	3.0		SM	gray	dry	silty sand	PID: 312.0 ppm
								strong petrol odor
				CL		wet	low plasticity sandy clay	
12								
16								
20								
24								

Boring Designation:	SB015	**Logged By:**	CC
Site Address:	74 Wallabout Street Brooklyn, New York	**Project Manager:**	AL
Project Name:	74 Wallabout Street	**Project Number:**	RAB1203
Drilling Contractor:	LVS Inc.	**Driller Name:**	Chris O'Shea
Drilling Method:	Geoprobe	**Borehole Diameter:**	2.0"
Sampling Method:	Macro-Core	**Borehole Depth:**	12'
Start Time:	13:00	**Completion Time:**	13:20
Start Date:	12/7/2012	**Completion Date:**	12/7/2012

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Color	Moisture Content	Soil Description	Notes
0	4	3.0		CL	brown	dry	low plasticity silty clay	PID: 10.0 ppm
4	4	4.0		CL	brown	moist	low plasticity silty clay	PID: 115.0 ppm slight petrol odor
8	4	4.0		CL	brown	dry	low plasticity silty clay	PID: 110.0 ppm slight petrol odor
12								
16								
20								
24								

Boring Designation:	SB016	**Logged By:**	CC
Site Address:	74 Wallabout Street Brooklyn, New York	**Project Manager:**	AL
Project Name:	74 Wallabout Street	**Project Number:**	RAB1203
Drilling Contractor:	LVS Inc.	**Driller Name:**	Chris O'Shea
Drilling Method:	Geoprobe	**Borehole Diameter:**	2.0"
Sampling Method:	Macro-Core	**Borehole Depth:**	12'
Start Time:	11:40	**Completion Time:**	12:50
Start Date:	12/7/2012	**Completion Date:**	12/7/2012

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Color	Moisture Content	Soil Description	Notes
0	4	3.0		SM	dark gray	dry	silty sand(historic fill)	PID: 20.0 ppm
								slight petrol odor
4	4	3.5		SM	brown	wet	low plasticity sandy clay	PID: 30.0 ppm
								petrol odor
8	4	4.0		CL	gray	wet	medium plasticity clay	PID: 58.0 ppm
								strong petrol odor
								visual staining
12								
16								
20								
24								

USCS Code	Pattern	Pattern Name
CH		Reverse Diagonal Stripe
CL		Thin Reverse Diagonal Stripe
GC		Diagonal Stripe
GM		Vertical Stripe
GP		12.5% Grey
GW		6.25% Grey
MH		Horizontal Stripe
ML		Diagonal Crosshatch
OH		75% Grey
OL		Thin Horizontal Crosshatch
PT		Thick Diagonal Crosshatch
SC		Thin Diagonal Stripe
SM		Thin Vertical Stripe
SP		50% Grey
SW		25% Grey

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Strategic Environmental Engineering Solutions

Phase II ESA 2006 Soil Boring Logs

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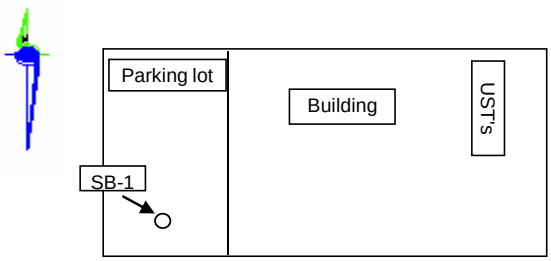

Borehole locations at Site

Boring # **SB-1**	MW#	Page 1	of 8
PROJECT: 74 Wallabout St. Brooklyn, NY			
JOB # AAA0613			
LOGGED BY:	Rocky Wenskus	PRJ. MNGR.:	Fred Barilla
DRILLING CONTRACTOR: LVS			
DRILL METHOD: Geoprobe (Trackmount)			
DRILLER: Chris O'Shea			
Borehole diameter/drill bit type: **2in**		total depth	
		elevation	
HAMMER WT:		DROP:	
START TIME:		DATE: 12/28/06	
COMPLETION TIME:		DATE: 12/28/06	
BACKFILL TIME:		DATE:	

Sample Depth	Advance (ft)	Recovered (ft)	Soil Description Unified Soil Classification System	Notes	Casing depth: / Screen depth:
0-4 ft.	4	100%	Fill material, concrete, mgs	PID: 0.4 - 1.8 ppm	
4-8 ft.	2	50%	Stone m-fgs	PID: 5.0 ppm, Refusal at 6'; F.O. odor	

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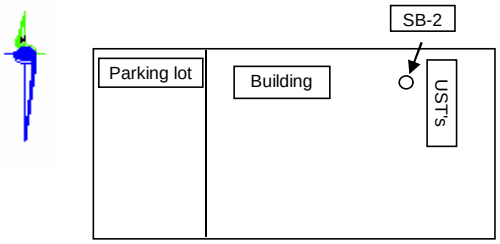

Borehole locations at Site

Boring # **SB-2**	MW#		Page 2	of 8	
PROJECT: 74 Wallabout St. Brooklyn, NY					
JOB # AAA0613					
LOGGED BY:	Rocky Wenskus		PRJ. MNGR.:	Fred Barilla	
DRILLING CONTRACTOR: LVS					
DRILL METHOD: Geoprobe (Trackmount)					
DRILLER: Chris O'Shea					
Borehole diameter/drill bit type: **2in**			total depth		
			elevation		
HAMMER WT:			DROP:		
START TIME:			DATE: 12/28/06		
COMPLETION TIME:			DATE: 12/28/06		
BACKFILL TIME:			DATE:		

Sample Depth	Advance (ft)	Recovered (ft)	Soil Description Unified Soil Classification System	Notes	Casing depth: / Screen depth:
0-4 ft.	2	50%	Fill material, brick, concrete mgs	PID: 1.5 ppm	
4-8 ft.	3	75%	Fill material, brick, concrete with tan-brown mgs	PID: 2.9 ppm	
8-12 ft.	2	50%	Tan-brown fgs to silty black m-cgs at approx. 12'	PID: 2.0 ppm	
12-16	2	50%	Tan-brown fgs to silty black m-cgs	PID: 2.4 ppm wet at approximately 13'	

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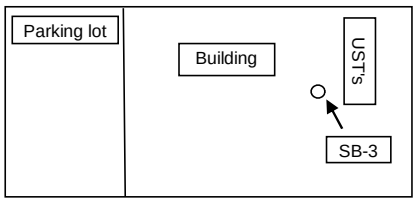

Borehole locations at Site

Boring # **SB-3**	MW#	Page 3	of 8
PROJECT: 74 Wallabout St. Brooklyn, NY			
JOB # AAA0613			
LOGGED BY:	Rocky Wenskus	PRJ. MNGR.:	Fred Barilla
DRILLING CONTRACTOR: LVS			
DRILL METHOD: Geoprobe (Trackmount)			
DRILLER: Chris O'Shea			
Borehole diameter/drill bit type: **2in**		total depth	
		elevation	
HAMMER WT:		DROP:	
START TIME:		DATE: 12/28/06	
COMPLETION TIME:		DATE: 12/28/06	
BACKFILL TIME:		DATE:	
		Casing depth:	
		Screen depth:	

