518-526 West 30th Street,
Manhattan, New York
Block 701 Lot 45, 52, 55, 56 and 58

Remedial Action Work Plan

NYC OER VCP Project Number: 14CVCP162M
NYC OER E-Designation Project Number: 13EH-N305M

Prepared for:

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REMEDIAL ACTION WORK PLAN

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LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AS/SVE	Air Sparging/Soil Vapor Extraction
BOA	Brownfield Opportunity Area
CAMP	Community Air Monitoring Plan
C/D	Construction/Demolition
COC	Certificate of Completion
CQAP	Construction Quality Assurance Plan
CSOP	Contractors Site Operation Plan
DCR	Declaration of Covenants and Restrictions
ECs/ICs	Engineering and Institutional Controls
CHASP	Construction Health and Safety Plan
IRM	Interim Remedial Measure
BCA	Brownfield Cleanup Agreement
MNA	Monitored Natural Attenuation
NOC	Notice of Completion
NYC VCP	New York City Voluntary Cleanup Program
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York City Department of Health and Mental Hygiene
NYCRR	New York Codes Rules and Regulations
NYC OER	New York City Office of Environmental Remediation
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
OSHA	United States Occupational Health and Safety Administration
PE	Professional Engineer
PID	Photo Ionization Detector
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAOs	Remedial Action Objectives
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan or Plan
RCA	Recycled Concrete Aggregate
RD	Remedial Design
RI	Remedial Investigation
RMZ	Residual Management Zone
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SVOC	Semi-Volatile Organic Compound
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

CERTIFICATION

I, Arnold F. Fleming, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the 516-526 West 30th Street Phase II Site NYC OER Project Number 14CVCP162M.

I, Kevin McGuinness, am a Qualified Environmental Professional as defined in §43-140. I have primary direct responsibility for implementation of the remedial action for the 516-526 West 30th Street Phase II Site NYC OER Project Number 14CVCP162M.

We certify that this Remedial Action Work Plan (RAWP) has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property in accordance with applicable City, State and Federal laws and regulations. Importation of all soil, fill and other material from offsite will be in accordance with all applicable City, State and Federal laws and requirements. This RAWP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

Arnold F. Fleming
Name

NYS PE License Number

Signature

Date

PE Stamp

Kevin A. McGuinness
QEP Name

QEP Signature

Date

EXECUTIVE SUMMARY

West 30th Highline Holdings, LLC (Volunteer) anticipates enrolling in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a 23,700-square foot Site located at 518-526 West 30th Street in the Chelsea section of Manhattan, New York. A remedial investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP) in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use. This RAWP establishes remedial action objectives, provides remedial alternatives analysis that includes consideration of a permanent cleanup, and provides a description of the selected remedial action. The remedial action described in this document provides for the protection of public health and the environment consistent with the intended property use, complies with applicable environmental standards, criteria, guidance and applicable laws and regulations.

Site Location and Current Usage

The Site is located at 518-526 West 30th Street in the Chelsea section in Manhattan, New York and is identified as Block 701 and Lots 45,52,55,56 and 58 on the New York City Tax Map. Figure 1 shows the Site location. The Site is the second phase in the development of the 500 West 30th Street (Block 701 and Lots 30, 33, 36, 37, 42, 43 and 44) Site. The Site is 23,700-square feet and is bounded by the Lot 16 project to the south and West 30th St. to the north. To the west, the Site is bounded by a 6-story brick building (Lot 59). To the east the Site is bounded by Lot 44 and the High Line. The High Line is a New York City linear park built on the former elevated New York Central Railroad spur called the West Side Line. A map of the Site boundary is provided as Figure 2. Currently, the Site is a vacant lot. Over time the neighborhood character is anticipated to develop into a residential/commercial mix, due to the Special West Chelsea District Rezoning, according to the Department of City Planning.

Summary of Proposed Redevelopment Plan

The Site is an extension of the 500 West 30th St. project. The proposed redevelopment plan will include a single 31-story tower on a 3-story podium base and will encompass current lots 45, 52, 55, 56, and 58. The proposed residential, mixed-use building will have one cellar level with frontage along West 30th Street between 10th Ave. and 11th Ave. The cellar level will be used for mechanical rooms, storage, super's office, residential accessory spaces and residential amenities. The cellar will encompass the entire Site with the exception of the northeast corner (the Highline area) and approximately 10 foot setbacks along the south, east, and west property lines. The cellar will be approximately 14 feet deep. The first floor will be used for the residential lobby, retail space, parking entrance, and accessory residential space. The ground floor will encompass the entire property with the exception of the northeast corner area under the Highline. The northeast corner area under the Highline will be capped with 2 feet of clean fill or recycled concrete aggregate (RCA) commercial product and paving material.. The second floor of the building will house permitted accessory parking for the building and areas open to the residential lobby and commercial spaces below. The third floor, the last podium floor, will consist of open spaces for parking, mechanical spaces, and residential units. Floors 4 to 31 will have 190 residential units ranging from studios to three bedrooms. The exterior of the building will be pre-cast concrete panels with brick veneer, with aluminum and glass punched windows and an aluminum and glass storefront for the retail portions on the first floor. With the exception of the pool area, elevator pits and the area under the Highline, excavation to a minimum of 14 feet below grade will be required to construct the cellar, The pool area will be excavated to 18 feet below grade and the elevator pits will be excavated 24 feet below grade. The area under the Highline will be excavated to a minimum of 2 feet below grade for capping purposes. Approximately 9,760 cubic yards of soil/fill will be excavated for development purposes.

The current zoning designation is C6-4, which permits a tower occupied by commercial, residential and/or community facility that may penetrate the sky exposure plane. The C6-4 zoning designation is allowed in mostly major business districts with a floor to area ratio of 10.0 or 15.0 exclusive of an applicable bonus. The proposed use is consistent with the existing zoning for the property. Development plans are provided in Appendix A. The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

Summary of the Remedy

The proposed remedial action achieves protection of public health and the environment for the intended use of the property. The proposed remedial action achieves all of the remedial action objectives established for the project and addresses applicable standards, criterion, and guidance; is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants; is cost effective and implementable; and uses standards methods that are well established in the industry. The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and performance of all required NYC VCP citizen participation activities according to an approved Citizen Participation Plan.
2. Performance of a Community Air Monitoring Plan (CAMP) for particulates and VOCs.
3. Establishment of Track 4 Site-specific SCOs.
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking and staking excavation areas.
5. Implementation of storm water pollution prevention measures in compliance with applicable laws and regulations.
6. Excavation and removal of soil/fill exceeding Track 4 Site-specific SCOs to a depth of approximately 14 feet below grade in the cellar area, 18 feet below grade for the pool area, 24 feet below grade for the elevator pit, and2 feet below grade under the Highline on the northeast corner of the Site.
7. Dewatering in compliance with all city, state, and federal laws and regulations.
8. Removal of any underground storage tanks and closure of petroleum spills, if encountered, in compliance with applicable, State and Federal laws and regulations.
9. Screening of excavated soil/fill during all intrusive work for indicators of contamination by visual, odor and for VOCs, using a photoionization detector.
10. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, this RAWP. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media onsite.
11. Collection and analysis of endpoint samples to evaluate the performance of the remedy with respect to attainment of Track 4 SCOs.

12. Importation of materials to be used for backfill and cover in compliance with the OER-approved plan and in accordance with applicable Federal, State, and City laws and regulations.
13. Installation of a waterproofing/vapor barrier system beneath the building slabs at the cellar and ground-level and along all sub-grade foundation sidewalls.
14. Demarcation of residual soil/fill under the Highline.
15. Construction and maintenance of an engineered composite cover consisting of the building foundation slabs and sidewalls and integrated vapor barrier system/waterproofing membrane across the building footprint as wells as 2 feet of clean fill or RCA commercial product and capped with paving material underneath the Highline.
16. Submission of a RAR that describes the remedial activities, certifies that remedial requirements have been achieved, defines the Site boundaries, describes all ECs/ICs to be implemented at the Site, and lists any changes from this RAWP.
17. Submission of an approved SMP in the RAR for long-term management of residual contamination, including plans for operation, maintenance, monitoring inspection and certification of ECs/ICs and reporting at a specified frequency.
18. Continued registration with an E-Designation by the NYC Department of City Planning and the Department of Buildings; establishment of ECs/ICs in this RAWP and a requirement that management of these controls must be in compliance with an approved SMP. The ICs will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.
19. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.

COMMUNITY PROTECTION STATEMENT

The New York City Office of Environmental Remediation (OER) created the NYC VCP to provide governmental oversight for the cleanup of contaminated property in NYC. This RAWP describes the findings of prior environmental studies that show the location of contamination at the Site, and describes the plans to clean up the Site to protect public health and the environment.

This RAWP provides a very high level of protection for neighboring communities and also includes many other elements that address common community concerns, such as community air monitoring, odor, dust and noise controls, hours of operation, good housekeeping and cleanliness, truck management and routing, and opportunities for community participation. The purpose of this Community Protection Statement is to explain these community protection measures in non-technical language to simplify community review.

Remedial Investigation and Remedial Action Work Plan. Under the NYC VCP, a thorough cleanup study of this property (called a remedial investigation) has been performed to identify past property usage, to sample and test soils; groundwater and soil vapor, and identify contaminant sources present on the property. The RAWP has been designed to address all contaminant sources that have been identified during the study of this property.

Identification of Sensitive Land Uses. Prior to developing a remedial action plan, the neighborhood was evaluated to identify sensitive land uses nearby, such as schools, day care facilities, hospitals and residential areas. The cleanup program was then tailored to address the special conditions of this community.

Qualitative Human Health Exposure Assessment. An important part of the cleanup planning for the Site is the performance of a study to find all of the ways that people might come in contact with contaminants at the Site now or in the future. This study is called a Qualitative Human Health Exposure Assessment (QHHEA). A QHHEA was performed for this project. This assessment has considered all known contamination at the Site and evaluated the potential for people to come in contact with this contamination. All identified public exposures will be addressed under this RAWP.

Health and Safety Plan. This RAWP includes a Construction Health and Safety Plan (CHASP) that is designed to protect community residents and onsite workers. The elements of the CHASP are in compliance with safety requirements of the United States Occupational Safety and Health Administration. The CHASP includes many protective elements including those discussed below.

Site Safety Coordinator. This project has a designated Site safety coordinator to implement the CHASP. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site Safety Coordinator will be assigned by the construction contractor and reported to OER prior to the start of the remedial action. **Worker Training.** Workers participating in cleanup of contaminated material on this project are required to be trained in a 40-hour hazardous waste operators (HAZWOPER) training course and to take annual refresher training. This pertains to workers performing specific tasks including removing contaminated material and installing cleanup systems in contaminated areas.

Community Air Monitoring Plan. Community air monitoring will be performed during this cleanup project to ensure that the community is properly protected from contaminants, dust and odors. Air samples will be tested in accordance with the CAMP. Results will be regularly reported to the OER. This RAWP includes a plan to address any unforeseen problems that might occur during the cleanup (called a ‘Contingency Plan’).

Odor, Dust and Noise Control. This RAWP includes actions for odor and dust control. These actions, designed to prevent offsite odor and dust nuisances, includes steps to be taken if nuisances are detected. Generally, dust is managed by application of physical covers and by water sprays. Odors are controlled by limiting the area of open excavations, physical covers, spray foams and by a series of other actions or operational measures. The project is also required to comply with NYC noise control standards.

Quality Assurance. This RAWP requires that evidence be provided to illustrate that all cleanup work required under the plan has been completed properly. This will be documented in the final report, called the Remedial Action Report (RAR). This report will be submitted to the NYC OER and will be thoroughly reviewed.

Stormwater Management. To limit the potential for soil erosion and discharge, this RAWP has provisions for stormwater management. The main elements of the storm water management include physical barriers such as tarp covers and erosion fencing, and a program for frequent inspection.

Hours of Operation. The hours for operation of cleanup will comply with the NYC Department of Buildings (DOB) construction code requirements or according to specific variances issued by that agency. For this cleanup project, the hours of operation are Mondays through Fridays from 7 am to 3 pm.

Signage. While the cleanup is in progress, a placard will be prominently posted at the main entrance of the property with a laminated project Fact Sheet that states that the project is in the NYC VCP, provides project contact names and numbers, and locations of project documents can be viewed.

Complaint Management. The contractor performing this cleanup is required to address all complaints. If you have any complaints, you can call the Site Project Manager Ben Joseph at (212)801-1000, the NYC OER Project Manager Hannah Moore at (212) 341-2034, or call 311 and mention the Site is in the NYC VCP.

Utility Mark-outs. To promote safety during excavation in this cleanup, the contractor is required to first identify all utilities and must perform all excavation and construction work in compliance with NYC DOB regulations.

Soil and Liquid Disposal. All soil and liquid material removed from the Site as part of the cleanup will be transported and disposed of in accordance with all applicable City, State and Federal regulations and required permits will be obtained.

Soil Chemical Testing and Screening. All excavations will be supervised by a trained and properly qualified environmental professional. In addition to extensive sampling and chemical testing of soils on the Site, excavated soil will be screened continuously using hand-held instruments, by sight, and by smell to ensure proper material handling and management, and community protection.

Stockpile Management. Soil stockpiles (if any) will be kept covered with tarps to prevent dust, odors and erosion. Any stockpiles will be frequently inspected. Any damaged tarp covers will be promptly replaced. Any stockpiles will be protected with silt fences. Hay bales will be used, as needed to protect stormwater catch basins and other discharge points.

Trucks and Covers. Loaded trucks leaving the Site will be covered in compliance with applicable laws and regulations to prevent dust and odor. Trucks will be properly recorded in logs and records and placarded in compliance with applicable City, State and Federal laws, including those of the New York State Department of Transportation. If loads contain wet material that can leak, truck liners will be used. All transport of materials will be performed by licensed truckers and in compliance with all laws and regulations.

Imported Material. All fill materials proposed to be brought onto the Site will comply with rules outlined in this RAWP and will be inspected and approved by a qualified worker located onsite. Waste materials will not be brought onto the Site. Trucks entering the Site with imported clean materials will be covered in compliance with applicable laws and regulations.

Equipment Decontamination. All equipment used for cleanup work will be inspected and washed, if needed, before it leaves the Site. Trucks will be cleaned at a truck inspection station on the property before leaving the Site.

Housekeeping. Locations where trucks enter or leave the Site will be inspected every day and cleaned regularly to ensure that they are free of dirt and other materials from the Site.

Truck Routing. Truck routes have been selected to: (a) limit transport through residential areas and past sensitive nearby properties; (b) maximize use of city-mapped truck routes; (c) limit total distance to major highways; (d) promote safety in entry to highways; (e) promote overall safety in trucking; and (f) minimize offsite line-ups (queuing) of trucks entering the property. Operators of loaded trucks leaving the Site will be instructed not to stop or idle in the local neighborhood.

Final Report. The results of all cleanup work will be fully documented in the final RAR that will be available for you to review in the public document repositories at New York Public Library located at 455 5th Avenue, New York, New York.

Long-Term Site Management. The property owner will be required to comply with an ongoing Site Management Plan (SMP) that calls for continued inspection of protective controls, such as Site covers. The SMP will be evaluated and approved by the OER. The requirements that the property owner must comply with are defined in the property's deed or established through a city environmental designation. A certification of continued protectiveness of the cleanup will be required from time to time to show that the approved cleanup is still effective.

REMEDIAL ACTION WORK PLAN

1.0 SITE BACKGROUND

West 30th Highline Holdings, LLC. (Volunteer) anticipates enrolling in the NYC VCP to investigate and remediate a 23,700-square foot Site located at 518-526 West 30th Street in the Chelsea section of Manhattan, New York. The RI was performed to compile and evaluate data and information necessary to develop this RAWP in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use. This RAWP establishes remedial action objectives, provides remedial alternatives analysis that includes consideration of a permanent cleanup, and provides a description of the selected remedial action. The remedial action described in this document provides for the protection of public health and the environment consistent with the intended property use, complies with applicable environmental standards, criteria guidance and applicable laws and regulations.

1.1 Site Location and Current Usage

The Site is located at 518-526 West 30th Street in the Chelsea section in Manhattan, New York and is identified as Block 701 and Lots 45,52,55,56 and 58 on the New York City Tax Map. Figure 1 shows the Site location. The Site is the second phase in the development of the 500 West 30th Street (Block 701 and Lots 30, 33, 36, 37, 42, 43 and 44) Site. The Site is 23,700-square feet and is bounded by the Lot 16 project to the south and West 30th St. to the north. To the west, the Site is bounded by a 7-story commercial building (Lot 59). To the east the Site is bounded by Lot 44 and the High Line. The High Line is a New York City linear park built on the former elevated New York Central Railroad spur called the West Side Line. A map of the Site boundary is provided as Figure 2. Currently, the Site is a vacant lot. Over time the neighborhood character is anticipated to develop into a residential/commercial mix, due to the Special West Chelsea District Rezoning, according to the New York Department of City Planning.

1.2 Proposed Redevelopment Plan

The Site is an extension of the 500 West 30th St. project. The proposed redevelopment plan will include a single 31-story tower on a 3-story podium base and will encompass current lots 45, 52, 55, 56, and 58. The proposed residential, mixed-use building will have one cellar level with frontage along West 30th Street between 10th Ave. and 11th Ave. The cellar level will be used for mechanical rooms, storage, super's office, residential accessory spaces and residential amenities. The cellar will encompass the entire Site with the exceptions of the northeast corner (Highline area) and approximately 10 foot setbacks along the south, east, and west property lines. The cellar will be at least 12 feet deep. The first floor will be used for the residential lobby, retail space, parking entrance, and accessory residential space. The ground floor will encompass the entire property with the exception of the northeast corner area under the Highline. The northeast corner area under the Highline will be covered with 2 feet of clean fill or RCA commercial product capped with paving material. The second floor of the building will house permitted accessory parking for the building and areas open to the residential lobby and commercial spaces below. The third floor, the last podium floor, will consist of open spaces for parking mechanical spaces, and residential units. Floors 4 to 31 will have 190 residential units ranging from studios to three bedrooms. The exterior of the building will be pre-cast concrete panels with brick veneer, with aluminum and glass punched windows and an aluminum and glass storefront for the retail portions on the first floor. Excavations to 14 feet below grade will be required to construct the cellar; 18 feet below grade to construct the pool area; and 24 feet below grade for the elevator pits. The area under the Highline will be excavated to minimum of 2 feet below grade and replaced with clean fill or RCA commercial product capped with paving material. Approximately 9,760 cubic yards of soil/fill will be excavated for development purposes.

The development will be approximately 270,000 gross square feet (GSF) (including 20,000 square feet of below-grade space) and broken down as follows:

Total Residential Area = 234,000 GSF

Total Commercial Area = 9,000 GSF

Total Parking Area = 10,000 GSF

Total Mechanical Area = 17,000 GSF

The current zoning designation is C6-4, which permits a tower occupied by commercial, residential and/or community facility that may penetrate the sky exposure plane. The C6-4 zoning designation is allowed in mostly major business districts with a floor to area ratio of 10.0

or 15.0 exclusive of an applicable bonus. The proposed use is consistent with the existing zoning for the property. Development plans are provided in Appendix A.

The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

1.3 Description of Surrounding Property

No schools, hospitals or day care facilities are located within a 250 to 500-foot radius. The area bordered by West 30th St., 10th Ave., West 26th St. and 8th Ave is considered a NYS Environmental Zone, according to OER’s SPEED application. This area is located about 475 ft. from the Site. The Site appears on the City of New York Department of City Planning Zoning Map 8b and is designated C6-4, which is labeled as a general central commercial district, but allows residential use. The use of the surrounding properties is mainly commercial with some residential uses as well. A plan view of the surrounding land uses is depicted in Figure 3.

1.4 Remedial Investigation

The RI was performed and the results are documented in Appendix C “*Remedial Investigation Report, 518-526 West 30th Street*”, dated *April 2013*(RIR).

Summary of Past Uses of Site and Areas of Concern

A Phase I Environmental Site Assessment (ESA) was performed by Fleming Lee-Shue Inc. (FLS) in April 2005 and September 2008. The Phase I ESAs constitute an all appropriate inquiry into the previous ownership and uses of the property to identify recognized environmental conditions (RECs) and areas of concern (AOC).

The Site was occupied by tenement style buildings from before 1890 until circa 1900. Circa 1910, the Site was used for a confectionary factory, stables, scenery shops and dwellings. The confectionary factory operations continued until it was abandoned when the central portion of the factory building was demolished and replaced by the Central Railroad right of way (the present-day Highline) and a wagon builder circa 1930. The building was occupied by the Metal Purchasing Company from circa 1950 until the 1990’s and was later converted into a parking garage. Based on the Phase I ESA evaluation, no RECs were identified at the Site; however, the presence of urban fill was identified as an onsite AOC.

Four offsite AOCs were identified for this Site in the Phase I ESA reports:

- The historic junkyard and filling station operations on Lot 37, upgradient from the Site.
- The No. 4 fuel oil that was stored in a storage tank located in a vault in the basement of 502-504 West 30th St., up/cross-gradient from the Site.
- The historic auto repair operations beneath the High Line, upgradient from the Site.
- The chemical manufacturer located at 515 West 30th St., upgradient from the Site.

The Phase I ESA Report is provided as Appendix C.

Summary of the Work Performed at the Site

- A Site inspection was conducted to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
- A geophysical survey was completed across the entire Site during the 2007 RI;
- Installed nine soil borings in 2007 and three soil borings in 2013 across the entire project Site. Collected 18 soil samples in 2007 and six soil samples in 2013 for laboratory analysis;;
- Installed three temporary groundwater monitoring points in 2007 and three temporary groundwater monitoring points in 2013 throughout the Site. Three groundwater samples were collected in 2007 and three groundwater samples were collected in 2013 for laboratory analysis;.
- Four soil vapor probes were installed in 2013 and four vapor samples were collected from 1-2 feet above the soil/water interface at each location (approximately 8-9 feet below grade).

Summary of Environmental Findings

1. The elevation of the property ranges from 14 to 18 feet.
2. The depth-to-groundwater ranges from 10 to 11 feet below grade.
3. The groundwater flow is generally from southeast to northwest.
4. The depth-to-bedrock at the Site is not known.
5. The stratigraphy consists of approximately 10 to 16 feet of fill material consisting of brick, concrete, ash, cinders and wood in a matrix of silty sand. The fill appears to be

evenly dispersed throughout the lots. The fill material is underlain by fine to medium sand, silt with sand and organic clays.

6. One VOC, acetone (maximum concentration of 103 micrograms per kilogram[µg/kg]), was detected at concentrations in excess of Track 1 UUSCOs. The chlorinated VOCs perchloroethylene (PCE) (in five samples at a maximum of 2.8 µg/kg) and trichloroethene (TCE) (in 2 samples at a maximum concentration of 1.1 µg/kg) were detected only at trace levels. Petroleum-related compounds, including benzene, toluene, and xylenes, were also detected at trace levels (all below 20 µg/kg). Several SVOCs including benzo(a)anthracene (at a maximum concentration of 41,500 µg/kg), benzo(a)pyrene (at a maximum concentration of 29,600 µg/kg), benzo(b)flouranthene (at a maximum concentration of 18,400 µg/kg), benzo(k)flouranthene (at a maximum concentration of 18,900 µg/kg), chrysene (at a maximum concentration of 46,000 µg/kg), dibenzo(a,h)anthracene (at a maximum concentration of 7,440 µg/kg), indeno(1,2,3-cd)pyrene (at a maximum concentration of 11,700 µg/kg) and pyrene (at a maximum concentration of 107,000 µg/kg) exceeded their respective Track 1 Unrestricted Use and Track 2 Restricted Residential Use SCOs in shallow soil samples, as well as in two deep soil samples. The maximum concentrations of SVOCs all occurred in one sample (SB-11 0-2 ft.) which had a total SVOC concentration of approximately 509 parts per million (ppm). This area will be treated as a hotspot. Eight metals were found in both shallow and deep soil samples above Track 1 Unrestricted Use SCOs, and of these arsenic (at a maximum concentration of 40.4 milligrams per kilogram [mg/kg]), barium (at a maximum concentration of 947 mg/kg), copper (at a maximum concentration of 552 mg/kg), lead (at a maximum concentration of 1880 mg/kg) and mercury (at a maximum concentration of 116 mg/kg) also exceeded Track 2 Restricted Residential Use SCOs. Pesticides including 4,4'-DDE (at a maximum concentration of 58.4 µg/kg) and 4,4'-DDT (at a maximum concentration of 67.8 µg/kg) were observed in excess of Track 1 Unrestricted Use SCOs but did not exceed Track 2 Restricted Residential Use SCOs. The PCB Aroclor 1260 was detected in one sample at a concentration (571 µg/kg) in excess of its Track 1 Unrestricted Use SCO, but below its Track 2 Restricted Residential Use SCO.

7. Although the 2007 groundwater RI did not identify the presence of any VOCs, the 2013 groundwater data detected several VOCs, including ethyl benzene (9.5 ug/L [micrograms per liter]), methylene chloride (max. 5.7 ug/L), and total xylenes (86.8 ug/L) at concentrations exceeding NYSDEC Part 703.5 Groundwater Quality Standards (GQSs). The VOCs chloroform (1.2 ug/L), isopropylbenzene (3.7 ug/L), and toluene (1.5 ug/L) were also detected in the 2013 samples, but at concentrations that are below the GQSs. Metals including manganese and sodium were detected at concentrations exceeding the GQSs in 2007, and dissolved metals including iron (at a maximum concentration of 16,600 ug/L), manganese (at a maximum concentration of 3,660 ug/L), selenium (at a maximum concentration of 20.5 ug/L) and sodium (at a maximum concentration of 194,000 ug/L) exceeding their respective GQSs in 2013 samples. The only SVOC detected in either round of sampling was naphthalene in 2013 at 13.5 ug/L, which is above its GQS. Neither the 2007, nor the 2013 sampling showed any detectable pesticides or pesticides, polychlorinated biphenyls (PCBs) in groundwater.
8. Soil vapor sampling was not conducted in 2007. The results of soil vapor samples collected as part of Remedial Investigations in 2013 identified several petroleum related and chlorinated VOCs at generally low concentrations. Most concentrations were below 25 micrograms per cubic meter (ug/m^3). The 2013 RI revealed the presence of the chlorinated VOC, TCE, in three of four samples at a maximum concentration of 7 ug/m^3 which is within the monitoring range established by NYSDOH. PCE was detected in all four soil vapor samples at a maximum concentration of 13 ug/m^3, which is below NYSDOH’s monitoring range. Neither 1,1,1-trichloroethane nor carbon tetrachloride were detected in soil vapor.

For more detailed results, consult the RIR. Based on an evaluation of the data and information from the RIR and this RAWP, disposal of significant amounts of hazardous waste is not suspected at this Site.

2.0 REMEDIAL ACTION OBJECTIVES

Based on the results of the RI, the following Remedial Action Objectives (RAOs) have been identified for this Site:

Groundwater

- Remove contaminant sources causing impact to groundwater.
- Prevent direct exposure to contaminated groundwater.

Soil

- Prevent direct contact with contaminated soil.
- Prevent migration of contaminants that would result in groundwater contamination.

Soil Vapor

- Prevent exposure to contaminants in soil vapor.
- Prevent migration of soil vapor into dwelling and other occupied structures.

3.0 REMEDIAL ALTERNATIVES ANALYSIS

The purpose of the remedial alternative analysis is to evaluate and select a remedy to address the contamination identified by the RI to ensure the remedy is protective of human health and the environment taking into consideration the current, intended and reasonably anticipated future use of the property. The RAOs were developed based on contaminant-specific standards, criteria and guidance values (SCGs) and the intended use of the Site. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedance of applicable SCGs. A remedy is then developed based on the following ten criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;
- Cost effectiveness;
- Community Acceptance;
- Land use; and
- Sustainability.

The following is a detailed description of the alternatives analysis and remedy selection to address impacted media at the Site. As required, a minimum of two remedial alternatives (including a Track 1 scenario) are evaluated, as follows:

Alternative 1 involves the establishment of Track 1 Unrestricted Use SCOs based on Title 6 of New York Codes, Rules and Regulation (NYCRR) Subpart 375.6 Track 1 Unrestricted Use Soil Cleanup Objectives. Alternative 1 would entail the complete removal of all soil and fill materials that exceed Track 1 Unrestricted Use SCOs and confirmation that Track 1 Unrestricted Use SCOs have been achieved with post-excavation endpoint sampling. Although no engineering or institutional controls are required in a Track 1 cleanup, a waterproofing/ vapor barrier membrane would be installed as part of development to prevent any potential future exposures from soil vapor.

Alternative 2 involves the establishment of Track 4 Site-specific SCOs based on 6NYCRR Subpart 375.6. Alternative 2 would include removal action associated with development that would cause excavation of soil to a minimum of 14 feet beneath all areas with the exception of the area under the High Line, where removal will consist of excavation of soils to a minimum of 2 feet below grade. This alternative would also include placement of a composite cover system to prevent exposure to residual soil contamination, installation of a waterproofing/ vapor barrier membrane to prevent any potential future exposures from soil vapor, and establishment of use restrictions including prohibitions on the use of groundwater from the Site and prohibitions on sensitive site uses, such as farming or vegetable gardening, to prevent future exposure pathways. In addition, a Site Management Plan would be established to ensure long-term management of these ECs and ICs, and the Site would continue to be registered as an E-Designated property by the NYC Department of City Planning and the Department of Buildings to memorialize the remedial action required by this RAWP.

3.1 Threshold Criteria

Protection of Public Health and the Environment

This criterion is an evaluation of the remedy's ability to protect public health and the environment, and an assessment of how risks posed through each existing or potential pathway of exposure are eliminated, reduced or controlled through removal, treatment, and implementation of ECs/ICs. Protection of public health and the environment must be achieved for all approved remedial actions.

Alternative 1 would be protective of human health and the environment by removing all soil/fill with exceedances of Track 1 Unrestricted Use SCOs at the Site, thus eliminating potential for direct contact with contaminated soil/ fill once construction is complete and eliminating the risk of contamination leaching into groundwater. A vapor barrier/ waterproofing membrane would be built as part of construction.

Alternative 2 would achieve comparable protections of human health and the environment by removing soil/fill with contaminant concentrations above the Track 4 Site-specific SCOs as well as placement of ECs and ICs, including a composite cover system and a waterproofing/vapor barrier. The composite cover system would prevent direct contact with remaining on-Site soil/ fill. Implementing institutional controls, including continued registration as an e-designated property and implementation of a Site Management Plan would ensure that the composite cover system remains intact and protective. Establishment of Track 4 Site-specific SCOs would minimize the risk of contamination leaching into groundwater.

For both alternatives, potential exposure to contaminated soils or groundwater during construction would be minimized by implementing an approved Soil/ Materials Management Plan and CAMP. Potential contact with contaminated groundwater would also be minimized by implementing an approved Soil/ Materials Management Plan, and groundwater use is prevented by city laws and regulations. Potential future migration of on and off-Site soil vapors into the new buildings would be prevented by installing a waterproofing/ vapor barrier membrane. As such, both alternatives would be consistent with the RAOs and would provide overall protection of public health and the environment in consideration of current and potential future land use.

3.2. Balancing Criteria

Compliance with Standards, Criteria and Guidance

This evaluation criterion assesses the ability of the alternatives to achieve applicable SCGs.

Alternative 1 would comply with the SCGs for soil and groundwater by removing all soil/fill in excess of Track 1 Unrestricted Use SCOs. Compliance with SCGs for soil vapor, including potential off-Site sources of soil vapor, would be achieved by installing a waterproofing/ vapor barrier membrane as part of development.

Alternative 2 would comply with the remedial goals, SCGs and RAOs for soil through removal of soil to meet Track 4 Site-specific SCOs. Compliance with SCGs for soil vapor would also be achieved by installing a vapor barrier. A Site Management Plan would ensure that controls remained protective for the long term. Compliance with groundwater SCGs would be achieved over the long term by excavation and removal of soil exceeding Track 4 Site-specific SCOs.

For both alternatives, focused attention on means and methods employed during the remedial action would ensure that handling and management of contaminated material would be in compliance with applicable SCGs. Both remedial alternatives comply with SCGs that involve protection of public health during the remedial action by implementing and enforcing a site-specific CHASP and CAMP. OSHA requirements for on-site construction safety will also be followed by the site Contractors.

Short-term effectiveness and impacts

This evaluation criterion assesses the effects of the alternatives during the construction and implementation phase until remedial action objectives are met. Under this criterion, alternatives are evaluated with respect to their effects on public health and the environment during implementation of the remedial action, including protection of the community, environmental impacts, time until remedial response objectives are achieved, and protection of workers during remedial actions.

Both alternatives have similar-short term impacts during their respective implementations, as each requires excavation of historic fill material. Both alternatives would result in short-term dust generation associated with excavation, handling, and load out of materials. Short term impacts would be slightly higher for Alternative 1 due to excavation of marginally greater amounts of historical fill material. Both alternatives would employ appropriate measures to prevent short term impacts, including a Construction Health and Safety Plan, a Community Air Monitoring Plan (CAMP) and a Soil/Materials Management Plan (SMMP), during all on-Site soil disturbance activities and would minimize the release of contaminants into the environment. Both alternatives provide short term effectiveness in protecting the surrounding community by decreasing the risk of contact with on-Site contaminants. Construction workers operating under appropriate management procedures and a Health and Safety Plan (CHASP) will be protected from on-Site contaminants (personal protective equipment would be worn consistent with the documented and encountered risks within the respective work zones).

An additional short-term adverse impact associated with both remedial alternatives is increased truck traffic. Truck traffic would be marginally higher with Alternative 1. Truck traffic will be routed on the most direct course using major thoroughfares where possible and flaggers will be used to protect pedestrians at Site entrances and exits.

Long-term effectiveness and permanence

This evaluation criterion addresses the results of a remedial action in terms of its permanence and quantity/nature of waste or residual contamination remaining at the Site after response objectives have been met, such as permanence of the remedial alternative, magnitude of remaining contamination, adequacy of controls including the adequacy and suitability of ECs/ICs that may be used to manage contaminant residuals that remain at the Site and assessment of containment systems and ICs that are designed to eliminate exposures to contaminants, and long-term reliability of ECs.

Alternative 1 would achieve long-term effectiveness and permanence related to on-Site contamination by permanently removing all impacted soil/fill and enabling unrestricted usage of the property. Removal of on-Site contaminant sources will also prevent continued and future groundwater contamination. Installation of a waterproofing/ vapor barrier membrane would prevent potential future migration of soil vapors into the new building.

Alternative 2 would provide long-term effectiveness by removing most on-Site contamination and attaining Track 4 Site-specific SCOs, establishing Engineering Controls including a composite cover system across the Site; establishing Institutional Controls to ensure long-term management including use restrictions, a Site Management Plan and continuation of the e-designation to memorialize these controls for the long term. The SMP will ensure long-term effectiveness of all ECs and ICs by requiring periodic inspection and certification that these controls and restrictions continue to be in place and are functioning as they were intended assuring that protections designed into the remedy will provide continued high level of protection in perpetuity.

Both alternatives would result in removal of soil contamination exceeding the SCOs providing a high level, effective, and permanent remedy over the long-term and would address contaminated soil and eliminate or minimize any leaching to groundwater.

Reduction of toxicity, mobility, or volume of contaminated material

This evaluation criterion assesses the remedial alternative's use of remedial technologies that permanently and significantly reduce toxicity, mobility, or volume of contaminants as their principal element. The following is the hierarchy of source removal and control measures that are to be used to remediate a Site, ranked from most preferable to least preferable: removal and/or treatment, containment, elimination of exposure and treatment of source at the point of exposure. It is preferred to use treatment or removal to eliminate contaminants at a Site, reduce the total mass of toxic contaminants, cause irreversible reduction in contaminants mobility, or reduction of total volume of contaminated media.

Alternative 1 would permanently eliminate the toxicity, mobility, and volume of contaminants from onsite soil by removing all soil in excess of Track 1 SCOs.

Alternative 2 would greatly reduce the toxicity, mobility, and volume of contaminants from onsite soil by excavation to approximately 14 to 24 feet below grade across the majority of the Site and removal of soil/fill that exceeds Track 4 SCOs. Alternative 1 would eliminate a great total mass of contaminants on Site.

Implementability

This evaluation criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation, including technical feasibility of construction and operation, reliability of the selected technology, ease of undertaking remedial action, monitoring considerations, administrative feasibility (e.g. obtaining permits for remedial activities), and availability of services and materials.

The feasibility of implementing Alternative 1 is more challenging due to the support of excavation and adjacent structures required to remove fill next to adjacent buildings. Because excavation beyond the required development depths and extents is required, coordination with the project geotechnical and structural engineers would be necessary to alter the existing support of excavation design to support excavation up to the property boundaries. This remedy would consist mostly of excavation with standard bucket excavators of the targeted fill and soil. The feasibility of implementing this remedy is lower compared to Alternative 2 considering the costs and time associated with the support of excavation required to altering the support of excavation design, and underpinning/excavating near the property boundaries, which would rely on coordination with adjacent property owners.

The Alternative 2 cleanup is both feasible and implementable. It uses standard materials and services and well established technologies for the removal of approximately 9,760 cubic yards of soil. The reliability of the remedy is also high. There are no special difficulties associated with any of the activities proposed, which utilize standard industry methods.

For implementation of both remedies, standard construction equipment utilized for the overall earthwork would be used. Qualified OSHA-trained personnel will complete all activities that include excavation and handling of impacted soils. No special permits other than earthwork permits required for completion of the required Site redevelopment scope are required for implementation of the remedy. Installation of the waterproofing/vapor barrier system will be conducted in accordance with standard methods utilized to install waterproofing membranes

Cost effectiveness

This evaluation criterion addresses the cost of alternatives, including capital costs (such as construction costs, equipment costs, and disposal costs, engineering expenses) and Site management costs (costs incurred after remedial construction is complete) necessary to ensure the continued effectiveness of a remedial action.

The capital costs associated with the implementation of Alternative 1 cleanup will be sufficiently higher than that of Alternative 2. Alternative 1 will result in a greater volume of soil that may need to be excavated beyond the target development depth. Also, measures would need to be implemented to address potential structural concerns of the adjacent properties.

The capital costs associated with the implementation of Alternative 2 can be adequately estimated with the target development depth of 14 feet below grade across the Site, 18 feet below grade at the pool area, and 24 feet below grade at the elevator pits. This will result in a lesser volume of soil that may need to be excavated, compared to Alternative 1. However, long-term costs for Alternative 2 are likely marginally higher than Alternative 1 based on implementation of a Site Management Plan as part of Alternative 2.

Community Acceptance

This evaluation criterion addresses community opinion and support for the remedial action. Observations here will be supplemented by public comment received on the RAWP.

The overall goals of the remedial program are considered to be acceptable to the community. Both remedial actions provide for protection of public health and the environment and minimize potential contaminant exposures. This RAWP will be subject to and undergo public review under the NYC VCP and will provide the opportunity for public input on the selected remedial actions. Any public comments related to environmental remediation will be considered by OER prior to approval of this plan.

Land use

This evaluation criterion addresses the proposed use of the property. This evaluation has considered reasonably anticipated future uses of the Site and takes into account: current use and historical and/or recent development patterns; applicable zoning laws and maps; NYS Department of State's Brownfield Opportunity Areas pursuant to section 970-r of the general municipal law; applicable land use plans; proximity to real property currently used for residential use, and to commercial, industrial, agricultural, and/or recreational areas; environmental justice impacts, Federal or State land use designations; population growth patterns and projections; accessibility to existing infrastructure; proximity of the Site to important cultural resources and natural resources, potential vulnerability of groundwater to contamination that might emanate from the Site, proximity to flood plains, geography and geology; and current Institutional Controls applicable to the Site.

The implementation of Alternative 1 and Alternative 2 are consistent with the intended and reasonably anticipated use of the Site as a mixed-use commercial residential property, since following remediation, the Site will meet either Track 1 Unrestricted Use SCOs or Track 4 Site-specific SCOs. The current zoning designation is C6-4, which permits a tower occupied by commercial, residential and/or community facility that may penetrate the sky exposure plane. The proposed use is consistent with the existing zoning designation for the property and is consistent with recent development patterns. The Site is surrounded by commercial and residential properties and the remedies provide comprehensive protection of public health and the environment for these uses. The Site does not lie in a Federal Emergency Management Agency-designated flood plain. Both alternatives are equally protective of natural resources and cultural resources. This RAWP will be subject to public review under the NYC VCP and will provide the opportunity for detailed public input on the land use factors described in this section. Any public comment will be considered by OER prior to approval of this plan.

Sustainability of the Remedial Action

This criterion evaluates the overall sustainability of the remedial action alternatives and the degree to which sustainable means are employed to implement the remedial action including those that take into consideration NYC's sustainability goals defined in *PlaNYC: A Greener, Greater New York*. Sustainability goals may include: maximizing the recycling and reuse of non-virgin materials; reducing the consumption of virgin and non-renewable resources; minimizing energy consumption and greenhouse gas emissions; improving energy efficiency; and promotion of the use of native vegetation and enhancing biodiversity during landscaping associated with Site development.

The overall sustainability of Alternative 2 is higher than Alternative 1, as Alternative 2 greatly reduces the overall project energy consumption and greenhouse gas emissions associated with soil/fill excavation and trucking. A Sustainability Statement is provided in Appendix D. The development is targeted to be a Leadership in Energy and Environmental Design - certified building under the U.S. Green Building Council.

4.0 REMEDIAL ACTION

4.1 Summary of Preferred Remedial Action

The preferred remedial action alternative is Alternative 2, the Track 4 Alternative. The preferred remedial action alternative achieves protection of public health and the environment for the intended use of the property. The preferred remedial action alternative will achieve all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action alternative is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants. The preferred remedial action alternative is cost effective and implementable and uses standards methods that are well established in the industry. The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and performance of all required NYC VCP citizen participation activities according to an approved Citizen Participation Plan.
2. Performance of a CAMP for particulates and VOCs.
3. Establishment of Track 4 Site-specific SCOs.
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking and staking excavation areas.
5. Implementation of storm water pollution prevention measures in compliance with applicable laws and regulations.
6. Excavation and removal of soil/fill exceeding Track 4 Site-specific SCOs to a depth of approximately 14 feet below grade in the cellar area, 18 feet below grade for the pool area, 24 feet below grade for the elevator pit, 2 feet below grade under the Highline area on the northeast corner of the Site.
7. Dewatering in compliance with all city, state, and federal laws and regulations.
8. Removal of any underground storage tanks and closure of petroleum spills, if encountered, in compliance with applicable, State and Federal laws and regulations.
9. Screening of excavated soil/fill during all intrusive work for indicators of contamination by visual, odor and for VOCs, using a photoionization detector.
10. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, this RAWP. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media onsite.

11. Collection and analysis of endpoint samples to evaluate the performance of the remedy with respect to attainment of Track 4 SCOs.
12. Importation of materials to be used for backfill and cover in compliance with the OER-approved plan and in accordance with applicable Federal, State, and City laws and regulations.
13. Installation of a waterproofing/vapor barrier system beneath the building slabs at the cellar and ground-level and along all sub-grade foundation sidewalls.
14. Demarcation of residual soil/fill under the Highline.
15. Construction and maintenance of an engineered composite cover consisting of the building foundation slabs and sidewalls and integrated vapor barrier system/waterproofing membrane across the building footprint as well as 2 feet of clean fill or RCA commercial product capped with paving material underneath the Highline to prevent human exposure to residual soil/fill remaining under the Site.
16. Submission of a RAR that describes the remedial activities, certifies that remedial requirements have been achieved, defines the Site boundaries, describes all ECs/ICs to be implemented at the Site, and lists any changes from this RAWP.
17. Submission of an approved SMP in the RAR for long-term management of residual contamination, including plans for operation, maintenance, monitoring inspection and certification of ECs/ICs and reporting at a specified frequency.
18. Continued registration with an E-Designation by the NYC Department of City Planning and the Department of Buildings; establishment of ECs/ICs in this RAWP and a requirement that management of these controls must be in compliance with an approved SMP. The ICs will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.
19. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.

4.2 Soil Cleanup Objectives and soil/Fill management

Track 4 Site-specific SCOs are proposed for this project. The following Track 4 SCOs will be used:

Contaminant	Track 4 SCOs
Total SVOCs	250 ppm
Arsenic	24 ppm
Lead	1,200 ppm
Mercury	2.0 ppm

Soil and materials management onsite and offsite, including excavation, handling and disposal, will be conducted in accordance with the SMMP in Appendix E. The Excavation plan is provided as Figure 4.

Discrete contaminant sources (such as hotspots) identified during the remedial action will be identified and mapped. This information will be provided in the RAR.

Estimated Soil/Fill Removal Quantities

Excavation is proposed to a depth of approximately 14 feet below grade in the cellar area, 18 feet below grade for the pool area, 24 feet below grade for the elevator pit, , and 2 feet below grade on the northeast corner area of the Site underneath the Highline. The total quantity of soil/fill expected to be excavated and disposed offsite is approximately 9760 cubic yards. Disposal facilities will be reported to the OER Project Manager when they are identified and prior to the start of the remedial action.

Endpoint Sampling

Pre-remediation endpoint samples were collected during the RI and review of analytical data did not identify contaminant concentrations above the Site specific SCOs at development depths. Removal actions for development purposes under this plan will be performed in conjunction with confirmation endpoint soil. Eight endpoint samples will be collected at locations shown in Figure 5 and will specifically address the areas with high mercury and high total SVOCs. For comparison of confirmation endpoint sampling results to Track 1 SCOs, analytes will include SVOCs, PCBs and metals according to analytical methods described below. For comparison to Track 4 SCOs, analytes will only include trigger compounds and elements established on the Track 4 SCO list.