Sample Depth	Advance (ft)	Recovered (ft)	Soil Description Unified Soil Classification System	Notes
0-4 ft.	2	50%	Fill material, concrete	PID: 0.5 ppm
4-8 ft.	2	50%	Dark brown mgs, black asphalt component	PID: 0.5 ppm
8-12 ft.	2	50%	Tan-brown mgs	PID: 1.0 ppm wet at approximately 11'

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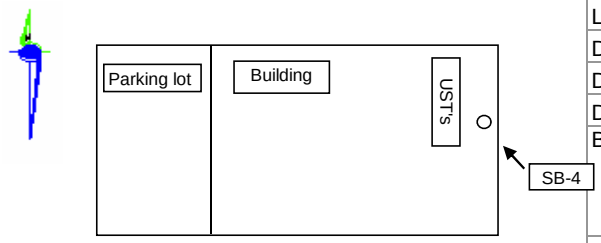

Borehole locations at Site

Boring # **SB-4**	MW#	Page 4	of 8
PROJECT: 74 Wallabout St. Brooklyn, NY			
JOB # AAA0613			
LOGGED BY:	Rocky Wenskus	PRJ. MNGR.:	Fred Barilla
DRILLING CONTRACTOR: LVS			
DRILL METHOD: Geoprobe (Trackmount)			
DRILLER: Chris O'Shea			
Borehole diameter/drill bit type: **2in**		total depth	
		elevation	
HAMMER WT:		DROP:	
START TIME:		DATE: 12/28/06	
COMPLETION TIME:		DATE: 12/28/06	
BACKFILL TIME:		DATE:	

Sample Depth	Advance (ft)	Recovered (ft)	Soil Description Unified Soil Classification System	Notes	Casing depth: / Screen depth:
0-4 ft.	2	50%	Fill material, concrete, tan-brown, mgs	PID: 0.4 ppm	
4-8 ft.	2	50%	Fill material, concrete, tan-brown, mgs. No fill material.	PID: 0.5 ppm	
8-12 ft.	2	50%	Coal ash material with some brick and dark brown mgs	PID: 0.4 ppm	

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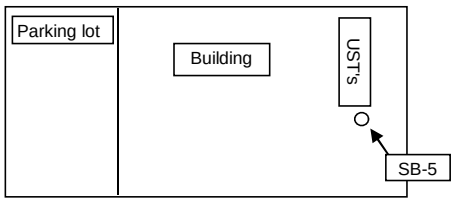

Borehole locations at Site

Boring # **SB-5**	MW#	Page 5	of 8
PROJECT: 74 Wallabout St. Brooklyn, NY			
JOB # AAA0613			
LOGGED BY:	Rocky Wenskus	PRJ. MNGR.:	Fred Barilla
DRILLING CONTRACTOR: LVS			
DRILL METHOD: Geoprobe (Trackmount)			
DRILLER: Chris O'Shea			
Borehole diameter/drill bit type: **2in**		total depth	
		elevation	
HAMMER WT:		DROP:	
START TIME:		DATE: 12/28/06	
COMPLETION TIME:		DATE: 12/28/06	
BACKFILL TIME:		DATE:	

Sample Depth	Advance (ft)	Recovered (ft)	Soil Description Unified Soil Classification System	Notes	Casing depth: / Screen depth:
0-4 ft.	3	75%	Fill material	PID: 0.5 ppm	
4-8 ft.	0.5	12.5%	none	Refusal at 4.5-5 ft.	

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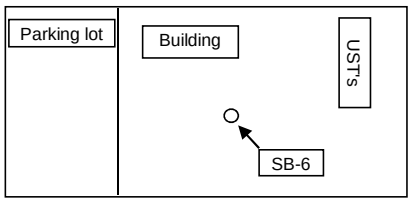

Borehole locations at Site

Boring # **SB-6**	MW#		Page 6	of 8	
PROJECT: 74 Wallabout St. Brooklyn, NY					
JOB # AAA0613					
LOGGED BY:	Rocky Wenskus		PRJ. MNGR.:	Fred Barilla	
DRILLING CONTRACTOR: LVS					
DRILL METHOD: Geoprobe (Trackmount)					
DRILLER: Chris O'Shea					
Borehole diameter/drill bit type: **2in**			total depth		
			elevation		
HAMMER WT:			DROP:		
START TIME:			DATE: 12/28/06		
COMPLETION TIME:			DATE: 12/28/06		
BACKFILL TIME:			DATE:		

Sample Depth	Advance (ft)	Recovered (ft)	Soil Description Unified Soil Classification System	Notes	Casing depth: / Screen depth:
0-4 ft.	3	75%	Fill material, brick, concrete	PID: 0.2 ppm	
4-8 ft.	3	75%	Tan to gray mgs	PID: 3.2 ppm	
8-12 ft.	3	75%	Dark brown m-fgs	PID: 5.4 ppm clay found at bottom	

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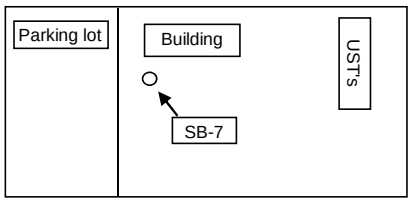

Borehole locations at Site

Boring # **SB-7**	MW#	Page 7	of 8
PROJECT: 74 Wallabout St. Brooklyn, NY			
JOB # AAA0613			
LOGGED BY:	Rocky Wenskus	PRJ. MNGR.:	Fred Barilla
DRILLING CONTRACTOR: LVS			
DRILL METHOD: Geoprobe (Trackmount)			
DRILLER: Chris O'Shea			
Borehole diameter/drill bit type: **2in**		total depth	
		elevation	
HAMMER WT:		DROP:	
START TIME:		DATE: 12/28/06	
COMPLETION TIME:		DATE: 12/28/06	
BACKFILL TIME:		DATE:	

Sample Depth	Advance (ft)	Recovered (ft)	Soil Description Unified Soil Classification System	Notes	Casing depth: / Screen depth:
0-4 ft.	3	75%	Fill material	PID: 0.5 ppm	
4-8 ft.	1	25%	none	Refusal at 5'	

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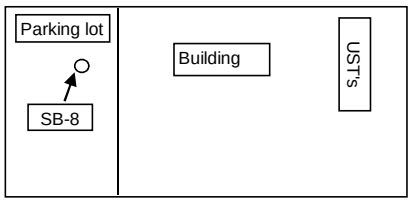