Hot-spot removal actions, whether established under this RAWP or identified during the remedial program will be performed in conjunction with post-remedial endpoint samples to ensure that hot-spots are fully removed. Analytes for endpoint sampling will be those parameters that are driving the hot-spot removal action and will be approved by OER. Frequency for hot-spot endpoint sample collection is as follows:

1. For excavations less than 20 feet in total perimeter, at least one bottom sample and one sidewall sample biased in the direction of surface runoff.
2. For excavations 20 to 300 feet in perimeter:
   - For surface removals, one sample from the top of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.
   - For subsurface removals, one sample from each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.
3. For sampling to test for VOCs, bottom samples should be taken within 24 hours of excavation, and should be taken from the 0 to 6 inch interval at the excavation floor. Samples taken after 24 hours should be taken at 6 to 12 inches.
4. For contaminated soil removal, post remediation soil samples for laboratory analysis should be taken immediately after contaminated soil removal. If the excavation is enlarged horizontally, additional soil samples will be taken pursuant to bullets 1 to 3 above.

Post-remediation endpoint sample locations and depth will be biased towards the areas and depths of highest contamination identified during previous sampling episodes unless field indicators such as field instrument measurements or visual contamination identified during the remedial action indicate that other locations and depths may be more heavily contaminated. In all cases, post-remediation samples should be biased toward locations and depths of the highest expected contamination.

One sample from beneath the Highline was found to have elevated levels of mercury and is considered a hotspot. The area will be excavated to a minimum of 2 feet below grade and endpoint samples will be collected from the bottom of the excavation in two locations.

New York State Environmental Laboratory Approval Program (ELAP) certified labs will be used for all confirmation and endpoint sample analyses. The laboratories performing confirmation and endpoint sample analyses will be reported in the RAR. The RAR will provide a tabular and map summary of all confirmation and endpoint sample results and will include all data including non-detects and applicable standards and/or guidance values. The endpoint and confirmation samples will be analyzed for compounds and elements as described above utilizing the following methodology:

Soil analytical methods will include:

- Target Compound List (TCL) VOCs by EPA Method 8260;
- TCL SVOCs by EPA Method 8270;
- Target Analyte List metals by EPA Method 6010C/7470A;
- Pesticides/PCBs by EPA Method 8081/8082.

If non-aqueous phase liquid is detected, appropriate samples will be collected for characterization and "finger print analysis" and required regulatory reporting (i.e. spills hotline) will be performed.

Quality Assurance/Quality Control

The endpoint samples will be managed in accordance with the NYSDEC Analytical Services Protocol. Quality assurance/quality control (QA/QC) samples will be collected in the field consisted of field duplicates for every 20 sets of endpoint samples. Other QA/QC samples consist of a field blank and a trip blank sample. Trip blank samples will be collected and analyzed for VOCs to check for contamination during transport and field sampling. The samples will be sent to a New York State ELAP certified laboratory.

Import and Reuse of Soils

Import of soils onto the property and reuse of soils already onsite (if any) will be performed in conformance with the SMMP in Appendix E. The estimated quantity of soil to be imported into the Site for backfill and cover soil, if any, is to be determined. No onsite soil/fill is expected to be reused / relocated on Site.

4.3 Engineering Controls

Engineering Controls will be employed in the remedial action to address residual contamination remaining at the Site. The Site has two Engineering Controls. These are:

- A composite cover system consisting of concrete building slabs at cellar and grade levels, foundation walls, and 2 feet of clean fill or RCA commercial product underneath the Highline;
- A waterproofing/vapor barrier system under the building basement slab and slab-on-grade slabs and on the foundation walls. The basement slab will be below groundwater.

Composite Cover System

Exposure to residual soil/fill will be prevented by an engineered, composite cover system to be built on the Site. This composite cover system will be comprised of 2 feet thick concrete building slabs at cellar and grade levels, foundation walls, and 2 feet of clean fill or RCA commercial product capped with paving material underneath the Highline. . Figure 6 shows the typical design for each remedial cover type to be used on this Site. Figure 4 shows the location of each remedial cover type.

The composite cover system is a permanent engineering control for the Site. The system will be inspected and reported at specified intervals as required in the SMP. In the event that the composite cover system and the underlying soil/fill is disturbed after the remedial action is completed, steps to be taken will be outlined in the SMMP to be included in the SMP. Maintenance of the composite cover system will be described in the SMP in the RAR.

Vapor Barrier

Migration of soil vapor will be mitigated with a combination of building slab and vapor barrier. The building structure has a single basement with the bottom of the floor slab (14 feet below ground surface) below the groundwater table (10-11 feet below ground surface). A waterproofing barrier will be used under the cellar and grade-level slabs and side walls, and will also act as a vapor barrier. The vapor barrier/waterproofing system will be a combination of Preprufe 300R 46 mil and Bithutene 4000 59 mil (both manufactured by W.R. Grace & Co.) or OER-approved equivalent.. The PE will provide engineering oversight and monitor contractor compliance with the project technical specifications during the installation of the vapor barrier system. As-built waterproofing/vapor barrier drawings, photographs (maximum of two photos per page) of the installation process, PE/Registered Architect certified letter (on company letterhead) from primary contractor responsible for installation oversight and field inspections, and a copy of the manufacturers certificate of warranty will be submitted with the RAR. The vapor barrier installation diagram is shown on Figure 6 and specifications are provided in Appendix F.

4.4 Institutional Controls

Several ICs have been incorporated in this remedial action to manage residual soil/fill and other media and render the Site protective of public health and the environment. Long-term employment of EC/ICs will be implemented under a Site-specific SMP that will be included in the RAR. The property will continue to be registered with an E-Designation by the NYC Buildings Department.

The ICs for this remedial action are:

- The property will continue to be registered with an E-Designation at the NYC Buildings Department. This RAWP includes a description of all ECs and ICs and summarizes the requirements of the Site Management Plan which will note that the property owner and property owner's successors and assigns must comply with the approved SMP;
- Submittal of a SMP in the RAR for approval by OER that provides procedures for appropriate operation, maintenance, inspection and certification of ECs. The SMP will require that the property owner and the property owner's successors and assigns to submit to OER a periodic written statement that certifies that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by OER; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. The OER retains the right to enter the Site in order to evaluate the continued maintenance of any controls. This certification shall be submitted at a frequency to be determined by OER in the SMP and will comply with the Rules of the City of New York (RCNY) §43-1407(l)(3).

- Vegetable gardens and farming on the Site are prohibited in contact with residual soil materials;
- Use of groundwater underlying the Site is prohibited without treatment rendering it safe for its intended use;
- All future activities on the Site that will disturb residual material must be conducted pursuant to the soil management provisions in an approved SMP;
- The Site will be used for residential and commercial use and will not be used for a higher level of use without prior approval by OER.

4.5 Site Management Plan

Site Management is the last phase of remediation and begins with the approval of the RAR and issuance of the Notice of Completion for the remedial action. The SMP describes appropriate methods and procedures to ensure implementation of all controls (ECs/ICs) that are required by this RAWP. The SMP is submitted as part of the RAR but will be written in a manner that allows its use as an independent document. Site Management continues until terminated in writing by OER. The property owner is responsible for ensuring that all Site Management responsibilities defined in the SMP are implemented.

The SMP will provide a detailed description of the procedures required to manage residual soil/fill left in place following completion of the remedial action in accordance with the Brownfield Cleanup Agreement with OER. This includes a plan for: (1) implementation of EC's and ICs; (2) operation and maintenance of EC's; and (3) inspection and certification of EC's.

Site management activities, reporting, and EC/IC certification will be scheduled on a periodic basis to be established in the SMP and will be subject to review and modification by OER. The SMP will be based on a calendar year and certification reports will be due for submission to OER by July 30 of the year following the reporting period.

4.6 Qualitative Human Health Exposure Assessment

The objective of the qualitative exposure assessment is to identify potential receptors and pathways for human exposure to the contaminants of concern that are present at, or migrating from, the Site. The identification of exposure pathways describes the route that the contaminants of concern take to travel from the source to the receptor. An identified pathway indicates that the potential for exposure exists; it does not imply that exposures actually occur.

Investigations reported in the RIR are sufficient to complete a QHHEA. As part of the VCP process, a QHHEA was performed to determine whether the Site poses an existing or future health hazard to the Site's exposed or potentially exposed population. The sampling data from the RI were evaluated to determine whether there is any health risk by characterizing the exposure setting, identifying exposure pathways, and evaluating contaminant fate and transport. This QHHEA was prepared in accordance with Appendix 3B and Section 3.3 (b) 8 of the NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation.

Known and Potential Sources

Based on the results of the RIR, the contaminants of concern are:

Soil:

- SVOCs specifically polynuclear aeromatic hydrocarbons (PAHs) exceeding Track 2 Restricted Residential SCOs
- Metals exceeding Track 2 Restricted Residential SCOs

Groundwater:

- Metals (Iron, Magnesium, Manganese, Selenium and Sodium) exceeding GQS.
- VOCs including ethylbenzene and xylenes exceeding GQSs.

Soil Gas:

- Chlorinated VOCs were detected at generally low concentrations; however TCE is marginally above State NYSDOH monitoring values (7 µg/m3).

Nature, Extent, Fate and Transport of Contaminants

Based on the 2007 and 2013 RI findings, metals and PAHs were detected in soil at concentrations exceeding Track 2 Restricted Residential Use SCOs throughout the Site. The distribution of metals and PAHs across the Site is consistent with the presence of urban fill although several hotspots are also noted. One sample (SB-5 0-2 ft. collected from beneath the Highline was found to contain mercury at a concentration exceeding the Track 2 Restricted Residential SCOs and is therefore considered a hotspot.

The groundwater laboratory analytical revealed the presence of several metals at concentrations exceeding the GQS standards, including lead, selenium, iron, manganese and sodium in all three samples. Dissolved (filtered) metals analysis also revealed the presence of similar metallic compounds exceeding the GQS, but at substantially lower concentrations. The distribution of metals in the groundwater across the Site is consistent with the groundwater being in contact with urban fill material. The laboratory analytical results for soil vapor samples detected VOCs at concentrations marginally exceeding NYSDOH monitoring value for TCE and well below those which trigger decision matrix actions of the NYSDOH Soil Vapor Intrusion Guidance document.

Receptor Populations

The Site is currently a parking lot that is occupied by several construction trailers. Potential receptors include on-site workers and Site representatives. When the construction and remediation activities start, onsite receptors will include construction and remediation workers. Under the proposed redevelopment plan, the anticipated receptors will include employees and consumers in the commercial units and residents, visitors and workers in the building.

Offsite receptors within 0.5 mile radius of the Site include residents of the adjacent residential properties, workers in the commercial buildings, construction workers, pedestrians along 30th St, and the Highline.

Potential Points of Exposure

Current Conditions: As the Site is currently capped with a concrete slab, there are no potential exposure pathways from soil/fill, Groundwater is not exposed at the Site and because the Site is served by the NYC water supply, groundwater is not used at the Site. There are currently no structures where soil vapor could accumulate.

Construction and Remediation Activities: During construction and remediation activities, onsite exposure pathways will be complete. Workers will be exposed to soil, water and dust at the site. Exposures will be minimized by preventing access to the Site, through the implementation of the SMMP, stormwater pollution prevention plan, the CAMP, and the CHASP. There will be no structures on-Site during construction where soil vapor could accumulate.

Proposed Future Conditions: Under future remediated conditions, the property will be fully capped, limiting potential direct exposure to soil and groundwater remaining in place. A waterproofing/vapor barrier system will prevent exposure to potential on-site or off-site soil vapors, and because the building foundation will be below the depth of groundwater, there will be no vadose zone where vapors would accumulate beneath the building. The Site is served by a public water supply, and groundwater is not used at the Site for potable supply.

Potential Routes of Exposure

The five elements of exposure pathway are (1) contaminant source, (2) contaminant release and transport mechanisms, (3) point of exposure, (4) a route of exposure, and (5) a receptor population. An exposure pathway is considered complete when all five elements of an exposure pathway are documented. A potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway cannot be documented. An exposure pathway may be eliminated from further evaluation when any one if the five elements comprising an exposure pathway have not existed in the past, does not exist in the present, and will never exist in the future. Three potential primary routes exist by which chemicals can enter the body.

- Ingestion of water, fill, or soil
- Inhalation of particulates; and
- Dermal contact with water, fill, soil.

Overall Human Health Exposure Assessment

It is anticipated that exposure pathways will only be completely present during the construction and remediation phase of the project. Unacceptable exposure pathways will be prevented by the implementation of the SMMP, stormwater pollution prevention plan, CAMP, and the CHASP. Based upon the proposed and intended used of the Site, future onsite exposure pathways will be prevented by the implementation of the activities detailed in this RAWP and the SMP.

5.0 REMEDIAL ACTION MANAGEMENT

5.1 Project Organization and Oversight

Principal personnel who will participate in the remedial action include Arnold Fleming P.E. (Supervising Engineer), Peter Helseth, P.E. (Environmental Engineer), and Kevin McGuinness, P.G. (Project Manager). The Professional Engineer (PE) for this project is Arnold Fleming, P.E., and the Qualified Environmental Professional (QEP) for this project is Kevin McGuinness.

5.2 Site Security

Site access will be controlled by construction fencing.

5.3 Work Hours

The hours for operation of remedial construction will be determined by the construction contractors. The hours of operation will conform to the New York City Department of Buildings construction code requirements.

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5.4 Construction Health and Safety Plan

The CHASP is included in Appendix G. The Site Safety Coordinator will be assigned by the construction contractor and reported to OER prior to the start of the remedial action. Remedial work performed under this RAWP will be in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. Confined space entry, if any, will comply with OSHA requirements and industry standards and will address potential risks. The parties performing the remedial construction work will ensure that performance of work is in compliance with the CHASP and applicable laws and regulations. The CHASP pertains to remedial and invasive work performed at the Site until the issuance of the Notice of Completion.

All field personnel involved in remedial activities will participate in training required under 29 CFR 1910.120, including 40-hour HAZWOPER training and annual 8-hour refresher training. Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the CHASP and be required to sign a CHASP acknowledgment. Site-specific training will be provided to field personnel. Additional safety training may be added depending on the tasks performed. Emergency telephone numbers will be posted at the site location before any remedial work begins. A safety meeting will be conducted before each shift begins. Topics to be discussed include task hazards and protective measures (physical, chemical, environmental); emergency procedures; PPE levels and other relevant safety topics. Meetings will be documented in a log book or specific form.

An emergency contact sheet with names and phone numbers is included in the CHASP. That document will define the specific project contacts for use in case of emergency.

5.5 Community Air Monitoring Plan

Real-time air monitoring for VOCs and particulate levels at the perimeter of the exclusion zone or work area will be performed. Continuous monitoring will be performed for all ground intrusive activities and during the handling of contaminated or potentially contaminated media. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pit excavation or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be performed during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection, for instance, will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. Depending upon the proximity of potentially exposed individuals, continuous monitoring may be performed during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence. Any observed detections exceeding action levels during performance of the CAMP will be reported to the OER Project Manager and included in the Daily Report.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis during invasive work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 ppm above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown.

All 15-minute readings must be recorded and be available for OER personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

Particulate Monitoring and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for OER personnel to review. If airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that no visible dust is migrating from the work area. If, after implementation of dust suppression techniques, visible dust is still migrating from the work area, work will be stopped and re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in preventing visible dust migration.

5.6 Agency Approvals

All permits or government approvals required for remedial construction have been or will be obtained prior to the start of remedial construction. Approval of this RAWP by OER does not constitute satisfaction of these requirements and will not be a substitute for any required permit.

5.7 Site Preparation

Pre-Construction Meeting

Prior to the start of remedial construction activities, a pre-construction meeting, will all of the parties involved, including the OER, will be conducted at the Site.

Mobilization

Mobilization will be conducted as necessary for each phase of work at the Site. Mobilization includes field personnel orientation, equipment mobilization (including securing all sampling equipment needed for the field investigation), marking/staking sampling locations and utility mark-outs. Each field team member will attend an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures.

Utility Marker Layouts, Easement Layouts

The presence of utilities and easements on the Site will be fully investigated prior to the performance of invasive work such as excavation or drilling under this plan by using, at a minimum, the One-Call System (811). Underground utilities may pose an electrocution, explosion, or other hazard during excavation or drilling activities. All invasive activities will be performed incompliance with applicable laws and regulations to assure safety. Utility companies and other responsible authorities will be contacted to locate and mark the locations, and a copy of the Markout Ticket will be retained by the contractor prior to the start of drilling, excavation or other invasive subsurface operations. Overhead utilities may also be present within the anticipated work zones. Electrical hazards associated with drilling in the vicinity of overhead utilities will be prevented by maintaining a safe distance between overhead power lines and drill rig masts.

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations will be employed during invasive and other work contemplated under this RAWP. The integrity and safety of onsite and offsite structures will be maintained during all invasive, excavation or other remedial activity performed under the RAWP.

Dewatering

Dewatering is not anticipated during excavation and foundation construction activities at the Site. If dewatering to the NYC storm/ sewer system is determined to be necessary, a New York City Department of Environmental Protection Sewer Discharge Permit will be obtained prior to the start of dewatering activities. Extracted groundwater will either be containerized for offsite disposal or be treated as necessary to meet New York City Department of Environmental Protection (NYCDEP) requirements, and discharged to the NYCDEP sewer system.

Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations. The location of proposed equipment and material staging areas, truck inspection station, stockpile areas, and other pertinent remedial management feature will be determined by the construction contractors.

Stabilized Construction Entrance

Steps will be taken to ensure that trucks departing the Site will not track soil, fill or debris offsite. Such actions may include use of cleaned asphalt or concrete roads or use of stone or other aggregate-based egress paths between the truck inspection station and the property exit. Measures will be taken to ensure that adjacent roadways will be kept clean of project related soils, fill and debris. The construction entrance / wash station plan and detail are provided as Figure 7.

Truck Inspection Station

An outbound-truck inspection station will be set up close to the Site exit. Before exiting the NYC VCP Site, trucks will be required to stop at the truck inspection station and will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris will be removed. Brooms, shovels and potable water will be utilized for the removal of soil from vehicles and equipment, as necessary. The construction entrance / wash station plan and detail are provided as Figure 7.

Extreme Storm Preparedness and Response Contingency Plan

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of Site structures and construction materials and equipment, and dislocation of support of excavation structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures and cause downed power lines creating dangerous Site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, the enrollee will undertake the following steps for Site preparedness prior to the event and response after the event.

Storm Preparedness

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; lose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and generators will be removed from holes, trenches and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the Site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn/ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; storm water management systems will be inspected and fortified, including, as necessary: clean and reposition silt fences, hay bales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

Storm Response

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A Site inspection report will be submitted to OER at the completion of Site inspection and after the Site security is assessed. The Site conditions will be compared to the inventory of Site conditions and material performed prior to the storm event and significant differences will be noted. The damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment, will be reported to public safety authorities via appropriate means such as calling 911. Petroleum spills will be reported to NYSDEC within 2 hours of identification and consistent with State regulations. Emergency and spill conditions will also be reported to OER. Public safety structures, such as construction security fences will be repaired promptly to eliminate public safety threats. Debris will be collected and removed. Dewatering will be performed in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. Support of excavation structure will be inspected and fortified as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Stormwater control systems and structures will be inspected and maintained as necessary. If soil or fill materials are discharged offsite to adjacent properties, property owners and OER will be notified and corrective measure plan designed to remove and clean dislocated material will be submitted to OER and implemented following approval by OER and granting of Site access by the property owner. Impacted off-Site areas may require characterization based on Site conditions, at the discretion of OER. If onsite petroleum spills are identified, a qualified environmental professional will determine the nature and extent of the spill and report to NYS DEC's spill hotline at 800-457-7362. If the source of the spill is ongoing and can be identified, it should be stopped it this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYS DEC.

Storm Response Reporting

A Site inspection report will be submitted to OER at the completion of Site inspection. An inspection report established by OER is available on OER's website (www.nyc.gov/oer) and will be used for this purpose. The Site conditions will be compared to the inventory of Site conditions and material performed prior to the storm event and significant differences will be noted. The Site inspection report will be sent to the OER project manager and will include the Site name, address, tax block and lot, Site primary and alternate contact name and phone number. The damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the Site was dislocated and whether any of the soil left the Site; estimates of the volume of soil that left the Site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the support of excavation;

presence of on-Site or off-Site exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYS DEC; description of corrective actions; schedule for corrective actions. This report should be completed and submitted to OER project manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

5.8 Traffic Control

Drivers of trucks leaving the NYC VCP Site with soil/fill will be instructed to proceed without stopping in the vicinity of the Site to prevent neighborhood impacts. The planned routes, on local roads, for trucks leaving the Site are shown on Figure 8.

5.9 Demobilization

Demobilization will include:

- As necessary, restoration of temporary access areas and areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management areas, and access area);
- Removal of sediment from erosion control measures and truck wash and disposal of materials in accordance with applicable laws and regulations;
- Equipment decontamination, and;
- General refuse disposal.

Equipment will be decontaminated and demobilized at the completion of all field activities. Investigation equipment and large equipment (*e.g.*, soil excavators) will be washed at the truck inspection station as necessary. In addition, all investigation and remediation derived waste will be appropriately disposed.

5.10 Reporting and Record Keeping

Daily Reports

Daily reports providing a general summary of activities for each day of active remedial work will be emailed to the OER Project Manager by the end of the following day. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of work performed;
- Quantities of material imported and exported from the Site;
- Status of onsite soil/fill stockpiles;
- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP excursions, if any;
- Photograph of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with OER project manager based on planned project tasks. The daily email reports are not intended to be the primary mode of communication for notification to OER of emergencies (accidents, spills), requests for changes to the RAWP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAWP will be communicated directly to the OER project manager by personal communication. The daily reports will be included as an Appendix in the RAR. An alpha-numeric Site map will be used to identify locations described in reports submitted to OER and is provided as Figure 5.

Record Keeping and Photo-Documentation

Jobsite record keeping for all remedial work will be performed. These records will be maintained onsite during the project and will be available for inspection by OER staff. Representative photographs will be taken of the Site prior to any remedial activities and during major remedial activities to illustrate remedial program elements and contaminant source areas. Photographs will be submitted at the completion of the project in the RAR in digital format (i.e. jpeg files).

5.11 Complaint Management

All complaints from citizens will be promptly reported to OER. The complaints will be addressed and outcomes will also be reported to OER in daily reports. The notices to OER will include the nature of the complaint, the party providing the complaint, and the actions taken to resolve any problems.

5.12 Deviations from the Remedial Action Work Plan

All changes to the RAWP will be reported to the OER Project Manager and will be documented in daily reports and reported in the RAR. The process to be followed if there are any deviations from the RAWP will include a request for approval for the change from OER noting the following:

- Reasons for deviating from the approved RAWP;
- Effect of the deviations on overall remedy; and
- Determination that the remedial action with the deviation(s) is/are protective of public health and the environment.

6.0 REMEDIAL ACTION REPORT

The RAR will be submitted to OER following implementation of the remedial action defined in this RAWP. The RAR will document that the remedial work has been completed and has been performed in compliance with the RAWP.

The RAR will include:

- Information required by this RAWP;
- As-built drawings for all constructed remedial elements, required certifications, manifests and other written and photographic documentation of remedial work performed under this remedy;
- A Site Management Plan;
- Description of any changes in the remedial action from the elements provided in this RAWP and associated design documents;
- Tabular summary of all endpoint sampling results and all material characterization results, QA/QC results for endpoint sampling, and other sampling and laboratory analysis performed as part of the remedial action;
- Account of the source area locations and characteristics of all contaminated material removed from the Site including a map showing source areas;
- Account of the disposal destination of all contaminated material removed from the Site. The documentation associated with disposal of all material will include transportation and disposal records, and letters approving receipt of the material.
- Account of the origin and required chemical quality testing for material imported onto the Site.
- Continue registration of the property with an E-Designation by the NYC Department of Buildings.
- Reports and supporting material will be submitted in digital form.

Remedial Action Report Certification

The following certification will appear in front of the Executive Summary of the Remedial Action Report. The certification will include the following statements:

I, Arnold Fleming, P.E.__, am currently a professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the 516-526 West 30th Street Phase II Site NYC OER Project Number 14CVCP162M.

I, Kevin McGuinness, P.G. am a qualified Environmental Professional. I had primary direct responsibility for implementation remedial program for the 516-526 West 30th Street Phase II Site NYC OER Project Number 14CVCP162M.

I certify that the OER-approved Remedial Action Work Plan dated June 2013 and Stipulations in a letter dated month day, year; if any were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

7.0 SCHEDULE

Table 2 presents a schedule for the proposed remedial action and reporting. If the schedule for remediation and development activities changes, it will be updated and submitted to OER. Currently, a 21 month remediation period is anticipated.

TABLES

Table 1
Part 375 Track 1 Unrestricted Use Soil Cleanup Objectives and
Track 4 Restricted-Residential Use Soil Cleanup Objectives

518-526 West 30th Street, New York, NY
Block 701 Lot 45, 52, 55, 56 and 58

		NY SCO - Unrestricted Use (6 NYCRR 375-6 12/06) (Track 1)	NY SCO - Restricted Residential w/CP-51 (10/10) (6 NYCRR 375-6 12/06) (Track 4)
VOLATILES (SW846 8260B)			
Acetone	ug/kg	50	100000
Benzene	ug/kg	60	4800
Bromochloromethane	ug/kg	-	-
Bromodichloromethane	ug/kg	-	-
Bromoform	ug/kg	-	-
Bromomethane	ug/kg	-	-
2-Butanone (MEK)	ug/kg	120	100000
Carbon disulfide	ug/kg	-	
Carbon tetrachloride	ug/kg	760	2400
Chlorobenzene	ug/kg	1100	100000
Chloroethane	ug/kg	-	
Chloroform	ug/kg	370	49000
Chloromethane	ug/kg	-	-
Cyclohexane	ug/kg	-	-
1,2-Dibromo-3-chloropropane	ug/kg	-	-
Dibromochloromethane	ug/kg	-	
1,2-Dibromoethane	ug/kg	-	-
1,2-Dichlorobenzene	ug/kg	1100	100000
1,3-Dichlorobenzene	ug/kg	2400	49000
1,4-Dichlorobenzene	ug/kg	1800	13000
Dichlorodifluoromethane	ug/kg	-	-
1,1-Dichloroethane	ug/kg	270	26000
1,2-Dichloroethane	ug/kg	20	3100
1,1-Dichloroethene	ug/kg	330	100000
cis-1,2-Dichloroethene	ug/kg	250	100000
trans-1,2-Dichloroethene	ug/kg	190	100000
1,2-Dichloropropane	ug/kg	-	
cis-1,3-Dichloropropene	ug/kg	-	-
trans-1,3-Dichloropropene	ug/kg	-	-
1,4-Dioxane	ug/kg	100	13000
Ethylbenzene	ug/kg	1000	41000
Freon 113	ug/kg	-	
2-Hexanone	ug/kg	-	-
Isopropylbenzene	ug/kg	-	
Methyl Acetate	ug/kg	-	-
Methylcyclohexane	ug/kg	-	-
Methyl Tert Butyl Ether	ug/kg	930	100000
4-Methyl-2-pentanone(MIBK)	ug/kg	-	
Methylene chloride	ug/kg	50	100000
Styrene	ug/kg	-	
1,1,2,2-Tetrachloroethane	ug/kg	-	
Tetrachloroethene	ug/kg	1300	19000
Toluene	ug/kg	700	100000
1,2,3-Trichlorobenzene	ug/kg	-	
1,2,4-Trichlorobenzene	ug/kg	-	
1,1,1-Trichloroethane	ug/kg	680	100000
1,1,2-Trichloroethane	ug/kg	-	-
Trichloroethene	ug/kg	470	21000
Trichlorofluoromethane	ug/kg	-	-
Vinyl chloride	ug/kg	20	900
m,p-Xylene	ug/kg	260	100000
o-Xylene	ug/kg	260	100000
Xylene (total)	ug/kg	260	100000

Table 1
Part 375 Track 1 Unrestricted Use Soil Cleanup Objectives and
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SEMIVOLATILES(SW846 8270D)			
2-Chlorophenol	ug/kg	-	
4-Chloro-3-methyl phenol	ug/kg	-	-
2,4-Dichlorophenol	ug/kg	-	
2,4-Dimethylphenol	ug/kg	-	-
2,4-Dinitrophenol	ug/kg	-	
4,6-Dinitro-o-cresol	ug/kg	-	-
2-Methylphenol	ug/kg	330	100000
3&4-Methylphenol	ug/kg	-	-
2-Nitrophenol	ug/kg	-	
4-Nitrophenol	ug/kg	-	
Pentachlorophenol	ug/kg	800	6700
Phenol	ug/kg	330	100000
2,3,4,6-Tetrachlorophenol	ug/kg	-	-
2,4,5-Trichlorophenol	ug/kg	-	
2,4,6-Trichlorophenol	ug/kg	-	
Acenaphthene	ug/kg	20000	100000
Acenaphthylene	ug/kg	100000	100000
Acetophenone	ug/kg	-	-
Anthracene	ug/kg	100000	100000
Atrazine	ug/kg	-	-
Benzo(a)anthracene	ug/kg	1000	1000
Benzo(a)pyrene	ug/kg	1000	1000
Benzo(b)fluoranthene	ug/kg	1000	1000
Benzo(g,h,i)perylene	ug/kg	100000	100000
Benzo(k)fluoranthene	ug/kg	800	3900
4-Bromophenyl phenyl ether	ug/kg	-	-
Butyl benzyl phthalate	ug/kg	-	
1,1'-Biphenyl	ug/kg	-	
Benzaldehyde	ug/kg	-	-
2-Chloronaphthalene	ug/kg	-	-
4-Chloroaniline	ug/kg	-	
Carbazole	ug/kg	-	-
Caprolactam	ug/kg	-	-
Chrysene	ug/kg	1000	3900
bis(2-Chloroethoxy)methane	ug/kg	-	-
bis(2-Chloroethyl)ether	ug/kg	-	-
bis(2-Chloroisopropyl)ether	ug/kg	-	-
4-Chlorophenyl phenyl ether	ug/kg	-	-
2,4-Dinitrotoluene	ug/kg	-	-
2,6-Dinitrotoluene	ug/kg	-	
3,3'-Dichlorobenzidine	ug/kg	-	-
Dibenzo(a,h)anthracene	ug/kg	330	330
Dibenzofuran	ug/kg	7000	59000
Di-n-butyl phthalate	ug/kg	-	
Di-n-octyl phthalate	ug/kg	-	
Diethyl phthalate	ug/kg	-	
Dimethyl phthalate	ug/kg	-	
bis(2-Ethylhexyl)phthalate	ug/kg	-	
Fluoranthene	ug/kg	100000	100000
Fluorene	ug/kg	30000	100000
Hexachlorobenzene	ug/kg	330	1200
Hexachlorobutadiene	ug/kg	-	-
Hexachlorocyclopentadiene	ug/kg	-	
Hexachloroethane	ug/kg	-	-
Indeno(1,2,3-cd)pyrene	ug/kg	500	500
Isophorone	ug/kg	-	
2-Methylnaphthalene	ug/kg	-	
2-Nitroaniline	ug/kg	-	
3-Nitroaniline	ug/kg	-	
4-Nitroaniline	ug/kg	-	-
Naphthalene	ug/kg	12000	100000
Nitrobenzene	ug/kg	-	15000
N-Nitroso-di-n-propylamine	ug/kg	-	-
N-Nitrosodiphenylamine	ug/kg	-	
Phenanthrene	ug/kg	100000	100000
Pyrene	ug/kg	100000	100000
1,2,4,5-Tetrachlorobenzene	ug/kg	-	-

Table 1
Part 375 Track 1 Unrestricted Use Soil Cleanup Objectives and
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PESTICIDES (SW846 8081B)			
Aldrin	ug/kg	5	97
alpha-BHC	ug/kg	20	480
beta-BHC	ug/kg	36	360
delta-BHC	ug/kg	40	100000
gamma-BHC (Lindane)	ug/kg	100	1300
alpha-Chlordane	ug/kg	94	4200
gamma-Chlordane	ug/kg	-	
Dieldrin	ug/kg	5	200
4,4'-DDD	ug/kg	3.3	13000
4,4'-DDE	ug/kg	3.3	8900
4,4'-DDT	ug/kg	3.3	7900
Endrin	ug/kg	14	11000
Endosulfan sulfate	ug/kg	2400	24000
Endrin aldehyde	ug/kg	-	-
Endosulfan-I	ug/kg	2400	24000
Endosulfan-II	ug/kg	2400	24000
Heptachlor	ug/kg	42	2100
Heptachlor epoxide	ug/kg	-	
Methoxychlor	ug/kg	-	
Endrin ketone	ug/kg	-	-
Toxaphene	ug/kg	-	-
PCBs (SW846 8082A)			
Aroclor 1016	ug/kg	100	1000
Aroclor 1221	ug/kg	100	1000
Aroclor 1232	ug/kg	100	1000
Aroclor 1242	ug/kg	100	1000
Aroclor 1248	ug/kg	100	1000
Aroclor 1254	ug/kg	100	1000
Aroclor 1260	ug/kg	100	1000
Aroclor 1268	ug/kg	100	1000
Aroclor 1262	ug/kg	100	1000

Table 1
Part 375 Track 1 Unrestricted Use Soil Cleanup Objectives and
Track 4 Restricted-Residential Use Soil Cleanup Objectives

518-526 West 30th Street, New York, NY
Block 701 Lot 45, 52, 55, 56 and 58

		NY SCO - Unrestricted Use (6 NYCRR 375-6 12/06) (Track 1)	NY SCO - Restricted Residential w/CP-51 (10/10) (6 NYCRR 375-6 12/06) (Track 4)
METALS			
Aluminum	mg/kg	-	
Antimony	mg/kg	-	
Arsenic	mg/kg	13	16
Barium	mg/kg	350	400
Beryllium	mg/kg	7.2	72
Cadmium	mg/kg	2.5	4.3
Calcium	mg/kg	-	
Chromium	mg/kg	-	-
Cobalt	mg/kg	-	
Copper	mg/kg	50	270
Iron	mg/kg	-	
Lead	mg/kg	63	400
Magnesium	mg/kg	-	-
Manganese	mg/kg	1600	2000
Mercury	mg/kg	0.18	0.81
Nickel	mg/kg	30	310
Potassium	mg/kg	-	-
Selenium	mg/kg	3.9	180
Silver	mg/kg	2	180
Sodium	mg/kg	-	-
Thallium	mg/kg	-	
Vanadium	mg/kg	-	
Zinc	mg/kg	109	10000

Footnotes for Unrestricted Use SCOs

[a] The SCOs for unrestricted use were capped at a maximum value of 100 ppm. See Technical Support Document (TSD), section 9.3.

[b] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.

[c] For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and Department

of Health rural soil survey, the rural soil background concentration is used as the Track 1 SCO value for this use of the site.

[d] SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

[e] The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

[f] Protection of ecological resources SCOs were not developed for contaminants identified in Table 375-6.8(b) with "NS". Where such contaminants appear in Table 375-6.8(a),
the applicant may be required by the Department to calculate a protection of ecological resources SCO according to the TSD.

Footnotes for Restricted Residential Use SCOs

[a] The SCOs for residential, restricted-residential and ecological resources use were capped at a maximum value of 100 ppm. See TSD section 9.3.

[b] The SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD section 9.3.

[c] The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3.

[d] The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.

[e] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.

[f] For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department and Department

of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

[g] This SCO is derived from data on mixed isomers of BHC.

[h] The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

[i] This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

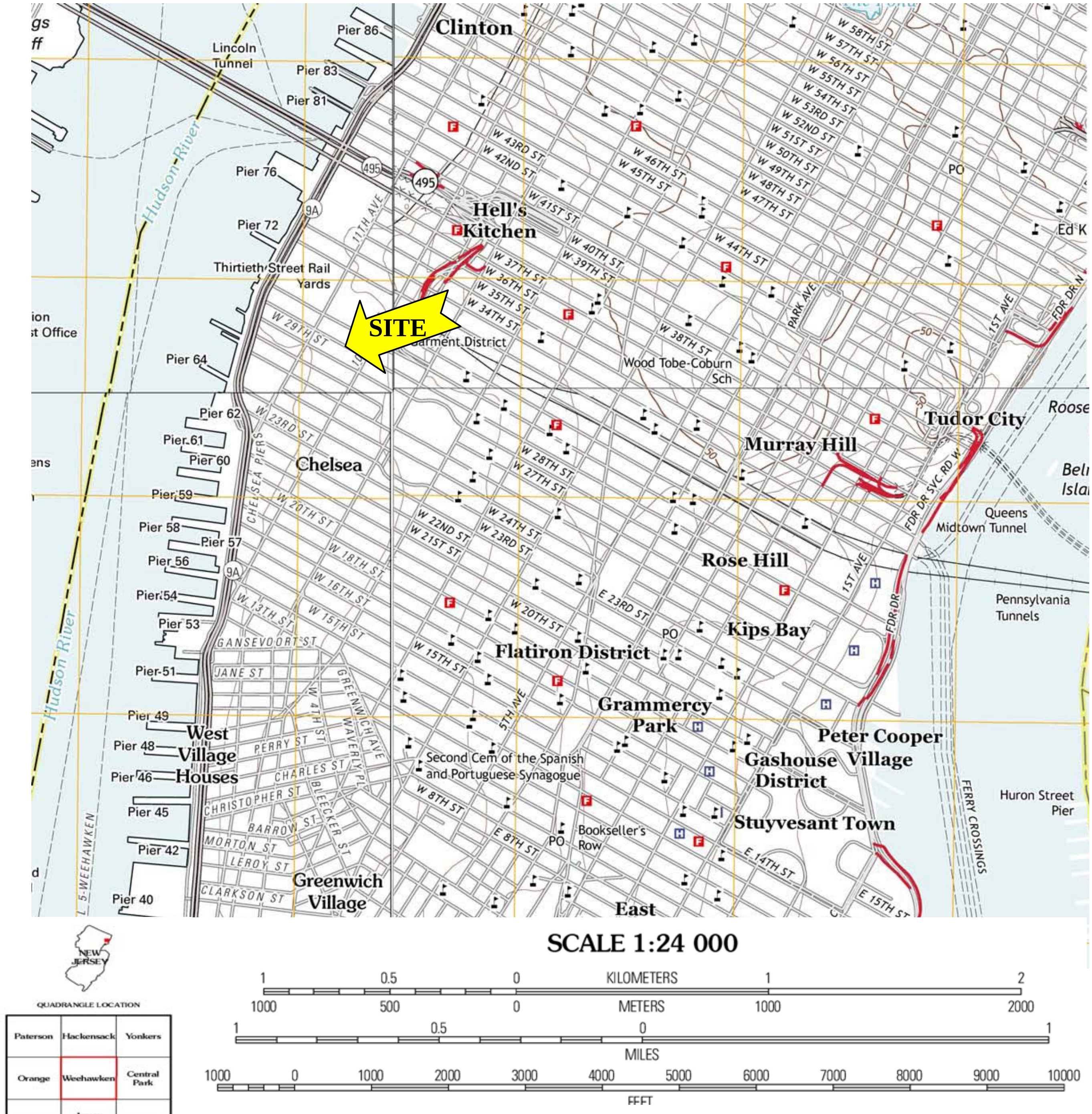
[j] This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts). See TSD Table 5.6-1.

Table 2
Proposed Remedial Action Work and Reporting Schedule

518-526 West 30th Street, New York, NY
Block 701 Lot 45,52, 55, 56, 58

Schedule Milestone	Weeks from Remedial Action Start	Duration (weeks)
OER Approval of RAWP	0	-
Fact Sheet 2 announcing start of remedy	0	-
Mobilization	2	2
Remedial Excavation	4	18-24
Demobilization	70	4
Record Declaration of Covenants and Restrictions	74	4
Submit Remedial Action Report	82	8

FIGURES



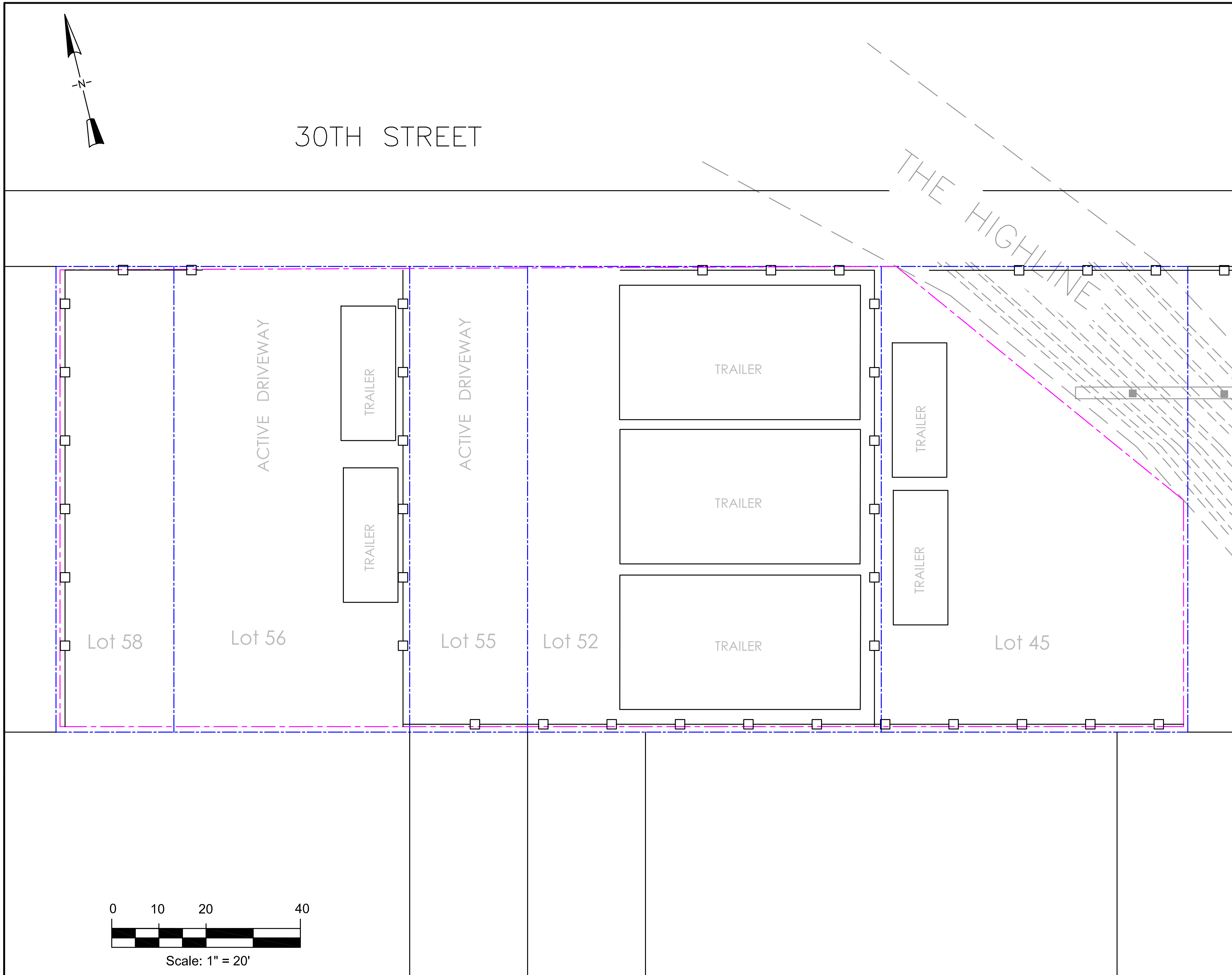
Weehawken Quadrangle, New Jersey-New York 7.5-Minute Series USGS Topographic Map. Obtained from United States Geological Survey topography compiled 2011

FIGURE 1: SITE LOCATION

Fleming Lee Shue

Related West 30th Street Phase II
518-526 West30th Street
New York, N.Y.