Borehole locations at Site

Boring # **SB-8**	MW#		Page 8	of 8	
PROJECT: 74 Wallabout St. Brooklyn, NY					
JOB # AAA0613					
LOGGED BY:	Rocky Wenskus		PRJ. MNGR.:	Fred Barilla	
DRILLING CONTRACTOR: LVS					
DRILL METHOD: Geoprobe (Trackmount)					
DRILLER: Chris O'Shea					
Borehole diameter/drill bit type: **2in**			total depth		
			elevation		
HAMMER WT:			DROP:		
START TIME:			DATE: 12/28/06		
COMPLETION TIME:			DATE: 12/28/06		
BACKFILL TIME:			DATE:		

Sample Depth	Advance (ft)	Recovered (ft)	Soil Description Unified Soil Classification System	Notes	Casing depth: / Screen depth:
0-4 ft.	4	100%	Fill material, tan-brown, f-mgs	PID: 0.0 ppm, no odor	
4-8 ft.	2	50%	Tan-brown m-fgs. Stone at 6 ft.	PID:15.9 ppm, refusal at 6 ft., slight odor	

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Boring Designation:	SB017	**Logged By:**	JC/AR
Boring Location:	74 Wallabout Street, Brooklyn NY	**Project Manager:**	DE
Project Name:	Remedial Investigation	**Project Number:**	RAB1301
Drilling Contractor:	LVS	**Drilling Method:**	Direct Push-Macro Core
Operator Name:	Manny	**Sampling Method:**	Macro Core
Drill Rig Type:	Geoprobe	**Boring Depth:**	12'
Start Time:	10:57	**Completion Time:**	11:25
Start Date:	7/11/2013	**Completion Date:**	7/11/2013

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Description	Notes
0	4	1.5		SW	Concrete, brick, little coal ash, dry gray-brown medium sand and gravel , trace fines (fill).	PID = 0.0 ppm, no odor.
						SB017 (0-2')/MS/MSD collected at 11:15.
4	4	1.5		SW		PID = 0.0 ppm, no odor.
						SB017 (6-8') collected at 11:20.
					Dry orange-brown fine-medium sand (fill).	
8	4	2.5		SW		PID = 67.2 ppm, petroleum odor.
					Dry brown medium sand, some gravel, trace silt.	Visual staining.
				SM	Wet dark brown medium-coarse sand, some silt.	SB017 (10-12') collected at 11:25.

End of boring at 12' bgs.

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Boring Designation:	SB018	**Logged By:**	JC/AR
Boring Location:	74 Wallabout Street, Brooklyn NY	**Project Manager:**	DE
Project Name:	Remedial Investigation	**Project Number:**	RAB1301
Drilling Contractor:	LVS	**Drilling Method:**	Direct Push-Macro Core
Operator Name:	Manny	**Sampling Method:**	Macro Core
Drill Rig Type:	Geoprobe	**Boring Depth:**	12'
Start Time:	13:04	**Completion Time:**	13:20
Start Date:	7/11/2013	**Completion Date:**	7/11/2013

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Description	Notes
0	4	2.5		SW	Concrete, brick, dry dark brown medium sand, some gravel , trace silt (fill).	PID = 0.0 ppm, no odor.
						SB018 (0-2') collected at 13:10.
4	4	2.5				PID = 0.0 ppm, no odor.
						SB018 (6-8') collected at 13:15.
				CL	Dry dark brown fine-medium sand and clay (low plasticity).	
8	4	2.5		CL		PID = 0.0 ppm, no odor.
					Wet, lean clay and fine-medium sand (medium plasticity).	SB018 (10-12') collected at 13:20.

End of boring at 12' bgs.

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Boring Designation:	SB019	**Logged By:**	JC/AR
Boring Location:	74 Wallabout Street, Brooklyn NY	**Project Manager:**	DE
Project Name:	Remedial Investigation	**Project Number:**	RAB1301
Drilling Contractor:	LVS	**Drilling Method:**	Direct Push-Macro Core
Operator Name:	Manny	**Sampling Method:**	Macro Core
Drill Rig Type:	Geoprobe	**Boring Depth:**	12'
Start Time:	15:15	**Completion Time:**	15:30
Start Date:	7/11/2013	**Completion Date:**	7/11/2013

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Description	Notes
0	4	1.5		SW	Crushed brick, gray-brown medium sand and gravel, little silt (fill).	PID = 0.0 ppm, no odor.
						SB019 (0-2') collected at 15:20.
4	4	1.5		SW		PID = 0.0 ppm, no odor.
						SB019 (6-8') collected at 15:25.
					Dry, orange-brown fine-medium sand, some gravel, little silt (fill.)	
8	4	1.5		SW		PID = 13.4 ppm @ 10', no odor.
					Wet dark brown fine-medium sand, some gravel (fill).	PID = 88.7 ppm @ 12', petroleum odor.
						Visual staining.
						SB019 (10-12') collected at 15:30.
12	4	1.5		SW		PID = 2.4 ppm @ 16', no odor.

End of boring at 16' bgs.

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Boring Designation:	SB020	**Logged By:**	JC/AR
Boring Location:	74 Wallabout Street, Brooklyn NY	**Project Manager:**	DE
Project Name:	Remedial Investigation	**Project Number:**	RAB1301
Drilling Contractor:	LVS	**Drilling Method:**	Direct Push-Macro Core
Operator Name:	Manny	**Sampling Method:**	Macro Core
Drill Rig Type:	Geoprobe	**Boring Depth:**	12'
Start Time:	11:30	**Completion Time:**	12:20
Start Date:	7/11/2013	**Completion Date:**	7/11/2013

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Description	Notes
0	4	2		SW	Concrete, crushed brick, asphalt, dry dark brown medium sand and gravel, little silt (fill).	PID = 0.0 ppm, no odor.
						PID = 18.9 ppm @ 3',
						SB020 (0-2') collected at 11:45.
4	4	3		SW		PID = 0.0 ppm, no odor.
					Dry, orange-brown fine-medium sand, little gravel , little silt (fill.)	SB020 (6-8') collected at 12:00.
8	4	3		SW	Dry orange and black coarse sand and gravel (fill).	PID = 0.0 ppm, no odor.
						Visual staining.
						SB020 (10-12')/DUP001 collected at 12:15.
				CL	Wet brown fine-medium sand and clay (low plasticity).	
12	3	2				PID = 0.0 ppm, no odor.

End of boring at 15' bgs. SB020-GW/MS/MSD collected at 12:20.

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Boring Designation:	SB021	**Logged By:**	JC/AR
Boring Location:	74 Wallabout Street, Brooklyn NY	**Project Manager:**	DE
Project Name:	Remedial Investigation	**Project Number:**	RAB1301
Drilling Contractor:	LVS	**Drilling Method:**	Direct Push-Macro Core
Operator Name:	Manny	**Sampling Method:**	Macro Core
Drill Rig Type:	Geoprobe	**Boring Depth:**	12'
Start Time:	12:25	**Completion Time:**	13:00
Start Date:	7/11/2013	**Completion Date:**	7/11/2013

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Description	Notes
0	4	2.5		SW	Concrete, brick, dry dark brown sand, some gravel , little silt (fill).	PID = 0.0 ppm, no odor.
						SB021 (0-2') collected at 12:40.
4	4	1				PID = 0.0 ppm, no odor.
						SB021 (6-8') collected at 12:45.
8	4	1		SM		PID = 66.7 ppm, slight petroleum odor.
					Wet brown-black medium sand, some silt, red brick (fill).	Visual staining.
					Wet sand and silt.	SB021 (10-12') collected at 12:50.