Environmental Management & Consulting, 158 West 29th Street, New York, NY 10001



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New York, NY 10001

West 30th Street Phase II
Block 701
Lot 45, 52, 55, 56, 58

FIGURE 2

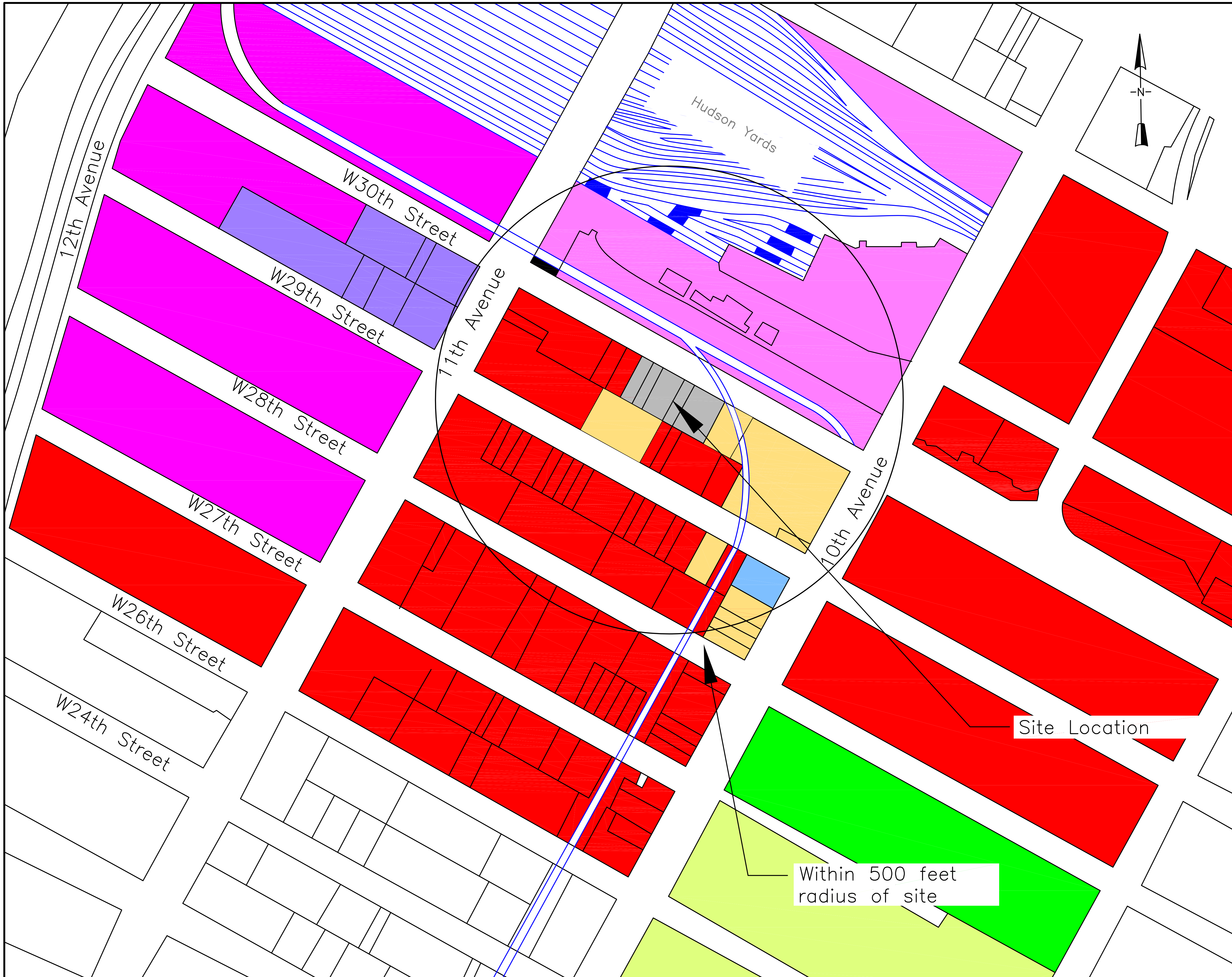
SITE PLAN

Date
August 2013

Project Number
10022-012-1

LEGEND

- SITE BOUNDARY
- PROPOSED BUILDING FOOTPRINT
- CONSTRUCTION FENCE



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New York, NY 10001

518-526 West 30th Street
Block 701 Lots 45, 52, 55, 56, 58

FIGURE 3

SURROUNDING LAND USE

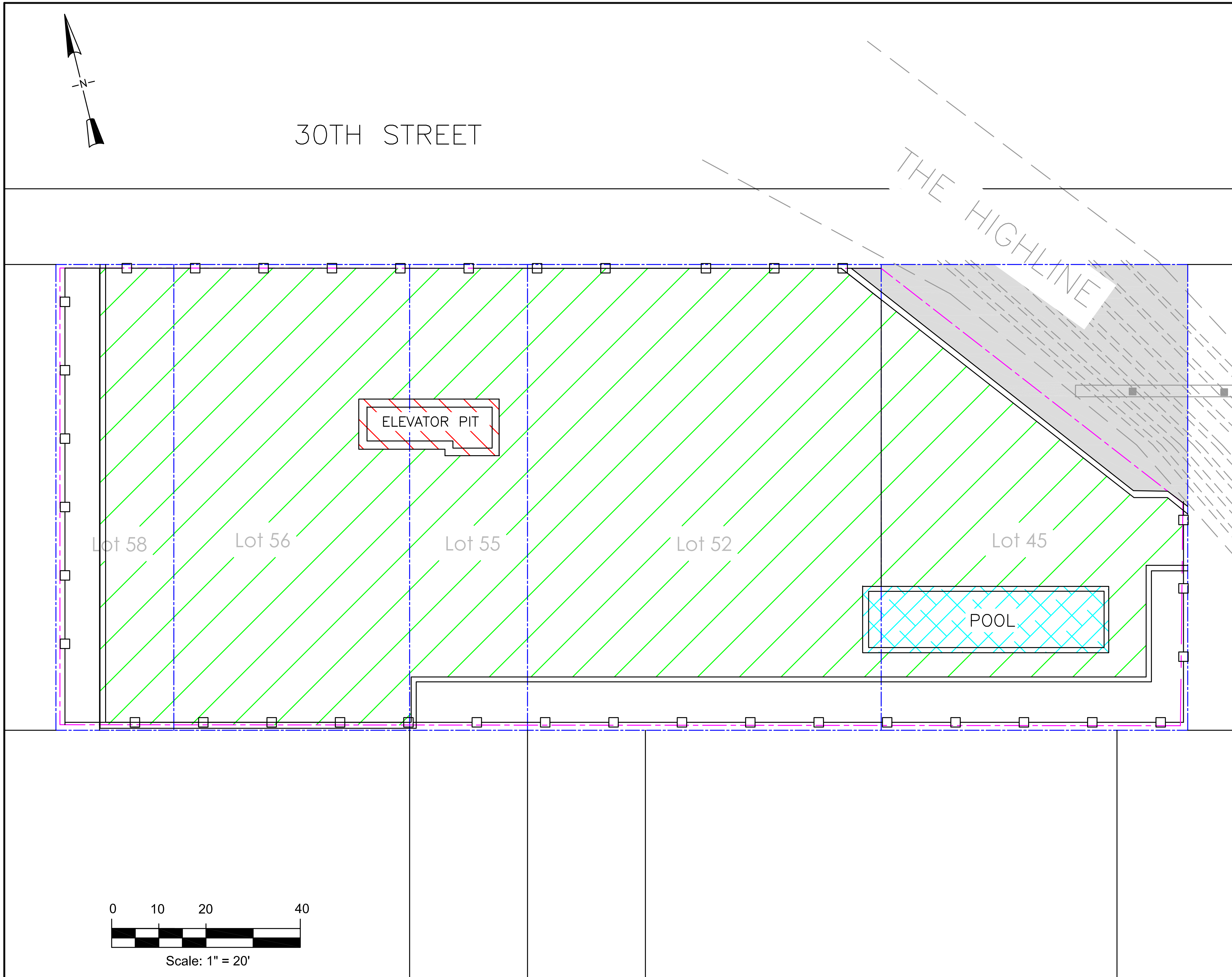
Date
August 2013

Project Number
10022-012-3

LEGEND

- Commercial & Office
- Industrial & Manufacturing
- Transportation & Utility
- Open Space & Outdoor Recreations
- Multi- Family
- Mixed Residential & Commercial
- Parking Facilities

P:\Project Files\10022 - The Related Companies\012 - West 30th Phase II\Figures\Remedial Action Work Plan June 2013\Figure 3 - Surrounding Land Use.dwg, 8/23/2013 12:10:11 PM, Adobe PDF



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Environmental Management & Consulting

158 West 29th Street, 9th Fl.
New York, NY 10001

West 30th Street Phase II
Block 701
Lot 45, 52, 55, 56, 58

FIGURE 4

EXCAVATION PLAN

Date
August 2013

Project Number
10022-012-1

LEGEND

SITE BOUNDARY

PROPOSED BUILDING FOOTPRINT

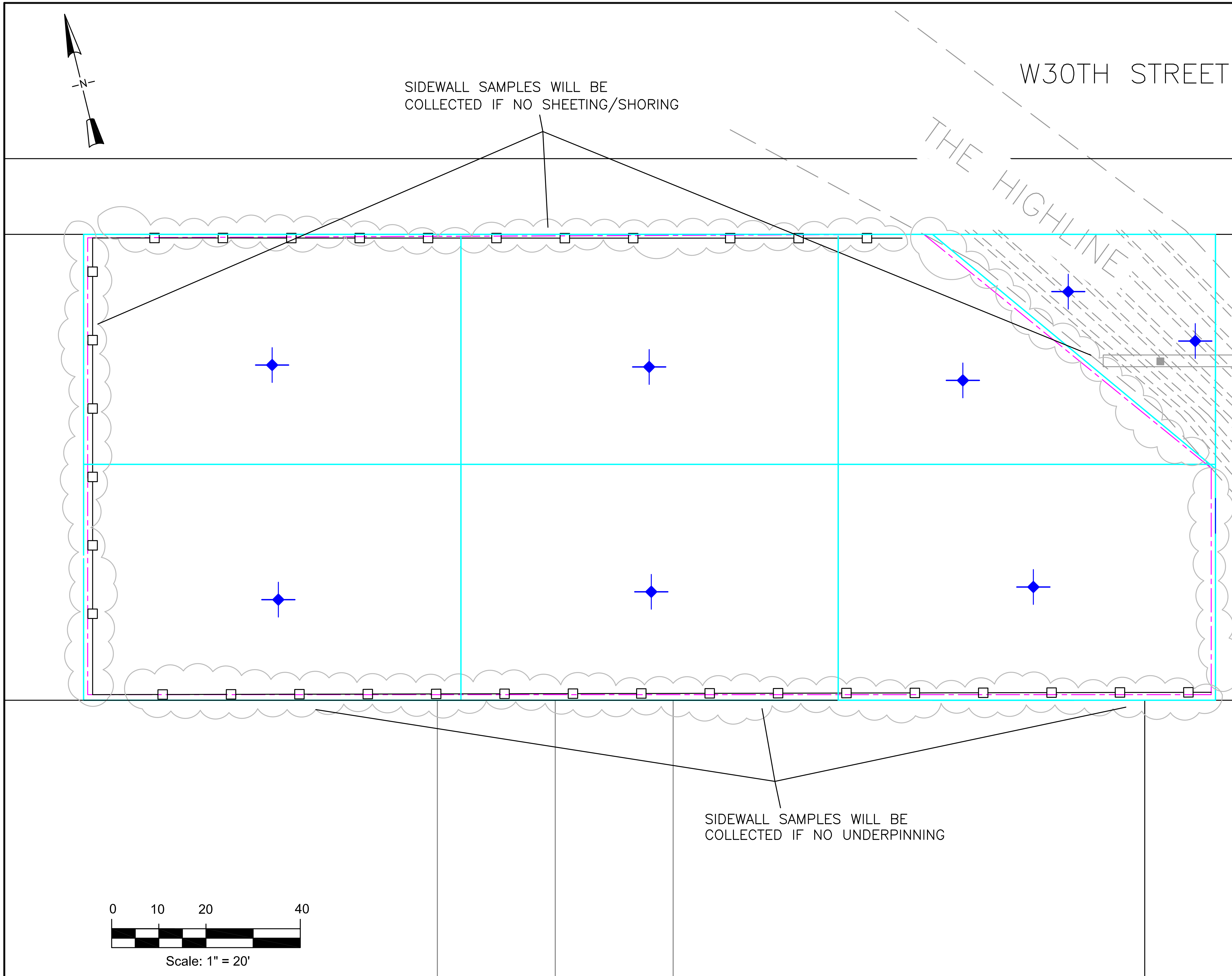
CONSTRUCTION FENCE

EXCAVATION DEPTH OF 2 FEET

EXCAVATION DEPTH OF 14 FEET

EXCAVATION DEPTH OF 18 FEET

EXCAVATION DEPTH OF 24 FEET



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New York, NY 10001

West 30th Street Phase II
Block 701
Lot 45, 52, 55, 56, 58

FIGURE 5

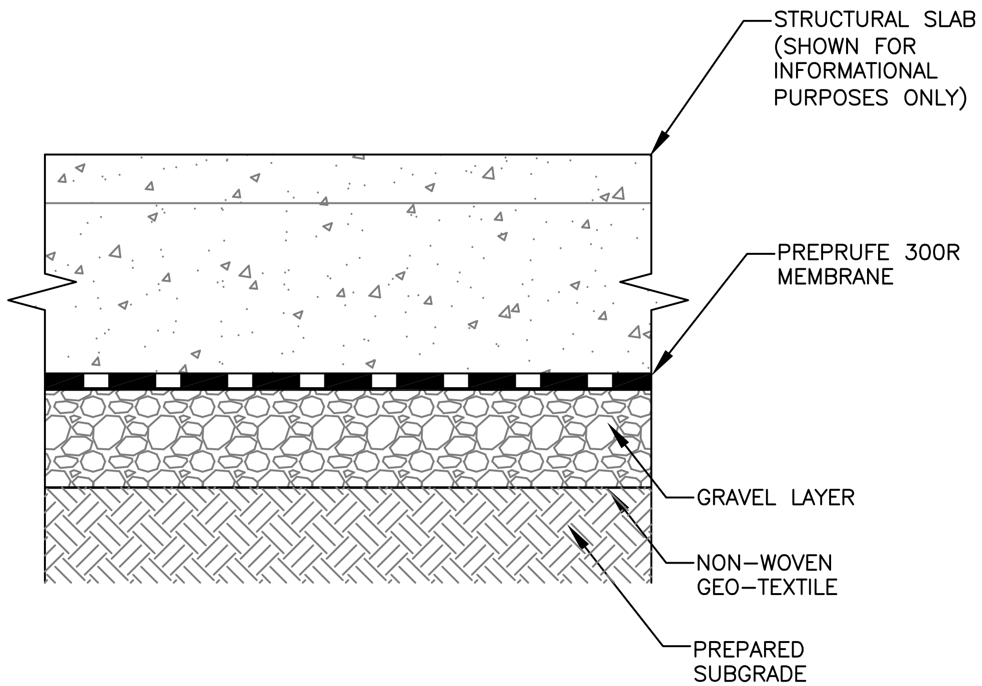
ENDPOINT SAMPLE LOCATIONS

Date
August 2013

Project Number
10022-012-1

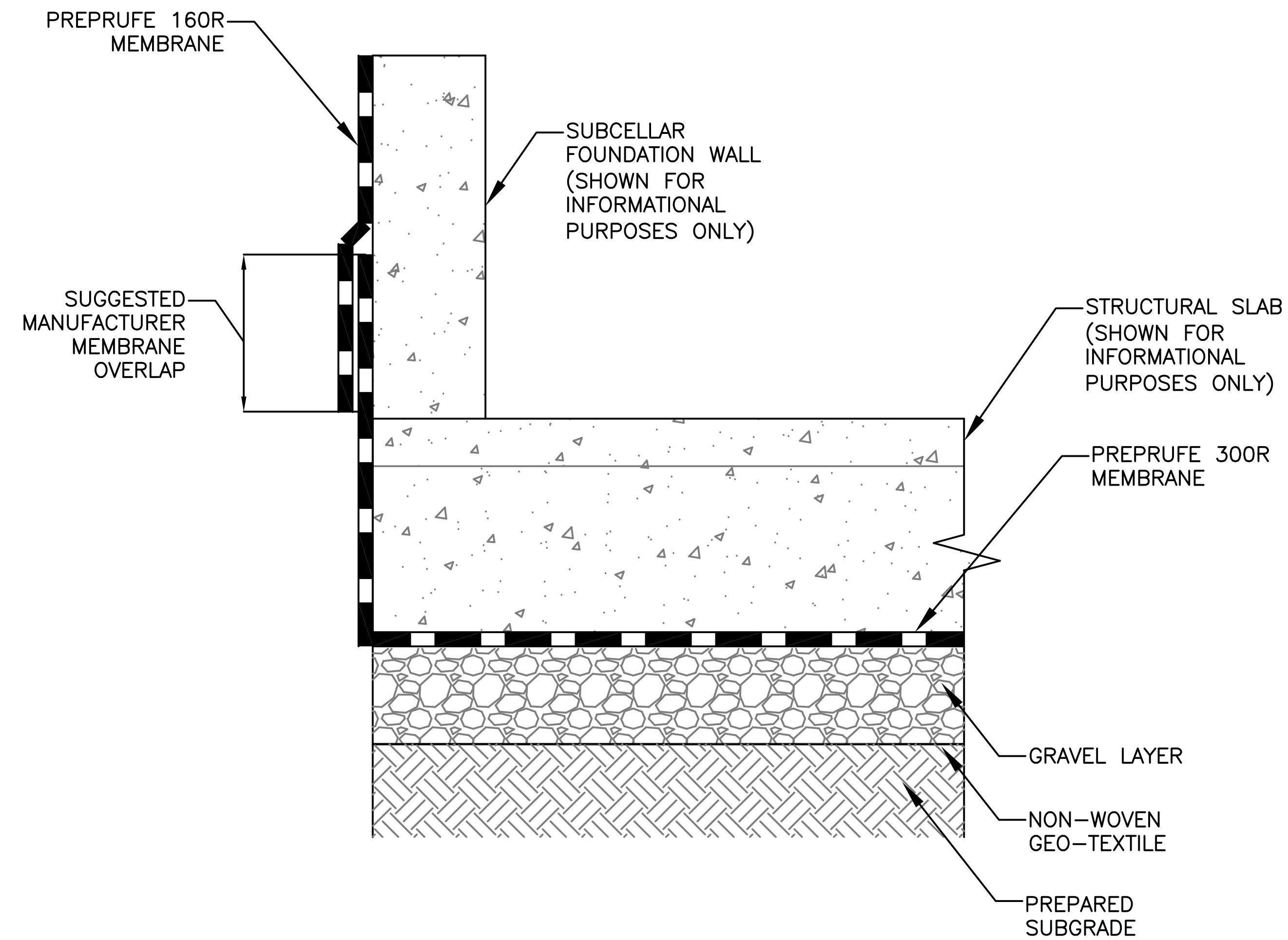
LEGEND

PROPOSED BUILDING FOOTPRINT
CONSTRUCTION FENCE
ENDPOINT SAMPLE LOCATIONS



TYPICAL WATERPROOFING/VAPOR BARRIER CROSS SECTION DETAIL

N.T.S.



TYPICAL WATERPROOFING/VAPOR BARRIER AT EDGE OF BUILDING

N.T.S.

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158 West 29th Street, 9th Fl.
New York, NY 10001

West 30th Street Phase II
Block 701
Lot 45, 52, 55, 56, 58

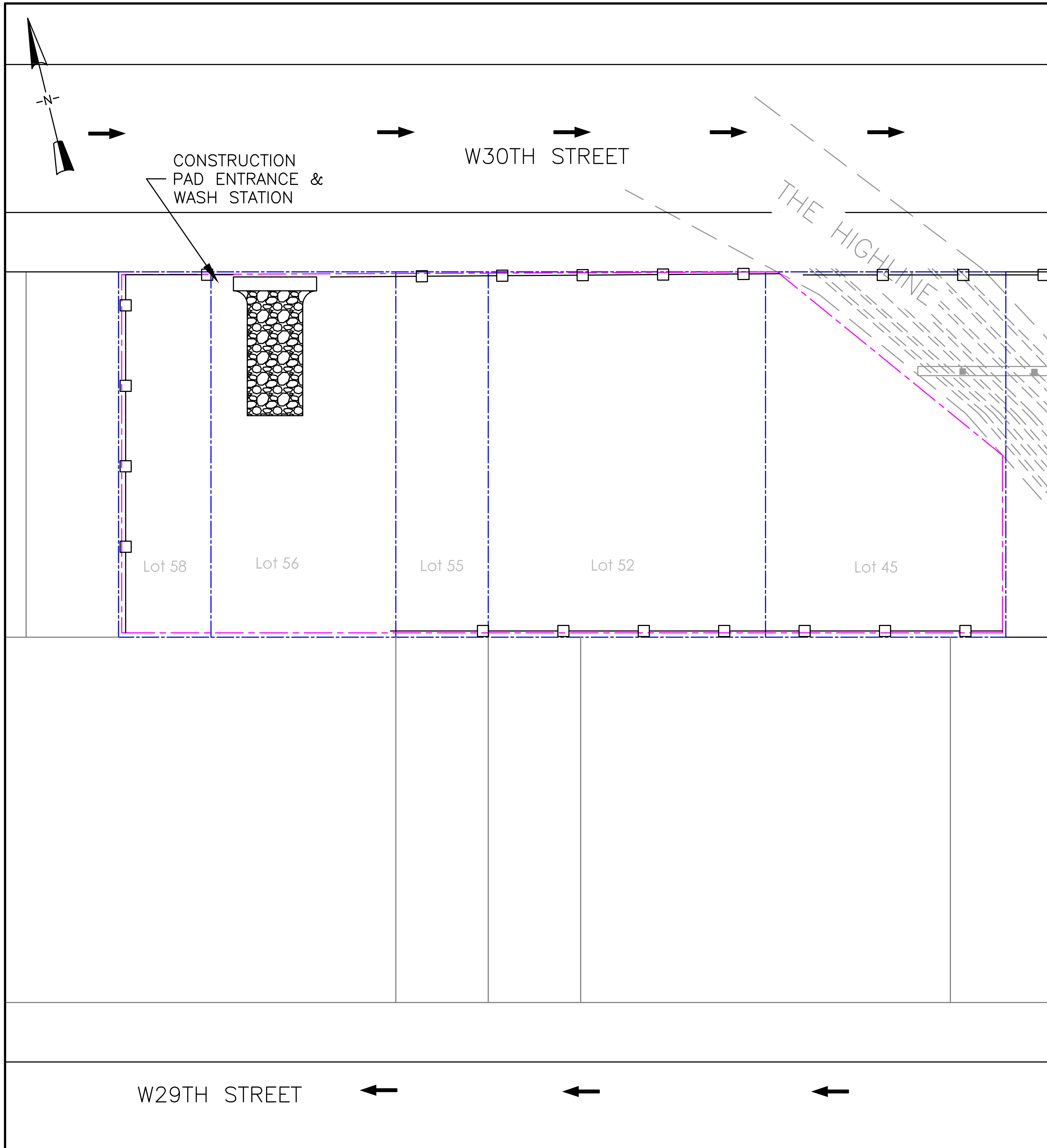
FIGURE 6

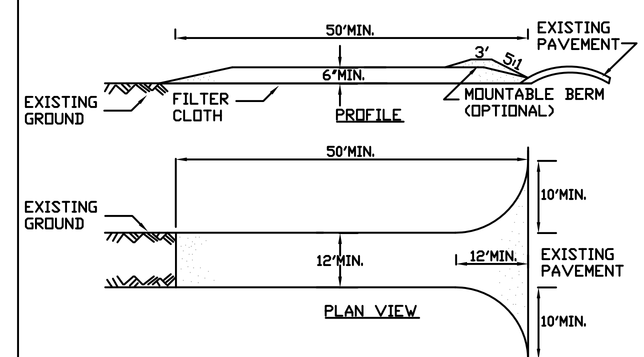
WATERPROOFING / VAPOR BARRIER DETAILS

Date
August 2013

Project Number
10022-012-1

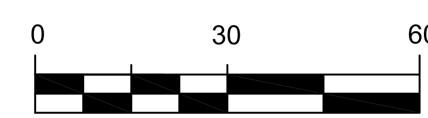
LEGEND





CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.



Scale: 1" = 30'

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158 West 29th Street, 9th Fl.
New York, NY 10001

West 30th Street Phase II
Block 701
Lot 45, 52, 55, 56, 58

FIGURE 7

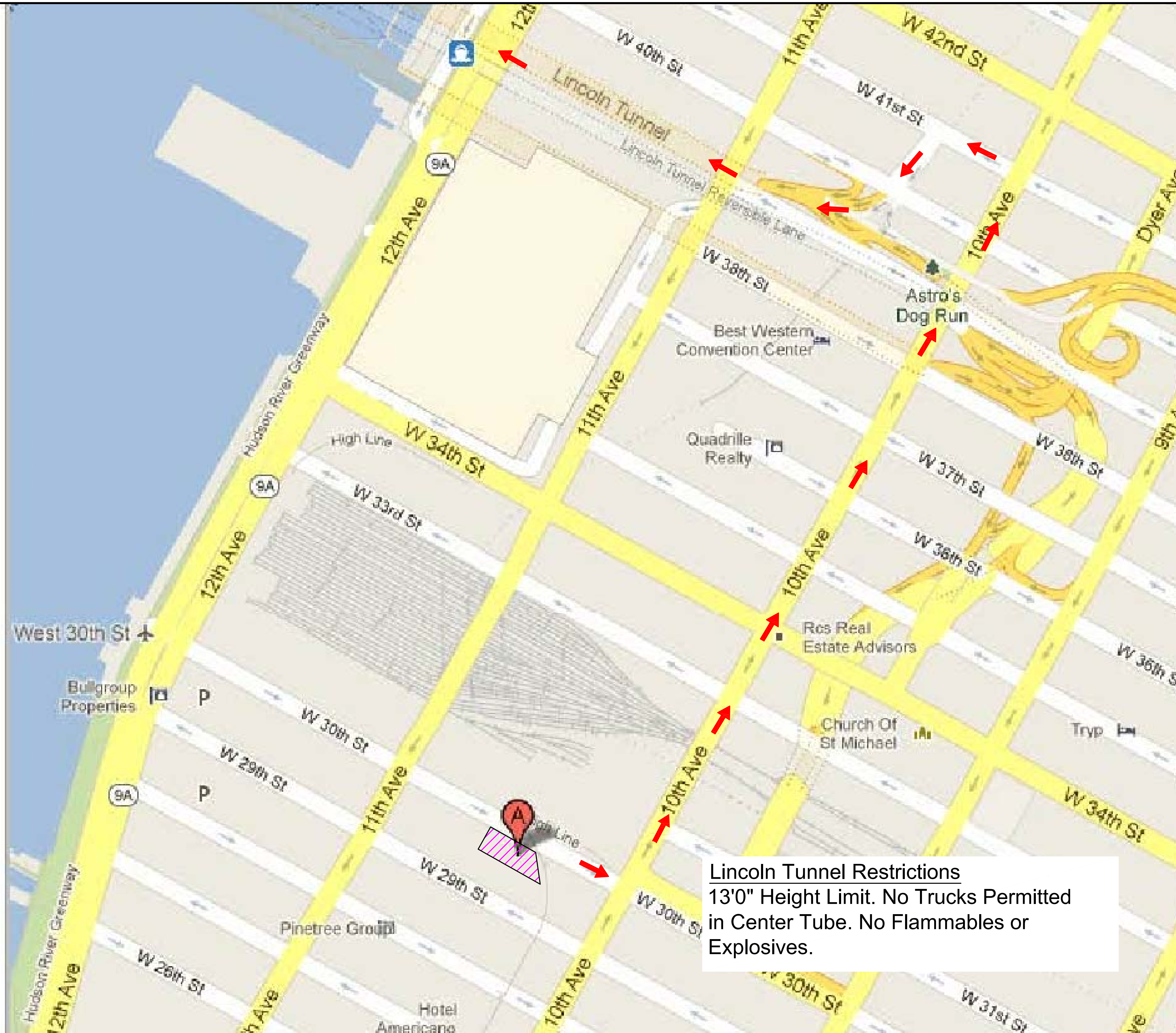
CONSTRUCTION PAD / WASH STATION PLAN & DETAIL

Date
August 2013

Project Number
10022-012-1

LEGEND

SITE BOUNDARY
PROPOSED BUILDING FOOTPRINT
DIRECTION OF TRAFFIC FLOW



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New York, NY 10001

518-526 West 30th Street
Block 701
Lot 45,52,55,56 and 58

FIGURE 8

TRUCK ROUTE PLAN

Date
August 2013

Project Number
10022-012-1

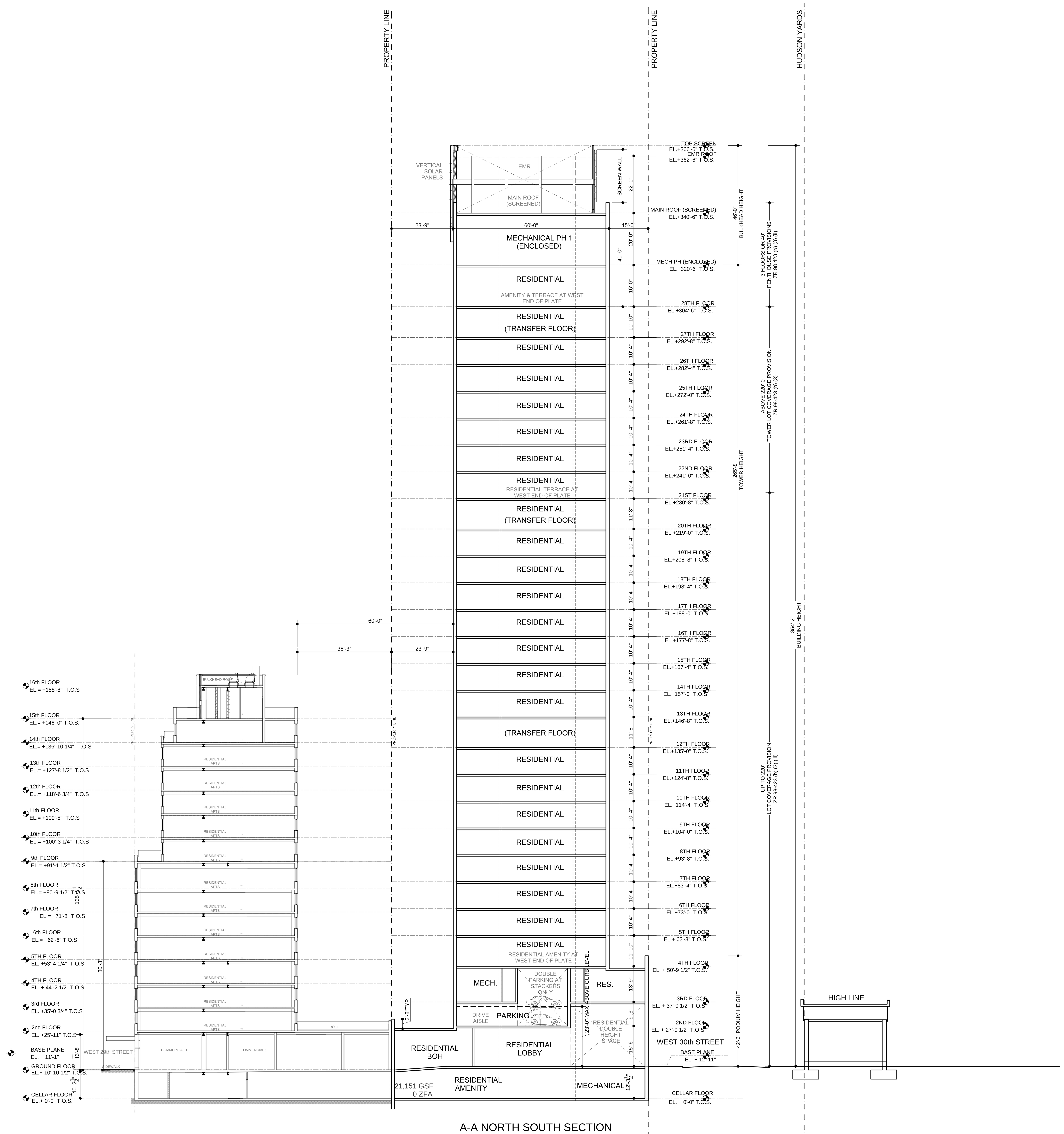
LEGEND

Proposed Truck Route

Proposed Building Footprints

APPENDIX A

Proposed Development Plans



ADD 2.75' TO ALL ELEVATIONS SHOWN TO OBTAIN ELEVATIONS IN NGVD29, TYP.

NB# 121182031

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No	Date:	Rev	Issue:
1	04.15.13		Schematic Design Issue
2	06.07.13		DOB Issue

NOTES:

CLIENT
West 30th HL L.L.C.
60 Columbus Circle
New York, New York 10023

PROJECT
West 30th Street & Tenth Avenue Phase II
New York, NY 10001

TITLE
NORTH-SOUTH SECTION A-A

SCALE: 1/16" = 1'0"
DATE: 04.15.13
PROJECT No: 12,140
CHECKED BY: -
APPROVED BY: -

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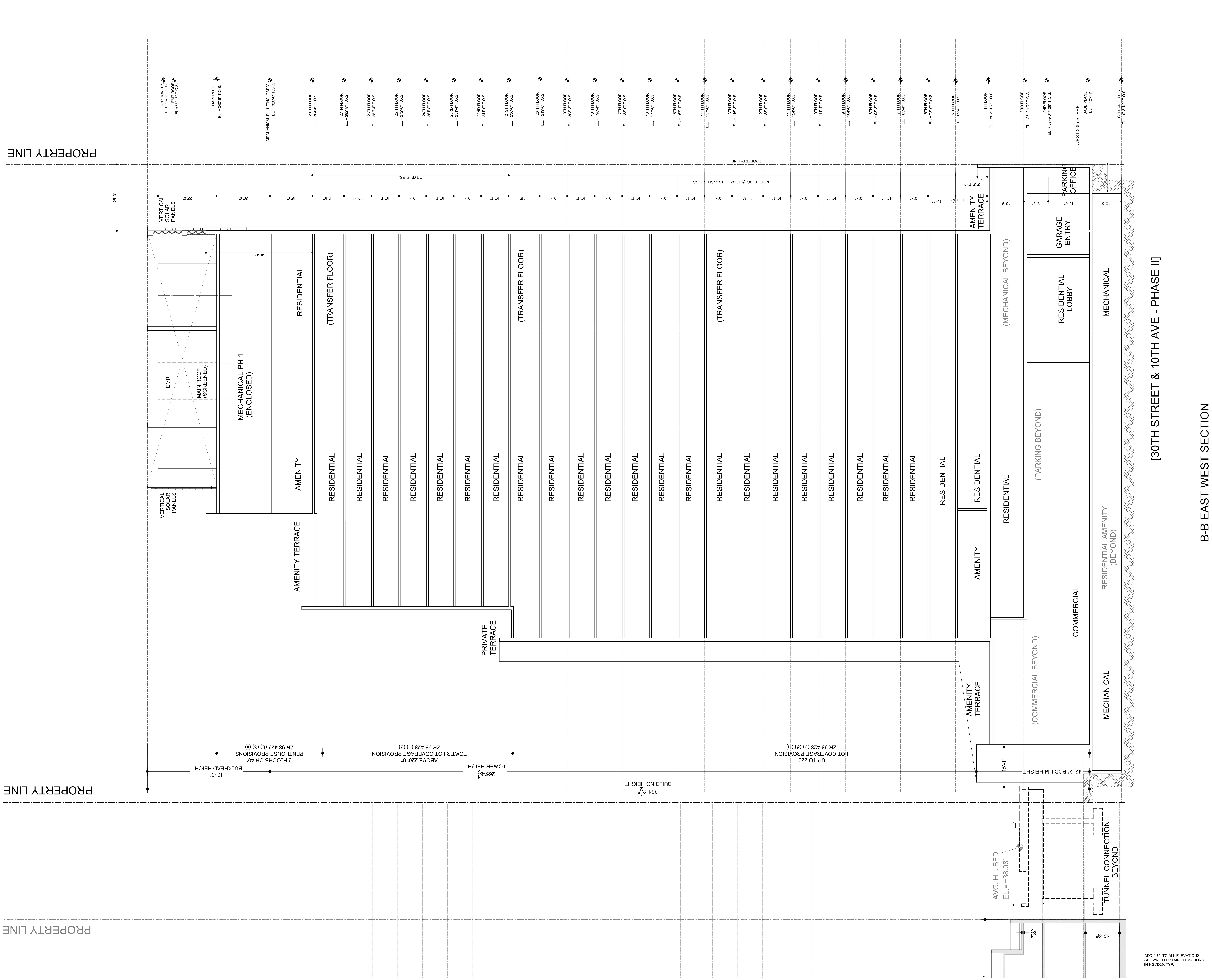
320.00
53 of 73



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1	04.15.13		Schematic Design Issue
2	06.07.13		DOB Issue

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60 Columbus Circle
New York, New York 10023

PROJECT
West 30th Street & Tenth Avenue Phase II
New York, NY 10001

TITLE
EAST-WEST
SECTION B-B

SCALE: 3/32" = 1' 0"
DATE: 04.15.13
PROJECT No: 12.140
CHECKED BY: -
APPROVED BY: -

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No	Date:	Rev	Issue:
1	04.15.13		Schematic Design Issue
2	06.07.13		DOB Issue

NOTES:

CLIENT
West 30th HL L.L.C.
60 Columbus Circle
New York, New York 10023

PROJECT
West 30th Street & Tenth Avenue Phase II
New York, NY 10001

TITLE
EAST-WEST SECTION C-C

SCALE:	1/16" = 1' 0"
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PROJECT No:	12.140
CHECKED BY:	-
APPROVED BY:	-

NB# 121182031

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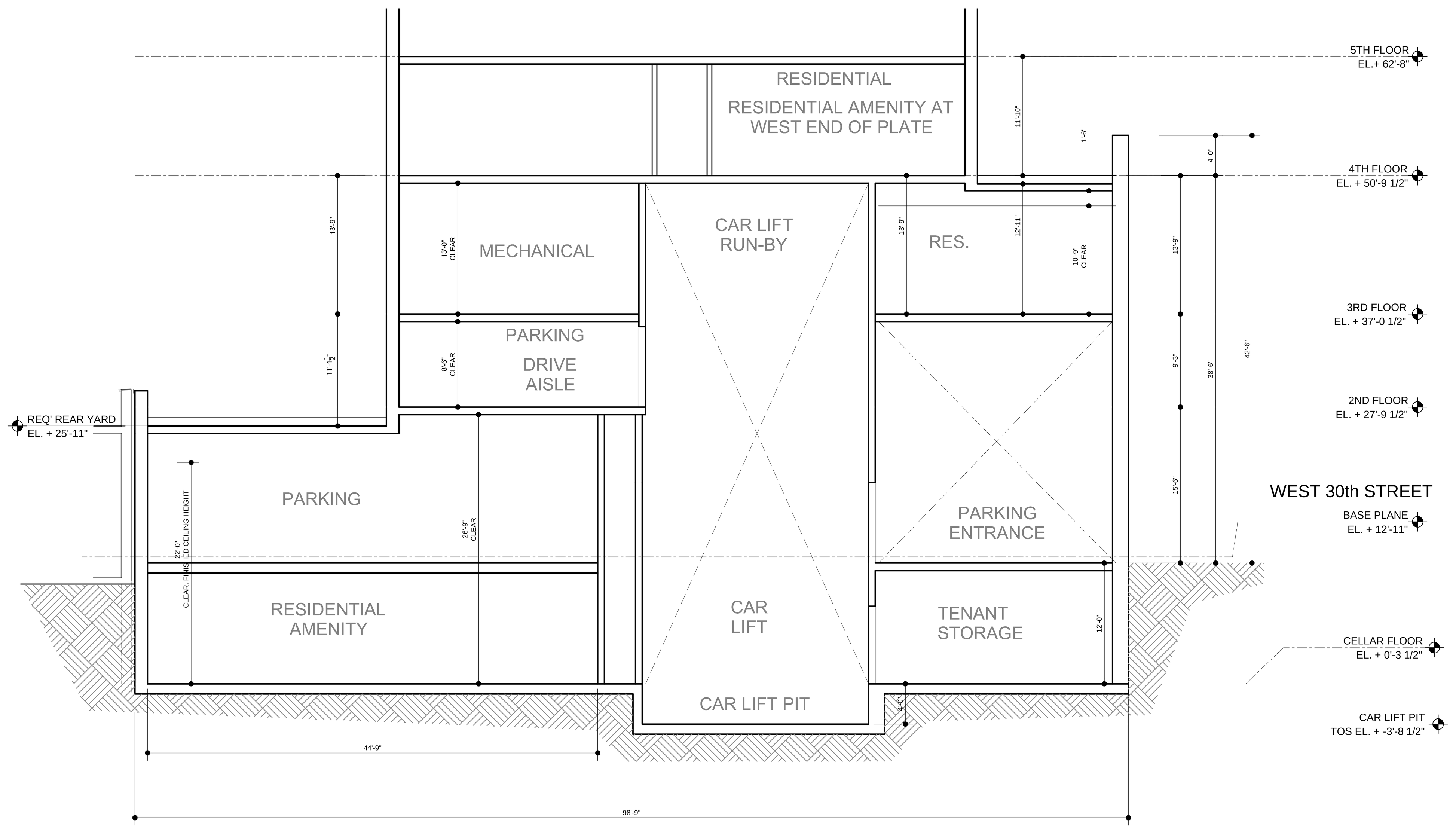
55 of 73



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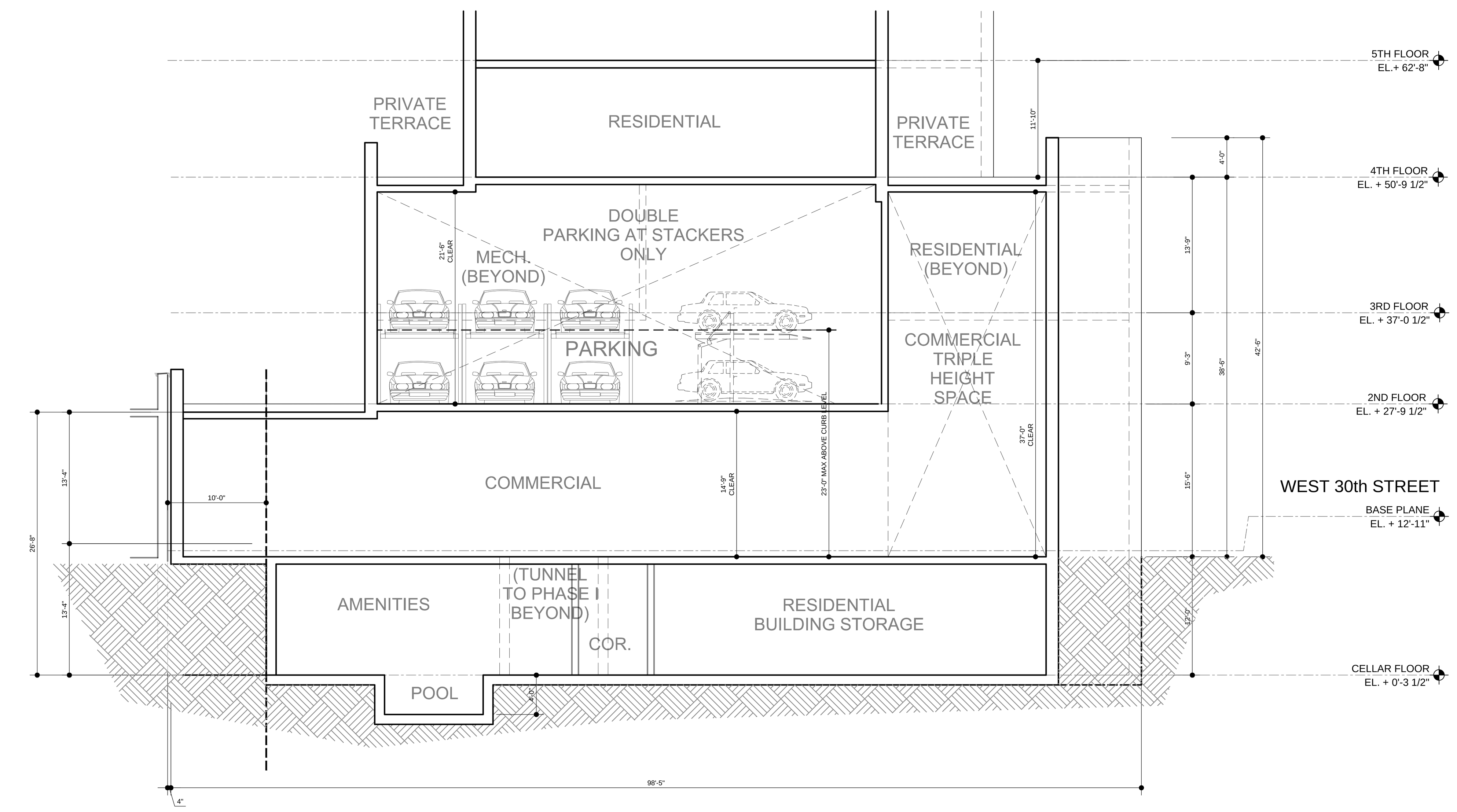

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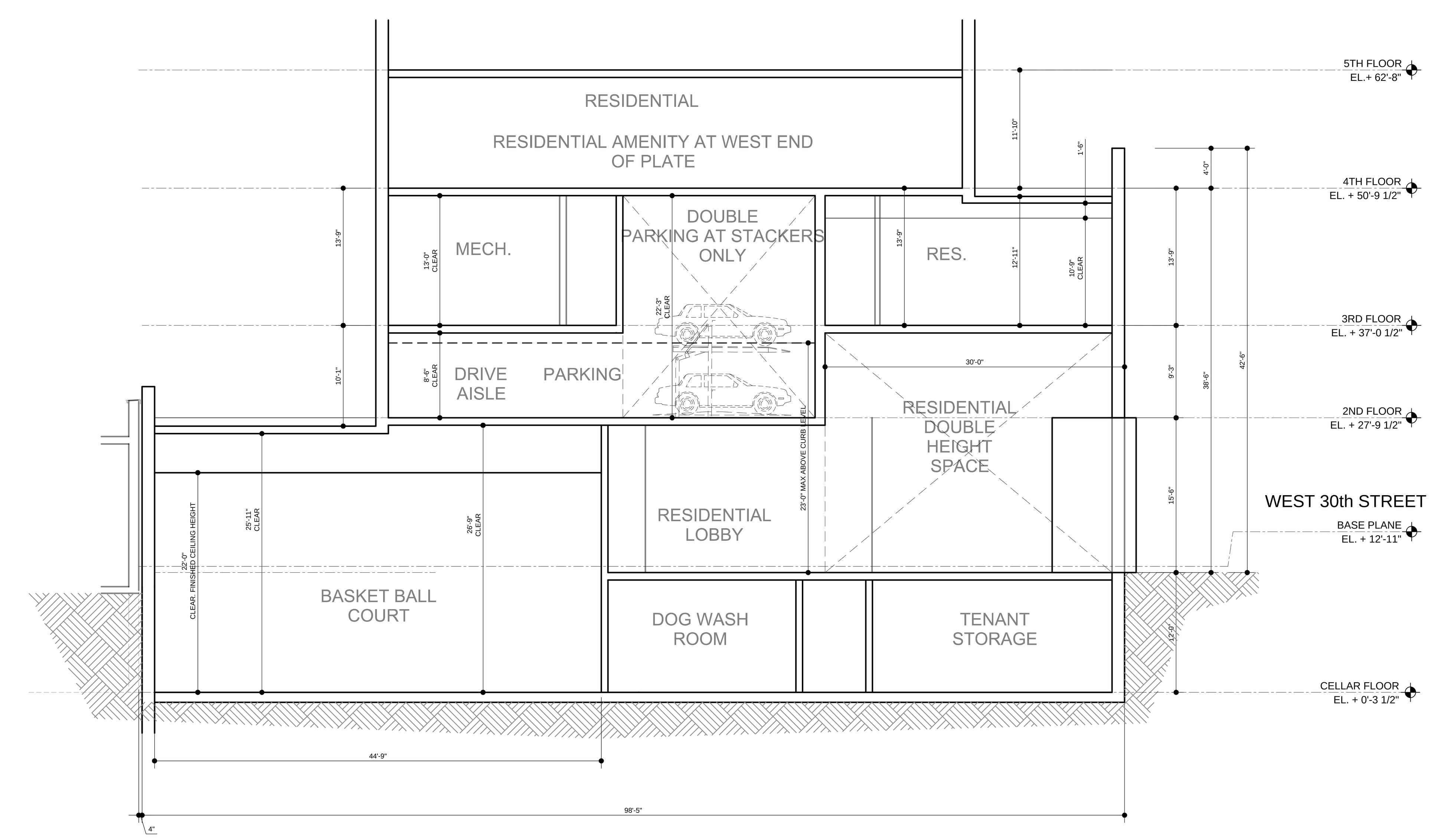

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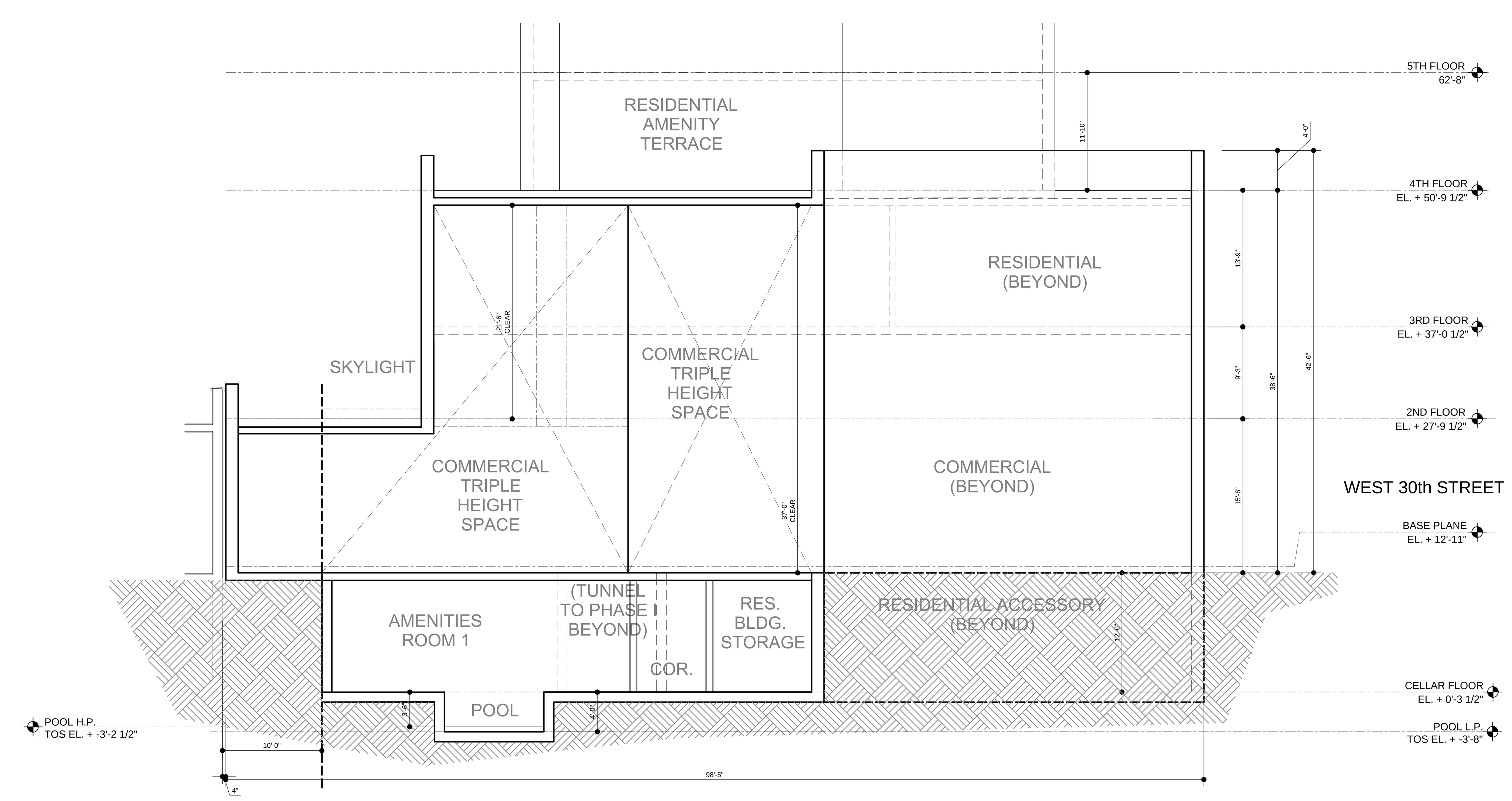

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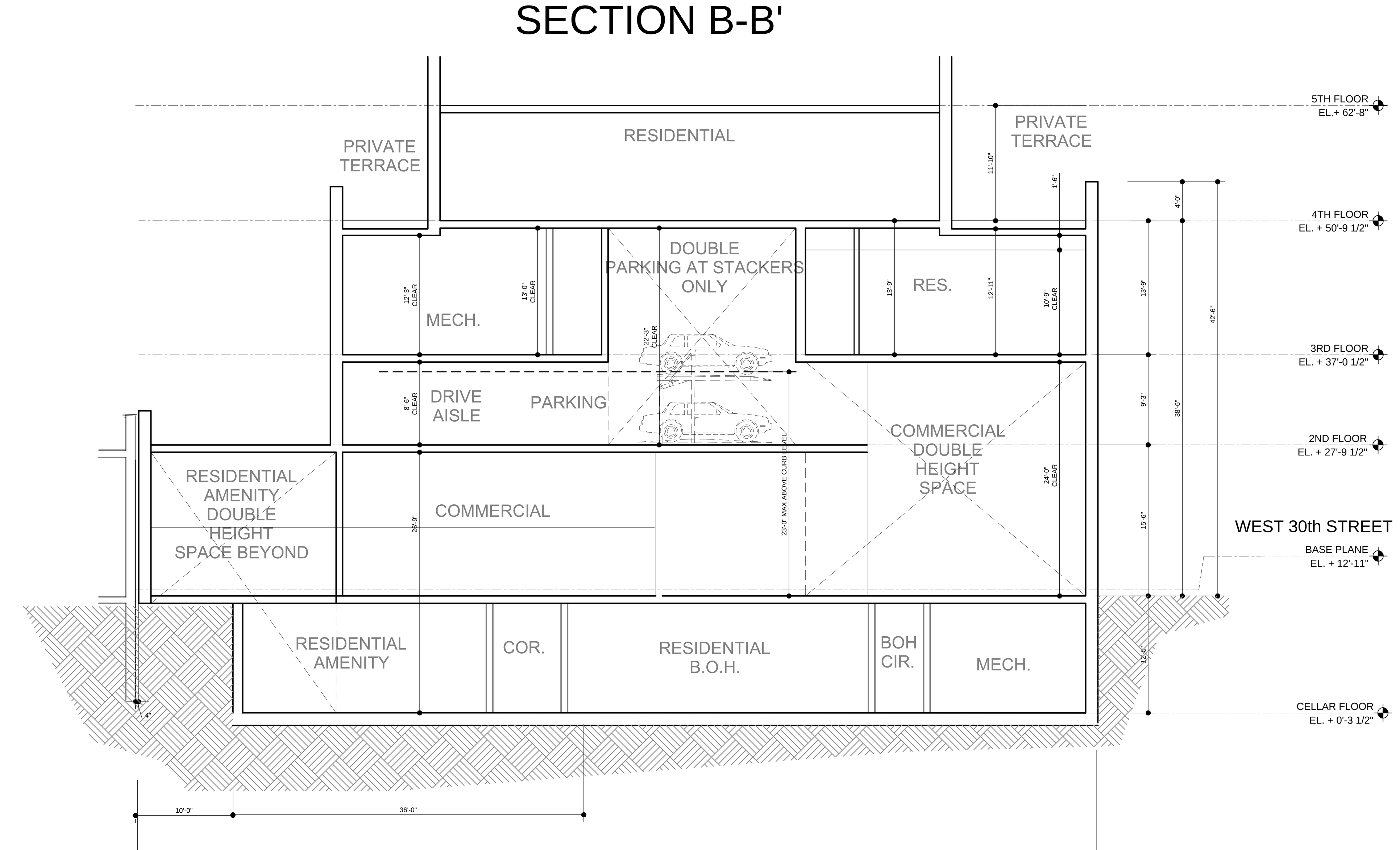

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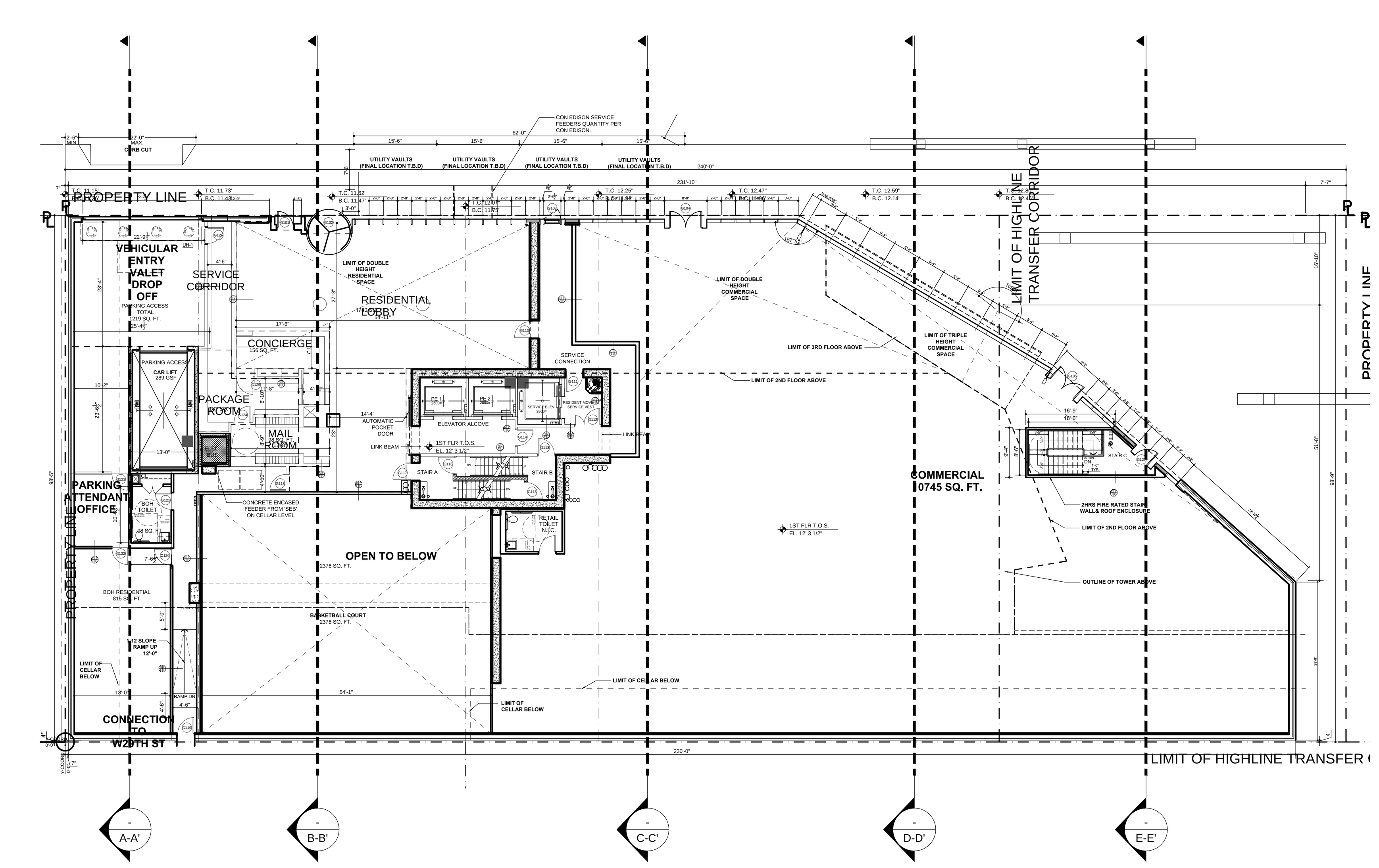

KEY PLAN - SCALE: 1/16" = 1'-0"

NB# 121182031

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No	Date:	Rev	Issue:
1	04.15.13		Schematic Design Issue
2	06.07.13		DOB Issue

NOTES:

CLIENT
West 30th HL L.L.C.
60 Columbus Circle
New York, New York 10023

PROJECT
West 30th Street & Tenth Avenue Phase II
New York, NY 10001

TITLE
PODIUM SECTIONS

SCALE: 1/8" = 1'0"
DATE: 04.15.13
PROJECT No: 12.140
CHECKED BY: -
APPROVED BY: -

A
325.00
56 of 73

APPENDIX B

Citizen Participation Plan

Appendix B
Citizen Participation Plan

The New York City Office of Environmental Remediation (OER) and the West 30^{th} Highline Holdings, LLC. have established this Citizen Participation Plan because the opportunity for citizen participation is an important component of the New York City Voluntary Cleanup Program (VCP). This Citizen Participation Plan describes how information about the project will be disseminated to the Community during the remedial process. As part of its obligations under the NYC VCP, West 30^{th} Highline Holdings, L.L.C. will maintain a repository for project documents and provide public notice at specified times throughout the remedial program. This Plan also takes into account potential environmental justice concerns in the community that surrounds the project Site. Under this Citizen Participation Plan, project documents and work plans are made available to the public in a timely manner. Public comment on work plans is strongly encouraged during public comment periods. Work plans are not approved by the OER until public comment periods have expired and all comments are formally reviewed. An explanation of cleanup plans in the form of a public meeting or informational session is available upon request to OER's project manager assigned to this Site, Ms. Hannah Moore, who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at (212) 788-8841

Project Contact List. The OER has established a Site Contact List for this project to provide public notices in the form of fact sheets to interested members of the Community. Communications will include updates on important information relating to the progress of the cleanup program at the Site as well as to request public comments on the cleanup plan. The Project Contact List includes owners and occupants of adjacent buildings and homes, principal administrators of nearby schools, hospitals and day care centers, the public water supplier that serves the area, established document repositories, the representative Community Board, City Council members, other elected representatives and any local Brownfield Opportunity Area (BOA) grantee organizations. Any member of the public or organization will be added to the Site Contact List on request. A copy of the Site Contact List is maintained by OER's project manager. If you would like to be added to the Project Contact List, contact NYC OER at (212) 788-8841 or by email at brownfields@cityhall.nyc.gov.

Repositories. A document repository is maintained in the nearest public library that maintains evening and weekend hours. This document repository is intended to house, for community review, all principal documents generated during the cleanup program including Remedial Investigation plans and reports, Remedial Action work plans and reports, and all public notices and fact sheets produced during the lifetime of the remedial project. West 30th Highline Holdings, L.L.C. will inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

New York Public Library

135 East 46th Street (between Lexington & Third Aves.)

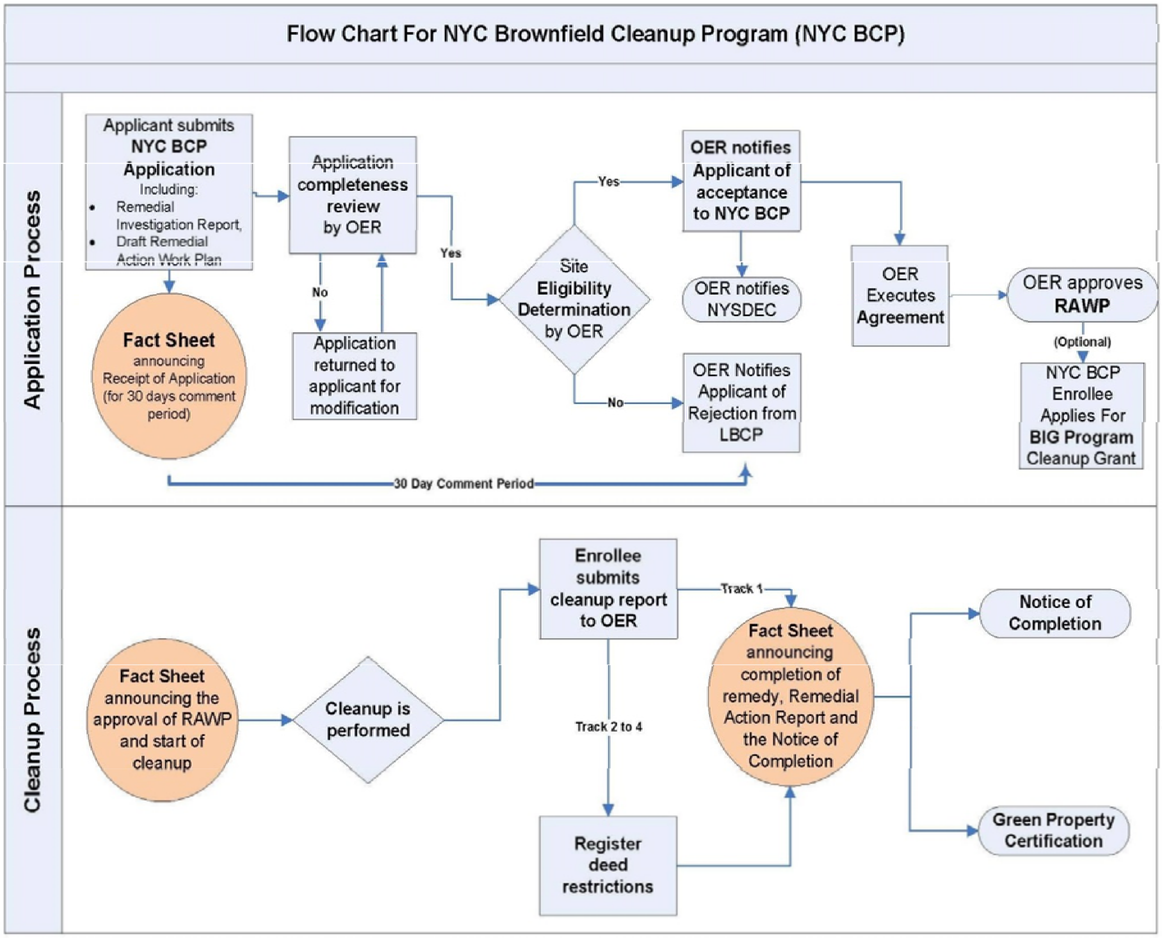
New York, NY 10017

(212) 621-0670

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
11:00 AM – 7:00 PM	10:00 AM – 6:00 PM	11:00 AM – 6:00 PM	11:00 AM – 6:00 PM	11:00 AM – 6:00 PM	10:00 AM – 5:00 PM	CLOSED

Digital Documentation. NYC OER strongly encourages the use of digital documents in repositories as a means of minimizing paper use while also increasing convenience in access and ease

Public Notice and Public Comment. Public notice to all members of the Project Contact List is required at three major steps during the performance of the cleanup program (listed below) and at other points that may be required by OER. Notices will include Fact Sheets with descriptive project summaries, updates on recent and upcoming project activities, repository information, and important phone and email contact information. All notices will be prepared by West 30th Highline Holdings, L.L.C., reviewed and approved by OER prior to distribution and mailed by West 30th Highline Holdings, L.L.C.. Public comment is solicited in public notices for all work plans developed under the NYC Voluntary Cleanup Program. Final review of all work plans by OER will consider all public comments. Approval will not be granted until the public comment period has been completed.



Citizen Participation Milestones. Public notice and public comment activities occur at several steps during a typical NYC VCP project. See flow chart above, which identifies when during the NYC VCP public notices are issued: These steps include:

- **Public Notice of the availability of the Remedial Investigation Report and Remedial Action Work Plan and a 30-day public comment period on the Remedial Action Work Plan.**

  Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the availability of the Remedial Investigation Report (RIR) and Remedial Action Work Plan (RAWP) and the initiation of a 30-day public comment period on the Remedial Action Work Plan. The Fact Sheet summarizes the findings of the RIR and provides details of the RAWP. The public comment period will be extended an additional 15 days upon public request. A public meeting or informational session will be conducted by OER upon request.

- **Public Notice announcing the approval of the RAWP and the start of remediation**

  Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the approval of the RAWP and the start of remediation.

- **Public Notice announcing the completion of remediation, designation of Institutional and Engineering Controls and issuance of the Notice of Completion**

PUBLIC NOTICE IN THE FORM OF A FACT SHEET IS SENT TO ALL PARTIES LISTED ON THE SITE CONTACT LIST ANNOUNCING THE COMPLETION OF REMEDIATION, PROVIDING A LIST OF ALL INSTITUTIONAL AND ENGINEERING CONTROLS IMPLEMENTED FOR TO THE SITE AND ANNOUNCING THE ISSUANCE OF THE NOTICE OF COMPLETION.

APPENDIX C

Previous Reports

518-526 West 30th Street,

New York, New York

REMEDIAL INVESTIGATION REPORT

NYC OER Project Number 13EH-N305M
E-Designation Site Number: E-142

Prepared for:

West 30th Highline Holdings, L.L.C.
c/o The Related Companies L.P.
60 Columbus Circle
New York, NY 10023

Prepared by:

Fleming Lee-Shue

Environmental Management & Consulting
158 West 29th Street, 9th Fl.
10001, New York NY
212 675-3225

June 2013

REMEDIAL INVESTIGATION REPORT

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LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
CAMP	Community Air Monitoring Plan
COC	Contaminant of Concern
DER-10	New York State Department of Environmental Conservation Technical Guide 10
ESA	Phase I Environmental Site Assessment
GPR	Ground penetrating radar
GSQ	NYSDEC TOGS 1.1.1 Class GA Ambient Groundwater Quality Standards
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRM	Interim Remedial Measure
NAPL	Non-aqueous Phase Liquid
NYC DEP	New York City Department of Environmental Protection
NYC VCP	New York City Voluntary Cleanup Program
NYC DOHMH	New York City Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
NYS DOH ELAP	New York State Department of Health Environmental Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbon
PID	Photoionization Detector
QEP	Qualified Environmental Professional
RCNY	Rules of the City of New York
REC	Recognized environmental condition
RI	Remedial Investigation
RIR	Remedial Investigation Report
SCO	Soil Cleanup Objective
SPEED	Searchable Property Environmental Electronic Database
SVOCs	Semivolatile Organic Compounds
USGS	United States Geological Survey
VOCs	Volatile Organic Compounds

CERTIFICATION

I, Arnold F. Fleming, P.E., am a Qualified Environmental Professional, as defined in Title 43 Chapter 1402 of the Rules of the City of New York [RCNY § 43-1402(ar)]. I have primary direct responsibility for implementation of the Remedial Investigation for the 518-526 West 30th Street, (NYC Office of Environmental Remediation Site - 13EH-N305M). I am responsible for the content of this Remedial Investigation Report, have reviewed its contents and certify that this Remedial Investigation Report is accurate to the best of my knowledge and that it contains all available environmental information and data regarding the property.

Arnold F. Fleming Qualified Environmental Professional	Date	Signature

EXECUTIVE SUMMARY

The Remedial Investigation Report (RIR) provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy pursuant to Title 43 Chapter 1407 of the Rules of the City of New York [RCNY§ 43-1407(f)]. The remedial investigation (RI) described in this document is consistent with the applicable guidance.

Site Location and Current Usage

The Site is located at 518-526 West 30th St. in the Chelsea section of Manhattan, New York and is identified as Block 701 and Lots 45,52,55,56 and 58 on the New York City Tax Map. Figure 1 shows the Site location. The Site is the second phase in the development of the 500 West 30th St. project. The Site is 23,700-square feet and is bounded by the Lot 16 project to the south and West 30th St. to the north. To the west, the Site is bounded by a 7-story commercial building (Lot 59). To the east the Site is bounded by Lot 44 and the High Line. The High Line is a New York City linear park built on the former elevated New York Central Railroad spur called the West Side Line. A map of the Site boundary is provided as Figure 2. Currently, the Site is a vacant lot. According to the Department of City Planning, the Site is included in the Special West Chelsea District Zone that allows for the development of new residential/ commercial buildings and facilitates the reuse of the High Line as an open linear park.

Summary of Proposed Redevelopment Plan

The Site is an extension of the 500 West 30th St. project. The proposed redevelopment plan will include a single 26-story tower on a 3-story podium base and will encompass current lots 58, 56, 55, 52, and part of lot 45. The proposed residential, mixed-use building will have one cellar level with frontage along 30th St. between 10th Ave. and 11th Ave. The cellar level will be used for mechanical rooms, residential accessory spaces and residential amenities. The cellar will have a slightly larger footprint than the podium base above (additional 15 feet toward the High Line). The cellar will be at least 12 feet deep plus foundations. The first floor will have the residential entrance lobby on 30th St. and retail use along the remainder of the street frontage. The ground floor has no grade level open spaces proposed. The parking entrance will be located on the first floor as well with primary access 30th St.; there will be a ground floor pedestrian access with the existing building at 529 29th St... The second floor of the building will house permitted accessory parking for the building along with some mechanical rooms. The third floor, the last podium floor, will consist of open to below spaces for parking at second level, mechanical spaces, and residential units. Floors 4 to 28 will have 190 residential units ranging from studios to three bedrooms. The exterior of the building will be pre-cast concrete panels with brick veneer, with aluminum and glass punched windows and an aluminum and glass storefront for the retail portions on the first floor.

The development will be approximately 270,000 gross square feet (GSF) (including 20,000 square feet of below-grade space) and broken down as follows:

Total Residential Area = 234,000 GSF

Total Commercial Area = 9,000 GSF

Total Parking Area = 10,000 GSF

Total Mechanical Area = 17,000 GSF

The current zoning designation is C6-4, which permits a tower occupied by commercial, residential and/or community facility that may penetrate the sky exposure plane. The C6-4 zoning designation is allowed in mostly major business districts with a floor to area ratio of 10.0 or 15.0 exclusive of an applicable bonus. The proposed use is consistent with the existing zoning for the property.

Summary of Past Uses of Site and Areas of Concern

A Phase I Environmental Site Assessment (ESA) was performed by Fleming Lee-Shue Inc. (FLS) in April 2005 and updated in September 2008. The Phase I ESA constitutes an all appropriate inquiry into the previous ownership and uses of the property to identify recognized environmental conditions (RECs) and areas of concern (AOC).

The Site was occupied by tenement style buildings from before 1890 until circa 1900. A confectionary factory was constructed circa 1910. The confectionary factory operations continued until it was abandoned when the central portion of the factory building was demolished and replaced by the Central Railroad right of way (the present-day Highline) and a wagon builder circa 1930. The building was occupied by the Metal Purchasing Company from circa 1950 until the late 1990's. The Site was then converted and used as a parking garage until 2007. From 2007 to early 2012, a temporary tent was erected on Lot 52 that accommodated the New York Trapeze School while lots 45, 55, 56 and 58 remained vacant. The temporary tent was dismantled in late 2012. The Site is currently occupied by construction trailers. Based on the Phase I ESA evaluation, no RECs were identified at the Site; however, the presence of urban fill was identified as an on-Site AOC.

Four off-site AOCs were identified for this Site in the Phase I ESA report:

- The historic junkyard and filling station operations on Lot 37, upgradient from the Site.
- The No. 4 fuel oil that was stored in a storage tank located in a vault in the basement of 502-504 West 30th St., up/cross-gradient from the Site.
- The historic auto repair operations beneath the High Line, upgradient from the Site.
- The chemical manufacturer located at 515 West 30th St., upgradient from the Site.

The Phase I ESA Report is provided as Appendix A.

Summary of the Work Performed at the Site

- A Site inspection was conducted as part of the Phase I ESA in 2005 and 2008 to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
- A geophysical survey was completed across the entire Site during the 2007 RI.
- Installation of nine soil borings in 2007 and three soil borings in 2012 across the entire project Site. Collected 18 soil samples in 2007 and six soil samples for laboratory analysis from the soil borings to evaluate soil quality.
- Installed three temporary groundwater monitoring points in 2007 and three temporary groundwater monitoring points in 2012 throughout the Site. Three groundwater samples

were collected in 2007 and three groundwater samples were collected in 2012 for laboratory analysis to evaluate groundwater quality.

- Four soil vapor screening probes were installed in 2013, and four vapor samples were collected from 1-2 feet above the soil/water interface at each location [approximately 8-9 feet below grade].

Summary of Environmental Findings

1. The elevation of the property ranges from 14 to 18 feet.
2. The depth-to-groundwater ranges from 10 to 11 feet below grade.
3. The groundwater flow is generally from southeast to northwest.
4. The depth-to-bedrock at the Site is not known.
5. The stratigraphy consists of approximately 10 to 16 feet of fill material consisting of brick, concrete, ash, cinders and wood in a matrix of silty sand. The fill appears to be evenly dispersed throughout the lots. The fill material is underlain by fine to medium sand, silt with sand and organic clays.
6. The soil samples collected during the 2007 RI revealed the presence of polycyclic aromatic hydrocarbon compounds (PAHs) concentrations in excess of regulatory standards in 14 of the 17 soil samples. The distribution of the PAHs was consistent both horizontally and vertically across the Site. The specific PAHs and their ubiquitous distribution are consistent with urban fill. Metal concentrations, including those for arsenic, barium, cadmium, calcium, chromium, copper, lead, mercury, magnesium, nickel, and zinc were also observed in excess of regulatory standards. The distribution of metals was also consistent with urban fill.
7. The groundwater samples collected during the 2007 RI revealed the presence of dissolved metals; including arsenic, barium, chromium, copper, iron, lead, manganese, nickel and sodium, at concentrations in excess of regulatory standards. The dissolved metal concentrations were also consistent with the presence of urban fill.

8. The soil samples collected during the 2013 RI revealed the presence of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), specifically PAHs, and pesticides, at concentrations in excess of Title 6 of the Official Compilation of New York Part 375 Track 1 Unrestricted Use Soil Cleanup Objectives (Track 1 UUSCOs). In one shallow sample, the VOC acetone was detected in excess of the Track 1 UUSCO. In 1 of 6 samples collected, PAH concentrations were detected in excess of the Track 1 UUSCO. The concentrations of metals including nickel, copper, lead, mercury and zinc, were in excess of the Track 1 UUSCO in all shallow samples. The distribution of metals across the Site is consistent with the presence of urban fill. The pesticide (4,4'-DDT) was detected at concentrations in excess of Track 1 UUSCO in 1 of 8 samples.
9. The groundwater samples collected during the 2013 RI revealed the presence of VOCs and metals at concentrations in excess of the NYSDEC Technical Operational Guidance Series (TOGS) 1.1.1 Class GA Groundwater Quality Standards (GWQS). The VOC methylene chloride was detected at concentrations in excess of the GWQS in 2 of 3 samples. Benzene and total xylene were detected at concentrations in excess of GWQS in 1 of 3 samples. Unfiltered metals analysis indicated the presence of several metals at concentrations exceeding the GWQS, including lead, selenium, iron, manganese and sodium in all three samples. The dissolved (filtered) metals analysis also indicated the presence of the afore-mentioned metals, but at substantially lower concentrations.
10. The results of the laboratory analysis of the 2013 soil vapor samples identified trichloroethylene (TCE) at concentration in excess of the New York State Department of Health (NYSDOH) Air Guidance Values (AGVs) in 1 of 4 soil vapor samples.

REMEDIAL INVESTIGATION REPORT

1.0 SITE BACKGROUND

On behalf of West 30th Highline Holdings, L.L.C., FLS has conducted this RI of the Site to assess environmental conditions, confirm the analytical results of the previous subsurface investigation completed in 2007, and incorporate any necessary remedial actions into its plan to redevelop the Site. The Site is a 0.54-acre parcel located at 518-526 West 30th St. in the Chelsea section of Manhattan, New York. The proposed use for the Site includes 26-story mixed-used residential/commercial building. The RI work was performed on January 29 to February 5, 2007 and on February 19, 2013.

This RIR summarizes the nature and extent of contamination and provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy that is protective of human health and the environment consistent with the use of the property pursuant to RCNY§ 43-1407(f). West 30th Highline Holdings, LLC is enrolling the redevelopment project into the NYC Voluntary Cleanup Program (VCP).

1.1 SITE LOCATION AND CURRENT USAGE

The Site is located at 518-526 West 30th St. in the Chelsea section in Manhattan, New York and is identified as Block 701 and Lots 45,52,55,56 and 58 on the New York City Tax Map. Figure 1 shows the Site location. The Site is the second phase in the development of the 500 West 30th St. project. The Site is 23,700-square feet and is bounded by the Lot 16 project to the south and West 30th St. to the north. To the west, the Site is bounded by a 7-story commercial building (Lot 59). To the east the Site is bounded by Lot 44 and the High Line. The High Line is a New York City linear park built on the former elevated New York Central Railroad spur called the West Side Line. A map of the Site boundary is provided as Figure 2. Currently, the Site is a vacant lot. According to the Department of City Planning, the Site is included in the Special

West Chelsea District Zone that allows for the development of new residential/ commercial buildings and facilitates the reuse of the High Line as an open linear park.

1.2 PROPOSED REDEVELOPMENT PLAN

The Site is an extension of the 500 West 30th St. project. The proposed redevelopment plan will include a single 26-story tower on a 3-story podium base and will encompass current lots 58, 56, 55, 52, and part of lot 45. The proposed residential, mixed-use building will have one cellar level with frontage along 30th St. between 10th Ave. and 11th Ave. The cellar level will be used for mechanical rooms, residential accessory spaces and residential amenities. The cellar will have a slightly larger footprint as the podium base above (additional 15 feet toward the High Line). The cellar will be at least 12 feet deep plus foundations. The first floor will have the residential entrance lobby on 30th St. and retail use along the remainder of the street frontage. The ground floor has no grade level open spaces proposed. The parking entrance will be located on the first floor as well with primary access 30th St.; there will be a ground floor pedestrian access with the existing building at 529 29th St.. The second floor of the building will house permitted accessory parking for the building along with some mechanical rooms. The third floor, the last podium floor, will consist of open to below spaces for parking at second level, mechanical spaces, and residential units. Floors 4 to 28 will have 190 residential units ranging from studios to three bedrooms. The exterior of the building will be pre-cast concrete panels with brick veneer, with aluminum and glass punched windows and an aluminum and glass storefront for the retail portions on the first floor.

The development will be approximately 270,000 gross square feet (GSF) (including 20,000 square feet of below-grade space) and broken down as follows:

Total Residential Area = 234,000 GSF

Total Commercial Area = 9,000 GSF

Total Parking Area = 10,000 GSF

Total Mechanical Area = 17,000 GSF

The current zoning designation is C6-4, which permits a tower occupied by commercial, residential and/or community facility that may penetrate the sky exposure plane. The C6-4 zoning designation is allowed in mostly major business districts with a floor to area ratio of 10.0 or 15.0 exclusive of an applicable bonus. The proposed use is consistent with the existing zoning for the property.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

According to the New York City Office of Environmental Remediation (OER) Searchable Property Environmental E-Database (SPEED) application, no schools, hospitals or day care facilities are located within a 250 to 500-foot radius. The area bordered by West 30th St., 10th Ave., West 26th St. and 8th Ave. is considered a NYS Environmental (EN) Zone, according to OER's SPEED application. This area is located about 475 feet from the Site. The Site appears on the City of New York Department of City Planning Zoning Map 8b and is designated C6-3, which is labeled as a general central commercial district, but allows residential use. The use of the surrounding properties is mainly commercial with some residential uses as well. A plan view of the surrounding land uses is depicted in Figure 3.

2.0 SITE HISTORY

2.1 PAST USES AND OWNERSHIP

The Site was occupied by tenement style buildings from before 1890 until circa 1900. A confectionary factory occupied the Site circa 1910. The confectionary factory operations continued until it was abandoned when the central portion of the factory building was demolished and replaced by the Central Railroad right of way (the present-day Highline) and a wagon builder circa 1930. The building was occupied by the Metal Purchasing Company from circa 1950 until the late 1990's. The Site was then converted and used as a parking garage until 2007. From 2007 to early 2012, a temporary tent was erected on Lot 52 that accommodated the New York Trapeze School while lots 45, 55, 56 and 58 remained vacant. The temporary tent was dismantled in late 2012. The Site is currently occupied by construction trailers.

2.2 PREVIOUS INVESTIGATIONS

In January and February of 2007, FLS conducted a RI at the Site. The New York City Department of Environmental Protection (NYCDEP) placed an "e" designation on this Site, requiring that a subsurface investigation of the Site be performed prior to redevelopment of the Site for residential purposes. The overall redevelopment project includes multiple lots within Block 701, including lots 58, 56, 55, 52, and part of lot 45. The RI was designed to investigate the soil and groundwater quality on all of the lots proposed under the redevelopment Site and to characterize the surface and subsurface soils and groundwater in areas where current and historic operations may have impacted the Site. All investigations on the Site were performed in accordance with NYCDEP "e" designation protocols.

The 2007 RI included the installation of soil borings and temporary groundwater monitoring wells using a truck-mounted Geoprobe® unit. The RI included the collection and evaluation of samples to determine soil and groundwater conditions. Soil and groundwater sampling was conducted from January 29 to February 5, 2007. Soil samples were collected from a total of 9 borings (SB5 to SB7, SB10 to SB13, SB25 and SB26) on lots 58, 56, 55, 52, and part of lot 45. Groundwater samples were collected at 3 of the 11 boring locations [SB6 (GW) and SB12 (GW), SB13 (GW)]. Soil and groundwater sample locations are depicted on Figure 4. The boring logs are provided as Appendix B.

No visual or olfactory evidence of contamination was observed in any of the borings. Soil samples were analyzed for Target Compound List (TCL) VOCs, TCL SVOCs, Pesticides, PCBs, and Target Analyte List (TAL) Metals. The 2007 soil analytical results are provided as Tables 1A, 2A, 3A and 4A. Groundwater samples were analyzed for TCL VOCs, TCL SVOCs, Pesticides, PCBs, and Total and Dissolved TAL Metals. The 2007 groundwater analytical results are provided as Tables 5A, 6A, 7A and 8A. The analytical results for soil samples were compared to the NYSDEC Technical Administrative Guidance Memo (TAGM) 4046, Residential Soil Cleanup Objectives (RSCOs) and the groundwater analytical results were compared to TOGS 1.1.1 GWQS.

Soil:

The soil samples collected during the 2007 RI did not detect the presence of any VOCs (Table 1A), Pesticides and PCBs (Table 4A) at concentrations in excess of NYSDEC TAGM 4046 RSCOs.

The soil samples collected during the 2007 RI revealed the presence of PAHs concentrations in excess of NYSDEC TAGM 4046 RSCOs in 14 of the 17 samples (Table 2A). The distribution of the PAHs was consistent both horizontally and vertically across the entire Site that is generally associated with the urban fill. Metal concentrations, including those for arsenic, barium, cadmium, calcium, chromium, copper, lead, mercury, magnesium, nickel, and zinc were also observed in excess of NYSDEC TAGM 4046 RSCOs (Table 3A). The distribution of metals was also consistent with the urban fill across the entire Site.

Groundwater:

The groundwater samples collected during the 2007 RI did not detect the presence of any VOCs (Table 5A), SVOCs (Table 6A), Pesticides and PCBs (Table 8A) at concentrations in excess of TOGS 1.1.1 GWQS.

The groundwater samples collected during the 2007 RI revealed the presence of dissolved metals; including arsenic, barium, chromium, copper, iron, lead, manganese, nickel and sodium, at concentrations in excess of TOGS 1.1.1 GWQS (Table 7A). The dissolved metal concentrations were also consistent with the presence of urban fill.

2.3 SITE INSPECTION

In April 2005, a qualified FLS representative performed a Phase I ESA and inspected the Site. Based upon surface topography, this property is located hydraulically cross-gradient and therefore is not identified as a concern to the Site. The structure located at 515 West 30th St. (upgradient to the Site) was previously occupied by a chemical manufacturer. No further information regarding the historic operations was obtained through the historic documentation reviewed.

During the inspection, a 1 foot by 2 foot concrete patch was observed just south of the West 30th St. entrance to the parking garage. There is a potential that, based on the location and size of the patch, this patch was a hydraulic lift pit that had been previously closed.

2.4 AREAS OF CONCERN

The Phase I ESA identified the presence of urban fill as an on-site AOC. In addition, the following off-site AOCs were identified in the Phase I report:

- Historic junkyard and filling station operations on Lot 37, upgradient from the Site.
- A No. 4 fuel oil storage tank located in a basement vault at 502-504 West 30th St., up/cross-gradient from the Site.
- Historic auto repair operations beneath the High Line, up-gradient from the Site.
- A chemical manufacturer located at 515 West 30th St., up-gradient from the Site.

3.0 PROJECT MANAGEMENT

3.1 PROJECT ORGANIZATION

The Qualified Environmental Profession (QEP) and Professional Engineer responsible for preparation of this RIR is Arnold, F. Fleming. The project manager is Kevin McGuinness. Qualified FLS field personnel collected the Site data and, based on analysis of the data, developed this RIR.

3.2 HEALTH AND SAFETY

All work described in this RIR was performed in full compliance with applicable laws and regulations specified under Occupational Safety and Health Administration Section 1910.120 and Hazardous Waste Operations and Emergency Response requirements.

3.3 MATERIALS MANAGEMENT

All material encountered during the RI was managed in accordance with applicable laws and regulations. The soil cuttings were put back in the hole after sample collection. The purged groundwater was stored into 55-gallon Department of Transportation approved steel drums which were sealed at the end of the work day. Each drum was labeled with the date, waste type (purge water), and point of contact. All other investigation derived waste generated during the RI (e.g. acetate liners, gloves, etc.) was collected in garbage bags and disposed of in accordance with applicable laws and regulations.

4.0 REMEDIAL INVESTIGATION ACTIVITIES

Following a review of the 2007 RI results for sampling performed on Lot 58, 56, 55, 52, and part of lot 45, the OER required that the following additional Site characterization activities be undertaken to update and verify current site conditions:

Three soil borings will be installed, and a minimum of two soil samples collected from each boring. One soil sample will be collected from the shallow interval (0-2 feet below grade) and one from the deep interval, preferably from the groundwater interface (approximately 14-15 feet below grade). If elevated photoionization detector (PID), visual, or olfactory evidence of contamination is encountered during borehole advancement, a third soil sample will be collected from the 2-foot interval exhibiting the greatest evidence of contamination.

Three temporary groundwater monitoring wells will be installed and one groundwater sample collected from each well. These groundwater samples will be collected using low-flow sampling techniques.

Four soil vapor screening probes will be installed, and a vapor sample collected from 1-2 feet above the soil/water interface at each location (approximately 8-9 feet below grade).

The scope of the investigatory activities required by OER was utilized to develop a letter work plan which was submitted to OER on February 15, 2013. A copy of the letter work plan is provided as Appendix C.

4.1 GEOPHYSICAL INVESTIGATION

Geophysical surveys were previously conducted at four locations at the Site in 2007. A ground-penetrating radar (GPR) unit was used to pre-screen for underground utilities on January 29, 2007. The results of the GPR survey are detailed in HydroTech Environmental's February 2, 2007, Remote Sensing Survey report, which is included as Appendix D.

4.2 SOIL BORINGS, MONITORING WELLS AND SOIL VAPOR PROBES

On behalf of West 30th Highline Holdings, L.L.C., FLS performed the following RI activities on February 19, 2013:

- Installed three soil borings across the Site and collected two soil samples from each boring to evaluate soil quality;
- Installed three temporary groundwater monitoring points throughout the Site and collected one groundwater sample from each monitoring point to evaluate groundwater quality; and
- Installed four soil vapor probes across the Site and collected one soil gas sample from each probe for laboratory analysis.

The locations of the 2013 soil borings, groundwater sampling points and soil vapor sampling probes are depicted on Figure 5.

Drilling and Soil Logging

Prior to initiating any subsurface work, a "one-call" utility mark-out was done to identify nearby utilities and clear all soil boring and monitoring well locations. Aquifer Drilling and Testing Inc. of New Hyde Park, a New York State licensed driller, advanced three soil borings (SB-1, SB-2 and SB-3) using a track-mounted direct-push Geoprobe® rig. A 2-inch inside diameter (ID) and 60-inch long macrocore sampler was driven to the prescribed depth of 15 feet below grade. Soil samples were collected from each borehole via macrocore acetate liners and logged. The VOC field measurements were collected at discrete intervals along the macrocore sleeve using a PID. After sampling was completed, soil cuttings were returned to each borehole and the borehole was grouted and patched. The boring logs are provided as Appendix E. The soil boring locations are depicted in Figure 5.

Temporary Groundwater Monitoring Well Installation

Four soil borings were converted to temporary monitoring wells (MW-1, MW-2, MW-3 and MW-4). Following the completion of soil sampling, a 1.5- inch ID PVC pipe with a 10 feet screen and 10 feet riser was installed in the borehole to approximately 5 feet into the groundwater. Using a peristaltic pump, each monitoring well was developed to remove sediments and fine soils from the well screen and filter pack, prior to sampling.

The temporary well locations are depicted in Figure 5. The approximate depth at which groundwater was encountered is included in the boring logs which are provided as Appendix E.

Soil Vapor Sampling Probe Installation

Four temporary soil vapor probes were installed by track-mounted direct-push Geoprobe® rig. At each location, a steel expendable point was driven to 1-2 feet above the soil/groundwater interface and the rod was slowly retracted to create an open void space where soil gas could enter for sampling. A sampling cap and tubing was attached to the end of the rods and gas was purged and collected via a 6-liter SUMMA canister with a flow regulator.

Measures were taken to ensure that an adequate surface seal was created prior to sample collection. A helium tracer test was used to ensure that the surrounding air does not infiltrate the sample probe. The soil vapor probe installation and sampling were performed in accordance with the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion (October 2006). The four vapor samples were collected from 1-2 feet above the soil/groundwater interface at each location (approximately 14-15 feet below grade).