End of boring at 12' bgs. SB021-GW/GW-DUP001 collected at 13:00.

P.W. GROSSER CONSULTING

Boring Designation:	SB022	**Logged By:**	JC/AR
Boring Location:	74 Wallabout Street, Brooklyn NY	**Project Manager:**	DE
Project Name:	Remedial Investigation	**Project Number:**	RAB1301
Drilling Contractor:	LVS	**Drilling Method:**	Direct Push-Macro Core
Operator Name:	Manny	**Sampling Method:**	Macro Core
Drill Rig Type:	Geoprobe	**Boring Depth:**	12'
Start Time:	13:20	**Completion Time:**	14:40
Start Date:	7/11/2013	**Completion Date:**	7/11/2013

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Description	Notes
0	4	2.5		SW	Concrete, dry dark brown fine sand and gravel (fill).	PID = 0.0 ppm, no odor.
						SB022 (0-2') collected at 13:55.
4	4	2		SW		PID = 17.0 ppm, no odor.
						SB022 (6-8') collected at 14:00.
8	4	4		SW	Dry dark gray medium sand, some gravel, little silt (fill).	PID = 0.0, no odor.
						SB022 (10-12') collected at 14:05.
				CL	Wet dark brown fine-medium sand and clay (low plasticity).	
12	2	2			Wet dark brown fine-medium sand and clay (medium plasticity).	PID = 0.0, no odor.

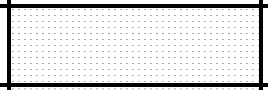
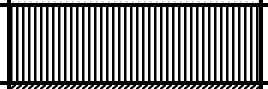
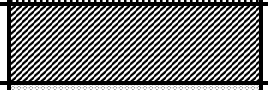
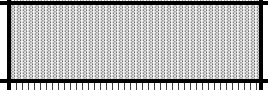
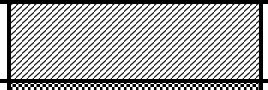
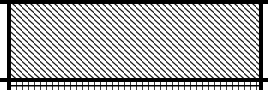
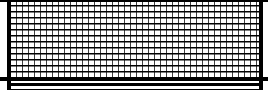
End of boring at 14' bgs. SB022-GW collected at 14:40.

P.W. GROSSER CONSULTING

Boring Designation:	SB023	**Logged By:**	JC/AR
Boring Location:	74 Wallabout Street, Brooklyn NY	**Project Manager:**	DE
Project Name:	Remedial Investigation	**Project Number:**	RAB1301
Drilling Contractor:	LVS	**Drilling Method:**	Direct Push-Macro Core
Operator Name:	Manny	**Sampling Method:**	Macro Core
Drill Rig Type:	Geoprobe	**Boring Depth:**	12'
Start Time:	8:35	**Completion Time:**	8:50
Start Date:	7/11/2013	**Completion Date:**	7/11/2013

Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Description	Notes
0	4	2		SW	Concrete, brick, dry gray-brown fine sand, some gravel, little silt (fill).	PID = 0.0 ppm, no odor.
					Dry light orange-brown medium sand and gravel, trace silt (fill).	
4	4	2		SW		PID = 3.2 ppm, petroleum odor.
						SB023 (6-8') collected at 8:50.
8	4	1				PID = 16.7 ppm @ 8'.
				SW	Wet brown medium-coarse sand, trace gravel.	

End of boring at 12' bgs.

USCS Code	Pattern	Pattern Name
GW		6.25% Grey
GP		12.5% Grey
GM		Vertical Stripe
GC		Diagonal Stripe
SW		25% Grey
SP		50% Grey
SM		Thin Vertical Stripe
SC		Thin Diagonal Stripe
ML		Diagonal Crosshatch
CL		Thin Reverse Diagonal Stripe
OL		Thin Horizontal Crosshatch
MH		Horizontal Stripe
CH		Reverse Diagonal Stripe
OH		75% Grey
PT		Thick Diagonal Crosshatch

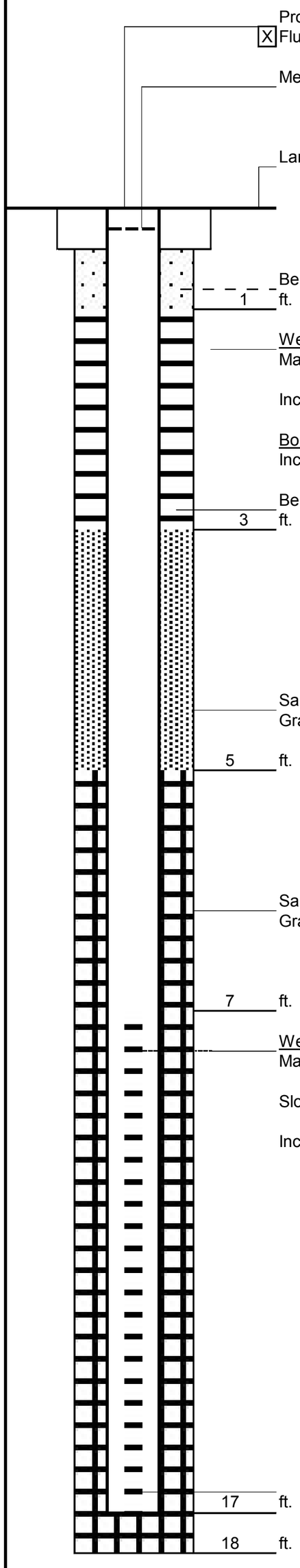
Monitoring Well / Observation Well

Construction Logs

P.W. Grosser Consulting • P.W. Grosser Consulting Engineer & Hydrogeologist, PC
630 Johnson Avenue, Suite 7 • Bohemia, NY 11716
PH 631.589.6353 • FX 631.589.8705 • www.pwgrosser.com
New York, NY • Syracuse, NY • Seattle, WA

Monitoring Well

Construction Log

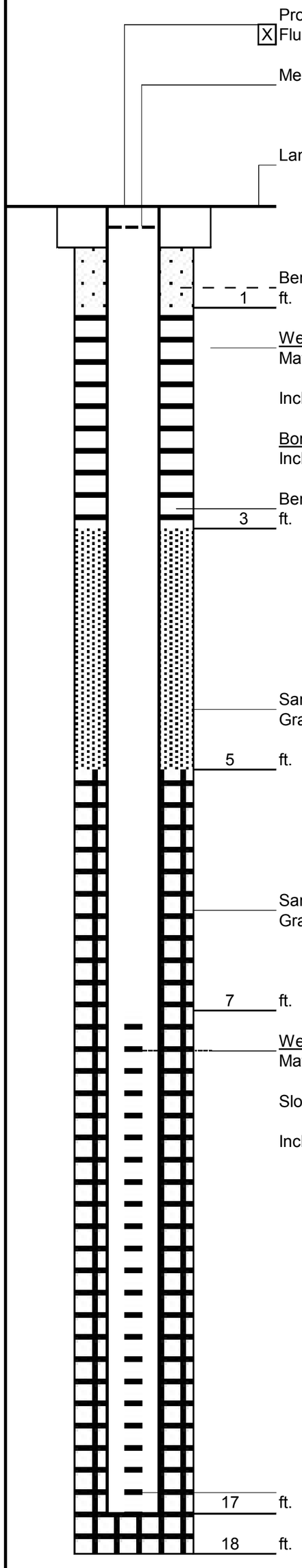


Note: Drawing is not to scale.
Depths are given in feet below land surface.