4.3 SAMPLE COLLECTION AND LABORATORY ANALYSIS

The soil, groundwater and soil vapor samples were submitted for laboratory analysis. The purpose of this sampling was to confirm the results of the subsurface investigation completed in 2007 and to further delineate the Site conditions. The analytical results presented in this RIR provide sufficient basis for the evaluation of remedial action alternatives, establishment of a qualitative human health exposure assessment and selection of a final remedy.

Soil Sampling

At each boring, two sets of discrete soil samples were collected, one from the shallow interval (0-2 feet below grade) and one from the deeper interval (approximately 14-15 feet below grade). The deep samples were biased toward the areas of highest contamination based on field screening of soils or, if no contamination was identified, at the soil/groundwater interface.

A total of six soil samples were collected for laboratory analysis during this portion of the RI. The analytical results, including collection date and sample depth, are reported in Tables 1B through 4B. The soil sampling locations are depicted on Figure 5.

Groundwater Sampling

Four soil borings (SB-1, SB-2, SB-3 and SB-4) were converted to temporary groundwater monitoring wells (MW-1, MW-2, MW-3 and MW-4) and one groundwater sample was collected from each temporary well for laboratory analysis. Prior to sampling, each well was purged of three well volumes of water to collecting the representative groundwater samples. The analytical results, including dates of collection, are reported in Tables 5B through 8B. The temporary well locations are depicted on Figure 5.

Soil Vapor Sampling

Soil vapor samples were collected from four locations (SG-1, SG-2, SG-3 and SG-4). Using a Geoprobe®, stainless steel soil vapor rods were installed to 6 feet below grade. At each location, a steel expendable point was driven to predetermined depth and the rod was slowly retracted to create an open void space where soil gas could enter for sampling. A sampling cap and tubing was attached to the end of the rods and gas was purged and collected via 6-liter SUMMA canister with a flow regulator. The methodologies used for soil vapor assessment conform to the NYS DOH Final Guidance on Soil Vapor Intrusion (October 2006).

The soil vapor sample locations are depicted on Figure 5. The soil vapor analytical results are summarized in Table 9. The soil vapor sampling logs are included in Appendix F.

Sample Submittal Protocol

The laboratory analytical results presented in this RIR have been performed in the following manner:

Factor	Description
Quality Assurance Officer	The laboratory analytical quality assurance is directed by Kevin McGuinness
Analytical Laboratory	Analytical laboratory used in the RI is Accutest Laboratories of Dayton, New Jersey, a state certified ELAP laboratory
Requested Laboratory Analysis and Analytical Methods	Soil analytical methods: TAL Metals by EPA Method 6010C (rev. 2007); VOCs by EPA Method 8260C (rev. 2006); SVOCs by EPA Method 8270D (rev. 2007); Pesticides by EPA Method 8081B (rev. 2000); PCBs by EPA Method 8082A (rev. 2000); Groundwater analytical methods: TAL Metals by EPA Method 6010C (rev. 2007); VOCs by EPA Method 8260C (rev. 2006); SVOCs by EPA Method 8270D (rev. 2007); Pesticides by EPA Method 8081B (rev. 2000); PCBs by EPA Method 8082A (rev. 2000); Soil vapor analytical methods: VOCs by TO-15 VOC parameters.

Results of Laboratory Analyses

The laboratory data for soil, groundwater and soil vapor are summarized in Tables 1B to 8B and Table 9. The laboratory data deliverables for the 2013 samples evaluated in this RIR are provided in digital form in Appendix G.

5.0 ENVIRONMENTAL EVALUATION

5.1 GEOLOGICAL AND HYDROGEOLOGICAL CONDITIONS

The Site is mapped on the Weehawken Quadrangle, New Jersey-New York 7.5 Minute Topographic Map, published in 2011 by the United States Geological Survey (USGS). The review of the topographic map indicates that the Site is located approximately 15 feet above mean sea level.

Geology

Based on information collected during this subsurface investigation there are two soil strata under the Site. The upper stratum is a miscellaneous urban fill with thicknesses ranging from 6 to 11 feet and is comprised of sand, silt, and gravel with asphalt, bricks, ash, wood and concrete fragments. The stratum below the fill layer is native soil consisting of brown silty sand, in moderately moist and dense condition. The underlying native soil layer becomes less dense below the water table. The soil boring logs are presented as Appendix E.

Hydrogeology

Groundwater information collected during this subsurface investigation indicates that groundwater was encountered at depths ranging from approximately 10 to 15 feet below grade. The local groundwater flow is assumed to be north/northwest toward the Hudson River. The water-level data are included in the boring logs which are presented as Appendix E.

5.2 SOIL ANALYTICAL RESULTS

The soil samples collected during the 2013 RI revealed the presence of VOCs, SVOCs, specifically PAHs, and pesticides, at concentrations in excess of Track 1 UUSCOs. In 1 of 6 samples, the PAHs concentrations were in excess of Track 1 UUSCO. Metal concentrations, including those for nickel, copper, lead, mercury and zinc, were observed in excess of Track 1 UUSCOs in all shallow samples. The distribution of metals across the entire surface of the Site is consistent with the presence of urban fill material. The pesticide (4,4'-DDT) was detected at concentrations in excess of Track 1 UUSCO in 1 of 8 samples.

The data collected during the RI is sufficient to delineate the vertical and horizontal distribution of contaminants in soil/fill at the project Site. The soil sample results are shown on Tables 1B to 4B.

5.3 GROUNDWATER ANALYTICAL RESULTS

The groundwater samples collected during the 2013 RI revealed the presence of VOCs and metals at concentrations in excess of the NYSDEC TOGS 1.1.1 GWQS. Levels of the VOC methylene chloride were detected at concentrations in excess of GWQS in 2 of 3 samples collected. Levels of benzene and total xylenes were detected at concentrations in excess of GWQS in 1 of 3 samples collected. Unfiltered metals analysis revealed the presence of several metals at concentrations exceeding GWQS standards, including lead, selenium, iron, manganese and sodium in all three samples. Dissolved (filtered) metals analysis also revealed the presence of similar metal, but at substantially lower concentrations. The distribution of metals in the groundwater across the entire Site is consistent with the groundwater being in contact with urban fill material. The groundwater sample results are shown on Tables 5B to 8B.

The data collected during the RI is sufficient to delineate the distribution of contaminants in groundwater at the Site. A summary table of the laboratory analyses performed on groundwater samples is included in Table 4. The analytes found to exceed the applicable groundwater standards are shown.

5.4 SOIL VAPOR ANALYTICAL RESULTS

The soil vapor analytical results were compared to values presented in the NYS DOH Final Guidance on Soil Vapor Intrusion (October 2006). The results of the laboratory analysis of the soil vapor samples identified the presence of TCE at a concentration exceeding regulatory standards in one sample (SG-3). Trace levels of methylene chloride and tetrachloroethylene (PCE) were detected in the four samples analyzed, but at levels far below those which trigger decision matrix actions as per the NYS DOH Final Guidance on Soil Vapor Intrusion Document.

The data collected during the RI are sufficient to delineate the distribution of contaminants in soil vapor at the Site. The soil vapor analytical results are shown on Table 9.

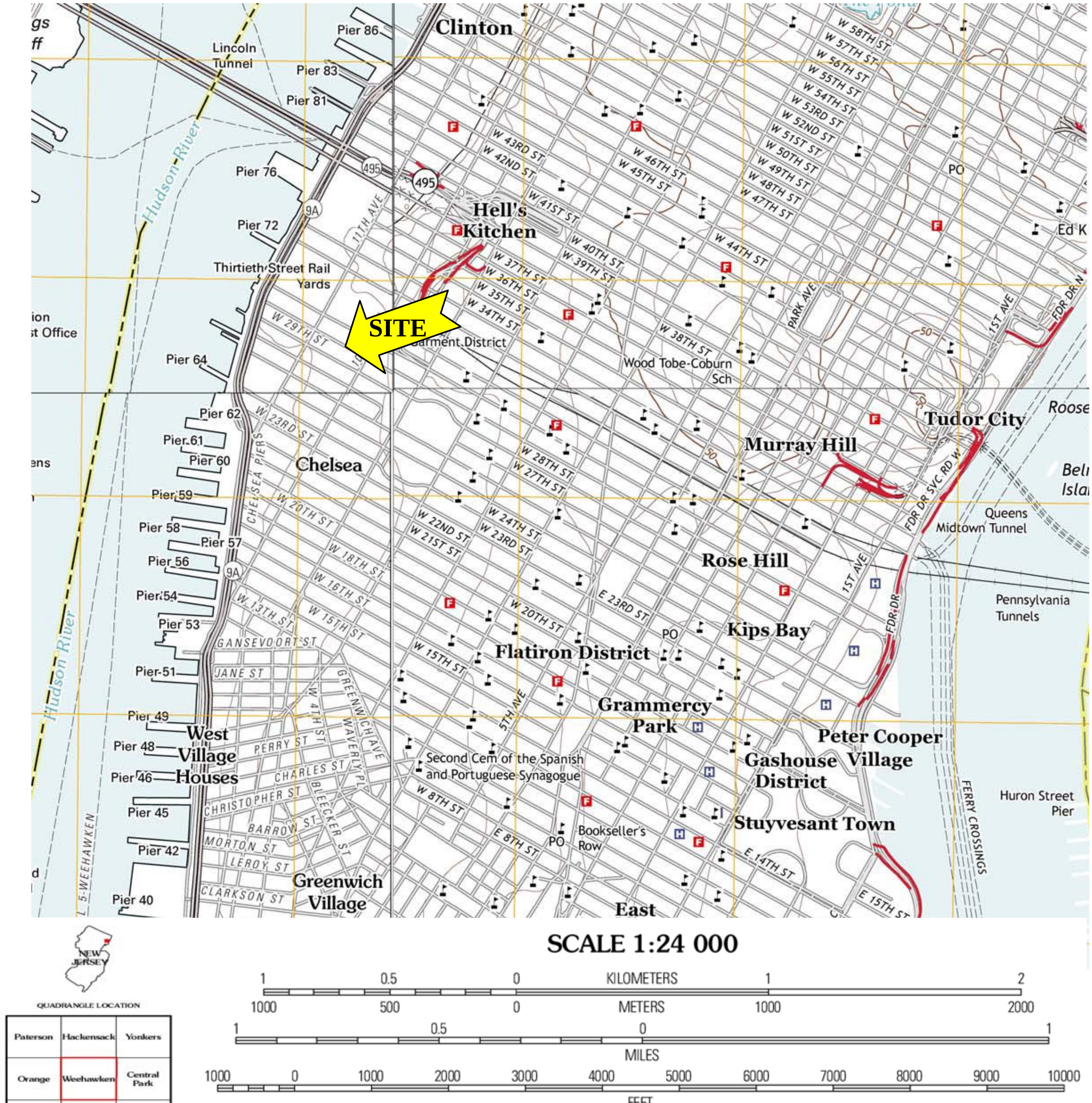
5.5 CONCLUSIONS

Based on an evaluation of the data and information from the RIR, hazardous waste was not identified at the Site. Disposal of significant amounts of hazardous waste is not suspected at this Site.

5.6 IMPEDIMENTS TO REMEDIAL ACTION

There are no known impediments to remedial action at this property.

FIGURES



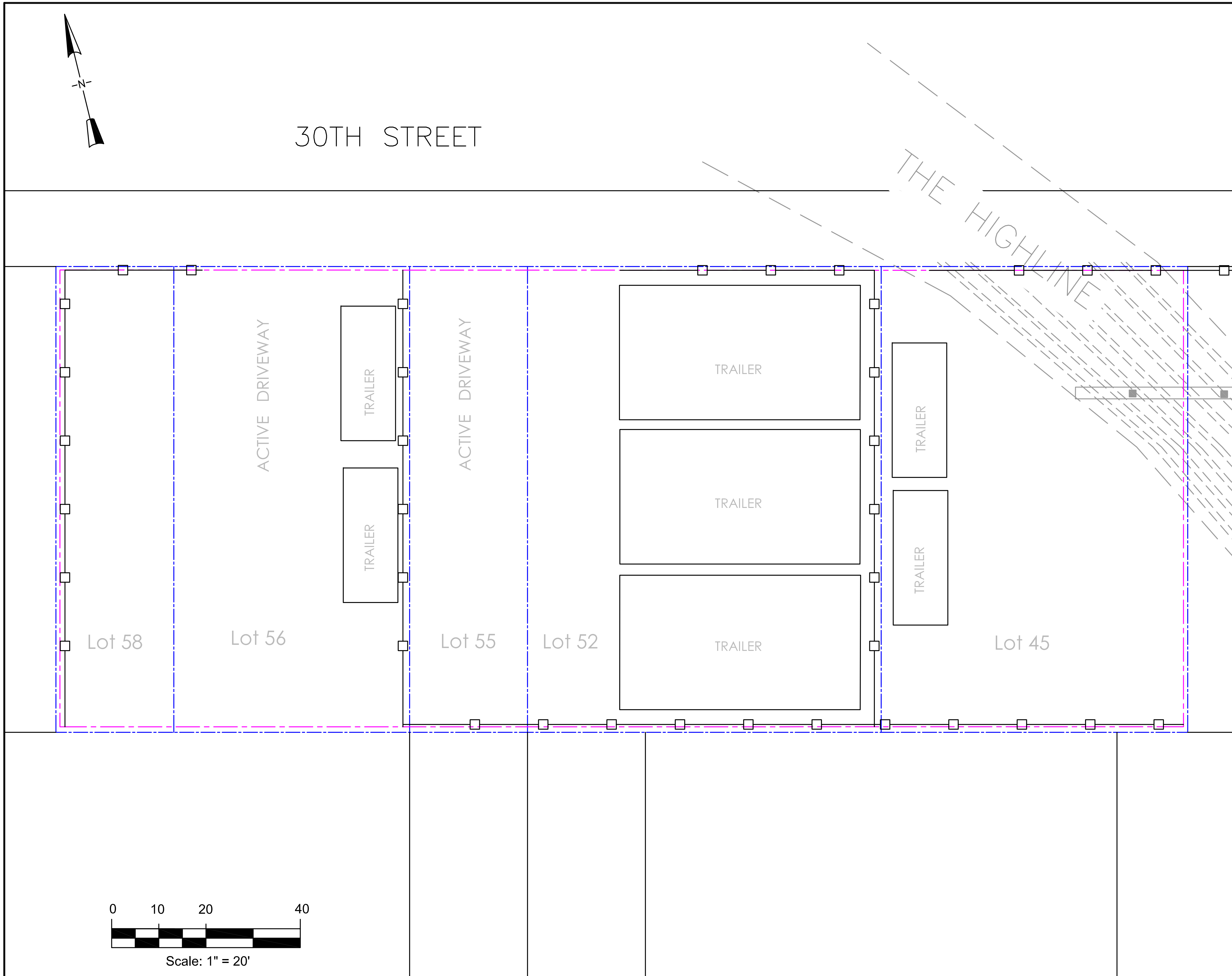
Weehawken Quadrangle, New Jersey-New York 7.5-Minute Series USGS Topographic Map. Obtained from United States Geological Survey topography compiled 2011

FIGURE 1: SITE LOCATION

Fleming Lee Shue

Related West 30th Street Phase II
518-526 West30th Street
New York, N.Y.

Environmental Management & Consulting, 158 West 29th Street, New York, NY 10001



Fleming Lee Shue

Environmental Management & Consulting

158 West 29th Street, 9th Fl.
New York, NY 10001

West 30th Street Phase II
Block 701
Lot 45, 52, 55, 56, 58

FIGURE 2

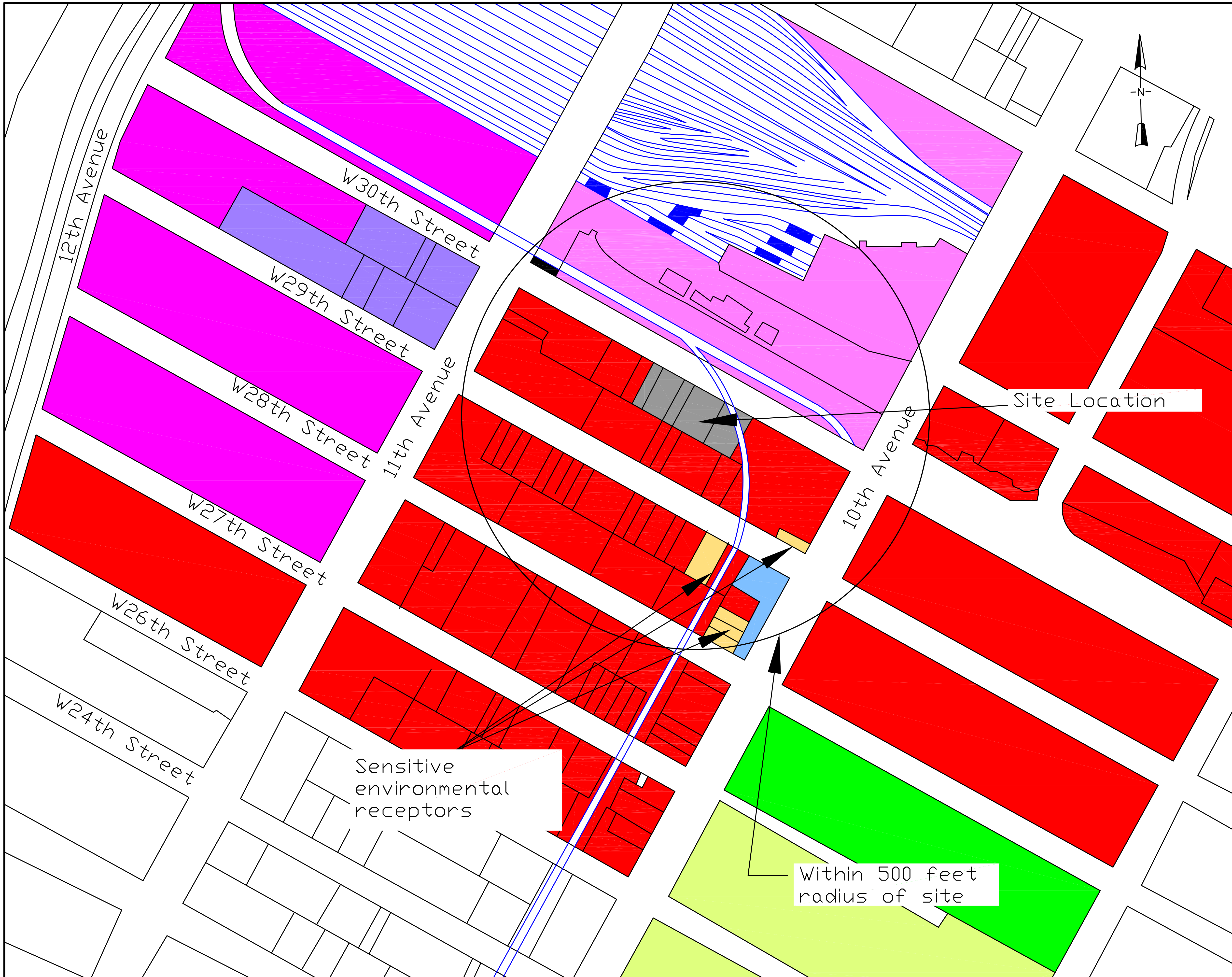
SITE PLAN

Date
March 2013

Project Number
10022-012-1

LEGEND

- SITE BOUNDARY
- PROPOSED BUILDING FOOTPRINT
- CONSTRUCTION FENCE



Fleming Lee Shue

Environmental Management & Consulting

158 West 29th Street, 9th Fl.
New York, NY 10001

West 30th Street Phase II
Block 701
Lot 45, 52, 55, 56, 58

FIGURE 3

Land Use in Surrounding Area

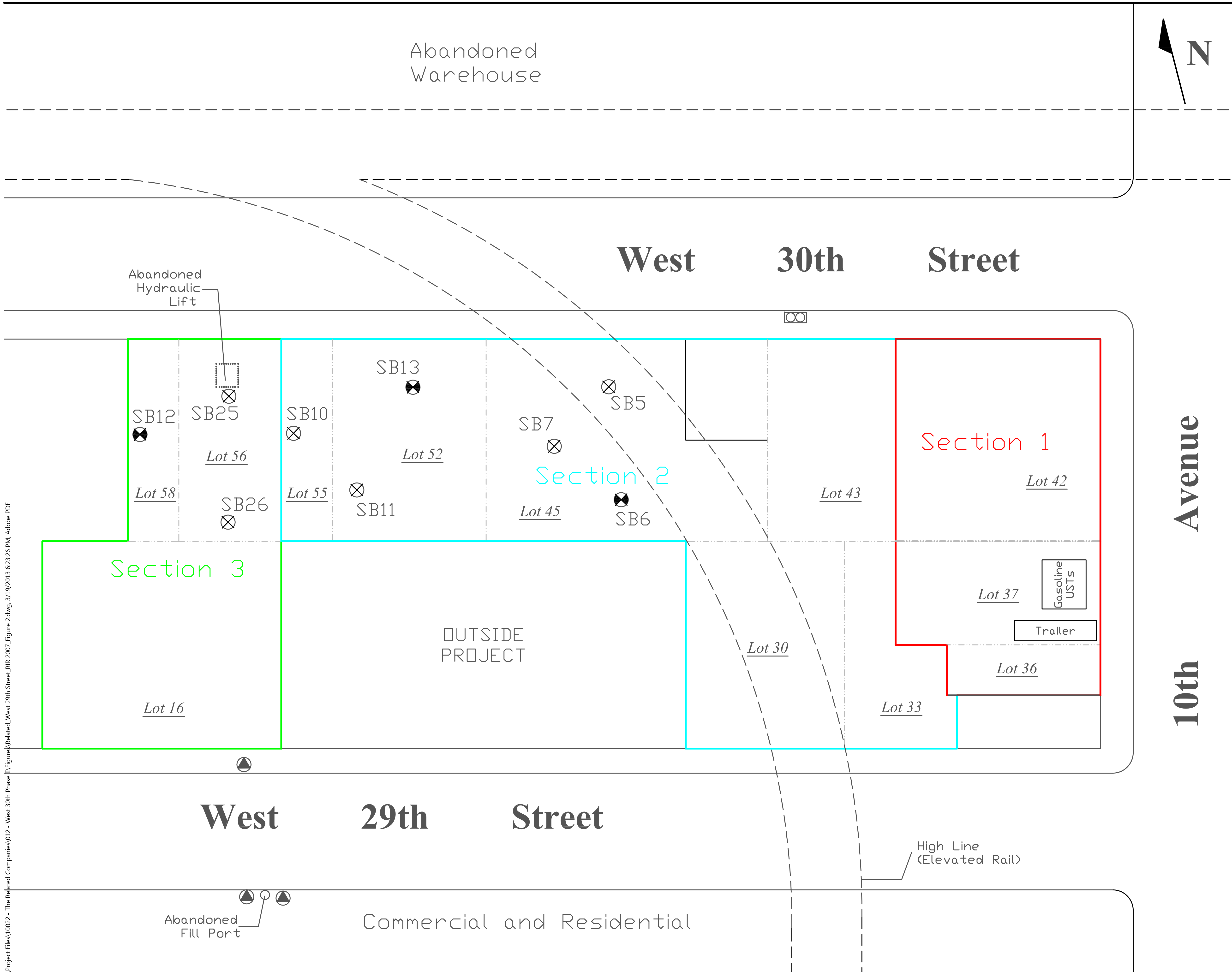
Date
March 2013

Project Number
10022-015-1

LEGEND

- Commercial & Office
- Industrial & Manufacturing
- Transportation & Utility
- Open Space & Outdoor Recreations
- Multi- Family
- Mixed Residential & Commercial
- Parking Facilities

P:\Project Files\10022 - The Related Companies\012 - West 30th Phase II\Figures\Remedial Investigation Report March 2013\Figure 3 Land Use in Surrounding Area.dwg, 3/20/2013 11:43:03 AM, Adobe PDF



Fleming Lee Shue

Environmental Management & Consulting

158 West 29th Street, 9th Fl.
New York, NY 10001

West 30th Street Phase II
Block 701
Lot 45, 52, 55, 56, 58

FIGURE 4

SAMPLE LOCATIONS

- 2007 Remedial Investigation-

Date
March 2013

Project Number
10022-012-1

LEGEND

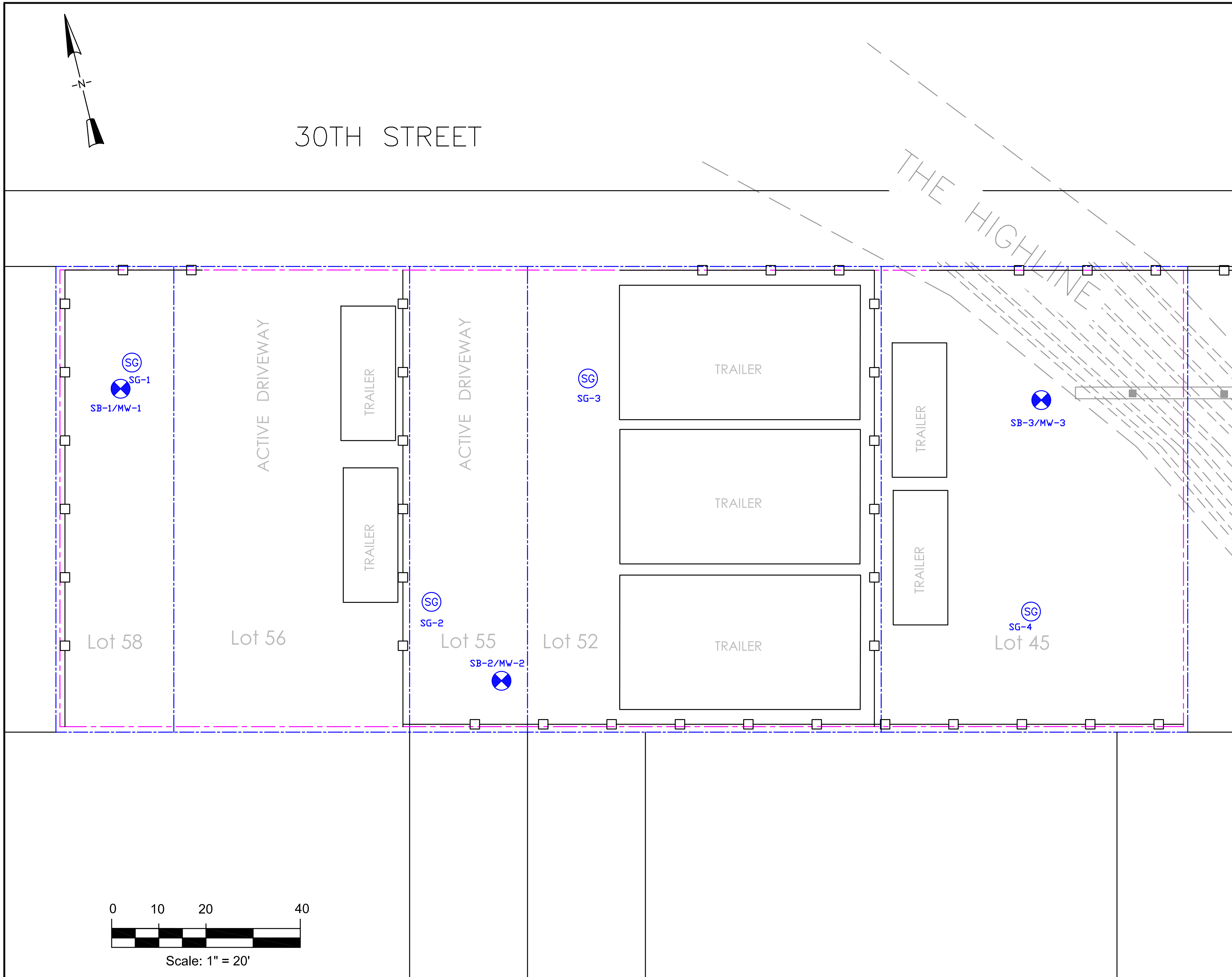
Monitoring Well

Fill Port and Vent Pipe

Soil and Groundwater Sampling Location

Soil Sampling Location

45 30 15 0 45



Fleming Lee Shue

Environmental Management & Consulting

158 West 29th Street, 9th Fl.
New York, NY 10001

West 30th Street Phase II
Block 701
Lot 45, 52, 55, 56, 58

FIGURE 5

SAMPLE LOCATIONS

- 2013 Remedial Investigation-

Date
February 2013

Project Number
10022-012-1

LEGEND

- SITE BOUNDARY
- PROPOSED BUILDING FOOTPRINT
- CONSTRUCTION FENCE
- PROPOSED SOIL & GROUNDWATER SAMPLE LOCATION
- PROPOSED SOIL GAS SAMPLE LOCATION

P:\Project Files\10022 - The Related Companies\012 - West 30th Phase II\Report\Remedial Investigation Report March 2013\Figures\Figure 5 Remedial Investigation Sample locations.dwg, 3/19/2013 6:08:08 PM, Adobe PDF

TABLES

Table 1A -Volatile Organic Compounds in Soil
2007 Remedial Investigation Results
518-526 West 30th Street,
Block 701 Lots 45, 52, 55, 56 and 58
New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY TAGM Soil Cleanup Objective (DER TAGM #4046 1/94)[1]	SB5(0-2')	SB5(9-11')	SB6(0-2')	SB6(9-11')	SB7(0-2')	SB7(9-11')	SB10(0-2')	SB10(9-11')	SB11(0-2')	SB11(8-10')	SB12(0-2')	SB12(9-11')	SB13(0-2')	SB13(9-11')	SB25(0-2')	SB25(2-4')	SB26(0-2')	SB26(9-11')
Lab Sample ID:			J52740-9	J52740-10	J52740-11	J52740-12	J52740-13	J52740-14	J52740-19	J52740-20	J52740-22	J52740-23	J52951-1	J52951-2	J52951-3	J52951-4	J53194-1	J53194-2	J53194-3	J53194-4
Date Sampled:			1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/31/2007	1/31/2007	1/31/2007	1/31/2007	2/2/2007	2/2/2007	2/2/2007	2/2/2007
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
GC/MS Volatiles (SW846																				
Acetone	ug/kg	200	ND (3.3)	ND (3.2)	ND (3.1)	ND (3.3)	ND (3.0)	ND (3.2)	ND (3.5)	83.5	25.2	ND (3.9)	ND (3.4)	ND (3.4)	9 J	ND (3.2)	103	13.7 J	23.9	61.8
Benzene	ug/kg	60	ND (0.55)	ND (0.54)	ND (0.51)	ND (0.55)	ND (0.51)	ND (0.54)	ND (0.58)	ND (0.71)	ND (0.66)	ND (0.65)	ND (0.58)	ND (0.57)	ND (0.58)	ND (0.53)	ND (0.58)	ND (0.65)	ND (0.54)	ND (0.66)
Bromodichloromethane	ug/kg	-	ND (0.53)	ND (0.51)	ND (0.49)	ND (0.52)	ND (0.48)	ND (0.52)	ND (0.55)	ND (0.68)	ND (0.63)	ND (0.62)	ND (0.55)	ND (0.54)	ND (0.55)	ND (0.51)	ND (0.56)	ND (0.62)	ND (0.52)	ND (0.63)
Bromoform	ug/kg	-	ND (0.50)	ND (0.49)	ND (0.46)	ND (0.50)	ND (0.46)	ND (0.49)	ND (0.53)	ND (0.64)	ND (0.60)	ND (0.59)	ND (0.52)	ND (0.51)	ND (0.52)	ND (0.48)	ND (0.53)	ND (0.59)	ND (0.49)	ND (0.60)
Bromomethane	ug/kg	-	ND (0.42)	ND (0.42)	ND (0.39)	ND (0.42)	ND (0.39)	ND (0.42)	ND (0.45)	ND (0.55)	ND (0.51)	ND (0.50)	ND (0.44)	ND (0.44)	ND (0.44)	ND (0.41)	ND (0.45)	ND (0.50)	ND (0.42)	ND (0.51)
2-Butanone (MEK)	ug/kg	300	ND (3.1)	ND (3.1)	ND (2.9)	ND (3.1)	ND (2.9)	ND (3.1)	4.4 J	11.1 J	3.8 J	ND (3.7)	ND (3.3)	ND (3.2)	ND (3.3)	ND (3.0)	15.4	ND (3.7)	ND (3.1)	ND (3.8)
Carbon disulfide	ug/kg	2700	ND (0.64)	ND (0.62)	ND (0.59)	ND (0.64)	ND (0.58)	ND (0.62)	ND (0.67)	ND (0.82)	ND (0.77)	ND (0.75)	ND (0.66)	ND (0.65)	ND (0.66)	ND (0.61)	ND (0.67)	ND (0.75)	ND (0.62)	1.2 J
Carbon tetrachloride	ug/kg	600	ND (1.1)	ND (1.1)	ND (1.0)	ND (1.1)	ND (1.0)	ND (1.1)	ND (1.2)	ND (1.4)	ND (1.3)	ND (1.3)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.2)	ND (1.3)	ND (1.1)	ND (1.3)
Chlorobenzene	ug/kg	1700	ND (0.50)	ND (0.49)	ND (0.46)	ND (0.50)	ND (0.46)	ND (0.49)	ND (0.53)	ND (0.64)	ND (0.60)	ND (0.59)	ND (0.52)	ND (0.51)	ND (0.52)	ND (0.48)	ND (0.53)	ND (0.59)	ND (0.49)	ND (0.60)
Chloroethane	ug/kg	1900	ND (2.0)	ND (2.0)	ND (1.9)	ND (2.0)	ND (1.8)	ND (2.0)	ND (2.1)	ND (2.6)	ND (2.4)	ND (2.4)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.9)	ND (2.1)	ND (2.4)	ND (2.0)	ND (2.4)
Chloroform	ug/kg	300	ND (0.67)	ND (0.66)	ND (0.62)	ND (0.67)	ND (0.62)	ND (0.66)	ND (0.71)	9.8	ND (0.81)	ND (0.80)	ND (0.70)	ND (0.69)	ND (0.70)	ND (0.65)	3.5 J	2.2 J	ND (0.66)	ND (0.80)
Chloromethane	ug/kg	-	ND (0.53)	ND (0.52)	ND (0.49)	ND (0.53)	ND (0.49)	ND (0.52)	ND (0.56)	ND (0.68)	ND (0.64)	ND (0.63)	ND (0.55)	ND (0.54)	ND (0.55)	ND (0.51)	ND (0.56)	ND (0.62)	ND (0.52)	ND (0.63)
Dibromochloromethane	ug/kg	N/A	ND (0.63)	ND (0.62)	ND (0.59)	ND (0.63)	ND (0.58)	ND (0.62)	ND (0.67)	ND (0.81)	ND (0.76)	ND (0.75)	ND (0.66)	ND (0.65)	ND (0.66)	ND (0.61)	ND (0.67)	ND (0.74)	ND (0.62)	ND (0.76)
1,1-Dichloroethane	ug/kg	200	ND (0.55)	ND (0.54)	ND (0.51)	ND (0.55)	ND (0.51)	ND (0.54)	ND (0.58)	ND (0.71)	ND (0.66)	ND (0.65)	ND (0.58)	ND (0.57)	ND (0.58)	ND (0.53)	ND (0.58)	ND (0.65)	ND (0.54)	ND (0.66)
1,2-Dichloroethane	ug/kg	100	ND (0.63)	ND (0.61)	ND (0.58)	ND (0.62)	ND (0.58)	ND (0.61)	ND (0.66)	ND (0.80)	ND (0.75)	ND (0.74)	ND (0.65)	ND (0.64)	ND (0.65)	ND (0.60)	ND (0.66)	ND (0.73)	ND (0.61)	ND (0.75)
1,1-Dichloroethene	ug/kg	400	ND (0.79)	ND (0.78)	ND (0.73)	ND (0.79)	ND (0.73)	ND (0.78)	ND (0.84)	ND (1.0)	ND (0.95)	ND (0.94)	ND (0.82)	ND (0.81)	ND (0.83)	ND (0.76)	ND (0.84)	ND (0.93)	ND (0.78)	ND (0.95)
cis-1,2-Dichloroethene	ug/kg	-	ND (0.77)	ND (0.76)	ND (0.72)	ND (0.77)	ND (0.71)	ND (0.76)	ND (0.82)	ND (0.99)	ND (0.93)	ND (0.92)	ND (0.81)	ND (0.79)	ND (0.81)	ND (0.75)	ND (0.82)	ND (0.91)	ND (0.76)	ND (0.92)
trans-1,2-Dichloroethene	ug/kg	300	ND (0.79)	ND (0.77)	ND (0.73)	ND (0.79)	ND (0.72)	ND (0.77)	ND (0.83)	ND (1.0)	ND (0.95)	ND (0.93)	ND (0.82)	ND (0.81)	ND (0.82)	ND (0.76)	ND (0.83)	ND (0.92)	ND (0.77)	ND (0.94)
1,2-Dichloropropane	ug/kg	-	ND (0.64)	ND (0.63)	ND (0.59)	ND (0.64)	ND (0.59)	ND (0.63)	ND (0.67)	ND (0.82)	ND (0.77)	ND (0.76)	ND (0.67)	ND (0.65)	ND (0.67)	ND (0.62)	ND (0.67)	ND (0.75)	ND (0.63)	ND (0.76)
cis-1,3-Dichloropropene	ug/kg	-	ND (0.48)	ND (0.47)	ND (0.44)	ND (0.48)	ND (0.44)	ND (0.47)	ND (0.50)	ND (0.61)	ND (0.57)	ND (0.57)	ND (0.50)	ND (0.49)	ND (0.50)	ND (0.46)	ND (0.50)	ND (0.56)	ND (0.47)	ND (0.57)
trans-1,3-Dichloropropene	ug/kg	-	ND (0.45)	ND (0.44)	ND (0.42)	ND (0.45)	ND (0.42)	ND (0.44)	ND (0.48)	ND (0.58)	ND (0.54)	ND (0.54)	ND (0.47)	ND (0.46)	ND (0.47)	ND (0.44)	ND (0.48)	ND (0.53)	ND (0.44)	ND (0.54)
Ethylbenzene	ug/kg	5500	ND (0.52)	ND (0.51)	ND (0.48)	ND (0.52)	ND (0.48)	ND (0.51)	ND (0.55)	ND (0.67)	ND (0.62)	ND (0.62)	ND (0.54)	ND (0.53)	ND (0.54)	ND (0.50)	ND (0.55)	ND (0.61)	ND (0.51)	ND (0.62)
2-Hexanone	ug/kg	-	ND (1.6)	ND (1.5)	ND (1.5)	ND (1.6)	ND (1.4)	ND (1.5)	ND (1.7)	ND (2.0)	ND (1.9)	ND (1.9)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.5)	ND (1.7)	ND (1.8)	ND (1.5)	ND (1.9)
Methyl Tert Butyl Ether	ug/kg	-	ND (0.64)	ND (0.63)	ND (0.60)	ND (0.64)	ND (0.59)	ND (0.63)	ND (0.68)	ND (0.83)	ND (0.78)	ND (0.76)	ND (0.67)	ND (0.66)	ND (0.67)	ND (0.62)	ND (0.68)	ND (0.76)	ND (0.63)	ND (0.77)
4-Methyl-2-pentanone(MIBK)	ug/kg	1000	ND (2.3)	ND (2.2)	ND (2.1)	ND (2.3)	ND (2.1)	ND (2.3)	ND (2.4)	ND (2.9)	ND (2.8)	ND (2.7)	ND (2.4)	ND (2.3)	ND (2.4)	ND (2.2)	ND (2.4)	ND (2.7)	ND (2.3)	ND (2.7)
Methylene chloride	ug/kg	100	ND (0.80)	ND (0.78)	ND (0.74)	ND (0.80)	ND (0.73)	ND (0.78)	ND (0.84)	ND (1.0)	ND (0.96)	ND (0.94)	ND (0.83)	ND (0.82)	ND (0.83)	ND (0.77)	ND (0.84)	ND (0.93)	ND (0.78)	ND (0.95)
Styrene	ug/kg	-	ND (0.38)	ND (0.37)	ND (0.35)	ND (0.38)	ND (0.35)	ND (0.37)	ND (0.40)	ND (0.48)	ND (0.45)	ND (0.45)	ND (0.39)	ND (0.39)	ND (0.39)	ND (0.36)	ND (0.40)	ND (0.44)	ND (0.37)	ND (0.45)
1,1,2,2-Tetrachloroethane	ug/kg	600	ND (0.66)	ND (0.65)	ND (0.61)	ND (0.66)	ND (0.61)	ND (0.65)	ND (0.70)	ND (0.85)	ND (0.80)	ND (0.78)	ND (0.69)	ND (0.68)	ND (0.69)	ND (0.64)	ND (0.70)	ND (0.78)	ND (0.65)	ND (0.79)
Tetrachloroethene	ug/kg	1400	ND (0.95)	ND (0.93)	ND (0.88)	ND (0.95)	ND (0.87)	ND (0.93)	ND (1.0)	ND (1.2)	ND (1.1)	ND (1.1)	ND (0.99)	ND (0.97)	ND (0.99)	ND (0.91)	2.3 J	2.8 J	1.8 J	ND (1.1)
Toluene	ug/kg	1500	ND (0.62)	ND (0.61)	ND (0.58)	0.79 J	ND (0.57)	ND (0.61)	ND (0.66)	ND (0.80)	ND (0.75)	ND (0.74)	0.7 J	ND (0.64)	ND (0.65)	ND (0.60)	ND (0.66)	1.5	ND (0.61)	1.3 J
1,1,1-Trichloroethane	ug/kg	800	ND (0.68)	ND (0.67)	ND (0.63)	ND (0.68)	ND (0.63)	ND (0.67)	ND (0.72)	ND (0.88)	ND (0.82)	ND (0.81)	ND (0.71)	ND (0.70)	ND (0.71)	ND (0.66)	ND (0.72)	ND (0.80)	ND (0.67)	ND (0.81)
1,1,2-Trichloroethane	ug/kg	-	ND (0.62)	ND (0.60)	ND (0.57)	ND (0.62)	ND (0.57)	ND (0.61)	ND (0.65)	ND (0.79)	ND (0.74)	ND (0.73)	ND (0.64)	ND (0.63)	ND (0.64)	ND (0.60)	ND (0.65)	ND (0.72)	ND (0.61)	ND (0.74)
Trichloroethene	ug/kg	700	ND (0.60)	ND (0.59)	ND (0.55)	ND (0.60)	ND (0.55)	ND (0.59)	ND (0.63)	ND (0.77)	ND (0.72)	ND (0.71)	ND (0.62)	ND (0.61)	ND (0.63)	ND (0.58)	1.1 J	1.1 J	ND (0.59)	ND (0.72)
Vinyl chloride	ug/kg	200	ND (0.74)	ND (0.73)	ND (0.69)	ND (0.74)	ND (0.68)	ND (0.73)	ND (0.79)	ND (0.96)	ND (0.90)	ND (0.88)	ND (0.78)	ND (0.76)	ND (0.78)	ND (0.72)	ND (0.79)	ND (0.87)	ND (0.73)	ND (0.89)
Xylene (total)	ug/kg	1200	ND (0.57)	ND (0.56)	ND (0.53)	ND (0.57)	ND (0.52)	ND (0.56)	ND (0.60)	ND (0.73)	ND (0.68)	ND (0.67)	ND (0.59)	ND (0.58)	ND (0.59)	ND (0.55)	ND (0.60)	2.2 J	ND (0.56)	2.4 J
Total VOCs			**ND**	**ND**	**ND**	**0.79**	**ND**	**ND**	**4.4**	**104.4**	**29**	**ND**	**0.7**	**ND**	**9**	**ND**	**125.3**	**23.5**	**25.7**	**66.7**

Notes:

ND= Not detected above laboratory reporting limit

J = Estimated Value

ug/kg = micrograms per kilogram

Yellow shade with black text values exceed TAGM RSCO

Table 1B -Volatile Organic Compounds in Soil

2013 Remedial Investigation

518-526 West 30th Street,

Block 701 Lots 45, 52, 55, 56 and 58

New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY SCO - Unrestricted Use (6 NYCRR 375-6 12/06)	SB-1 (0-2)'		SB-1 (14-15)'		SB-2 (0-2)'		SB-2 (14-15)'		SB-3 (0-2)'		SB-3 (14-15)'	
Lab Sample ID:			JB29431-1		JB29431-2		JB29431-4		JB29431-5		JB29431-7		JB29431-8	
Date Sampled:			2/19/2013		2/19/2013		2/20/2013		2/20/2013		2/19/2013		2/19/2013	
Matrix:			Soil		Soil		Soil		Soil		Soil		Soil	
			Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
GC/MS Volatiles (SW846 8260B)														
Acetone	ug/kg	50	ND (1.8)		ND (2.0)		**51.5**		ND (1.9)		13.7		ND (1.9)	
Benzene	ug/kg	60	ND (0.13)		ND (0.14)		ND (0.15)		ND (0.13)		0.17	J	ND (0.13)	
Bromochloromethane	ug/kg	-	ND (0.28)		ND (0.31)		ND (0.33)		ND (0.29)		ND (0.27)		ND (0.29)	
Bromodichloromethane	ug/kg	-	ND (0.11)		ND (0.12)		ND (0.13)		ND (0.12)		ND (0.11)		ND (0.12)	
Bromoform	ug/kg	-	ND (0.16)		ND (0.18)		ND (0.19)		ND (0.17)		ND (0.15)		ND (0.17)	
Bromomethane	ug/kg	-	ND (0.29)		ND (0.32)		ND (0.34)		ND (0.30)		ND (0.28)		ND (0.30)	
2-Butanone (MEK)	ug/kg	120	ND (2.5)		ND (2.8)		ND (3.0)		ND (2.6)		ND (2.4)		ND (2.6)	
Carbon disulfide	ug/kg	-	ND (0.12)		ND (0.14)		ND (0.15)		0.67	J	ND (0.12)		ND (0.13)	
Carbon tetrachloride	ug/kg	760	ND (0.14)		ND (0.15)		ND (0.17)		ND (0.15)		ND (0.13)		ND (0.15)	
Chlorobenzene	ug/kg	1100	ND (0.11)		ND (0.13)		ND (0.14)		ND (0.12)		ND (0.11)		ND (0.12)	
Chloroethane	ug/kg	-	ND (0.24)		ND (0.26)		ND (0.29)		ND (0.25)		ND (0.23)		ND (0.25)	
Chloroform	ug/kg	370	ND (0.087)		ND (0.096)		ND (0.10)		ND (0.091)		ND (0.084)		ND (0.091)	
Chloromethane	ug/kg	-	ND (0.20)		ND (0.22)		ND (0.23)		ND (0.20)		ND (0.19)		ND (0.20)	
Cyclohexane	ug/kg	-	ND (0.13)		ND (0.14)		ND (0.16)		ND (0.14)		ND (0.13)		ND (0.14)	
1,2-Dibromo-3-chloropropane	ug/kg	-	ND (0.94)		ND (1.0)		ND (1.1)		ND (0.98)		ND (0.90)		ND (0.98)	
Dibromochloromethane	ug/kg	-	ND (0.17)		ND (0.19)		ND (0.21)		ND (0.18)		ND (0.17)		ND (0.18)	
1,2-Dibromoethane	ug/kg	-	ND (0.13)		ND (0.15)		ND (0.16)		ND (0.14)		ND (0.13)		ND (0.14)	
1,2-Dichlorobenzene	ug/kg	1100	ND (0.20)		ND (0.22)		ND (0.24)		ND (0.21)		ND (0.19)		ND (0.21)	
1,3-Dichlorobenzene	ug/kg	2400	ND (0.20)		ND (0.22)		ND (0.24)		ND (0.21)		ND (0.19)		ND (0.21)	
1,4-Dichlorobenzene	ug/kg	1800	ND (0.18)		ND (0.20)		ND (0.22)		ND (0.19)		ND (0.18)		ND (0.19)	
Dichlorodifluoromethane	ug/kg	-	ND (0.24)		ND (0.26)		ND (0.29)		ND (0.25)		ND (0.23)		ND (0.25)	
1,1-Dichloroethane	ug/kg	270	ND (0.14)		ND (0.16)		ND (0.17)		ND (0.15)		ND (0.14)		ND (0.15)	
1,2-Dichloroethane	ug/kg	20	ND (0.14)		ND (0.16)		ND (0.17)		ND (0.15)		ND (0.14)		ND (0.15)	
1,1-Dichloroethene	ug/kg	330	ND (0.27)		ND (0.30)		ND (0.32)		ND (0.28)		ND (0.26)		ND (0.28)	
cis-1,2-Dichloroethene	ug/kg	250	ND (0.19)		ND (0.21)		ND (0.23)		ND (0.20)		ND (0.19)		ND (0.20)	
trans-1,2-Dichloroethene	ug/kg	190	ND (0.25)		ND (0.28)		ND (0.30)		ND (0.26)		ND (0.24)		ND (0.26)	
1,2-Dichloropropane	ug/kg	-	ND (0.16)		ND (0.18)		ND (0.19)		ND (0.17)		ND (0.16)		ND (0.17)	
cis-1,3-Dichloropropene	ug/kg	-	ND (0.15)		ND (0.16)		ND (0.17)		ND (0.15)		ND (0.14)		ND (0.15)	
trans-1,3-Dichloropropene	ug/kg	-	ND (0.16)		ND (0.18)		ND (0.20)		ND (0.17)		ND (0.16)		ND (0.17)	
1,4-Dioxane	ug/kg	100	ND (63)		ND (69)		ND (75)		ND (65)		ND (60)		ND (65)	
Ethylbenzene	ug/kg	1000	ND (0.28)		ND (0.31)		ND (0.33)		ND (0.29)		ND (0.27)		ND (0.29)	
Freon 113	ug/kg	-	ND (0.45)		ND (0.50)		ND (0.54)		ND (0.47)		ND (0.43)		ND (0.47)	
2-Hexanone	ug/kg	-	ND (0.65)		ND (0.72)		ND (0.78)		ND (0.68)		ND (0.63)		ND (0.68)	
Isopropylbenzene	ug/kg	-	ND (0.078)		ND (0.086)		ND (0.094)		ND (0.082)		ND (0.075)		ND (0.082)	
Methyl Acetate	ug/kg	-	ND (2.7)		ND (3.0)		ND (3.3)		ND (2.9)		ND (2.6)		ND (2.9)	
Methylcyclohexane	ug/kg	-	ND (0.18)		ND (0.20)		ND (0.21)		ND (0.19)		ND (0.17)		ND (0.19)	
Methyl Tert Butyl Ether	ug/kg	930	ND (0.25)		ND (0.27)		ND (0.30)		ND (0.26)		ND (0.24)		ND (0.26)	
4-Methyl-2-pentanone(MIBK)	ug/kg	-	ND (0.79)		ND (0.87)		ND (0.95)		ND (0.83)		ND (0.76)		ND (0.82)	
Methylene chloride	ug/kg	50	ND (1.3)		ND (1.5)		9.4		ND (1.4)		ND (1.3)		ND (1.4)	
Styrene	ug/kg	-	ND (0.096)		ND (0.11)		ND (0.12)		ND (0.10)		ND (0.093)		ND (0.10)	
1,1,2,2-Tetrachloroethane	ug/kg	-	ND (0.14)		ND (0.15)		ND (0.17)		ND (0.15)		ND (0.13)		ND (0.14)	
Tetrachloroethene	ug/kg	1300	0.92	J	ND (0.20)		ND (0.22)		ND (0.19)		0.62	J	ND (0.19)	
Toluene	ug/kg	700	ND (0.11)		ND (0.12)		0.86	J	ND (0.12)		1.3		ND (0.12)	
1,2,3-Trichlorobenzene	ug/kg	-	ND (0.17)		ND (0.19)		ND (0.21)		ND (0.18)		ND (0.17)		ND (0.18)	
1,2,4-Trichlorobenzene	ug/kg	-	ND (0.15)		ND (0.16)		ND (0.17)		ND (0.15)		ND (0.14)		ND (0.15)	
1,1,1-Trichloroethane	ug/kg	680	ND (0.11)		ND (0.12)		ND (0.13)		ND (0.12)		ND (0.11)		ND (0.12)	
1,1,2-Trichloroethane	ug/kg	-	ND (0.18)		ND (0.20)		ND (0.22)		ND (0.19)		ND (0.18)		ND (0.19)	
Trichloroethene	ug/kg	470	ND (0.18)		ND (0.20)		ND (0.22)		ND (0.19)		ND (0.18)		ND (0.19)	
Trichlorofluoromethane	ug/kg	-	ND (0.31)		ND (0.35)		ND (0.38)		ND (0.33)		ND (0.30)		ND (0.33)	
Vinyl chloride	ug/kg	20	ND (0.15)		ND (0.17)		ND (0.18)		ND (0.16)		ND (0.15)		ND (0.16)	
m,p-Xylene	ug/kg	260	ND (0.18)		ND (0.20)		0.63	J	ND (0.19)		ND (0.18)		ND (0.19)	
o-Xylene	ug/kg	260	ND (0.15)		ND (0.16)		0.28	J	ND (0.15)		ND (0.14)		ND (0.15)	
Xylene (total)	ug/kg	260	ND (0.15)		ND (0.16)		0.91	J	ND (0.15)		ND (0.14)		ND (0.15)	
Total VOCs			**0.92**		**0**		**63.58**		**0.67**		**15.79**		**0**	

Notes:

NYSCO Unrestricted Use (6 NYCRR 375-6 12/06) - New York State Department of Environmental Conservation Track 1 Unrestricted Use Soil Cleanup Objectives

ND= Not detected above laboratory reporting limit

J = Estimated Value

ug/kg = micrograms per kilogram

Yellow shade with black text values exceed Track 1 NYSCO Unrestricted Use

Table 2A -Semivolatile Organic Compounds in Soil
2007 Remedial Investigation
518-526 West 30th Street,
Block 701 Lots 45, 52, 55, 56 and 58
New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY TAGM Rec. Soil Cleanup Objective (DER TAGM #4046 1/94)[1]	SB5(0-2')	SB5(9-11')	SB6(0-2')	SB6(9-11')	SB7(0-2')	SB7(9-11')	SB10(0-2')	SB10(9-11')	SB11(0-2')	SB11(8-10')	SB12(0-2')	SB12(9-11')	SB13(0-2')	SB13(9-11')	SB25(0-2')	SB25(2-4')	SB26(0-2')	SB26(9-11')
Lab Sample ID:			J52740-9	J52740-10	J52740-11	J52740-12	J52740-13	J52740-14	J52740-19	J52740-20	J52740-22	J52740-23	J52951-1	J52951-2	J52951-3	J52951-4	J53194-1	J53194-2	J53194-3	J53194-4
Date Sampled:			1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/31/2007	1/31/2007	1/31/2007	1/31/2007	2/2/2007	2/2/2007	2/2/2007	2/2/2007
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
GC/MS Volatiles (SW846																				
2-Chlorophenol	ug/kg	800	ND (32)	ND (34)	ND (32)	ND (33)	ND (31)	ND (33)	ND (30)	ND (35)	ND (33)	ND (33)	ND (32)	ND (32)	ND (32)	ND (32)	ND (31)	ND (33)	ND (32)	ND (31)
4-Chloro-3-methyl phenol	ug/kg	240	ND (47)	ND (50)	ND (47)	ND (49)	ND (46)	ND (49)	ND (44)	ND (53)	ND (49)	ND (48)	ND (47)	ND (47)	ND (48)	ND (48)	ND (46)	ND (49)	ND (48)	ND (47)
2,4-Dichlorophenol	ug/kg	400	ND (62)	ND (66)	ND (62)	ND (64)	ND (61)	ND (64)	ND (58)	ND (69)	ND (65)	ND (63)	ND (62)	ND (62)	ND (62)	ND (63)	ND (61)	ND (64)	ND (63)	ND (61)
2,4-Dimethylphenol	ug/kg	-	ND (96)	ND (100)	ND (95)	ND (98)	ND (94)	ND (98)	ND (89)	ND (110)	ND (99)	ND (97)	ND (96)	ND (95)	ND (96)	ND (97)	ND (93)	ND (99)	ND (96)	ND (94)
2,4-Dinitrophenol	ug/kg	200	ND (57)	ND (60)	ND (56)	ND (58)	ND (56)	ND (58)	ND (53)	ND (63)	ND (59)	ND (58)	ND (57)	ND (56)	ND (57)	ND (57)	ND (55)	ND (59)	ND (57)	ND (56)
4,6-Dinitro-o-cresol	ug/kg	-	ND (33)	ND (35)	ND (32)	ND (33)	ND (32)	ND (33)	ND (30)	ND (36)	ND (34)	ND (33)	ND (33)	ND (32)	ND (33)	ND (33)	ND (32)	ND (33)	ND (33)	ND (32)
2-Methylphenol	ug/kg	100	ND (37)	ND (39)	ND (36)	ND (38)	ND (36)	ND (37)	ND (34)	ND (41)	ND (38)	ND (37)	ND (37)	ND (36)	ND (37)	ND (37)	ND (36)	51.6 J	ND (37)	ND (36)
3&4-Methylphenol	ug/kg	-	ND (53)	ND (57)	ND (53)	ND (55)	ND (52)	ND (55)	ND (50)	ND (59)	ND (56)	ND (54)	ND (53)	ND (53)	ND (54)	ND (54)	ND (52)	128 J	ND (54)	ND (52)
2-Nitrophenol	ug/kg	330	ND (46)	ND (49)	ND (46)	ND (48)	ND (45)	ND (47)	ND (43)	ND (51)	ND (48)	ND (47)	ND (46)	ND (46)	ND (46)	ND (47)	ND (45)	ND (48)	ND (46)	ND (46)
4-Nitrophenol	ug/kg	100	ND (51)	ND (54)	ND (50)	ND (52)	ND (50)	ND (52)	ND (47)	ND (56)	ND (53)	ND (52)	ND (51)	ND (50)	ND (51)	ND (51)	ND (50)	ND (52)	ND (51)	ND (50)
Pentachlorophenol	ug/kg	1000	ND (42)	ND (45)	ND (41)	ND (43)	ND (41)	ND (43)	ND (39)	ND (46)	ND (44)	ND (43)	ND (42)	ND (41)	ND (42)	ND (42)	ND (41)	ND (43)	ND (42)	ND (41)
Phenol	ug/kg	30	ND (46)	ND (49)	ND (46)	ND (48)	ND (45)	ND (47)	ND (43)	ND (51)	ND (48)	ND (47)	ND (46)	ND (46)	**325**	ND (47)	ND (45)	**65.5 J**	ND (46)	ND (46)
2,4,5-Trichlorophenol	ug/kg	100	ND (56)	ND (60)	ND (55)	ND (58)	ND (55)	ND (57)	ND (52)	ND (62)	ND (58)	ND (57)	ND (56)	ND (55)	ND (56)	ND (57)	ND (55)	ND (58)	ND (56)	ND (55)
2,4,6-Trichlorophenol	ug/kg	-	ND (31)	ND (33)	ND (31)	ND (32)	ND (31)	ND (32)	ND (29)	ND (35)	ND (33)	ND (32)	ND (31)	ND (31)	ND (31)	ND (32)	ND (31)	ND (32)	ND (31)	ND (31)
Acenaphthene	ug/kg	50000	514	669	21 J	107	328	66.8 J	ND (18)	ND (21)	10400	69.4 J	ND (19)	ND (19)	ND (19)	30.1 J	1560	1650	61.1 J	ND (19)
Acenaphthylene	ug/kg	41000	319	445	ND (15)	41.8 J	33.8 J	30.9 J	ND (14)	ND (17)	1240	ND (15)	67.1 J	ND (15)	115	ND (15)	474	769	70.7 J	ND (15)
Anthracene	ug/kg	50000	2100	2360	44.5 J	273	558	79.1	ND (13)	19.3 J	19000	127	55.1 J	ND (14)	155	72.2 J	4290	5320	113	18.7 J
Benzo(a)anthracene	ug/kg	224	**6340**	**7520**	129	**848**	**972**	**261**	ND (17)	65 J	**41500**	**279**	122	ND (18)	**1260**	**247**	**7860**	**8740**	**492**	23.5 J
Benzo(a)pyrene	ug/kg	61	**6080**	**3970**	**125**	**751**	**775**	**307**	ND (12)	58.9 J	**29600**	**216**	**170**	ND (13)	**679**	**247**	**6030**	**6730**	**544**	14.7 J
Benzo(b)fluoranthene	ug/kg	1100	**6400**	**2670**	107	569	456	273	ND (16)	57.8 J	**18400**	138	175	ND (17)	**1190**	231	**5530**	**5530**	478	ND (17)
Benzo(g,h,i)perylene	ug/kg	50000	3120	3310	97.5	470	877	223	ND (19)	46.3 J	14500	120	116	ND (20)	571	158	1820	1740	331	ND (20)
Benzo(k)fluoranthene	ug/kg	1100	**2330**	**2320**	99.7	528	546	238	ND (26)	51.7 J	**18900**	135	114	ND (28)	908	140	**4330**	**3850**	466	ND (28)
4-Bromophenyl phenyl ether	ug/kg	-	ND (19)	ND (20)	ND (19)	ND (19)	ND (19)	ND (19)	ND (18)	ND (21)	ND (20)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (20)	ND (19)	ND (19)
Butyl benzyl phthalate	ug/kg	50000	ND (28)	ND (30)	ND (28)	ND (29)	ND (28)	ND (29)	ND (26)	ND (31)	ND (29)	ND (29)	ND (28)	ND (28)	ND (28)	ND (29)	ND (28)	251	ND (28)	ND (28)
2-Chloronaphthalene	ug/kg	-	ND (52)	ND (56)	ND (52)	ND (54)	ND (51)	ND (53)	ND (49)	ND (58)	ND (54)	ND (53)	ND (52)	ND (52)	ND (52)	ND (53)	ND (51)	ND (54)	ND (52)	ND (51)
4-Chloroaniline	ug/kg	220	ND (23)	ND (25)	ND (23)	ND (24)	ND (23)	ND (24)	ND (22)	ND (26)	ND (24)	ND (24)	ND (23)	ND (23)	ND (23)	ND (23)	ND (23)	ND (24)	ND (23)	ND (23)
Carbazole	ug/kg	-	556	603	20.5 J	93.2	167	67.9 J	ND (14)	ND (17)	1650	16.5 J	ND (15)	ND (15)	277	34.7 J	2340	2370	70.9 J	ND (15)
Chrysene	ug/kg	400	**6300**	**7890**	129	**863**	**1290**	358	ND (13)	79.3 J	**46000**	319	181	ND (14)	**1610**	293	**7170**	**8200**	**548**	23.1 J
bis(2-Chloroethoxy)methane	ug/kg	-	ND (24)	ND (26)	ND (24)	ND (25)	ND (24)	ND (25)	ND (22)	ND (27)	ND (25)	ND (24)	ND (24)	ND (24)	ND (24)	ND (24)	ND (23)	ND (25)	ND (24)	ND (24)
bis(2-Chloroethyl)ether	ug/kg	-	ND (19)	ND (20)	ND (18)	ND (19)	ND (18)	ND (19)	ND (17)	ND (21)	ND (19)	ND (19)	ND (19)	ND (18)	ND (19)	ND (19)	ND (18)	ND (19)	ND (19)	ND (18)
bis(2-Chloroisopropyl)ether	ug/kg	-	ND (28)	ND (30)	ND (28)	ND (29)	ND (27)	ND (29)	ND (26)	ND (31)	ND (29)	ND (28)	ND (28)	ND (28)	ND (28)	ND (28)	ND (27)	ND (29)	ND (28)	ND (27)
4-Chlorophenyl phenyl ether	ug/kg	-	ND (18)	ND (19)	ND (17)	ND (18)	ND (17)	ND (18)	ND (16)	ND (19)	ND (18)	ND (18)	ND (18)	ND (17)	ND (18)	ND (18)	ND (17)	ND (18)	ND (18)	ND (17)
1,2-Dichlorobenzene	ug/kg	7900	ND (17)	ND (18)	ND (16)	ND (17)	ND (16)	ND (17)	ND (15)	ND (18)	ND (17)	ND (17)	ND (17)	ND (16)	ND (17)	ND (17)	ND (16)	ND (17)	ND (17)	ND (16)
1,3-Dichlorobenzene	ug/kg	1600	ND (20)	ND (21)	ND (20)	ND (21)	ND (20)	ND (20)	ND (19)	ND (22)	ND (21)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (19)	ND (21)	ND (20)	ND (20)
1,4-Dichlorobenzene	ug/kg	8500	ND (16)	ND (16)	ND (15)	ND (16)	ND (15)	ND (16)	ND (14)	64.4 J	ND (16)	ND (16)	ND (16)	ND (15)	ND (16)	ND (16)	ND (15)	ND (16)	ND (16)	ND (15)
2,4-Dinitrotoluene	ug/kg	-	ND (43)	ND (46)	ND (43)	ND (44)	ND (42)	ND (44)	ND (40)	ND (48)	ND (45)	ND (44)	ND (43)	ND (43)	ND (43)	ND (44)	ND (42)	ND (45)	ND (43)	ND (43)
2,6-Dinitrotoluene	ug/kg	1000	ND (43)	ND (45)	ND (42)	ND (44)	ND (42)	ND (44)	ND (40)	ND (47)	ND (44)	ND (43)	ND (43)	ND (42)	ND (43)	ND (43)	ND (42)	ND (44)	ND (43)	ND (42)
3,3'-Dichlorobenzidine	ug/kg	-	ND (36)	ND (38)	ND (35)	ND (37)	ND (35)	ND (36)	ND (33)	ND (40)	ND (37)	ND (36)	ND (36)	ND (35)	ND (36)	ND (36)	ND (35)	ND (37)	ND (36)	ND (35)
Dibenzo(a,h)anthracene	ug/kg	14	**1350**	**1340**	**29.5 J**	**139**	**291**	**76.7**	ND (18)	**22.2 J**	**7440**	**63.2 J**	ND (20)	ND (19)	**239**	**50.7 J**	812	853	**108**	ND (19)
Dibenzofuran	ug/kg	6200	182	393	ND (17)	58.7 J	105	62.1 J	ND (16)	ND (19)	3210	22.9 J	ND (17)	ND (17)	254	19.1 J	1990	2560	28.1 J	ND (17)
Di-n-butyl phthalate	ug/kg	8100	ND (24)	ND (25)	ND (24)	ND (24)	ND (23)	ND (24)	ND (22)	70.9 J	ND (25)	ND (24)	ND (24)	ND (24)	ND (24)	ND (24)	ND (23)	ND (24)	ND (24)	ND (23)
Di-n-octyl phthalate	ug/kg	50000	ND (32)	ND (34)	ND (32)	ND (33)	ND (31)	ND (33)	ND (30)	ND (35)	ND (33)	ND (33)	ND (32)	ND (32)	ND (32)	ND (32)	ND (31)	287	ND (32)	ND (31)
Diethyl phthalate	ug/kg	7100	ND (16)	ND (17)	ND (16)	ND (16)	ND (16)	ND (16)	ND (15)	ND (18)	ND (17)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)
Dimethyl phthalate	ug/kg	2000	ND (16)	ND (17)	ND (16)	ND (16)	ND (16)	ND (16)	ND (15)	ND (18)	ND (17)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (17)	ND (16)	ND (16)
bis(2-Ethylhexyl)phthalate	ug/kg	50000	ND (48)	ND (51)	ND (47)	73.2 J	ND (47)	ND (49)	ND (45)	94.6	ND (50)	59.8 J	66.6 J	ND (47)	116	ND (48)	325 J	2480	ND (48)	ND (47)
Fluoranthene	ug/kg	50000	12500	17200	234	1540	1420	792	ND (12)	116	**63800**	405	155	ND (13)	4510	525	16000	19500	1050	40 J
Fluorene	ug/kg	50000	318	539	17.3 J	93.9	173	41.4 J	ND (14)	ND (17)	8620	58 J	ND (15)	ND (15)	48.3 J	23 J	1890	2130	46.6 J	16.8 J
Hexachlorobenzene	ug/kg	410	ND (21)	ND (23)	ND (21)	ND (22)	ND (21)	ND (22)	ND (20)	ND (24)	ND (22)	ND (22)	ND (21)	ND (21)	ND (22)	ND (22)	ND (21)	ND (22)	ND (22)	ND (21)
Hexachlorobutadiene	ug/kg	-	ND (25)	ND (26)	ND (24)	ND (25)	ND (24)	ND (25)	ND (23)	ND (27)	ND (26)	ND (25)	ND (25)	ND (24)	ND (25)	ND (25)	ND (24)	ND (25)	ND (25)	ND (24)
Hexachlorocyclopentadiene	ug/kg	-	ND (27)	ND (29)	ND (27)	ND (28)	ND (26)	ND (27)	ND (25)	ND (30)	ND (28)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (26)	ND (28)	ND (27)	ND (26)
Hexachloroethane	ug/kg	-	ND (19)	ND (20)	ND (18)	ND (19)	ND (18)	ND (19)	ND (17)	ND (21)	ND (19)	ND (19)	ND (19)	ND (18)	ND (19)	ND (19)	ND (18)	ND (19)	ND (19)	ND (18)
Indeno(1,2,3-cd)pyrene	ug/kg	3200	3150	3090	79.5	409	709	186	ND (22)	39.4 J	**11700**	95.8	107	ND (23)	734	140	2010	2000	329	ND (23)
Isophorone	ug/kg	4400	ND (19)	ND (20)	ND (18)	ND (19)	ND (18)	ND (19)	ND (17)	ND (21)	ND (19)	ND (19)	ND (19)	ND (18)	ND (19)	ND (19)	ND (18)	ND (19)	ND (19)	ND (18)
2-Methylnaphthalene	ug/kg	36400	158	155	ND (24)	ND (25)	98.1	38.3 J	ND (23)	ND (27)	2930	ND (25)	ND (24)	ND (24)	105	ND (25)	896	1800	ND (24)	ND (24)
2-Nitroaniline	ug/kg	430	ND (24)	ND (25)	ND (23)	ND (24)	ND (23)	ND (24)	ND (22)	ND (26)	ND (25)	ND (24)	ND (24)	ND (23)	ND (24)	ND (24)	ND (23)	ND (24)	ND (24)	ND (23)
3-Nitroaniline	ug/kg	500	ND (29)	ND (31)	ND (29)	ND (30)	ND (28)	ND (30)	ND (27)	ND (32)	ND (30)	ND (29)	ND (29)	ND (29)	ND (29)	ND (29)	ND (28)	ND (30)	ND (29)	ND (28)
4-Nitroaniline	ug/kg	-	ND (26)	ND (27)	ND (26)	ND (26)	ND (25)	ND (26)	ND (24)	ND (29)	ND (27)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (25)	ND (27)	ND (26)	ND (25)
Naphthalene	ug/kg	13000	184	210	ND (21)	31.2 J	138	86.2	ND (20)	55.3 J	3880	26.6 J	ND (21)	ND (21)	68.9 J	ND (21)	1580	3580	ND (21)	27.3 J
Nitrobenzene	ug/kg	200	ND (26)	ND (28)	ND (26)	ND (27)	ND (26)	ND (27)	ND (24)	ND (29)	ND (27)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (25)	ND (27)	ND (26)	ND (26)
N-Nitroso-di-n-propylamine	ug/kg	-	ND (24)	ND (26)	ND (24)	ND (25)	ND (23)	ND (25)	ND (22)	ND (27)	ND (25)	ND (24)	ND (24)	ND (24)	ND (24)	ND (24)	ND (23)	ND (25)	ND (24)	ND (24)
N-Nitrosodiphenylamine	ug/kg	-	ND (15)	ND (16)	ND (15)	ND (16)	ND (15)	ND (16)	ND (14)	ND (17)	ND (16)	ND (16)	ND (15)	ND (15)	ND (15)	ND (16)	ND (15)	ND (16)	ND (15)	ND (15)
Phenanthrene	ug/kg	50000	8360	14600	185	1470	3380	826	ND (15)	69 J	**99900**	696	84.7	ND (16)	4320	433	16600	21000	747	80.2
Pyrene	ug/kg	50000	12400	17100	256	1860	3290	824	ND (12)	122	**107000**	698	365	ND (13)	3060	491	12100	13400	982	48.2 J
1,2,4-Trichlorobenzene	ug/kg	3400	ND (23)	ND (25)	ND (23)	ND (24)	ND (23)	ND (24)	ND (22)	ND (26)	ND (24)	ND (24)	ND (23)	ND (23)	ND (23)	ND (23)	ND (23)	ND (24)	ND (23)	ND (23)
Total SVOCs			**72,661.0**	**86,384.0**	**1,574.5**	**10,219.0**	**15,606.9**	**4,837.4**	**ND**	**1,032.1**	**509,670.0**	**3,545.2**	**1,778.5**	**0.0**	**20,545.2**	**3,134.8**	**95,607.0**	**114,985.1**	**6,465.4**	**292.5**

Notes:

ND= Not detected above laboratory reporting limit

J = Estimated Value

ug/kg = micrograms per kilogram

Yellow shade with black text values exceed TAGM RSCO

Table 2B -Semivolatile Organic Compounds in Soil

2013 Remedial Investigation

518-526 West 30th Street,

Block 701 Lots 45, 52, 55, 56 and 58

New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY SCO - Unrestricted Use (6 NYCRR 375-6 12/06)	SB-1 (0-2)'		SB-1 (14-15)'		SB-2 (0-2)'		SB-2 (14-15)'		SB-3 (0-2)'		SB-3 (14-15)'	
Lab Sample ID:			JB29431-1		JB29431-2		JB29431-4		JB29431-5		JB29431-7		JB29431-8	
Date Sampled:			2/19/2013		2/19/2013		2/20/2013		2/20/2013		2/19/2013		2/19/2013	
Matrix:			Soil		Soil		Soil		Soil		Soil		Soil	
			Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
GC/MS Volatiles (SW846 8260B)														
2-Chlorophenol	ug/kg	-	ND (34)		ND (36)		ND (33)		ND (37)		ND (32)		ND (36)	
4-Chloro-3-methyl phenol	ug/kg	-	ND (34)		ND (36)		ND (33)		ND (37)		ND (31)		ND (36)	
2,4-Dichlorophenol	ug/kg	-	ND (54)		ND (58)		ND (52)		ND (59)		ND (50)		ND (58)	
2,4-Dimethylphenol	ug/kg	-	ND (56)		ND (60)		ND (55)		ND (62)		ND (52)		ND (61)	
2,4-Dinitrophenol	ug/kg	-	ND (41)		ND (44)		ND (40)		ND (45)		ND (38)		ND (44)	
4,6-Dinitro-o-cresol	ug/kg	-	ND (41)		ND (44)		ND (40)		ND (45)		ND (38)		ND (44)	
2-Methylphenol	ug/kg	330	ND (38)		ND (41)		ND (37)		ND (42)		ND (36)		ND (41)	
3&4-Methylphenol	ug/kg	-	ND (43)		ND (46)		ND (41)		ND (47)		ND (40)		ND (46)	
2-Nitrophenol	ug/kg	-	ND (36)		ND (38)		ND (34)		ND (39)		ND (33)		ND (38)	
4-Nitrophenol	ug/kg	-	ND (57)		ND (61)		ND (55)		ND (62)		ND (53)		ND (61)	
Pentachlorophenol	ug/kg	800	ND (57)		ND (61)		ND (56)		ND (63)		ND (53)		ND (62)	
Phenol	ug/kg	330	ND (35)		ND (38)		ND (34)		ND (39)		ND (33)		ND (38)	
2,3,4,6-Tetrachlorophenol	ug/kg	-	ND (35)		ND (37)		ND (33)		ND (38)		ND (32)		ND (37)	
2,4,5-Trichlorophenol	ug/kg	-	ND (39)		ND (42)		ND (38)		ND (43)		ND (36)		ND (42)	
2,4,6-Trichlorophenol	ug/kg	-	ND (32)		ND (34)		ND (31)		ND (35)		ND (29)		ND (34)	
Acenaphthene	ug/kg	20000	ND (9.7)		ND (10)		ND (9.4)		ND (11)		40.8		624	
Acenaphthylene	ug/kg	100000	ND (11)		28.7	J	ND (10)		ND (12)		18.1	J	928	
Acetophenone	ug/kg	-	ND (5.9)		ND (6.3)		ND (5.7)		ND (6.5)		ND (5.5)		ND (6.4)	
Anthracene	ug/kg	100000	ND (12)		ND (13)		ND (11)		ND (13)		114		2180	
Atrazine	ug/kg	-	ND (6.6)		ND (7.1)		ND (6.4)		ND (7.2)		ND (6.2)		ND (7.1)	
Benzo(a)anthracene	ug/kg	1000	ND (11)		ND (12)		ND (11)		ND (12)		348		**5350**	
Benzo(a)pyrene	ug/kg	1000	ND (10)		ND (11)		ND (9.9)		ND (11)		312		**4960**	
Benzo(b)fluoranthene	ug/kg	1000	ND (11)		ND (12)		ND (11)		ND (12)		374		**5840**	
Benzo(g,h,i)perylene	ug/kg	100000	ND (12)		ND (13)		ND (12)		ND (14)		212		3080	
Benzo(k)fluoranthene	ug/kg	800	ND (13)		ND (13)		ND (12)		ND (14)		123		**1900**	
4-Bromophenyl phenyl ether	ug/kg	-	ND (12)		ND (13)		ND (12)		ND (13)		ND (11)		ND (13)	
Butyl benzyl phthalate	ug/kg	-	ND (19)		ND (21)		ND (19)		ND (21)		ND (18)		ND (21)	
1,1'-Biphenyl	ug/kg	-	ND (3.9)		ND (4.2)		ND (3.8)		ND (4.3)		ND (3.6)		107	
Benzaldehyde	ug/kg	-	ND (7.7)		ND (8.2)		ND (7.5)		ND (8.5)		ND (7.2)		ND (8.3)	
2-Chloronaphthalene	ug/kg	-	ND (10)		ND (11)		ND (10)		ND (11)		ND (9.7)		ND (11)	
4-Chloroaniline	ug/kg	-	ND (11)		ND (11)		ND (10)		ND (12)		ND (10)		ND (12)	
Carbazole	ug/kg	-	ND (16)		ND (17)		ND (15)		ND (17)		28.7	J	813	
Caprolactam	ug/kg	-	ND (11)		ND (11)		ND (10)		ND (12)		ND (9.8)		ND (11)	
Chrysene	ug/kg	1000	ND (11)		ND (12)		ND (11)		ND (12)		379		**5280**	
bis(2-Chloroethoxy)methane	ug/kg	-	ND (14)		ND (14)		ND (13)		ND (15)		ND (13)		ND (15)	
bis(2-Chloroethyl)ether	ug/kg	-	ND (10)		ND (11)		ND (9.8)		ND (11)		ND (9.4)		ND (11)	
bis(2-Chloroisopropyl)ether	ug/kg	-	ND (10)		ND (11)		ND (9.7)		ND (11)		ND (9.3)		ND (11)	
4-Chlorophenyl phenyl ether	ug/kg	-	ND (10)		ND (11)		ND (9.8)		ND (11)		ND (9.4)		ND (11)	
2,4-Dinitrotoluene	ug/kg	-	ND (15)		ND (16)		ND (14)		ND (16)		ND (14)		ND (16)	
2,6-Dinitrotoluene	ug/kg	-	ND (13)		ND (14)		ND (12)		ND (14)		ND (12)		ND (14)	
3,3'-Dichlorobenzidine	ug/kg	-	ND (8.5)		ND (9.1)		ND (8.3)		ND (9.3)		ND (7.9)		ND (9.2)	
Dibenzo(a,h)anthracene	ug/kg	330	ND (11)		ND (12)		ND (11)		ND (13)		58.4		**990**	
Dibenzofuran	ug/kg	7000	ND (10)		ND (11)		ND (9.7)		ND (11)		16.3	J	953	
Di-n-butyl phthalate	ug/kg	-	ND (7.4)		ND (8.0)		ND (7.2)		ND (8.2)		ND (6.9)		ND (8.0)	
Di-n-octyl phthalate	ug/kg	-	ND (16)		ND (17)		ND (16)		ND (18)		ND (15)		ND (18)	
Diethyl phthalate	ug/kg	-	ND (11)		ND (12)		ND (11)		ND (13)		ND (11)		ND (12)	
Dimethyl phthalate	ug/kg	-	ND (12)		50.2	J	34.6	J	ND (13)		36.2	J	ND (13)	
bis(2-Ethylhexyl)phthalate	ug/kg	-	ND (30)		ND (32)		130		ND (32)		162		ND (32)	
Fluoranthene	ug/kg	100000	17.4	J	ND (16)		29.5	J	ND (16)		721		14600	
Fluorene	ug/kg	30000	ND (11)		ND (12)		ND (11)		ND (12)		32		1190	
Hexachlorobenzene	ug/kg	330	ND (11)		ND (12)		ND (11)		ND (12)		ND (10)		ND (12)	
Hexachlorobutadiene	ug/kg	-	ND (9.3)		ND (10)		ND (9.0)		ND (10)		ND (8.7)		ND (10)	
Hexachlorocyclopentadiene	ug/kg	-	ND (34)		ND (37)		ND (33)		ND (37)		ND (32)		ND (37)	
Hexachloroethane	ug/kg	-	ND (9.3)		ND (10)		ND (9.0)		ND (10)		ND (8.7)		ND (10)	
Indeno(1,2,3-cd)pyrene	ug/kg	500	ND (12)		ND (12)		ND (11)		ND (13)		178		**2750**	
Isophorone	ug/kg	-	ND (9.0)		ND (9.6)		ND (8.7)		ND (9.9)		ND (8.4)		ND (9.7)	
2-Methylnaphthalene	ug/kg	-	ND (19)		ND (20)		ND (18)		ND (21)		ND (17)		310	
2-Nitroaniline	ug/kg	-	ND (15)		ND (16)		ND (14)		ND (16)		ND (14)		ND (16)	
3-Nitroaniline	ug/kg	-	ND (13)		ND (14)		ND (13)		ND (15)		ND (12)		ND (14)	
4-Nitroaniline	ug/kg	-	ND (13)		ND (14)		ND (13)		ND (14)		ND (12)		ND (14)	
Naphthalene	ug/kg	12000	ND (9.2)		ND (9.8)		ND (8.9)		ND (10)		ND (8.5)		366	
Nitrobenzene	ug/kg	-	ND (9.7)		ND (10)		ND (9.4)		ND (11)		ND (9.0)		ND (10)	
N-Nitroso-di-n-propylamine	ug/kg	-	ND (8.2)		ND (8.7)		ND (7.9)		ND (9.0)		ND (7.6)		ND (8.8)	
N-Nitrosodiphenylamine	ug/kg	-	ND (20)		ND (21)		ND (19)		ND (22)		ND (19)		ND (22)	
Phenanthrene	ug/kg	100000	ND (15)		ND (16)		21.8	J	ND (17)		562		13900	
Pyrene	ug/kg	100000	15.6	J	ND (14)		23.8	J	ND (14)		707		11800	
1,2,4,5-Tetrachlorobenzene	ug/kg	-	ND (10)		ND (11)		ND (10)		ND (11)		ND (9.6)		ND (11)	
Total SVOCs			**33**		**78.9**		**239.7**		**0**		**4422.5**		**77921**	

Notes:

NYSCO Unrestricted Use (6 NYCRR 375-6 12/06) - New York State Department of Environmental Conservation Track 1 Unrestricted Use Soil Cleanup Objectives

ND= Not detected above laboratory reporting limit

J = Estimated Value

ug/kg = micrograms per kilogram

Yellow shade with black text values exceed Track 1 NYSCO Unrestricted Use

Table 3A -Metals in Soil
2007 Remedial Investigation
518-526 West 30th Street,
Block 701 Lots 45, 52, 55, 56 and 58
New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY TAGM Rec. Soil Cleanup Objective with E. USA BG Metals (DER TAGM #4046 1/94)[1]	SB5(0-2')	SB5(9-11')	SB6(0-2')	SB6(9-11')	SB7(0-2')	SB7(9-11')	SB10(0-2')	SB10(9-11')	SB11(0-2')
Lab Sample ID:			J52740-9	J52740-10	J52740-11	J52740-12	J52740-13	J52740-14	J52740-19	J52740-20	J52740-22
Date Sampled:			1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Metals Analysis											
Aluminum	mg/kg	33000	6860	6480	4240	5510	7010	8370	1840	7890	5510
Antimony	mg/kg	N/A	<2.2	<2.3	<2.3	<2.3	<2.1	<2.3	<2.1	<2.5	<2.3
Arsenic	mg/kg	12	5.9	4.9	8.7	6.6	5.8	4.9	<2.1	<2.5	3.3
Barium	mg/kg	600	490	194	**947**	547	115	94.3	<21	132	140
Beryllium	mg/kg	1.75	<0.55	<0.58	<0.57	<0.59	<0.52	<0.58	<0.53	<0.62	<0.58
Cadmium	mg/kg	1	<0.55	<0.58	0.57	<0.59	<0.52	<0.58	<0.53	<0.62	<0.58
Calcium	mg/kg	35000	**37700**	**37300**	**58700**	**53500**	24000	22700	1190	**93400**	17700
Chromium	mg/kg	40	16.1	14.1	15.1	13.2	12	13.8	4.5	5.3	10
Cobalt	mg/kg	60	<5.5	<5.8	<5.7	<5.9	<5.2	<5.8	<5.3	<6.2	<5.8
Copper	mg/kg	50	34.5	31.1	**57.9**	40.9	**312**	**370**	5.2	28	18.6
Iron	mg/kg	550000	10500	7630	10400	8310	12100	13700	5620	3650	9630
Lead	mg/kg	500	**1590**	360	**1540**	**667**	**1880**	**526**	3.8	25.1	**574**
Magnesium	mg/kg	5000	2830	2880	2290	**5440**	**9090**	4710	660	**5110**	3450
Manganese	mg/kg	5000	261	204	206	320	613	462	94.7	86.9	241
Mercury	mg/kg	0.2	**116**	<0.039	**0.78**	**0.25**	**0.7**	**0.38**	0.034	**2.3**	**0.89**
Nickel	mg/kg	25	12.9	8.8	11.3	11.9	18.8	14.2	5.1	9.8	11.7
Potassium	mg/kg	43000	1950	771	1010	1010	1230	1320	<530	620	867
Selenium	mg/kg	3.9	<2.2	<2.3	<2.3	<2.3	<2.1	<2.3	<2.1	<2.5	<2.3
Silver	mg/kg	N/A	<1.1	<1.2	1.6	<1.2	<1.0	<1.2	<1.1	<1.2	<1.2
Sodium	mg/kg	8000	<1100	<1200	<1100	<1200	<1000	<1200	<1100	<1200	<1200
Thallium	mg/kg	N/A	<1.1	<1.2	<1.1	<1.2	<1.0	<1.2	<1.1	<1.2	<1.2
Vanadium	mg/kg	300	19.9	16	17.6	21.9	14.6	15.3	5.5	15	12.7
Zinc	mg/kg	50	**233**	**182**	**355**	**252**	**146**	**151**	11.3	19	**99.7**

Client Sample ID:		SB11(8-10')	SB12(0-2')	SB12(9-11')	SB13(0-2')	SB13(9-11')	SB25(0-2')	SB25(2-4')	SB26(0-2')	SB26(9-11')
Lab Sample ID:		J52740-23	J52951-1	J52951-2	J52951-3	J52951-4	J53194-1	J53194-2	J53194-3	J53194-4
Date Sampled:		1/30/2007	1/31/2007	1/31/2007	1/31/2007	1/31/2007	2/2/2007	2/2/2007	2/2/2007	2/2/2007
Matrix:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Metals Analysis										
Aluminum	mg/kg	6300	3820	9250	8090	9090	8530	7950	4630	8500
Antimony	mg/kg	<2.3	<2.2	<2.2	<2.3	<2.2	<2.2	<2.3	<2.2	<2.2
Arsenic	mg/kg	<2.3	6.5	2.3	5.3	2.2	**13.2**	**40.4**	7.9	<2.2
Barium	mg/kg	33.8	126	92	141	138	106	98.2	91.1	57.7
Beryllium	mg/kg	<0.58	0.68	0.82	0.68	0.91	<0.56	<0.58	<0.55	<0.55
Cadmium	mg/kg	<0.58	**1.2**	<0.56	<0.57	<0.55	<0.56	<0.58	<0.55	<0.55
Calcium	mg/kg	1180	**73200**	2260	**82800**	5580	**36400**	34500	9660	1750
Chromium	mg/kg	10.6	17.8	22.8	14.5	26.9	27.6	**60**	37.8	24.9
Cobalt	mg/kg	<5.8	<5.4	7	<5.7	7.4	<5.6	<5.8	<5.5	7.5
Copper	mg/kg	13.5	**552**	20.6	**127**	27.7	36.4	39.8	**71.7**	18.4
Iron	mg/kg	10500	9660	13400	10400	18400	7770	10200	10900	13800
Lead	mg/kg	9.2	90.7	13.9	33.9	76.2	143	150	252	8.1
Magnesium	mg/kg	2490	2260	3700	**8350**	4910	2810	4410	1460	3390
Manganese	mg/kg	228	117	516	154	455	194	262	167	768
Mercury	mg/kg	0.046	0.15	0.056	0.091	0.12	**0.57**	**0.4**	**1.3**	<0.035
Nickel	mg/kg	13.4	18.5	18.3	11	17.5	9.5	11.4	11.5	18.9
Potassium	mg/kg	989	603	1780	2030	1850	1140	1320	956	1910
Selenium	mg/kg	<2.3	<2.2	<2.2	<2.3	<2.2	<2.2	<2.3	<2.2	<2.2
Silver	mg/kg	<1.2	1.2	1.1	1.3	1.2	<1.1	<1.2	<1.1	<1.1
Sodium	mg/kg	<1200	<1100	<1100	<1100	<1100	2160	1920	<1100	<1100
Thallium	mg/kg	<1.2	<1.1	<1.1	<1.1	<1.1	<1.1	<1.2	<1.1	<1.1
Vanadium	mg/kg	11.8	70.2	23.6	17	28.4	16.1	21.6	15.2	23.3
Zinc	mg/kg	23.7	**414**	24.7	43.7	40	**238**	**109**	**89.3**	24.7

Notes:

ND= Not detected above laboratory reporting limit
J = Estimated Value
mg/kg = milligrams per kilogram
Yellow shade with black text values exceed TAGM RSCO

Table 3B -Metals in Soil
2013 Remedial Investigation
518-526 West 30th Street,
Block 701 Lots 45, 52, 55, 56 and 58
New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY SCO - Unrestricted Use (6 NYCRR 375-6 12/06)	SB-1 (0-2)'		SB-1 (14-15)'		SB-2 (0-2)'		SB-2 (14-15)'		SB-3 (0-2)'		SB-3 (14-15)'	
Lab Sample ID:			JB29431-1		JB29431-2		JB29431-4		JB29431-5		JB29431-7		JB29431-8	
Date Sampled:			2/19/2013		2/19/2013		2/20/2013		2/20/2013		2/19/2013		2/19/2013	
Matrix:			Soil		Soil		Soil		Soil		Soil		Soil	
			Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
GC/MS Volatiles (SW846 8260B)														
Aluminum	mg/kg	-	11200		4940		4300		7940		5430		8750	
Antimony	mg/kg	-	<2.3		<2.3		<2.2		<2.3		<2.3		<2.3	
Arsenic	mg/kg	13	3.4		<2.3		3.5		<2.3		8.2		2.8	
Barium	mg/kg	350	127		32.6		35.2		38.3		127		61.7	
Beryllium	mg/kg	7.2	1.3		0.53		0.54		0.9		0.81		0.81	
Cadmium	mg/kg	2.5	<0.58		<0.56		<0.55		<0.58		<0.57		<0.59	
Calcium	mg/kg	-	34400		1760		29000		1530		34700		4260	
Chromium	mg/kg	-	21.8		10.6		8.9		21.2		16.4		17.3	
Cobalt	mg/kg	-	11.9		<5.6		<5.5		<5.8		<5.7		<5.9	
Copper	mg/kg	50	7.2		11.1		11.9		14.7		**59.7**		14.2	
Iron	mg/kg	-	17000		8630		8210		12500		12000		12900	
Lead	mg/kg	63	10		3.7		**397**		7.6		**177**		**69.5**	
Magnesium	mg/kg	-	14800		2140		1780		2600		5580		2710	
Manganese	mg/kg	1600	576		143		140		177		197		255	
Mercury	mg/kg	0.18	0.048		<0.035		**0.25**		<0.038		**0.52**		0.16	
Nickel	mg/kg	30	**37.6**		10.3		4.7		16.9		12.9		15.2	
Potassium	mg/kg	-	6190		<1100		<1100		1750		<1100		1330	
Selenium	mg/kg	3.9	<2.3		<2.3		<2.2		<2.3		<2.3		<2.3	
Silver	mg/kg	2	<0.58		<0.56		<0.55		<0.58		<0.57		<0.59	
Sodium	mg/kg	-	<1200		<1100		<1100		<1200		<1100		<1200	
Thallium	mg/kg	-	<1.2		<1.1		<1.1		<1.2		<1.1		<1.2	
Vanadium	mg/kg	-	25.8		14.2		9.2		21.9		25.1		22.8	
Zinc	mg/kg	109	58.6		14.3		46.5		20.6		**131**		45.4	