Well No.	MW004
Project	RAB1301
Surveyor	P. W. Grosser Consulting
Measuring Point Elevation	8.86 feet
Installation Date	7/19/2013
Drilling Contractor	Associated Environmental Services, LTD
Drilling Method	Hollow Stem Auger
Drilling Fluid	None
Development Technique (s) and Date (s)	Submersible Pump 7/19/13
Water Removed During Development	25 Gallons
Static Depth to Water/Product	6.18
Pumping Duration	25
Well Purpose	Monitoring Well
Hydrogeologist	Amanda Racaniello
Company Name	P.W. Grosser Consulting Inc.
Notes	Well purging dry during development.

Monitoring Well

Construction Log

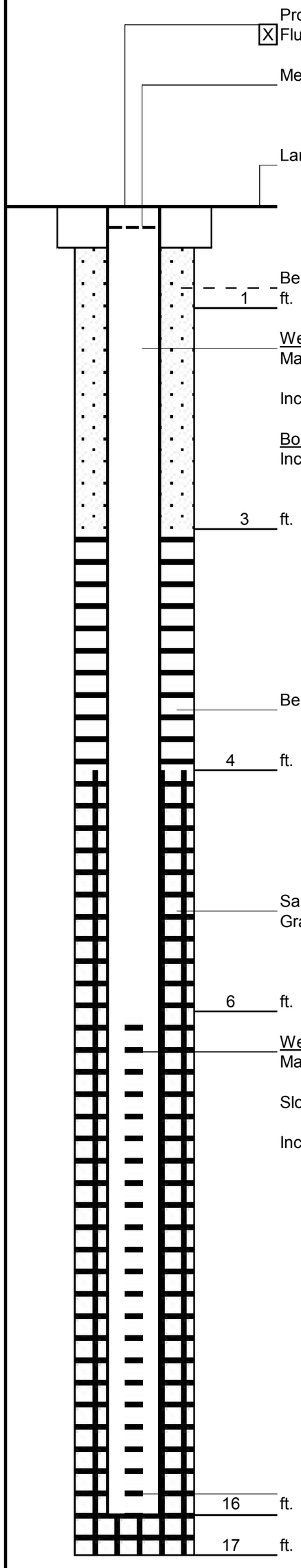


Note: Drawing is not to scale.
Depths are given in feet below land surface.

Well No.	MW005
Project	RAB1301
Surveyor	P. W. Grosser Consulting
Measuring Point Elevation	9.53 feet
Installation Date	7/19/2013
Drilling Contractor	Associated Environmental Services, LTD
Drilling Method	Hollow Stem Auger
Drilling Fluid	None
Development Technique (s) and Date (s)	Submersible Pump 7/19/13
Fluid Loss During Drilling	_____ Gallons
Water Removed During Development	25 Gallons
Static Depth to Water/Product	7.65
Pumping Duration	30
Well Purpose	Monitoring
Hydrogeologist	Amanda Racaniello
Company Name	P.W. Grosser Consulting Inc.
Notes	

Monitoring Well

Construction Log

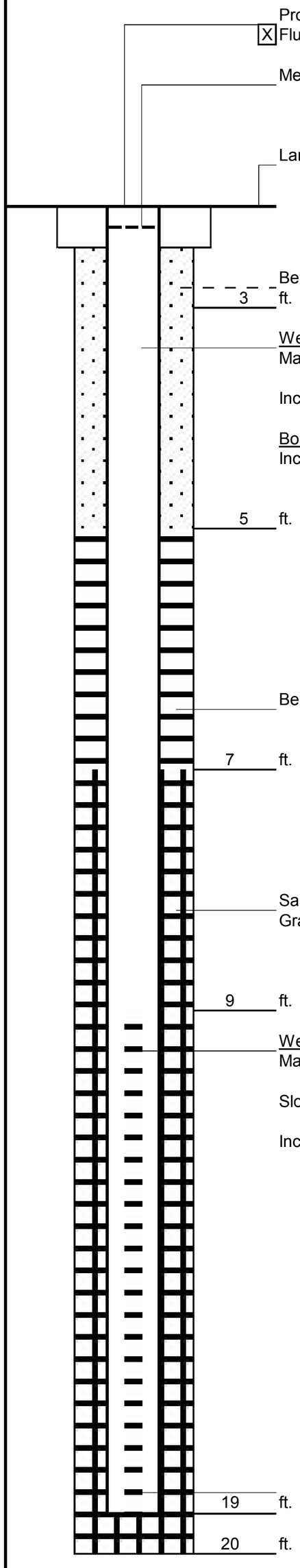


Note: Drawing is not to scale.
Depths are given in feet below land surface.

Well No.	OB001
Project	RAB1301
Surveyor	P. W. Grosser Consulting
Measuring Point Elevation	10.52 feet
Installation Date	7/11/2013
Drilling Contractor	LVS
Drilling Method	Direct Push
Drilling Fluid	None
Well Purpose	Observation
Hydrogeologist	Amanda Racaniello
Company Name	P.W. Grosser Consulting Inc.
Notes	

Monitoring Well

Construction Log

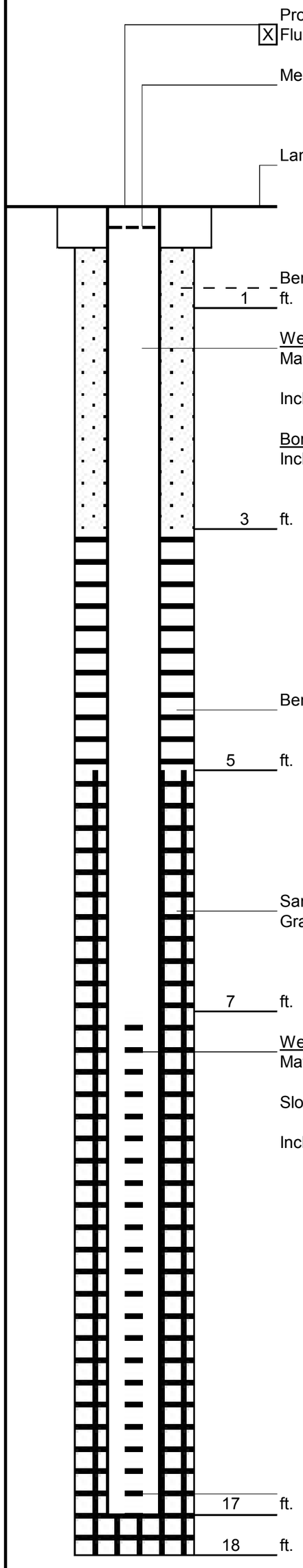


Note: Drawing is not to scale.
Depths are given in feet below land surface.

Well No.	OB002
Project	RAB1301
Surveyor	P. W. Grosser Consulting
Measuring Point Elevation	11.51 feet
Installation Date	7/11/2013
Drilling Contractor	LVS
Drilling Method	Direct Push
Drilling Fluid	None
Well Purpose	Observation
Hydrogeologist	Amanda Racaniello
Company Name	P.W. Grosser Consulting Inc.
Notes	

Monitoring Well

Construction Log

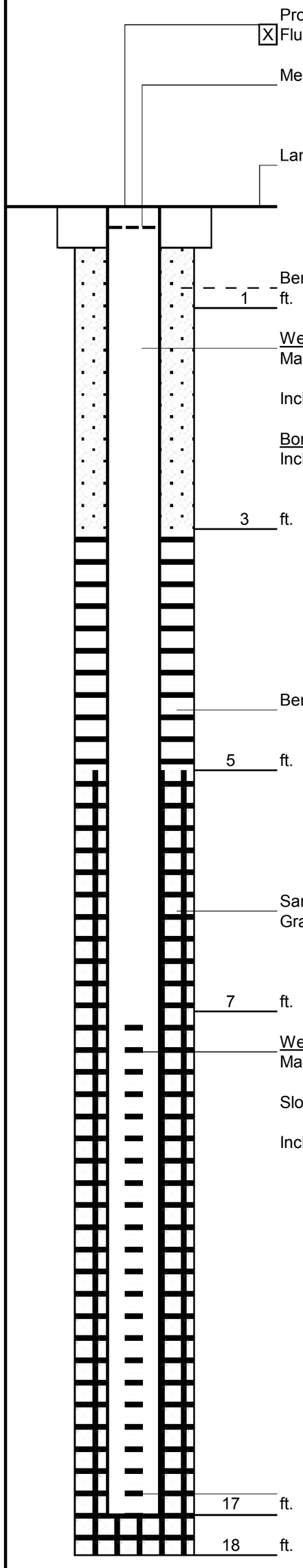


Note: Drawing is not to scale.
Depths are given in feet below land surface.

Well No.	OB003
Project	RAB1301
Surveyor	P. W. Grosser Consulting
Measuring Point Elevation	10.71 feet
Installation Date	7/19/2013
Drilling Contractor	Associated Environmental Services, LTD
Drilling Method	Direct Push
Drilling Fluid	None
Well Purpose	Observation
Hydrogeologist	Amanda Racaniello
Company Name	P.W. Grosser Consulting Inc.
Notes	

Monitoring Well

Construction Log



Note: Drawing is not to scale.
Depths are given in feet below land surface.

Well No.	OB004
Project	RAB1301
Surveyor	P. W. Grosser Consulting
Measuring Point Elevation	10.04 feet
Installation Date	7/19/2013
Drilling Contractor	Associated Environmental Services, LTD
Drilling Method	Direct Push
Drilling Fluid	None
Well Purpose	Observation
Hydrogeologist	Amanda Racaniello
Company Name	P.W. Grosser Consulting Inc.
Notes	

FINAL EXCAVATION DEPTH

Arkansas Chemical Site Final Engineering Report

Charlie Sosik

Subject: FW: 755 Kent Ave, 74 Wallabout
Attachments: FIG6_ExcavationPlan.pdf

From: Andrew Lockwood [mailto:andyl@pwgrosser.com]
Sent: Monday, April 01, 2019 4:32 PM
To: Charlie Sosik; Charlie Krieger
Cc: Ryan Morley
Subject: RE: 755 Kent Ave, 74 Wallabout

Charlie,

Ill dig deeper and let you know of any changes but my recollection is that for MW-04, MW-05 and the OB wells we did no soil sampling, we just drilled down to depth and installed the wells, hence the lack of boring logs and only well construction logs for those locations.

Yes,

The southwest corner of the site was excavated to 15 feet to remove all the petroleum contamination within the smear zone/LNAPL.

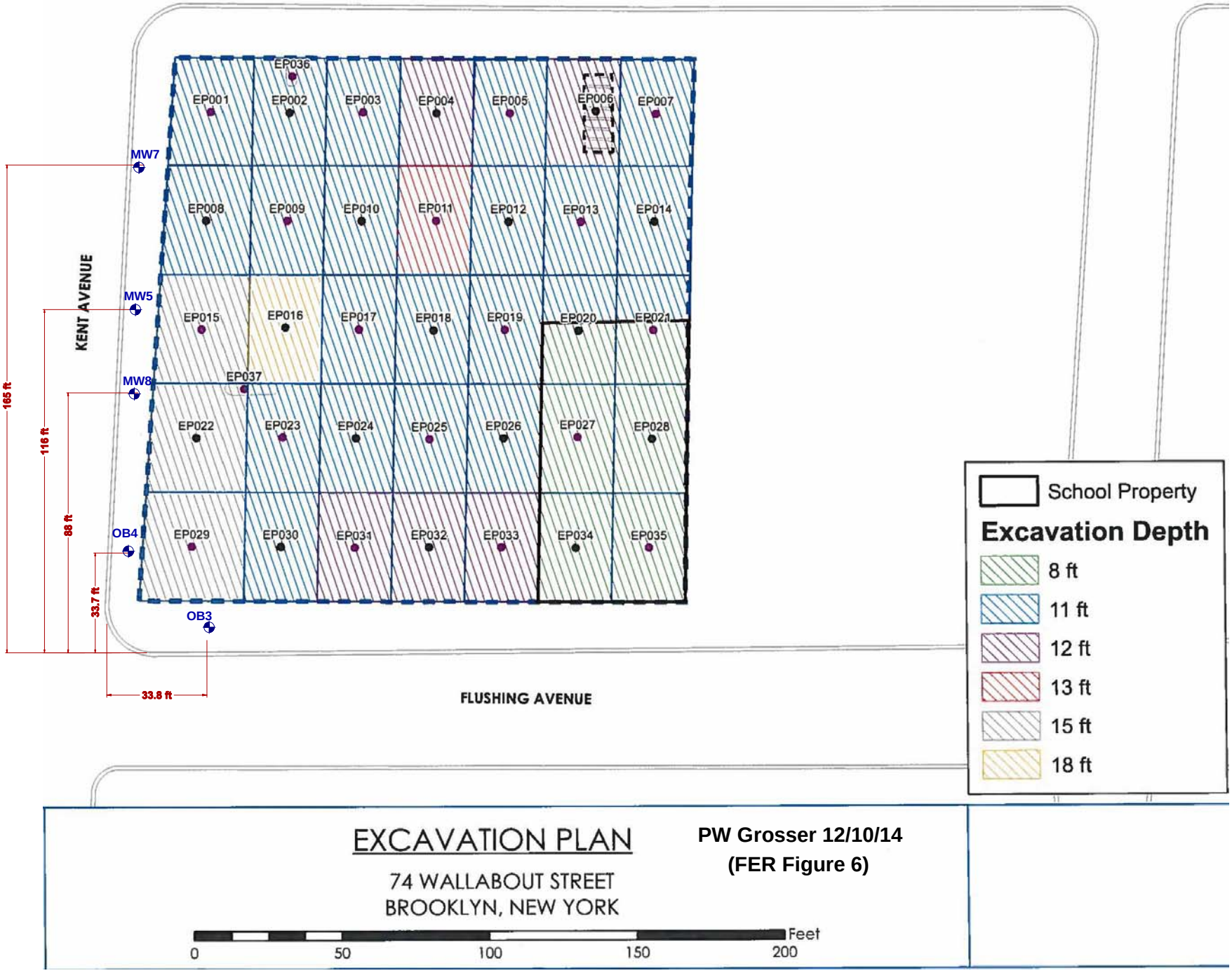
Andrew Lockwood, PG, LEP | Senior Vice President