Notes:
NYSCO Unrestricted Use (6 NYCRR 375-6 12/06) - New York State Department of Environmental Conservation Track 1 Unrestricted Use Soil Cleanup Objectives
ND= Not detected above laboratory reporting limit
J = Estimated Value
mg/kg = milligrams per kilogram
Yellow shade with black text values exceed Track 1 NYSCO Unrestricted Use

Table 4A -Pesticides/PCBs in Soil

2007 Remedial Investigation

518-526 West 30th Street,

Block 701 Lots 45, 52, 55, 56 and 58

New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY TAGM Rec. Soil Cleanup Objective (DER TAGM #4046 1/94)[1]	SB5(0-2')	SB5(9-11')	SB6(0-2')	SB6(9-11')	SB7(0-2')	SB7(9-11')	SB10(0-2')	SB10(9-11')	SB11(0-2')	SB11(8-10')	SB12(0-2')	SB12(9-11')	SB13(0-2')	SB13(9-11')	SB25(0-2')	SB25(2-4')	SB26(0-2')	SB26(9-11')
Lab Sample ID:			J52740-9	J52740-10	J52740-11	J52740-12	J52740-13	J52740-14	J52740-19	J52740-20	J52740-22	J52740-23	J52951-1	J52951-2	J52951-3	J52951-4	J53194-1	J53194-2	J53194-3	J53194-4
Date Sampled:			1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/31/2007	1/31/2007	1/31/2007	1/31/2007	2/2/2007	2/2/2007	2/2/2007	2/2/2007
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Pesticides																				
Aldrin	ug/kg	41	ND (0.33)	ND (0.35)	ND (0.32)	ND (0.33)	ND (0.32)	ND (0.33)	ND (0.30)	ND (0.37)	ND (0.34)	ND (0.34)	ND (0.33)	ND (0.32)	ND (0.33)	ND (0.33)	ND (0.32)	ND (0.34)	ND (0.33)	ND (0.32)
alpha-BHC	ug/kg	110	ND (0.28)	ND (0.29)	ND (0.27)	ND (0.28)	ND (0.27)	ND (0.28)	ND (0.26)	ND (0.31)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.27)	ND (0.28)	ND (0.28)	ND (0.27)	ND (0.28)	ND (0.28)	ND (0.27)
beta-BHC	ug/kg	200	ND (0.33)	ND (0.34)	ND (0.32)	ND (0.33)	ND (0.31)	ND (0.33)	ND (0.30)	ND (0.36)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.32)	ND (0.33)	ND (0.33)	ND (0.31)	ND (0.33)	ND (0.33)	ND (0.32)
delta-BHC	ug/kg	300	ND (0.56)	ND (0.58)	ND (0.54)	ND (0.56)	ND (0.53)	ND (0.56)	ND (0.51)	ND (0.61)	ND (0.56)	ND (0.56)	ND (0.55)	ND (0.54)	ND (0.56)	ND (0.55)	ND (0.53)	ND (0.56)	ND (0.56)	ND (0.54)
gamma-BHC (Lindane)	ug/kg	60	ND (0.30)	ND (0.32)	ND (0.30)	ND (0.31)	ND (0.29)	ND (0.31)	ND (0.28)	ND (0.33)	ND (0.31)	ND (0.31)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.29)	ND (0.31)	ND (0.30)	ND (0.30)
alpha-Chlordane	ug/kg	-	ND (0.41)	ND (0.42)	ND (0.40)	ND (0.41)	ND (0.39)	ND (0.41)	ND (0.37)	1.8	ND (0.41)	ND (0.41)	5.1	ND (0.40)	ND (0.41)	ND (0.41)	ND (0.39)	ND (0.41)	ND (0.41)	ND (0.40)
gamma-Chlordane	ug/kg	540	ND (0.41)	ND (0.42)	ND (0.40)	ND (0.41)	ND (0.39)	ND (0.41)	ND (0.37)	2.5	ND (0.41)	ND (0.41)	5.6	ND (0.40)	ND (0.41)	ND (0.40)	ND (0.39)	ND (0.41)	ND (0.41)	ND (0.40)
Dieldrin	ug/kg	44	ND (0.38)	ND (0.40)	ND (0.37)	ND (0.38)	ND (0.36)	ND (0.38)	ND (0.35)	ND (0.42)	ND (0.39)	ND (0.38)	1.7	ND (0.37)	ND (0.38)	ND (0.38)	ND (0.37)	ND (0.38)	ND (0.38)	ND (0.37)
4,4'-DDD	ug/kg	2900	ND (0.36)	ND (0.38)	ND (0.35)	ND (0.36)	ND (0.35)	ND (0.37)	ND (0.33)	ND (0.40)	ND (0.37)	ND (0.37)	ND (0.36)	ND (0.35)	ND (0.36)	ND (0.36)	ND (0.35)	ND (0.37)	ND (0.36)	ND (0.35)
4,4'-DDE	ug/kg	2100	ND (0.37)	ND (0.39)	ND (0.37)	ND (0.38)	ND (0.36)	ND (0.38)	ND (0.34)	58.4	ND (0.38)	ND (0.38)	34.6	ND (0.37)	ND (0.38)	ND (0.37)	ND (0.36)	ND (0.38)	ND (0.38)	ND (0.37)
4,4'-DDT	ug/kg	2100	ND (0.46)	ND (0.48)	ND (0.45)	ND (0.46)	ND (0.44)	ND (0.47)	ND (0.42)	28.8	ND (0.47)	ND (0.47)	67.8	ND (0.45)	ND (0.46)	ND (0.46)	16.9	20.9	ND (0.46)	ND (0.45)
Endrin	ug/kg	100	ND (0.38)	ND (0.39)	ND (0.37)	ND (0.38)	ND (0.36)	ND (0.38)	ND (0.34)	ND (0.41)	ND (0.38)	ND (0.38)	ND (0.37)	ND (0.37)	ND (0.38)	ND (0.37)	ND (0.36)	ND (0.38)	ND (0.38)	ND (0.37)
Endosulfan sulfate	ug/kg	1000	ND (0.41)	ND (0.43)	ND (0.40)	ND (0.41)	ND (0.39)	ND (0.41)	ND (0.37)	ND (0.45)	ND (0.41)	ND (0.41)	ND (0.41)	ND (0.40)	ND (0.41)	ND (0.41)	ND (0.39)	ND (0.41)	ND (0.41)	ND (0.40)
Endrin aldehyde	ug/kg	-	ND (0.36)	ND (0.37)	ND (0.35)	ND (0.36)	ND (0.34)	ND (0.36)	ND (0.32)	ND (0.39)	ND (0.36)	ND (0.36)	ND (0.35)	ND (0.35)	ND (0.36)	ND (0.35)	ND (0.34)	ND (0.36)	ND (0.36)	ND (0.35)
Endosulfan-I	ug/kg	900	ND (0.40)	ND (0.42)	ND (0.39)	ND (0.41)	ND (0.39)	ND (0.41)	ND (0.37)	ND (0.44)	ND (0.41)	ND (0.41)	ND (0.40)	ND (0.39)	ND (0.40)	ND (0.40)	ND (0.39)	ND (0.41)	ND (0.40)	ND (0.39)
Endosulfan-II	ug/kg	900	ND (0.40)	ND (0.42)	ND (0.39)	ND (0.40)	ND (0.38)	ND (0.40)	ND (0.36)	ND (0.44)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.39)	ND (0.40)	ND (0.40)	ND (0.38)	ND (0.40)	ND (0.40)	ND (0.39)
Heptachlor	ug/kg	100	ND (0.39)	ND (0.41)	ND (0.38)	ND (0.39)	ND (0.38)	ND (0.40)	ND (0.36)	ND (0.43)	ND (0.40)	ND (0.40)	ND (0.39)	ND (0.38)	ND (0.39)	ND (0.39)	ND (0.38)	ND (0.40)	ND (0.39)	ND (0.38)
Heptachlor epoxide	ug/kg	20	ND (0.42)	ND (0.44)	ND (0.41)	ND (0.42)	ND (0.40)	ND (0.42)	ND (0.38)	ND (0.46)	ND (0.42)	ND (0.42)	ND (0.41)	ND (0.41)	ND (0.42)	ND (0.42)	ND (0.40)	ND (0.42)	ND (0.42)	ND (0.41)
Methoxychlor	ug/kg	***	ND (0.50)	ND (0.52)	ND (0.49)	ND (0.50)	ND (0.48)	ND (0.50)	ND (0.46)	ND (0.55)	ND (0.51)	ND (0.51)	ND (0.50)	ND (0.49)	ND (0.50)	ND (0.50)	ND (0.48)	ND (0.51)	ND (0.50)	ND (0.49)
Endrin ketone	ug/kg	-	ND (0.41)	ND (0.43)	ND (0.40)	ND (0.42)	ND (0.40)	ND (0.42)	ND (0.38)	ND (0.46)	ND (0.42)	ND (0.42)	ND (0.41)	ND (0.40)	ND (0.41)	ND (0.41)	ND (0.40)	ND (0.42)	ND (0.41)	ND (0.40)
Toxaphene	ug/kg	-	ND (7.2)	ND (7.5)	ND (7.0)	ND (7.2)	ND (6.9)	ND (7.2)	ND (6.6)	ND (7.9)	ND (7.3)	ND (7.3)	ND (7.1)	ND (7.0)	ND (7.2)	ND (7.2)	ND (6.9)	ND (7.3)	ND (7.2)	ND (7.0)
PCBs																				
Aroclor 1016	ug/kg	1000	ND (7.2)	ND (7.5)	ND (7.0)	ND (7.2)	ND (6.8)	ND (7.2)	ND (6.5)	ND (7.9)	ND (7.3)	ND (7.3)	ND (7.1)	ND (7.0)	ND (7.2)	ND (7.1)	ND (6.9)	ND (7.2)	ND (7.2)	ND (7.0)
Aroclor 1221	ug/kg	1000	ND (23)	ND (24)	ND (22)	ND (23)	ND (22)	ND (23)	ND (21)	ND (25)	ND (23)	ND (23)	ND (22)	ND (22)	ND (23)	ND (23)	ND (22)	ND (23)	ND (23)	ND (22)
Aroclor 1232	ug/kg	1000	ND (20)	ND (21)	ND (20)	ND (21)	ND (20)	ND (21)	ND (19)	ND (23)	ND (21)	ND (21)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (21)	ND (21)	ND (20)
Aroclor 1242	ug/kg	1000	ND (12)	ND (13)	ND (12)	ND (12)	ND (11)	ND (12)	ND (11)	ND (13)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (11)	ND (12)	ND (12)	ND (12)
Aroclor 1248	ug/kg	1000	ND (13)	ND (14)	ND (13)	ND (13)	ND (12)	ND (13)	ND (12)	ND (14)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (12)	ND (13)	ND (13)	ND (13)
Aroclor 1254	ug/kg	1000	ND (18)	ND (19)	ND (17)	ND (18)	ND (17)	ND (18)	ND (16)	ND (20)	ND (18)	ND (18)	ND (18)	ND (17)	ND (18)	ND (18)	ND (17)	ND (18)	ND (18)	ND (17)
Aroclor 1260	ug/kg	1000	ND (7.6)	ND (7.9)	ND (7.4)	ND (7.6)	ND (7.3)	ND (7.7)	ND (7.0)	571	ND (7.8)	ND (7.7)	ND (7.5)	ND (7.4)	ND (7.6)	ND (7.6)	ND (7.3)	ND (7.7)	ND (7.6)	ND (7.4)

Notes:

ND= Not detected above laboratory reporting limit

J = Estimated Value

ug/kg = micrograms per kilogram

Yellow shade with black text values exceed TAGM RSCO

Table 4B -Pesticides/PCBs in Soil
2013 Remedial Investigation
518-526 West 30th Street,
Block 701 Lots 45, 52, 55, 56 and 58
New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY SCO - Unrestricted Use (6 NYCRR 375-6 12/06)	SB-1 (0-2)'		SB-1 (14-15)'		SB-2 (0-2)'		SB-2 (14-15)'		SB-3 (0-2)'		SB-3 (14-15)'	
Lab Sample ID:			JB29431-1		JB29431-2		JB29431-4		JB29431-5		JB29431-7		JB29431-8	
Date Sampled:			2/19/2013		2/19/2013		2/20/2013		2/20/2013		2/19/2013		2/19/2013	
Matrix:			Soil		Soil		Soil		Soil		Soil		Soil	
			Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
GC Semi-volatiles (SW846 8081B)														
Aldrin	ug/kg	5	ND (0.33)		ND (0.33)		ND (0.30)		ND (0.36)		ND (0.33)		ND (0.35)	
alpha-BHC	ug/kg	20	ND (0.22)		ND (0.21)		ND (0.20)		ND (0.23)		ND (0.22)		ND (0.23)	
beta-BHC	ug/kg	36	ND (0.45)		ND (0.44)		ND (0.41)		ND (0.48)		ND (0.45)		ND (0.48)	
delta-BHC	ug/kg	40	ND (0.36)		ND (0.35)		ND (0.33)		ND (0.38)		ND (0.36)		ND (0.38)	
gamma-BHC (Lindane)	ug/kg	100	ND (0.35)		ND (0.35)		ND (0.32)		ND (0.38)		ND (0.36)		ND (0.37)	
alpha-Chlordane	ug/kg	94	ND (0.27)		ND (0.26)		ND (0.24)		ND (0.29)		ND (0.27)		ND (0.28)	
gamma-Chlordane	ug/kg	-	ND (0.50)		ND (0.49)		ND (0.46)		ND (0.53)		ND (0.50)		ND (0.53)	
Dieldrin	ug/kg	5	ND (0.28)		ND (0.28)		ND (0.26)		ND (0.30)		ND (0.28)		ND (0.30)	
4,4'-DDD	ug/kg	3.3	ND (0.40)		ND (0.39)		ND (0.36)		ND (0.42)		ND (0.40)		ND (0.42)	
4,4'-DDE	ug/kg	3.3	ND (0.29)		ND (0.29)		ND (0.27)		ND (0.31)		ND (0.29)		ND (0.31)	
4,4'-DDT	ug/kg	3.3	1.3 [a]		ND (0.35)		1.6 [a]		ND (0.38)		**3.7**		ND (0.38)	
Endrin	ug/kg	14	ND (0.23)		ND (0.23)		ND (0.21)		ND (0.25)		ND (0.24)		ND (0.25)	
Endosulfan sulfate	ug/kg	2400	ND (0.31)		ND (0.31)		ND (0.28)		ND (0.33)		ND (0.31)		ND (0.33)	
Endrin aldehyde	ug/kg	-	ND (0.38)		ND (0.37)		ND (0.35)		ND (0.41)		ND (0.38)		ND (0.40)	
Endosulfan-I	ug/kg	2400	ND (0.27)		ND (0.27)		ND (0.25)		ND (0.29)		ND (0.28)		ND (0.29)	
Endosulfan-II	ug/kg	2400	ND (0.43)		ND (0.43)		ND (0.40)		ND (0.46)		ND (0.44)		ND (0.46)	
Heptachlor	ug/kg	42	ND (0.35)		ND (0.35)		ND (0.32)		ND (0.38)		ND (0.35)		ND (0.37)	
Heptachlor epoxide	ug/kg	-	ND (0.27)		ND (0.27)		ND (0.25)		ND (0.29)		ND (0.27)		ND (0.29)	
Methoxychlor	ug/kg	-	ND (0.71)		ND (0.70)		ND (0.65)		ND (0.76)		ND (0.71)		ND (0.75)	
Endrin ketone	ug/kg	-	ND (0.29)		ND (0.29)		ND (0.27)		ND (0.32)		ND (0.30)		ND (0.31)	
Toxaphene	ug/kg	-	ND (9.1)		ND (8.9)		ND (8.3)		ND (9.8)		ND (9.2)		ND (9.6)	
8082A)														
Aroclor 1016	ug/kg	100	ND (9.0)		ND (8.8)		ND (9.3)		ND (10)		ND (9.5)		ND (9.7)	
Aroclor 1221	ug/kg	100	ND (21)		ND (20)		ND (21)		ND (24)		ND (22)		ND (22)	
Aroclor 1232	ug/kg	100	ND (18)		ND (17)		ND (18)		ND (20)		ND (18)		ND (19)	
Aroclor 1242	ug/kg	100	ND (11)		ND (11)		ND (11)		ND (13)		ND (12)		ND (12)	
Aroclor 1248	ug/kg	100	ND (11)		ND (10)		ND (11)		ND (12)		ND (11)		ND (11)	
Aroclor 1254	ug/kg	100	ND (16)		ND (16)		ND (17)		ND (18)		ND (17)		ND (17)	
Aroclor 1260	ug/kg	100	ND (11)		ND (11)		ND (12)		ND (13)		ND (12)		ND (12)	
Aroclor 1268	ug/kg	100	ND (10)		ND (10)		ND (10)		ND (12)		ND (11)		ND (11)	
Aroclor 1262	ug/kg	100	ND (11)		ND (11)		ND (11)		ND (13)		ND (12)		ND (12)	

Notes:

NYSCO Unrestricted Use (6 NYCRR 375-6 12/06) - New York State Department of Environmental Conservation Track 1 Unrestricted Use Soil Cleanup Objectives

ND= Not detected above laboratory reporting limit

J = Estimated Value

ug/kg = micrograms per kilogram

Yellow shade with black text values exceed Track 1 NYSCO Unrestricted Use

Table 5A - Volatile Organic Compounds in Groundwater
2007 Remedial Investigation
518-526 West 30th Street,
Block 701 Lots 45, 52, 55, 56 and 58
New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY TOGS Class GA GW Standards (NYSDEC 6/2004)[1]	SB6(GW)		SB12 (GW)		SB13 (GW)		FB-GW		TRIP BLANK
Lab Sample ID:			J52951-13		J53069-2		J53069-3		J52951-18		J53194-10
Date Sampled:			2/1/2007		1/31/2007		1/31/2007		2/1/2007		2/5/2007
Matrix:			Ground Water		Ground Water		Ground Water		Field Blank Water		Trip Blank Water
GC/MS Volatiles (SW846											
Acetone	ug/l	-	ND (2.4)		ND (2.4)		ND (2.4)		ND (2.4)		ND (2.4)
Benzene	ug/l	1	ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)
Bromodichloromethane	ug/l	-	ND (0.17)		ND (0.17)		ND (0.17)		ND (0.17)		ND (0.17)
Bromoform	ug/l	-	ND (0.54)		ND (0.54)		ND (0.54)		ND (0.54)		ND (0.54)
Bromomethane	ug/l	5	ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)
2-Butanone (MEK)	ug/l	-	ND (2.6)		ND (2.6)		ND (2.6)		ND (2.6)		ND (2.6)
Carbon disulfide	ug/l	60	ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)
Carbon tetrachloride	ug/l	5	ND (0.29)		ND (0.29)		ND (0.29)		ND (0.29)		ND (0.29)
Chlorobenzene	ug/l	5	ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)
Chloroethane	ug/l	5	ND (0.56)		ND (0.56)		ND (0.56)		ND (0.56)		ND (0.56)
Chloroform	ug/l	7	ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)
Chloromethane	ug/l	5	ND (0.35)		ND (0.35)		ND (0.35)		ND (0.35)		ND (0.35)
Dibromochloromethane	ug/l	-	ND (0.19)		ND (0.19)		ND (0.19)		ND (0.19)		ND (0.19)
1,1-Dichloroethane	ug/l	5	ND (0.23)		ND (0.23)		ND (0.23)		ND (0.23)		ND (0.23)
1,2-Dichloroethane	ug/l	0.6	ND (0.29)		ND (0.29)		ND (0.29)		ND (0.29)		ND (0.29)
1,1-Dichloroethene	ug/l	5	ND (0.33)		ND (0.33)		ND (0.33)		ND (0.33)		ND (0.33)
cis-1,2-Dichloroethene	ug/l	5	ND (0.18)		ND (0.18)		ND (0.18)		ND (0.18)		ND (0.18)
trans-1,2-Dichloroethene	ug/l	5	ND (0.42)		ND (0.42)		ND (0.42)		ND (0.42)		ND (0.42)
1,2-Dichloropropane	ug/l	1	ND (0.20)		ND (0.20)		ND (0.20)		ND (0.20)		ND (0.20)
cis-1,3-Dichloropropene	ug/l	-	ND (0.15)		ND (0.15)		ND (0.15)		ND (0.15)		ND (0.15)
trans-1,3-Dichloropropene	ug/l	-	ND (0.20)		ND (0.20)		ND (0.20)		ND (0.20)		ND (0.20)
Ethylbenzene	ug/l	5	ND (0.20)		ND (0.20)		ND (0.20)		ND (0.20)		ND (0.20)
2-Hexanone	ug/l	-	ND (1.3)		ND (1.3)		ND (1.3)		ND (1.3)		ND (1.3)
Methyl Tert Butyl Ether	ug/l	10	ND (0.31)		ND (0.31)		ND (0.31)		ND (0.31)		ND (0.31)
4-Methyl-2-pentanone(MIBK)	ug/l	-	ND (1.1)		ND (1.1)		ND (1.1)		ND (1.1)		ND (1.1)
Methylene chloride	ug/l	5	ND (0.27)		ND (0.27)		ND (0.27)		ND (0.27)		ND (0.27)
Styrene	ug/l	5	ND (0.16)		ND (0.16)		ND (0.16)		ND (0.16)		ND (0.16)
1,1,2,2-Tetrachloroethane	ug/l	5	ND (0.28)		ND (0.28)		ND (0.28)		ND (0.28)		ND (0.28)
Tetrachloroethene	ug/l	5	ND (0.28)		ND (0.28)		ND (0.28)		ND (0.28)		ND (0.28)
Toluene	ug/l	5	ND (0.20)		ND (0.20)		ND (0.20)		ND (0.20)		ND (0.20)
1,1,1-Trichloroethane	ug/l	5	ND (0.28)		ND (0.28)		ND (0.28)		ND (0.28)		ND (0.28)
1,1,2-Trichloroethane	ug/l	1	ND (0.32)		ND (0.32)		ND (0.32)		ND (0.32)		ND (0.32)
Trichloroethene	ug/l	5	ND (0.29)		ND (0.29)		ND (0.29)		ND (0.29)		ND (0.29)
Vinyl chloride	ug/l	2	ND (0.29)		ND (0.29)		ND (0.29)		ND (0.29)		ND (0.29)
Xylene (total)	ug/l	5	ND (0.31)		ND (0.31)		ND (0.31)		ND (0.31)		ND (0.31)
Total VOCs			**ND**		**ND**		**ND**		**ND**		**ND**

Notes:

Class GA Value = Class GA Standards and Guidance Values (NYSDEC's June 1998 *Division of Water Technical and Operational Guidance Series*)

ND= Not detected above laboratory reporting limit

J = Estimated Value

ug/L = micrograms per liter

Yellow shade with black text values exceed Class GA Standard

Table 5B - Volatile Organic Compounds in Groundwater
2013 Remedial Investigation
518-526 West 30th Street,
Block 701 Lots 45, 52, 55, 56 and 58
New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY TOGS Class GA GW Standards (NYSDEC 6/2004)[1]	MW-1		MW-2		MW-3		FB022013		TRIP BLANK
Lab Sample ID:			JB29431-3		JB29431-6		JB29431-9		JB29431-10		JB29431-11
Date Sampled:			2/19/2013		2/20/2013		2/19/2013		2/20/2013		2/20/2013
Matrix:			Ground Water		Ground Water		Ground Water		Field Blank		Trip Blank
			Results	Q	Results	Q	Results	Q	Results	Q	Water
GC/MS Volatiles (SW846 8260B)											
Acetone	ug/l	-	ND (3.3)		ND (3.3)		ND (3.3)		ND (3.3)		ND (3.3)
Benzene	ug/l	1	ND (0.24)		ND (0.24)		ND (0.24)		ND (0.24)		ND (0.24)
Bromochloromethane	ug/l	5	ND (0.30)		ND (0.30)		ND (0.30)		ND (0.30)		ND (0.30)
Bromodichloromethane	ug/l	-	ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)
Bromoform	ug/l	-	ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)
Bromomethane	ug/l	5	ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)
2-Butanone (MEK)	ug/l	-	ND (2.4)		ND (2.4)		ND (2.4)		ND (2.4)		ND (2.4)
Carbon disulfide	ug/l	60	ND (0.19)		ND (0.19)		ND (0.19)		ND (0.19)		ND (0.19)
Carbon tetrachloride	ug/l	5	ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)
Chlorobenzene	ug/l	5	ND (0.23)		ND (0.23)		ND (0.23)		ND (0.23)		ND (0.23)
Chloroethane	ug/l	5	ND (0.26)		ND (0.26)		ND (0.26)		ND (0.26)		ND (0.26)
Chloroform	ug/l	7	ND (0.20)		1.2		ND (0.20)		ND (0.20)		ND (0.20)
Chloromethane	ug/l	5	ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)
Cyclohexane	ug/l	-	ND (0.35)		ND (0.35)		ND (0.35)		ND (0.35)		ND (0.35)
1,2-Dibromo-3-chloropropane	ug/l	0.04	ND (0.54)		ND (0.54)		ND (0.54)		ND (0.54)		ND (0.54)
Dibromochloromethane	ug/l	-	ND (0.14)		ND (0.14)		ND (0.14)		ND (0.14)		ND (0.14)
1,2-Dibromoethane	ug/l	0.0006	ND (0.20)		ND (0.20)		ND (0.20)		ND (0.20)		ND (0.20)
1,2-Dichlorobenzene	ug/l	3	ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)
1,3-Dichlorobenzene	ug/l	3	ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)
1,4-Dichlorobenzene	ug/l	3	ND (0.30)		ND (0.30)		ND (0.30)		ND (0.30)		ND (0.30)
Dichlorodifluoromethane	ug/l	5	ND (0.27)		ND (0.27)		ND (0.27)		ND (0.27)		ND (0.27)
1,1-Dichloroethane	ug/l	5	ND (0.11)		ND (0.11)		ND (0.11)		ND (0.11)		ND (0.11)
1,2-Dichloroethane	ug/l	0.6	ND (0.26)		ND (0.26)		ND (0.26)		ND (0.26)		ND (0.26)
1,1-Dichloroethene	ug/l	5	ND (0.19)		ND (0.19)		ND (0.19)		ND (0.19)		ND (0.19)
cis-1,2-Dichloroethene	ug/l	5	ND (0.19)		ND (0.19)		ND (0.19)		ND (0.19)		ND (0.19)
trans-1,2-Dichloroethene	ug/l	5	ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)
1,2-Dichloropropane	ug/l	1	ND (0.48)		ND (0.48)		ND (0.48)		ND (0.48)		ND (0.48)
cis-1,3-Dichloropropene	ug/l	-	ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)
trans-1,3-Dichloropropene	ug/l	-	ND (0.19)		ND (0.19)		ND (0.19)		ND (0.19)		ND (0.19)
1,4-Dioxane	ug/l	-	ND (75)		ND (75)		ND (75)		ND (75)		ND (75)
Ethylbenzene	ug/l	5	ND (0.23)		0.56	J	**9.5**		ND (0.23)		ND (0.23)
Freon 113	ug/l	5	ND (0.53)		ND (0.53)		ND (0.53)		ND (0.53)		ND (0.53)
2-Hexanone	ug/l	-	ND (1.1)		ND (1.1)		ND (1.1)		ND (1.1)		ND (1.1)
Isopropylbenzene	ug/l	5	ND (0.45)		ND (0.45)		3.7		ND (0.45)		ND (0.45)
Methyl Acetate	ug/l	-	ND (1.2)		ND (1.2)		ND (1.2)		ND (1.2)		ND (1.2)
Methylcyclohexane	ug/l	-	ND (0.26)		ND (0.26)		ND (0.26)		ND (0.26)		ND (0.26)
Methyl Tert Butyl Ether	ug/l	10	ND (0.16)		ND (0.16)		ND (0.16)		ND (0.16)		ND (0.16)
4-Methyl-2-pentanone(MIBK)	ug/l	-	ND (0.83)		ND (0.83)		ND (0.83)		ND (0.83)		ND (0.83)
Methylene chloride	ug/l	5	**5.7**		ND (0.70)		**5.6**		ND (0.70)		ND (0.70)
Styrene	ug/l	5	ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)
1,1,2,2-Tetrachloroethane	ug/l	5	ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)
Tetrachloroethene	ug/l	5	ND (0.28)		ND (0.28)		ND (0.28)		ND (0.28)		ND (0.28)
Toluene	ug/l	5	0.27	J	ND (0.23)		1.5		ND (0.23)		ND (0.23)
1,2,3-Trichlorobenzene	ug/l	5	ND (0.28)		ND (0.28)		ND (0.28)		ND (0.28)		ND (0.28)
1,2,4-Trichlorobenzene	ug/l	5	ND (0.20)		ND (0.20)		ND (0.20)		ND (0.20)		ND (0.20)
1,1,1-Trichloroethane	ug/l	5	ND (0.24)		ND (0.24)		ND (0.24)		ND (0.24)		ND (0.24)
1,1,2-Trichloroethane	ug/l	1	ND (0.29)		ND (0.29)		ND (0.29)		ND (0.29)		ND (0.29)
Trichloroethene	ug/l	5	ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)
Trichlorofluoromethane	ug/l	5	ND (0.27)		ND (0.27)		ND (0.27)		ND (0.27)		ND (0.27)
Vinyl chloride	ug/l	2	ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)		ND (0.21)
m,p-Xylene	ug/l	-	ND (0.42)		2.4		49.2		ND (0.42)		ND (0.42)
o-Xylene	ug/l	5	0.26	J	1.6		**37.6**		ND (0.24)		ND (0.24)
Xylene (total)	ug/l	5	0.66	J	4.1		**86.8**		ND (0.24)		ND (0.24)
Total VOCs			**6.89**		**9.86**		**193.9**		**0**		**0**

Notes:

Class GA Value = Class GA Standards and Guidance Values (NYSDEC's June 1998 *Division of Water Technical and Operational Guidance Series*)

ND= Not detected above laboratory reporting limit

J = Estimated Value

ug/L = micrograms per liter

Yellow shade with black text values exceed Class GA Standard

Table 6A- Semivolatile Organic Compounds in Groundwater
2007 Remedial Investigation

518-526 West 30th Street,

Block 701 Lots 45, 52, 55, 56 and 58

New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY TOGS Class GA GW Standards (NYSDEC 6/2004)[1]	SB6(GW)		SB12 (GW)		SB13 (GW)		FB-GW	
Lab Sample ID:			J52951-13		J53069-2		J53069-3		J52951-18	
Date Sampled:			2/1/2007		1/31/2007		1/31/2007		2/1/2007	
Matrix:			Ground Water		Ground Water		Ground Water		Field Blank Water	
GC/MS Volatiles (SW846										
2-Chlorophenol	ug/l	-	ND (0.95)		ND (0.95)		ND (0.95)		ND (1.0)	
4-Chloro-3-methyl phenol	ug/l	-	ND (1.2)		ND (1.2)		ND (1.2)		ND (1.9)	
2,4-Dichlorophenol	ug/l	1	ND (1.6)		ND (1.6)		ND (1.6)		ND (1.2)	
2,4-Dimethylphenol	ug/l	1	ND (1.6)		ND (1.6)		ND (1.6)		ND (1.6)	
2,4-Dinitrophenol	ug/l	1	ND (0.89)		ND (0.89)		ND (0.89)		ND (17)	
4,6-Dinitro-o-cresol	ug/l	-	ND (0.72)		ND (0.72)		ND (0.72)		ND (1.0)	
2-Methylphenol	ug/l	-	ND (1.4)		ND (1.4)		ND (1.4)		ND (1.1)	
3&4-Methylphenol	ug/l	-	ND (1.3)		ND (1.3)		ND (1.3)		ND (0.97)	
2-Nitrophenol	ug/l	-	ND (1.8)		ND (1.8)		ND (1.8)		ND (1.6)	
4-Nitrophenol	ug/l	-	ND (0.84)		ND (0.84)		ND (0.84)		ND (5.5)	
Pentachlorophenol	ug/l	1	ND (1.9)		ND (1.9)		ND (1.9)		ND (1.5)	
Phenol	ug/l	1	ND (0.50)		ND (0.50)		ND (0.50)		ND (1.3)	
2,4,5-Trichlorophenol	ug/l	-	ND (1.9)		ND (1.9)		ND (1.9)		ND (0.99)	
2,4,6-Trichlorophenol	ug/l	-	ND (1.3)		ND (1.3)		ND (1.3)		ND (1.6)	
Acenaphthene	ug/l	-	ND (0.35)		ND (0.35)		ND (0.35)		ND (1.4)	
Acenaphthylene	ug/l	-	ND (0.38)		ND (0.38)		ND (0.38)		ND (0.28)	
Anthracene	ug/l	-	ND (0.40)		ND (0.40)		ND (0.40)		ND (0.24)	
Benzo(a)anthracene	ug/l	-	ND (0.36)		ND (0.36)		ND (0.36)		ND (0.30)	
Benzo(a)pyrene	ug/l	ND	ND (0.37)		ND (0.37)		ND (0.37)		ND (0.30)	
Benzo(b)fluoranthene	ug/l	-	ND (0.59)		ND (0.59)		ND (0.59)		ND (0.51)	
Benzo(g,h,i)perylene	ug/l	-	ND (0.42)		ND (0.42)		ND (0.42)		ND (3.4)	
Benzo(k)fluoranthene	ug/l	-	ND (0.42)		ND (0.42)		ND (0.42)		ND (0.24)	
4-Bromophenyl phenyl ether	ug/l	-	ND (0.30)		ND (0.30)		ND (0.30)		ND (0.24)	
Butyl benzyl phthalate	ug/l	-	ND (0.59)		ND (0.59)		ND (0.59)		ND (0.48)	
2-Chloronaphthalene	ug/l	-	ND (0.98)		ND (0.98)		ND (0.98)		ND (0.34)	
4-Chloroaniline	ug/l	5	ND (0.40)		ND (0.40)		ND (0.40)		ND (0.54)	
Carbazole	ug/l	-	ND (0.36)		ND (0.36)		ND (0.36)		ND (0.38)	
Chrysene	ug/l	-	ND (0.25)		ND (0.25)		ND (0.25)		ND (0.30)	
bis(2-Chloroethoxy)methane	ug/l	5	ND (0.65)		ND (0.65)		ND (0.65)		ND (0.32)	
bis(2-Chloroethyl)ether	ug/l	1	ND (0.53)		ND (0.53)		ND (0.53)		ND (0.31)	
bis(2-Chloroisopropyl)ether	ug/l	5	ND (0.74)		ND (0.74)		ND (0.74)		ND (0.56)	
4-Chlorophenyl phenyl ether	ug/l	-	ND (0.43)		ND (0.43)		ND (0.43)		ND (0.38)	
1,2-Dichlorobenzene	ug/l	3	ND (0.21)		ND (0.21)		ND (0.21)		ND (0.73)	
1,3-Dichlorobenzene	ug/l	3	ND (0.16)		ND (0.16)		ND (0.16)		ND (0.30)	
1,4-Dichlorobenzene	ug/l	3	ND (0.18)		ND (0.18)		ND (0.18)		ND (0.32)	
2,4-Dinitrotoluene	ug/l	5	ND (0.86)		ND (0.86)		ND (0.86)		ND (0.32)	
2,6-Dinitrotoluene	ug/l	5	ND (0.56)		ND (0.56)		ND (0.56)		ND (0.48)	
3,3'-Dichlorobenzidine	ug/l	5	ND (1.2)		ND (1.2)		ND (1.2)		ND (0.33)	
Dibenzo(a,h)anthracene	ug/l	-	ND (0.54)		ND (0.54)		ND (0.54)		ND (0.45)	
Dibenzofuran	ug/l	-	ND (0.34)		ND (0.34)		ND (0.34)		ND (0.49)	
Di-n-butyl phthalate	ug/l	50	ND (0.59)		ND (0.59)		ND (0.59)		ND (0.38)	
Di-n-octyl phthalate	ug/l	-	ND (0.57)		ND (0.57)		ND (0.57)		ND (0.40)	
Diethyl phthalate	ug/l	-	ND (0.39)		ND (0.39)		ND (0.39)		ND (0.28)	
Dimethyl phthalate	ug/l	-	ND (0.33)		ND (0.33)		ND (0.33)		ND (0.58)	
bis(2-Ethylhexyl)phthalate	ug/l	5	ND (0.66)		ND (0.66)		1.1	J	ND (0.32)	
Fluoranthene	ug/l	-	ND (0.25)		ND (0.25)		ND (0.25)		ND (0.34)	
Fluorene	ug/l	-	ND (0.45)		ND (0.45)		ND (0.45)		ND (0.30)	
Hexachlorobenzene	ug/l	0.04	ND (0.54)		ND (0.54)		ND (0.54)		ND (0.62)	
Hexachlorobutadiene	ug/l	0.5	ND (0.18)		ND (0.18)		ND (0.18)		ND (0.33)	
Hexachlorocyclopentadiene	ug/l	5	ND (0.41)		ND (0.41)		ND (0.41)		ND (0.29)	
Hexachloroethane	ug/l	5	ND (0.28)		ND (0.28)		ND (0.28)		ND (0.36)	
Indeno(1,2,3-cd)pyrene	ug/l	-	ND (0.30)		ND (0.30)		ND (0.30)		ND (0.54)	
Isophorone	ug/l	-	ND (0.59)		ND (0.59)		ND (0.59)		ND (7.5)	
2-Methylnaphthalene	ug/l	-	ND (0.41)		ND (0.41)		ND (0.41)		ND (0.58)	
2-Nitroaniline	ug/l	5	ND (0.66)		ND (0.66)		ND (0.66)		ND (0.39)	
3-Nitroaniline	ug/l	5	ND (1.3)		ND (1.3)		ND (1.3)		ND (0.29)	
4-Nitroaniline	ug/l	5	ND (0.72)		ND (0.72)		ND (0.72)		ND (0.40)	
Naphthalene	ug/l	-	ND (0.32)		ND (0.32)		ND (0.32)		ND (1.2)	
Nitrobenzene	ug/l	0.4	ND (0.42)		ND (0.42)		ND (0.42)		ND (1.3)	
N-Nitroso-di-n-propylamine	ug/l	-	ND (0.47)		ND (0.47)		ND (0.47)		ND (1.7)	
N-Nitrosodiphenylamine	ug/l	-	ND (0.52)		ND (0.52)		ND (0.52)		ND (0.27)	
Phenanthrene	ug/l	-	ND (0.36)		ND (0.36)		ND (0.36)		ND (0.44)	
Pyrene	ug/l	-	ND (0.34)		ND (0.34)		ND (0.34)		ND (0.32)	
1,2,4-Trichlorobenzene	ug/l	5	ND (0.34)		ND (0.34)		ND (0.34)		ND (0.32)	
Total SVOCs			**ND**		**ND**		**1.1**		**ND**	

Notes:

Class GA Value = Class GA Standards and Guidance Values

(NYSDEC's June 1998 Division of Water Technical and Operational Guidance Series)

ND= Not detected above laboratory reporting limit

J = Estimated Value

ug/L = micrograms per liter

Yellow shade with black text values exceed Class GA Standard

Table 6B - Semivolatile Organic Compounds in Groundwater
2013 Remedial Investigation

518-526 West 30th Street,

Block 701 Lots 45, 52, 55, 56 and 58

New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY TOGS Class GA GW Standards (NYSDEC 6/2004)[1]	MW-1		MW-2		MW-3		FB022013	
Lab Sample ID:			JB29431-3		JB29431-6		JB29431-9		JB29431-10	
Date Sampled:			2/19/2013		2/20/2013		2/19/2013		2/20/2013	
Matrix:			Ground Water		Ground Water		Ground Water		Field Blank	
			Results	Q	Results	Q	Results	Q	Results	Q
GC/MS Volatiles (SW846 8260B)										
2-Chlorophenol	ug/l	-	ND (0.97)		ND (0.97)		ND (0.97)		ND (1.0)	
4-Chloro-3-methyl phenol	ug/l	-	ND (1.8)		ND (1.8)		ND (1.8)		ND (1.9)	
2,4-Dichlorophenol	ug/l	1	ND (1.2)		ND (1.2)		ND (1.2)		ND (1.2)	
2,4-Dimethylphenol	ug/l	1	ND (1.5)		ND (1.5)		ND (1.5)		ND (1.6)	
2,4-Dinitrophenol	ug/l	1	ND (17)		ND (17)		ND (17)		ND (17)	
4,6-Dinitro-o-cresol	ug/l	-	ND (0.99)		ND (0.99)		ND (0.99)		ND (1.0)	
2-Methylphenol	ug/l	-	ND (1.0)		ND (1.0)		ND (1.0)		ND (1.1)	
3&4-Methylphenol	ug/l	-	ND (0.93)		ND (0.93)		ND (0.93)		ND (0.97)	
2-Nitrophenol	ug/l	-	ND (1.5)		ND (1.5)		ND (1.5)		ND (1.6)	
4-Nitrophenol	ug/l	-	ND (5.2)		ND (5.2)		ND (5.2)		ND (5.5)	
Pentachlorophenol	ug/l	1	ND (1.4)		ND (1.4)		ND (1.4)		ND (1.5)	
Phenol	ug/l	1	ND (1.3)		ND (1.3)		ND (1.3)		ND (1.3)	
2,3,4,6-Tetrachlorophenol	ug/l	-	ND (0.94)		ND (0.94)		ND (0.94)		ND (0.99)	
2,4,5-Trichlorophenol	ug/l	-	ND (1.6)		ND (1.6)		ND (1.6)		ND (1.6)	
2,4,6-Trichlorophenol	ug/l	-	ND (1.3)		ND (1.3)		ND (1.3)		ND (1.4)	
Acenaphthene	ug/l	-	ND (0.26)		ND (0.26)		1.2		ND (0.28)	
Acenaphthylene	ug/l	-	ND (0.23)		ND (0.23)		ND (0.23)		ND (0.24)	
Acetophenone	ug/l	-	ND (0.29)		ND (0.29)		ND (0.29)		ND (0.30)	
Anthracene	ug/l	-	ND (0.29)		ND (0.29)		ND (0.29)		ND (0.30)	
Atrazine	ug/l	7.5	ND (0.49)		ND (0.49)		ND (0.49)		ND (0.51)	
Benzaldehyde	ug/l	-	ND (3.3)		ND (3.3)		ND (3.3)		ND (3.4)	
Benzo(a)anthracene	ug/l	-	ND (0.23)		ND (0.23)		0.65	J	ND (0.24)	
Benzo(a)pyrene	ug/l	ND	ND (0.23)		ND (0.23)		ND (0.23)		ND (0.24)	
Benzo(b)fluoranthene	ug/l	-	ND (0.46)		ND (0.46)		ND (0.46)		ND (0.48)	
Benzo(g,h,i)perylene	ug/l	-	ND (0.32)		ND (0.32)		ND (0.32)		ND (0.34)	
Benzo(k)fluoranthene	ug/l	-	ND (0.51)		ND (0.51)		ND (0.51)		ND (0.54)	
4-Bromophenyl phenyl ether	ug/l	-	ND (0.36)		ND (0.36)		ND (0.36)		ND (0.38)	
Butyl benzyl phthalate	ug/l	-	ND (0.29)		ND (0.29)		ND (0.29)		ND (0.30)	
1,1'-Biphenyl	ug/l	5	ND (0.30)		ND (0.30)		1.9		ND (0.32)	
2-Chloronaphthalene	ug/l	-	ND (0.30)		ND (0.30)		ND (0.30)		ND (0.31)	
4-Chloroaniline	ug/l	5	ND (0.53)		ND (0.53)		ND (0.53)		ND (0.56)	
Carbazole	ug/l	-	ND (0.36)		ND (0.36)		3.5		ND (0.38)	
Caprolactam	ug/l	-	ND (0.69)		ND (0.69)		ND (0.69)		ND (0.73)	
Chrysene	ug/l	-	ND (0.29)		ND (0.29)		0.56	J	ND (0.30)	
bis(2-Chloroethoxy)methane	ug/l	5	ND (0.31)		ND (0.31)		ND (0.31)		ND (0.32)	
bis(2-Chloroethyl)ether	ug/l	1	ND (0.31)		ND (0.31)		ND (0.31)		ND (0.32)	
bis(2-Chloroisopropyl)ether	ug/l	5	ND (0.45)		ND (0.45)		ND (0.45)		ND (0.48)	
4-Chlorophenyl phenyl ether	ug/l	-	ND (0.31)		ND (0.31)		ND (0.31)		ND (0.33)	
2,4-Dinitrotoluene	ug/l	5	ND (0.43)		ND (0.43)		ND (0.43)		ND (0.45)	
2,6-Dinitrotoluene	ug/l	5	ND (0.46)		ND (0.46)		ND (0.46)		ND (0.49)	
3,3'-Dichlorobenzidine	ug/l	5	ND (0.36)		ND (0.36)		ND (0.36)		ND (0.38)	
Dibenzo(a,h)anthracene	ug/l	-	ND (0.38)		ND (0.38)		ND (0.38)		ND (0.40)	
Dibenzofuran	ug/l	-	ND (0.27)		ND (0.27)		ND (0.27)		ND (0.28)	
Di-n-butyl phthalate	ug/l	50	ND (0.56)		ND (0.56)		ND (0.56)		ND (0.58)	
Di-n-octyl phthalate	ug/l	-	ND (0.31)		ND (0.31)		ND (0.31)		ND (0.32)	
Diethyl phthalate	ug/l	-	4.5		ND (0.33)		ND (0.33)		ND (0.34)	
Dimethyl phthalate	ug/l	-	ND (0.28)		ND (0.28)		ND (0.28)		ND (0.30)	
bis(2-Ethylhexyl)phthalate	ug/l	5	ND (0.59)		ND (0.59)		ND (0.59)		ND (0.62)	
Fluoranthene	ug/l	-	ND (0.32)		ND (0.32)		2.2		ND (0.33)	
Fluorene	ug/l	-	ND (0.28)		ND (0.28)		1.6		ND (0.29)	
Hexachlorobenzene	ug/l	0.04	ND (0.34)		ND (0.34)		ND (0.34)		ND (0.36)	
Hexachlorobutadiene	ug/l	0.5	ND (0.51)		ND (0.51)		ND (0.51)		ND (0.54)	
Hexachlorocyclopentadiene	ug/l	5	ND (7.1)		ND (7.1)		ND (7.1)		ND (7.5)	
Hexachloroethane	ug/l	5	ND (0.55)		ND (0.55)		ND (0.55)		ND (0.58)	
Indeno(1,2,3-cd)pyrene	ug/l	-	ND (0.37)		ND (0.37)		ND (0.37)		ND (0.39)	
Isophorone	ug/l	-	ND (0.27)		ND (0.27)		ND (0.27)		ND (0.29)	
2-Methylnaphthalene	ug/l	-	ND (0.38)		1.4		18.2		ND (0.40)	
2-Nitroaniline	ug/l	5	ND (1.1)		ND (1.1)		ND (1.1)		ND (1.2)	
3-Nitroaniline	ug/l	5	ND (1.3)		ND (1.3)		ND (1.3)		ND (1.3)	
4-Nitroaniline	ug/l	5	ND (1.7)		ND (1.7)		ND (1.7)		ND (1.7)	
Naphthalene	ug/l	-	ND (0.26)		1.2		13.5		ND (0.27)	
Nitrobenzene	ug/l	0.4	ND (0.42)		ND (0.42)		ND (0.42)		ND (0.44)	
N-Nitroso-di-n-propylamine	ug/l	-	ND (0.30)		ND (0.30)		ND (0.30)		ND (0.32)	
N-Nitrosodiphenylamine	ug/l	-	ND (0.31)		ND (0.31)		ND (0.31)		ND (0.32)	
Phenanthrene	ug/l	-	ND (0.29)		ND (0.29)		4.4		ND (0.31)	
Pyrene	ug/l	-	ND (0.27)		ND (0.27)		1.8		ND (0.28)	
1,2,4,5-Tetrachlorobenzene	ug/l	5	ND (0.31)		ND (0.31)		ND (0.31)		ND (0.32)	
Total SVOCs			**4.5**		**2.6**		**49.51**		**ND**	