PWGC
CLIENT DRIVEN SOLUTIONS

630 Johnson Ave, Suite 7
Bohemia, NY 11716

w. 631.589.6353

f. 631.589.8705



EXCAVATION PLAN

74 WALLABOUT STREET
BROOKLYN, NEW YORK

PW Grosser 12/10/14
(FER Figure 6)

0 50 100 150 200 Feet

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
Phone 631.504.6000
Fax 631. 924 .2870

Figure No. **1**

Site Name: FORMER ARKANSAS CHEMICAL
Site Address: 755 KENT AVENUE BROOKLYN
Drawing Title: EXCAVATION DEPTH & OFF-SITE WELL LOCATION

CAPILLARY RISE

Temperature of Ground Water

The temperature of ground water at a depth of about 50 feet, unless influenced by nearby bodies of surface water (streams or lakes), is usually fairly constant throughout the year and is typically 2 to 3 degrees (F) higher than the mean annual air temperature at the site. Ground water temperatures will increase with greater depth, typically at about 1.5 degrees (F) for each additional 100 feet of depth.

Water from very shallow wells, or from wells (or galleries or collectors) that derive a large part of their supply by infiltration from surface water, will typically have temperatures that vary seasonally. This seasonal variation generally follows the pattern of air or surface water temperature changes — and usually lags by a month or two.

Capillary Rise of Water

Material	Grain Size		Capillary Rise	
	Millimeters	Inches	Centimeters	Feet
Gravel, fine	5 – 2	0.2 – 0.08	2.5	0.08
Sand, very coarse	2 – 1	0.08 – 0.04	6.5	0.21
Sand, coarse	1 – 0.5	0.04 – 0.02	14	0.46
Sand, medium	0.5 – 0.2	0.02 – 0.008	25	0.82
Sand, fine	0.2 – 0.1	0.008 – 0.004	43	1.4
Silt	0.1 – 0.05	0.004 – 0.002	106	3.5
Silt	0.05 – 0.02	0.002 – 0.0008	200	6.6

OFFSITE MONITORING DATA

(Arkansas Site)

NYSDEC Spill # 12-13721
74 Wallabout St LC
74 Wallabout Street
Brooklyn, New York

Groundwater Gauging Data - Depth to Water and Depth to Product Readings
Measurements recorded by EAR

Station	Date Collected	Casing Elevation (ft.)	DTW (ft.)	DTP (ft.)	GW Elevation (ft.)	Apparent Product Thickness (ft.)	Notes	Amount of Product/GW Recovered (gal.)
OB003	11/16/17	10.71	9.59		1.12			
OB003	12/7/17	10.71	10.05		0.66			
OB003	12/14/17	10.71	9.99		0.72			
OB003	12/21/17	10.71	10.12		0.59			
OB003	1/11/18	10.71	9.90		0.81			
OB003	1/18/18	10.71	9.62		1.09			
OB003	1/25/18	10.71	10.11		0.60			
OB003	2/1/18	10.71	9.78		0.93			
OB003	2/8/18	10.71					Inaccessible due to debris pile	
OB003	2/22/18	10.71					Inaccessible due to debris pile	
OB003	3/9/18	10.71	8.92		1.79			
OB003	3/15/18	10.71	8.98		1.73			
OB003	3/29/18	10.71					Inaccessible due to debris pile	
OB003	6/27/18	10.71					Inaccessible due to debris pile	
OB003	11/8/18	10.71	9.33		1.38		Sheen observed.	
OB004	11/16/17	10.04	8.35		1.69			
OB004	12/7/17	10.04	8.95		1.09			
OB004	12/14/17	10.04	8.57		1.47			
OB004	12/21/17	10.04	8.80		1.24			
OB004	1/11/18	10.04	8.92		1.12			
OB004	1/18/18	10.04	9.55		0.49			
OB004	1/25/18	10.04	8.77		1.27			
OB004	2/1/18	10.04	8.57		1.47			
OB004	2/8/18	10.04	8.45		1.59			
OB004	2/22/18	10.04	8.03		2.01			
OB004	3/1/18	10.04	7.60		2.44			
OB004	3/9/18	10.04	7.47		2.57			
OB004	3/15/18	10.04	7.41		2.63			
OB004	3/29/18	10.04	7.49		2.55			
OB004	6/27/18	10.04	7.81		2.23			
OB004	11/8/18	10.04	8.03		2.01		Sheen observed.	
MW005	11/16/17	9.53				4.00	Product thickness is approximate; Unable to measure product and groundwater interface; Product visually confirmed with bailer	0
MW005	12/7/17	9.53	14.15	7.75		6.40	Readings collected prior to VAC event conducted on 12/7/17	9
MW005	12/14/17	9.53	10.91	8.08		2.83	Readings collected prior to VAC event conducted on 12/14/17	3.5
MW005	12/21/17	9.53	9.59	8.18		1.41	Readings collected prior to VAC event conducted on 12/21/17	6
MW005	1/11/18	9.53	8.65	7.90		0.75	Readings collected prior to VAC event conducted on 1/11/18	8
MW005	1/18/18	9.53	8.48	7.73		0.75	Readings collected prior to VAC event conducted on 1/18/18	18
MW005	1/25/18	9.53	8.93	8.22		0.71	No VAC event conducted	
MW005	2/1/18	9.53	8.58	7.89		0.69	Readings collected prior to VAC event conducted on 2/1/18	11
MW005	2/8/18	9.53	8.45	7.98		0.47	Readings collected prior to VAC event conducted on 2/8/18	5.5

NYSDEC Spill # 12-13721
74 Wallabout St LC
74 Wallabout Street
Brooklyn, New York

Groundwater Gauging Data - Depth to Water and Depth to Product Readings
Measurements recorded by EAR

Station	Date Collected	Casing Elevation (ft.)	DTW (ft.)	DTP (ft.)	GW Elevation (ft.)	Apparent Product Thickness (ft.)	Notes	Amount of Product/GW Recovered (gal.)
MW005	2/22/18	9.53	8.35	7.80		0.55	Inaccessible due to high traffic volume	
MW005	3/1/18	9.53	8.09	7.57		0.52	Readings collected prior to VAC event conducted on 3/1/18	30
MW005	3/9/18	9.53	7.78	7.23		0.55	Readings collected prior to VAC event conducted on 3/9/18	30
MW005	3/15/18	9.53	7.85	7.40		0.45	Readings collected prior to VAC event conducted on 3/15/18	40
MW005	3/29/18	9.53	8.00	7.52		0.48	Readings collected prior to VAC event conducted on 3/29/18	40
MW005	6/27/18	9.53	8.72	7.55		1.17	Readings collected prior to VAC event conducted on 6/27/18	45
MW005	10/30/18	9.53	9.49	7.05		2.44	Product thickness not confirmed.	
MW005	11/8/18	9.53	9.33	7.58		1.75		
MW006	10/30/18		7.79				TWD = 16.48'	
MW006	11/8/18		7.54					
MW007	10/30/18		8.36				TWD = 18.06'	
MW007	11/8/18		7.51	7.50		0.01	Sent bailer down to confirm, no product. Rust colored particles in water. No sheen on water.	
MW008	10/30/18		17.56				TWD = 17.58' DTW reading was recorded right after well installation	
MW008	11/8/18		7.98					

SOIL BORING PHOTOS

Drilling location 5ft North of MW5.

0-5ft Boring

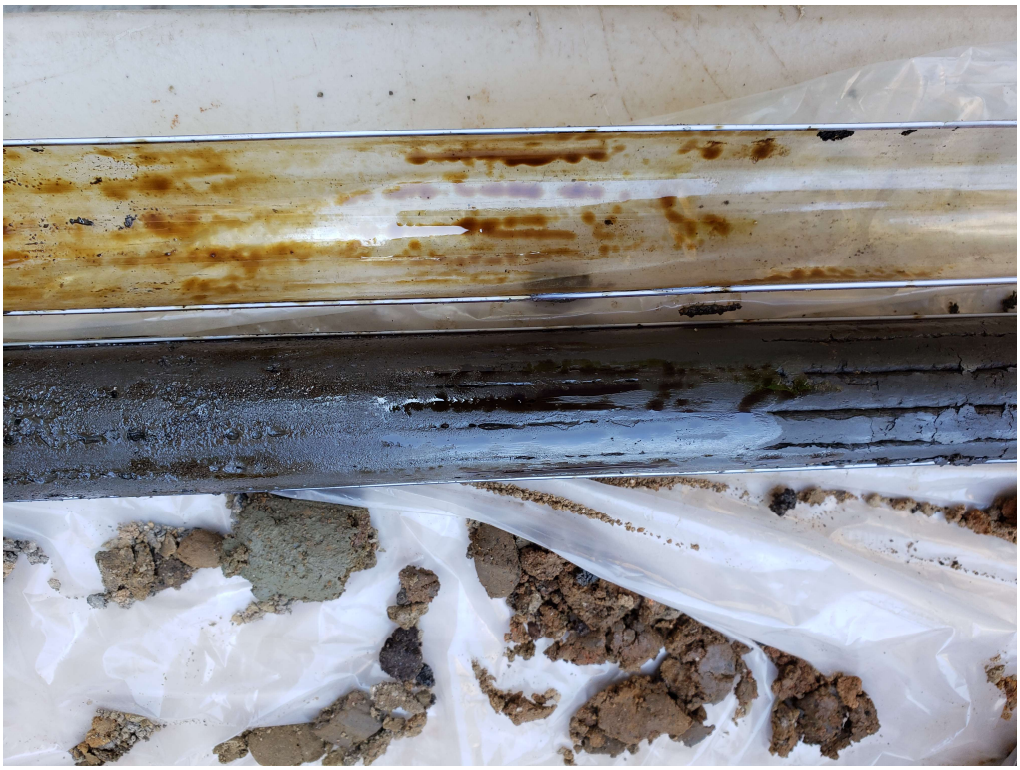
Staining in middle of 5-10 boring

Product in middle of 10-15ft boring

15-20 ft boring

15-20 ft boring

15-20ft boring



15-20ft Boring

20-25 ft Boring

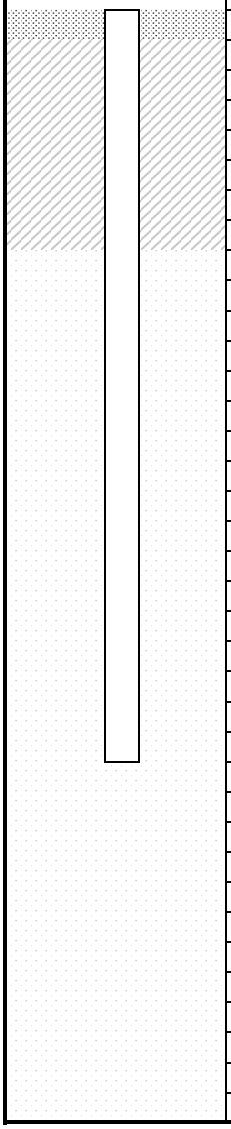
After

Geologic Boring Log Details

ENVIRONMENTAL BUSINESS CONSULTANTS

Boring Log

Location: 5 ft north of MW5			Depth to Water (ft. from grade.)	Site Elevation Datum
Site Name: SSL1601	Address: 376-378 Flushing Avenue Brooklyn, NY		Date / DTW	Ground Elevation
			Groundwater depth	
Drilling Company:	Method: Geoprobe		approx 8 ft	Well Specifications
Date Started: 4/3/2019	Date Completed: 4/3/2019			None
Completion Depth: 25	Geologist Tom Gallo			

SB6 (NTS)	DEPTH (ft below grade)	SAMPLES Recovery (in.)	Blow per 6 in.	PID (ppm)	SOIL DESCRIPTION
	0 to 5	31		0	8"- Dk brwn topsoil 6"- Med - course brown sand 10"- tan-gray silty clay 7" - fine brwn silty sand **Retained soil sample SB6(0-2)*
	5 to 10	21		14.4	10"- Soft brwn/gray silty clay 4"- Stained wet clayey sand w/petro odor 7"-soft gray clay
	10 to 15	35		24.0	12"- damp, soft brown clay 6" - damp soft brown sandy clay w/product 17" - damp soft brwn sandy clay
	15 to 20	34		16.0	8" - wet medium brown sand 2" - stained med sand with product 6" - gray sandy clay with product 18" - gray clay w/ organics
	20 to 25	45		3.0	9"- wet med gray sand 13" gray clay - no odor 19" - fine - med brwn silty sand - no odor 4" coarse gray sand - no odor