Notes:

Class GA Value = Class GA Standards and Guidance Values

(NYSDEC's June 1998 Division of Water Technical and Operational Guidance Series)

ND= Not detected above laboratory reporting limit

J = Estimated Value

ug/L = micrograms per liter

Yellow shade with black text values exceed Class GA Standard

Table 7A -Metals in Groundwater
2007 Remedial Investigation
518-526 West 30th Street,
Block 701 Lots 45, 52, 55, 56 and 58
New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY TOGS Class GA GW Standards (NYSDEC 6/2004)[1]	SB6(GW)	SB6(GW)	SB12 (GW)	SB12 (GW)	SB13 (GW)	SB13 (GW)	FB-GW
Lab Sample ID:			J52951-13	J52951-13F	J53069-2	J53069-2F	J53069-3	J53069-3F	J52951-18
Date Sampled:			2/1/2007	2/1/2007	1/31/2007	1/31/2007	1/31/2007	1/31/2007	2/1/2007
Matrix:			Ground Water	Groundwater Filtered	Ground Water	Groundwater Filtered	Ground Water	Groundwater Filtered	Field Blank Water
GC/MS Volatiles (SW846									
Aluminum	ug/l	-	88200 [a]	<200	15400	<200	47500	<200	<200
Antimony	ug/l	3	<10	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Arsenic	ug/l	25	**32.8 [a]**	<8.0	<8.0	<8.0	12.7	<8.0	<8.0
Barium	ug/l	1000	**1430 [a]**	<200	251	<200	809	<200	<200
Beryllium	ug/l	-	6.3 [a]	<1.0	1.4	<1.0	3.1	<1.0	<1.0
Cadmium	ug/l	5	<6.7 [a]	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Calcium	ug/l	-	90800 [a]	68600	85200	22300	213000	122000	<5000
Chromium	ug/l	50	**270 [a]**	<10	**60.2**	<10	**114**	<10	<10
Cobalt	ug/l	-	113 [a]	<50	<50	<50	<50	<50	<50
Copper	ug/l	200	**260 [a]**	<25	70.1	<25	109	<25	<25
Iron	ug/l	300	**166000 [a]**	190	**24900**	127	**73000**	169	<100
Lead	ug/l	25	**220 [a]**	3.1	**31**	<3.0	**46.6**	<3.0	<3.0
Magnesium	ug/l	-	67100 [a]	33100	26900	7820	96500	59900	<5000
Manganese	ug/l	300	**10100 [a]**	**4470**	**2010**	270	**2730**	**545**	<15
Mercury	ug/l	0.7	<0.40 [a]	<0.20	<0.40 [a]	<0.20	<0.40 [a]	<0.20	<0.20
Nickel	ug/l	100	**270 [a]**	<40	63.7	<40	**143**	<40	<40
Potassium	ug/l	-	19000 [a]	<5000	9650	<5000	22600	7210	<5000
Selenium	ug/l	10	<17 [a]	<10	<10	<10	<10	<10	<10
Silver	ug/l	50	<17 [a]	<10	<10	<10	<10	<10	<10
Sodium	ug/l	20000	**209000**	**228000**	**191000**	**223000**	**186000**	**202000**	<10000
Thallium	ug/l	-	<17 [a]	<10	<10	<10	<10	<10	<10
Vanadium	ug/l	-	175 [a]	<50	<50	<50	110	<50	<50
Zinc	ug/l	-	2440 [a]	97.3	136	<20	205	<20	<20

Notes:
Class GA Value = Class GA Standards and Guidance Values
(NYSDEC's June 1998 Division of Water Technical and Operational Guidance Series)
ND= Not detected above laboratory reporting limit
J = Estimated Value
ug/L = micrograms per liter
Yellow shade with black text values exceed Class GA Standard
[a] Elevated sample detection limit due to difficult sample matrix.

Table 7B -Metals in Groundwater
2013 Remedial Investigation
518-526 West 30th Street,
Block 701 Lots 45, 52, 55, 56 and 58
New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY TOGS Class GA GW Standards (NYSDEC 6/2004)[1]	MW-1	MW-1	MW-2	MW-2	MW-3	MW-3	FB022013 METALS	TRIP BLANK
Lab Sample ID:			JB29431-3	JB29431-3F	JB29431-6	JB29431-6F	JB29431-9	JB29431-9F	JB29431-13	JB29431-11
Date Sampled:			2/19/2013	2/19/2013	2/20/2013	2/20/2013	2/19/2013	2/19/2013	2/20/2013	2/20/2013
Matrix:			Ground Water	Groundwater Filtered	Ground Water	Groundwater Filtered	Ground Water	Groundwater Filtered	Field Blank Water	Trip Blank Water
GC/MS Volatiles (SW846 8260B)										
Aluminum	ug/l	-	3040	<200	2240	<200	1760	<200	<200	<200
Antimony	ug/l	3	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Arsenic	ug/l	25	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Barium	ug/l	1000	<200	<200	<200	<200	426	405	<200	<200
Beryllium	ug/l	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	ug/l	5	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Calcium	ug/l	-	161000	181000	109000	115000	202000	217000	<5000	<5000
Chromium	ug/l	50	<10	<10	<10	<10	<10	<10	<10	<10
Cobalt	ug/l	-	<50	<50	<50	<50	<50	<50	<50	<50
Copper	ug/l	200	<10	<10	<10	<10	<10	<10	<10	<10
Iron	ug/l	300	**3160**	<100	**2920**	**427**	**17500**	**16600**	<100	<100
Lead	ug/l	25	<3.0	<3.0	16.4	<3.0	**116**	<3.0	<3.0	<3.0
Magnesium	ug/l	-	54400	61400	23700	23900	63800	69000	<5000	<5000
Manganese	ug/l	300	**3380**	**3660**	**559**	**602**	**2280**	**2410**	<15	<15
Mercury	ug/l	0.7	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	ug/l	100	<10	<10	<10	<10	<10	<10	<10	<10
Potassium	ug/l	-	28300	31800	11200	11600	36400	39100	<10000	<10000
Selenium	ug/l	10	**16.1**	**20.5**	<10	<10	<10	<10	<10	<10
Silver	ug/l	50	<10	<10	<10	<10	<10	<10	<10	<10
Sodium	ug/l	20000	**173000**	**194000**	**103000**	**107000**	**513000**	**580000**	<10000	<10000
Thallium	ug/l	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Vanadium	ug/l	-	<50	<50	<50	<50	<50	<50	<50	<50
Zinc	ug/l	-	<20	<20	<20	<20	75.2	51.8	<20	<20

Notes:
Class GA Value = Class GA Standards and Guidance Values
(NYSDEC's June 1998 Division of Water Technical and Operational Guidance Series)
ND= Not detected above laboratory reporting limit
J = Estimated Value
ug/L = micrograms per liter
Yellow shade with black text values exceed Class GA Standard

Table 8A-PCBs/ Pesticides in Groundwater
2007 Remedial Investigation
518-526 West 30th Street,
Block 701 Lots 45, 52, 55, 56 and 58
New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY TOGS Class GA GW Standards (NYSDEC 6/2004)[1]	SB6(GW)	SB12 (GW)	SB13 (GW)	FB-GW
Lab Sample ID:			J52951-13	J53069-2	J53069-3	J52951-18
Date Sampled:			2/1/2007	1/31/2007	1/31/2007	2/1/2007
Matrix:			Ground Water	Ground Water	Ground Water	Field Blank Water
Pesticides (SW846 8081B)						
Aldrin	ug/l	ND	ND (0.0033)	ND (0.0033)	ND (0.0033)	ND (0.0033)
alpha-BHC	ug/l	0.01	ND (0.0026)	ND (0.0026)	ND (0.0026)	ND (0.0026)
beta-BHC	ug/l	0.04	ND (0.0062)	ND (0.0062)	ND (0.0062)	ND (0.0062)
delta-BHC	ug/l	0.04	ND (0.0031)	ND (0.0031)	ND (0.0031)	ND (0.0031)
gamma-BHC (Lindane)	ug/l	0.05	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.0017)
alpha-Chlordane	ug/l	-	ND (0.0044)	ND (0.0044)	ND (0.0044)	ND (0.0044)
gamma-Chlordane	ug/l	-	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.0017)
Dieldrin	ug/l	0.004	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.0017)
4,4'-DDD	ug/l	0.3	ND (0.0024)	ND (0.0024)	ND (0.0024)	ND (0.0024)
4,4'-DDE	ug/l	0.2	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.0017)
4,4'-DDT	ug/l	0.2	ND (0.0049)	ND (0.0049)	ND (0.0049)	ND (0.0049)
Endrin	ug/l	ND	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)
Endosulfan sulfate	ug/l	-	ND (0.0046)	ND (0.0046)	ND (0.0046)	ND (0.0046)
Endrin aldehyde	ug/l	5	ND (0.0064)	ND (0.0064)	ND (0.0064)	ND (0.0064)
Endrin ketone	ug/l	5	ND (0.0035)	ND (0.0035)	ND (0.0035)	ND (0.0035)
Endosulfan-I	ug/l	-	ND (0.0021)	ND (0.0021)	ND (0.0021)	ND (0.0021)
Endosulfan-II	ug/l	-	ND (0.0032)	ND (0.0032)	ND (0.0032)	ND (0.0032)
Heptachlor	ug/l	0.04	ND (0.0026)	ND (0.0026)	ND (0.0026)	ND (0.0026)
Heptachlor epoxide	ug/l	0.03	ND (0.0015)	ND (0.0015)	ND (0.0015)	ND (0.0015)
Methoxychlor	ug/l	35	ND (0.0068)	ND (0.0068)	ND (0.0068)	ND (0.0068)
Toxaphene	ug/l	0.06	ND (0.094)	ND (0.094)	ND (0.094)	ND (0.094)
Polychlorinated Biphenyls						
Aroclor 1016	ug/l	0.09	ND (0.094)	ND (0.094)	ND (0.094)	ND (0.094)
Aroclor 1221	ug/l	0.09	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)
Aroclor 1232	ug/l	0.09	ND (0.39)	ND (0.39)	ND (0.39)	ND (0.39)
Aroclor 1242	ug/l	0.09	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
Aroclor 1248	ug/l	0.09	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)
Aroclor 1254	ug/l	0.09	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)
Aroclor 1260	ug/l	0.09	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)

Notes:

Class GA Value = Class GA Standards and Guidance Values
(NYSDEC's June 1998 Division of Water Technical and Operational Guidance Series)

ND= Not detected above laboratory reporting limit

J = Estimated Value

ug/L = micrograms per liter

Yellow shade with black text values exceed Class GA Standard

Table 8B -PCBs/ Pesticides in Groundwater
2013 Remedial Investigation
518-526 West 30th Street,
Block 701 Lots 45, 52, 55, 56 and 58
New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NY TOGS Class GA GW Standards (NYSDEC 6/2004)[1]	MW-1	MW-2	MW-3	FB022013 METALS
Lab Sample ID:			JB29431-3	JB29431-6	JB29431-9	JB29431-13
Date Sampled:			2/19/2013	2/20/2013	2/19/2013	2/20/2013
Matrix:			Ground Water	Ground Water	Ground Water	Field Blank Water
Pesticides (SW846 8081B)						
Aldrin	ug/l	ND	ND (0.0079)	ND (0.0079)	ND (0.0079)	ND (0.0082)
alpha-BHC	ug/l	0.01	ND (0.0023)	ND (0.0023)	ND (0.0023)	ND (0.0024)
beta-BHC	ug/l	0.04	ND (0.0023)	ND (0.0023)	ND (0.0023)	ND (0.0024)
delta-BHC	ug/l	0.04	ND (0.0019)	ND (0.0019)	ND (0.0019)	ND (0.0019)
gamma-BHC (Lindane)	ug/l	0.05	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.0018)
alpha-Chlordane	ug/l	-	ND (0.0029)	ND (0.0029)	ND (0.0029)	ND (0.0030)
gamma-Chlordane	ug/l	-	ND (0.0021)	ND (0.0021)	ND (0.0021)	ND (0.0022)
Dieldrin	ug/l	0.004	ND (0.0016)	ND (0.0016)	ND (0.0016)	ND (0.0017)
4,4'-DDD	ug/l	0.3	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0026)
4,4'-DDE	ug/l	0.2	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.0018)
4,4'-DDT	ug/l	0.2	ND (0.0032)	ND (0.0032)	ND (0.0032)	ND (0.0033)
Endrin	ug/l	ND	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0021)
Endosulfan sulfate	ug/l	-	ND (0.0019)	ND (0.0019)	ND (0.0019)	ND (0.0020)
Endrin aldehyde	ug/l	5	ND (0.0037)	ND (0.0037)	ND (0.0037)	ND (0.0038)
Endrin ketone	ug/l	5	ND (0.0047)	ND (0.0047)	ND (0.0047)	ND (0.0049)
Endosulfan-I	ug/l	-	ND (0.0028)	ND (0.0028)	ND (0.0028)	ND (0.0029)
Endosulfan-II	ug/l	-	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0021)
Heptachlor	ug/l	0.04	ND (0.0022)	ND (0.0022)	ND (0.0022)	ND (0.0023)
Heptachlor epoxide	ug/l	0.03	ND (0.0026)	ND (0.0026)	ND (0.0026)	ND (0.0027)
Methoxychlor	ug/l	35	ND (0.0041)	ND (0.0041)	ND (0.0041)	ND (0.0042)
Toxaphene	ug/l	0.06	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)
Polychlorinated Biphenyls (SW846 8082A)						
Aroclor 1016	ug/l	0.09	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
Aroclor 1221	ug/l	0.09	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.28)
Aroclor 1232	ug/l	0.09	ND (0.39)	ND (0.39)	ND (0.39)	ND (0.40)
Aroclor 1242	ug/l	0.09	ND (0.086)	ND (0.086)	ND (0.086)	ND (0.090)
Aroclor 1248	ug/l	0.09	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)
Aroclor 1254	ug/l	0.09	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)
Aroclor 1260	ug/l	0.09	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.22)
Aroclor 1268	ug/l	0.09	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.14)
Aroclor 1262	ug/l	0.09	ND (0.060)	ND (0.060)	ND (0.060)	ND (0.063)

Notes:

Class GA Value = Class GA Standards and Guidance Values
(NYSDEC's June 1998 Division of Water Technical and Operational Guidance Series)

ND= Not detected above laboratory reporting limit

J = Estimated Value

ug/L = micrograms per liter

Yellow shade with black text values exceed Class GA Standard

Table 9 -Volatile Organic Compounds In Soil Vapor
2013 Remedial Investigation
518-526 West 30th Street,
Block 701 Lots 45, 52, 55, 56 and 58
New York, New York

OER Project Number 13EH-N305M

Client Sample ID:		NYS DOH Standard From Final Guidance On Soil Vapor Intrusion	SG-1		SG-2		SG-3		SG-4	
Lab Sample ID:			JB29431-14		JB29431-15		JB29431-16		JB29431-17	
Date Sampled:			2/19/2013		2/20/2013		2/20/2013		2/20/2013	
Matrix:			Soil Vapor Comp.		Soil Vapor Comp.		Soil Vapor Comp.		Soil Vapor Comp.	
GC/MS Volatiles (TO-15) - ug/m3										
Acetone	ug/m3	-	79.1		133		155		56.8	
1,3-Butadiene	ug/m3	-	ND (0.24)		ND (0.24)		ND (0.24)		ND (0.24)	
Benzene	ug/m3	-	2.2	J	2.2	J	1.8	J	1.3	J
Bromodichloromethane	ug/m3	-	ND (0.80)		ND (0.80)		ND (0.80)		ND (0.80)	
Bromoform	ug/m3	-	ND (1.2)		ND (1.2)		ND (1.2)		ND (1.2)	
Bromomethane	ug/m3	-	ND (0.37)		ND (0.37)		ND (0.37)		ND (0.37)	
Bromoethene	ug/m3	-	ND (0.48)		ND (0.48)		ND (0.48)		ND (0.48)	
Benzyl Chloride	ug/m3	-	ND (0.98)		ND (0.98)		ND (0.98)		ND (0.98)	
Carbon disulfide	ug/m3	-	ND (0.29)		2.7		14		ND (0.29)	
Chlorobenzene	ug/m3	-	ND (0.74)		ND (0.74)		ND (0.74)		ND (0.74)	
Chloroethane	ug/m3	-	ND (0.37)		ND (0.37)		ND (0.37)		ND (0.37)	
Chloroform	ug/m3	-	23		5.4		62.5		ND (0.49)	
Chloromethane	ug/m3	-	ND (0.45)		ND (0.45)		ND (0.45)		ND (0.45)	
3-Chloropropene	ug/m3	-	ND (0.44)		ND (0.44)		ND (0.44)		ND (0.44)	
2-Chlorotoluene	ug/m3	-	ND (0.62)		ND (0.62)		ND (0.62)		ND (0.62)	
Carbon tetrachloride	ug/m3	-	ND (0.49)		ND (0.49)		ND (0.49)		ND (0.49)	
Cyclohexane	ug/m3	-	ND (0.69)		ND (0.69)		ND (0.69)		ND (0.69)	
1,1-Dichloroethane	ug/m3	-	ND (0.32)		ND (0.32)		ND (0.32)		ND (0.32)	
1,1-Dichloroethylene	ug/m3	-	ND (0.36)		ND (0.36)		ND (0.36)		ND (0.36)	
1,2-Dibromoethane	ug/m3	-	ND (0.92)		ND (0.92)		ND (0.92)		ND (0.92)	
1,2-Dichloroethane	ug/m3	-	ND (0.45)		ND (0.45)		ND (0.45)		ND (0.45)	
1,2-Dichloropropane	ug/m3	-	ND (0.65)		ND (0.65)		ND (0.65)		ND (0.65)	
1,4-Dioxane	ug/m3	-	ND (1.7)		ND (1.7)		ND (1.7)		ND (1.7)	
Dichlorodifluoromethane	ug/m3	-	3	J	2.8	J	3.6	J	3	J
Dibromochloromethane	ug/m3	-	ND (1.2)		ND (1.2)		ND (1.2)		ND (1.2)	
trans-1,2-Dichloroethylene	ug/m3	-	ND (0.44)		ND (0.44)		ND (0.44)		ND (0.44)	
cis-1,2-Dichloroethylene	ug/m3	-	ND (0.40)		ND (0.40)		ND (0.40)		ND (0.40)	
cis-1,3-Dichloropropene	ug/m3	-	ND (0.59)		ND (0.59)		ND (0.59)		ND (0.59)	
m-Dichlorobenzene	ug/m3	-	ND (0.66)		ND (0.66)		ND (0.66)		ND (0.66)	
o-Dichlorobenzene	ug/m3	-	ND (0.90)		ND (0.90)		ND (0.90)		ND (0.90)	
p-Dichlorobenzene	ug/m3	-	ND (1.4)		ND (1.4)		ND (1.4)		ND (1.4)	
trans-1,3-Dichloropropene	ug/m3	-	ND (0.44)		ND (0.44)		ND (0.44)		ND (0.44)	
Ethanol	ug/m3	-	24.3		8.5		22.6		42.6	
Ethylbenzene	ug/m3	-	3.6		6.5		ND (0.52)		ND (0.52)	
Ethyl Acetate	ug/m3	-	4.3		ND (1.8)		ND (1.8)		ND (1.8)	
4-Ethyltoluene	ug/m3	-	ND (0.54)		ND (0.54)		ND (0.54)		ND (0.54)	
Freon 113	ug/m3	-	ND (0.84)		ND (0.84)		ND (0.84)		ND (0.84)	
Freon 114	ug/m3	-	ND (0.65)		ND (0.65)		ND (0.65)		ND (0.65)	
Heptane	ug/m3	-	3.3		7		2.9	J	ND (0.45)	
Hexachlorobutadiene	ug/m3	-	ND (1.3)		ND (1.3)		ND (1.3)		ND (1.3)	
Hexane	ug/m3	-	ND (0.70)		8.8		ND (0.70)		ND (0.70)	
2-Hexanone	ug/m3	-	ND (0.86)		ND (0.86)		ND (0.86)		ND (0.86)	
Isopropyl Alcohol	ug/m3	-	2.7		ND (0.64)		ND (0.64)		2.9	
Methylene chloride	ug/m3	60	4.9		5.2		5.2		2.7	J
Methyl ethyl ketone	ug/m3	-	5		3.5		5.3		ND (0.50)	
Methyl Isobutyl Ketone	ug/m3	-	ND (1.4)		ND (1.4)		ND (1.4)		ND (1.4)	
Methyl Tert Butyl Ether	ug/m3	-	ND (0.65)		ND (0.65)		ND (0.65)		ND (0.65)	
Methylmethacrylate	ug/m3	-	ND (0.61)		ND (0.61)		ND (0.61)		ND (0.61)	
Propylene	ug/m3	-	4.6		7.2		4		ND (0.24)	
Styrene	ug/m3	-	ND (0.42)		ND (0.42)		ND (0.42)		ND (0.42)	
1,1,1-Trichloroethane	ug/m3	-	ND (0.53)		ND (0.53)		ND (0.53)		ND (0.53)	
1,1,2,2-Tetrachloroethane	ug/m3	-	ND (0.96)		ND (0.96)		ND (0.96)		ND (0.96)	
1,1,2-Trichloroethane	ug/m3	-	ND (0.76)		ND (0.76)		ND (0.76)		ND (0.76)	
1,2,4-Trichlorobenzene	ug/m3	-	ND (2.8)		ND (2.8)		ND (2.8)		ND (2.8)	
1,2,4-Trimethylbenzene	ug/m3	-	ND (0.59)		1.9	J	ND (0.59)		ND (0.59)	
1,3,5-Trimethylbenzene	ug/m3	-	ND (0.88)		ND (0.88)		ND (0.88)		ND (0.88)	
2,2,4-Trimethylpentane	ug/m3	-	ND (0.56)		ND (0.56)		ND (0.56)		ND (0.56)	
Tertiary Butyl Alcohol	ug/m3	-	1.8	J	ND (0.61)		ND (0.61)		4.5	
Tetrachloroethylene	ug/m3	100	12		13		12		1.2	
Tetrahydrofuran	ug/m3	-	ND (0.88)		ND (0.88)		ND (0.88)		ND (0.88)	
Toluene	ug/m3	-	34		49.7		22		5.3	
Trichloroethylene	ug/m3	5	1.1		ND (0.75)		**7**		ND (0.75)	
Trichlorofluoromethane	ug/m3	-	ND (0.62)		ND (0.62)		ND (0.62)		ND (0.62)	
Vinyl chloride	ug/m3	-	ND (0.22)		ND (0.22)		ND (0.22)		ND (0.22)	
Vinyl Acetate	ug/m3	-	ND (0.77)		ND (0.77)		ND (0.77)		ND (0.77)	
m,p-Xylene	ug/m3	-	11		20		3.8		ND (1.0)	
o-Xylene	ug/m3	-	ND (0.65)		6.1		ND (0.65)		ND (0.65)	
Xylenes (total)	ug/m3	-	11		26		3.8		ND (0.65)	

NYSDOH - Standard from Final Guidance Soil Vapor Intrusion

- New York State Department of Health Final Guidance for Evaluting Soil Vapor Intrusion in the State of New York, October 2006

ND= Not detected above laboratory reporting limit

J = Estimated Value

ug/m ^{3} = micrograms per cubic meter

Yellow shade with black text values exceed NYSDOH Guidance Values

APPENDIX A

Phase I Environmental Site Assessment

Phase I
Environmental Site Assessment

West 29th Street Property

Property located:
Block 701, Lots 16, 30, 33, 36, 37, 42, 43, 45, 52, 55, 56, and 58
331-343 10th Avenue; 505-513 and 529-539 West 29th Street; and 500-530 West 30th Street
New York, New York 10001

Fleming-Lee Shue Project Number: 10022-007

April 2005

Prepared For:	Prepared By:
The Related Companies L.P. 625 Madison Avenue New York, New York 10022-1801	Fleming Lee Shue 6 East 32nd Street, 4th Floor New York, NY 10016 Phone: 212-675-3225 Fax: 212-675-3224

PHASE I ENVIRONMENTAL SITE ASSESSMENT

West 29th Street Property
Block 701, Lots 16, 30, 33, 36, 37, 42, 43, 45, 52, 55, 56, and 58
331-343 10th Avenue; 505-513 and 529-539 West 29th Street; and 500-530 West 30th Street
New York, New York 10001

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A: INTRODUCTION

Fleming-Lee Shue, Inc. (FLS) has performed a Phase I Environmental Site Assessment (ESA) for The Related Companies L.P. on a parcel of land known as Block 70, Lots 16, 30, 33, 36, 37, 42, 43, 45, 52, 55, 56, and 58 in New York, New York County, New York (the "Subject Property").

The purpose of this Phase I ESA is to identify environmental conditions which indicate the potential for significant contamination of the property by toxic and/or hazardous materials including petroleum products and/or chemical products. Such environmental conditions can result from past and present operations and disposal practices, on-site spills, contamination from both on-site and off-site sources, and the presence of sensitive receptors either on-site or off-site. This Phase I ESA assesses the potential sources of contamination through a visual examination of the Subject Property and the surrounding area, historical research, and a search of regulatory agency records and databases.

The scope of work is based upon the *American Society for Testing and Materials (ASTM) Standard Practice for Phase I ESAs (E 1527-00).* A description of the scope of work is outlined in *Section D* of this report. Any exceptions to or deletions from this practice are also described in *Section D*.

The conclusions and recommendations based on the Phase I ESA are presented in *Section B* of this report. A detailed description of the findings of this Phase I ESA is presented in *Section C*. Photographs of the Subject Property are attached as *Appendix A*. Descriptions of regulatory agency database information are presented in *Appendix B*. Copies of Historic Sanborn fire insurance maps have been included as *Appendix C*. Copies of historical city directories have been included as *Appendix D.* The Drinking Water Quality Report has been included as *Appendix E*. Copies of Freedom of Information requests are presented in *Appendix F.*

B: SUMMARY AND CONCLUSIONS

The summary and conclusions of this Phase I ESA are based upon the findings at the time of the FLS site inspection, review of available historical records, regulatory documents, and databases.

1.0 ON-SITE FINDINGS

1.1 Site Description and Current Occupants/Uses

The Subject Property consists of twelve tax lots on Block 701 in New York, New York County, New York. The Subject Property is located on the west side of 10th Avenue between West 29th Street and West 30th Street (refer to Figures 1 and 2). The legal description of the parcel of land which comprises the Subject Property is Block 701, Lots 16, 30, 33, 36, 37, 42, 43, 45, 52, 55, 56, and 58.

For the purposes of this report, the Subject Property has been divided into three sections based upon current and historic uses. Figure 2 shows the site layout.

The sections are:

- **Section 1** – This section consists of the east portion of the Subject Property and is comprised of Block 701, Lots 36, 37, and 42 (331, 333, 335, 337, 339, 341, and 343 Tenth Avenue and 500 West Thirtieth Street). This section has a total approximate area of 16,658.25 square feet.

  At the time of the property visit, this portion of the Subject Property consisted of three commercial parking lots.

- **Section 2** – This section consists of the central portion of the Subject Property and is comprised of Block 701, Lots 30, 33, 43, 45, 52, and 55 (505, 507, 509, 511, and 513 West 29th Street and 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, and 524 West 30th Street). This section has a total approximate area of 42,462 square feet.

  This portion of the subject property was improved with one vacant seven story building (502-504 West 30th Street); two interconnected buildings used as a parking garage (505-507 West 29th Street and 509-513 West 29th Street); and three interconnected buildings (506-524 West 30th Street). FLS was unable to access the 506-524 West 30th Street structure. Based upon observations from the street, through open loading docks and open doors, this structure is used for auto repair, street vendor food cart storage, and food warehousing. A set of elevated railroad tracks is located above the structures on the east side of Section 2.

- **Section 3** – This section is located on the west side of the Subject Property and consists of Block 701, Lots 16, 56, and 58 (529, 531, 533, 535, 537, and 539 West 29th Street and 526, 528, and 530 West 30th Street). This section has a total approximate area of 21,396.16 square feet.

  This portion of the Subject Property was occupied by one parking lot (530 West 30th Street) and one L-Shaped parking garage (529-539 West 29th Street and 526-528 West 30th Street).

The Site appears on the City of New York Zoning Map 8b (Figure 3). According to this map, the property is designated MI-5 (manufacturing). Currently the Subject Property is located in the West Chelsea re-zoning area. If the current proposed re-districting is adopted then section 1 and the northern portions of Sections 2 and 3 will be designated C6-4 (commercial). The southern portions of Sections 2 and 3 will be designated C6-3 (commercial). An "e" designation is proposed to be placed on all lots except Lots 56 and 58 upon re-zoning.

The neighboring properties to the north, beyond West 30th Street were improved with an abandoned one-story warehouse and elevated railroad tracks. The adjacent properties to the south, north of West 29th Street, were improved with several multi-story structures used as residences, art galleries, freight depots, and commercial offices. The adjacent properties to the south, south of West 29th Street, were improved with several structures used as residences, auto repair shops, a church, and art galleries. The adjacent properties to the east, beyond 10th Avenue, were improved with the United States Postal Service Morgan Annex. The adjacent properties to the west were improved with a large complex of buildings used for warehousing, a vacant lot used for parking, and one small building used as a commercial office. Please refer to *Appendix A: Site Photographs* for more information.

1.2 Past Occupants and Uses

<u>Section 1</u>

Section 1 of the Subject Property was improved with tenement style housing from before 1890 until circa 1900, when various commercial and industrial operations began to occupy the site. The structures that had been constructed on Section 1 were demolished circa 1920 and Section 1 was used a junkyard and a shipping and receiving depot up until sometime between 1950 and 1976, when it was converted into a filling station. The filling station operations ceased sometime circa 1980 when Section 1 became a commercial a parking lot.

Section 2

Section 2 of the Subject Property was improved with tenement style housing from before 1890 until they were demolished circa 1910. The structures on the north side of Section 2 were converted into a guitar factory, warehouses, and stables circa 1900. A confectionary factory was built on the northeast side of Section 2 circa 1910. The confectionary factory operations continued until it was abandoned when the central portion of the factory building was demolished and replaced by the New York Central Railroad right of way (high line) around 1930. The Metal Purchasing Company used the on-site structures for metal storage from the mid 1900's up until they vacated the property circa 1990. The structures located underneath the highline were used for auto repair during the 1990's. The building located at 502 West 30th Street was occupied by a printing company during the mid 1950's and a wholesale gas (most likely compressed gas) supplier during the late 1960's.

Section 3

Section 3 of the subject property consisted of tenement style buildings from before 1890 up until the property was redeveloped by the current structure in the mid 1900's. This building was historically occupied by the Metal Purchasing Company before it was converted into a parking garage.

1.3 Toxic/Hazardous Materials, Waste, and Chemical Products

FLS observed two unlabeled 55-gallon drums in the basement of the 502 West 30th Street structure (Section 2). There was an unknown product in the drums. No staining or leaking was observed in the vicinity of the drums. FLS recommends that the materials inside the drums be sampled to determine their contents. After the unknown product has been identified, the drums should be disposed of in accordance with local, state, and federal regulations.

1.4 Monitoring Wells

FLS observed one monitoring well in the sidewalk to the south of the parking garage located at 529-539 West 29th Street (Section 3). Another two monitoring wells were located on the South Side of West 29th Street (Sidegradient to the Subject Property), in front of the Sean Kelly art gallery (536-528 West 29th Street). Review of the historic Sanborn fire insurance maps revealed that an unspecified number of gasoline underground storage tanks (USTs) were present at this property starting circa 1930. A closed gasoline fill port was observed in the center of the two wells on the adjacent property to the south. It is expected that the three monitoring wells were installed as part of a tank closure which had been performed at this property. This site was not listed with a documented release in the regulatory database. The monitoring well located in front or the 529-539 West 29th Street building should be sampled to determine if the historic gasoline underground storage tank located at the Sean Kelly art gallery had impacted groundwater beneath Section 3 of the Subject Property.

1.5 Site Drainage, Flood Plains, Topography and Utilities

The Subject Property is mapped on the *40073-F5 Central Park, NY-NJ* Quadrant 7.5 Minute Topographic Map, published by the USGS, and obtained from *TOPO!* ©2001*, National Geographic Holdings* (Figure 1). Review of the topographic map revealed that the site is located approximately 20 feet above sea level (USGS). In general, the topography in the Subject Property vicinity gently decreases in elevation from the east to west, therefore, the Subject Property and the surrounding properties to the north, east, west, and south would be expected to drain west, toward the Hudson River.

The Subject Property is located approximately 20 feet above mean sea level. The Subject Property is located on panel 360497-0038-B of the FEMA Flood Insurance rate map, which indicates that the Subject Property is located in flood zone C (areas of minimal flooding) (Figure 5).

The Subject Building is connected to the public water supply and receives electricity from the buried power lines leading from the municipal streets to the Subject Building. The property is also connected to the municipal sanitary sewer system. Stormwater is directed to the municipal stormwater collection system.

1.6 On-site Storage Tanks

There was an active fill port and vent pipe associated with the 502-504 West 30th Street building (Section 2). According to the markings on the fill port and the vent pipe, No. 4 fuel oil is stored in the storage tank located in the basement of the structure. Review of the regulatory database revealed this building was listed as a Petroleum Bulk Storage (PBS) Aboveground Storage Tank (AST) facility under PBS facility number 2-402001 due to the presence of one 5,000-gallon fuel oil AST. The 5,000-gallon No. 4 fuel oil AST located in the basement of the 502-504 West 30th Street Subject Building should be maintained in accordance with the Fire Department of New York (FDNY) and New York State Department of Environmental Conservation (NYSDEC) regulations.

1.7 Suspect ACM & Lead Based Paint

Suspect asbestos containing drywall and joint compound and presumed asbestos containing 12" x 12" vinyl floor tiles, 9" x 9" vinyl floor tiles, mastic, plaster, aircell pipe insulation, cementitious pipe insulation, boiler breeching, asphalt roofing, and roof flashing were observed in the subject buildings during the site visit.

It is possible that additional ACMs are present in the interior finishes of the subject building or in hidden areas such as pipe chases and behind walls.

FLS recommends that prior to demolition or any major renovation a comprehensive ACM survey be performed.

Based on the date of construction of the subject buildings (early to mid 1900's), it is likely that painted surfaces may contain lead based paint. Based upon the non-residential use of the subject building, lead-based paint is not a concern.

1.8 Regulatory Agency Databases

FLS reviewed published governmental records of federal and state environmental databases to identify use, generation, storage, treatment, disposal, and/or release of hazardous substances and/or petroleum products, which may have impacted the Subject Property. The databases reviewed in this assessment, and search radii from the Subject Property that surrounding properties were assessed, are as outlined in the *ASTM Standard Method E 1527-00*.

Section 2 of the Subject Property (502 West 30th Street) was listed as a PBS AST facility under PBS number 2-402001. Review of the regulatory database revealed that the site was listed due to the presence of one 5,000-gallon fuel oil AST.

The Subject Property is listed in the NY Spills database under spill number 9604278 for a fuel oil release inside the building located at 518 West 30th Street (Section 2). Review of the regulatory database revealed that the spill was closed by the regulatory agency since it was satisfactorily cleaned up shortly after it had occurred. Based upon the above information, spill number 9604728 is not a concern.

The Subject Property was listed in the NY Spills database under spill number 0408382 due to a diesel release from a commercial vehicle in 518 West 30th Street building (Section 2). The regulatory database indicated that the release impacted air only. Spill number 0408382 is not a concern to the Subject Property based upon the media impacted by the release.

1.9 Regulatory Agency Records

FLS contacted the New York City Department of Environmental Protection (NYCDEP), the New York City Fire Department (FDNY), the New York City Department of Buildings (NYCDOB) and the New York State Department of Environmental Conservation (NYSDEC). FLS has not yet received a response from the NYCDEP, FDNY, and NYCDEC. Upon receipt of the responses from these organizations, FLS will review the responses and, if conclusions contained within this report have been affected, FLS will submit revised recommendations to the Related Companies, L.P.

2.0 OFF-SITE FINDINGS

2.1 Neighborhood Uses

Current Uses
The neighboring properties to the north, beyond West 30th Street were improved with an abandoned one-story warehouse and elevated railroad tracks. The adjacent properties to the south, north of West 29th Street, were improved with several multi-story structures used as residences, art galleries, freight depots, and commercial offices. The adjacent properties to the south, south of West 29th Street, were improved with several structures used as residences, auto repair shops, a church, and art galleries. The adjacent properties to the east, beyond 10th Avenue, were improved with the United States Postal Service Morgan Annex. The adjacent properties to the west were improved with a large complex of buildings used for warehousing, a vacant lot used for parking, and one small building used as a commercial office. Please refer to *Appendix A: Site Photographs* for more information.

Historical Uses of Adjacent Properties

<u>North</u>

The adjacent property to the north was used as a rail yard from before 1890 until the present. A factory and several tenement style houses occupied the adjacent properties to the north from before 1890 until the property was redeveloped with the current structure circa 1950. Review of historic documentation revealed that this structure was occupied by the Metal Purchasing Company, who historically operated an enameling facility within the structure (501 West 30th Street according to the city directories and the Sanborn fire insurance maps).

South

The adjacent properties to the south, north of West 29th Street, were improved with tenement style houses from before 1890 up until they were demolished and replaced by the current structures circa 1911. Historic occupants of these structures included warehouses, cabinet makers, chemical manufacturers (within the 515 West 29th Street Structure), and automobile garages. The adjacent properties to the south, south of West 29th Street were improved with tenement style houses until they were redeveloped with the current garages and commercial buildings circa 1930.

East

The adjacent properties to the east were not depicted on the fire insurance maps provided to FLS, however, review of the historic city directories revealed that these properties were used for a variety of commercial purposes.

West

The adjacent properties to the west were improved with a sawmill and several tenement style housed from at least 1890 until this area was redeveloped with the current buildings during the early 1900's. The buildings were used for a variety of commercial purposes included a couch factory, a metal works, and parking garages

Regulatory Listings of Surrounding Properties

None of the surrounding properties listed in the regulatory agency database presented an environmental concern to the Subject Property.

For more information on the regulatory listings for the Subject Property and the surrounding area please refer to *Section C: 10.0 Regulatory Agency Databases*.

3.0 CONCLUSIONS

The Phase I ESA has identified the following conclusion about the Subject Property and the surrounding area:

- Fluorescent lights manufactured before 1979 may have PCB containing light ballasts. Based upon the date of construction of the subject buildings (early to mid 1900's), there is a possibility that PCB containing light ballasts are present in the subject building.

- Suspect asbestos containing drywall and joint compound and presumed asbestos containing 12" x 12" vinyl floor tiles, 9" x 9" vinyl floor tiles, mastic, plaster, aircell pipe insulation, cementitious pipe insulation, boiler breeching, asphalt roofing, and roof flashing were observed in the subject buildings during the site visit.

  It is possible that additional ACMs are present in the interior finishes of the subject building or in hidden areas such as pipe chases and behind walls.

- Based on the date of construction of the subject buildings (early to mid 1900's), it is likely that painted surfaces may contain lead based paint. Based upon the non-residential use of the subject building, lead-based paint is not a concern.

- Review of historic documentation revealed that the adjacent property to the north, north of West 30th Street had been used for metal enameling. Based upon surface topography, this site is located hydraulically sidegradient to the subject property, therefore, the historic enameling operations on the adjacent property to the north are not a concern to the subject property.

- Upon adopting the West Chelsea re-zoning, all the lots that comprise the Subject Property, except lot 56 and lot 58 will have an "e" designation.

<u>Section 1</u>

- A four foot by six foot asphalt patch was observed in the fenced parking lot located at 333-335 10th Avenue (Section 1). Review of the historic Sanborn fire insurance maps revealed that this portion of the Subject Property had been used as a gasoline filling station. This patch may be associated with maintenance of the parking area or with an underground storage tank (UST) removal. No releases associated with Section 1 of the Subject Property were listed in the regulatory database.

- The historic junkyard and filling station operations of Section 1 of the Subject Property have the potential to have impacted the subsurface condition.

<u>Section 2</u>

- There was an active fill port and vent pipe associated with the 502-504 West 30th Street building. According to the markings on the fill port and the vent pipe, No. 4 fuel oil is stored in the storage tank located in the basement of the structure. Review of the regulatory database revealed this building was listed as a Petroleum Bulk Storage (PBS) Aboveground Storage Tank (AST) facility under PBS facility number 2-402001 due to the presence of one 5,000-gallon fuel oil AST.

- The current and historic auto repair operations on the east portion of Section 2 (beneath the high line) have the potential to impact the subsurface condition of the Subject Property.

- FLS observed two unlabeled 55-gallon drums in the basement of the 502 West 30th Street structure (Section 2). There was an unknown product in the drums. No staining or leaking was observed in the vicinity of the drums.

- The building located at 502 West 30th Street was occupied by a printing company during the mid 1950's and a wholesale gas (most likely compressed gas) supplier during the late 1960's. It is likely that the printing company used the 502 West 30th Street building for printing. The 502 West 30th Street structure has a basement that is occupied by electrical equipment, heating equipment, and the 5,000-gallon No. 4 fuel oil storage tank. The historic printer is not a concern to the Subject Property since it is likely that the printing equipment would have been located on the upper floors of the 502 West 30th Street building, and any releases associated with the printing operation (incidental spills, leaking equipment, etc.) would have needed to migrate through the floor(s) into the basement and through the foundation of the structure in order to impact subsurface soils and groundwater. Additionally, any routine releases associated with the printing operations (release of wash water, excess materials, etc.) would have been discharged into a drain that was connected to the New York City Department of Environmental Protection (NYCDEP) combined sanitary/stormwater collection system.

Section 3

- Review of historic documentation revealed that the structure located at 515 West 30th Street (upgradient to Section 3 of the Subject Property) was previously occupied by a chemical manufacturer. No further information regarding the historic operations was obtained through the historic documentation reviewed.

- FLS observed one monitoring well in the sidewalk to the south of the parking garage located at 529-539 West 29th Street (Section 3). Another two monitoring wells were located on the South Side of West 29th Street (Sidegradient to the Subject Property), in front of the Sean Kelly art gallery (536-528 West 29th Street). Review of the historic Sanborn fire insurance maps revealed that an unspecified number of gasoline underground storage tanks (USTs) were present at this property starting circa 1930. A closed gasoline fill port was observed in the center of the two wells on the adjacent property to the south. It is expected that the three monitoring wells were installed as part of a tank closure which had been performed at this property. This site was not listed with a documented release in the regulatory database.

- A one foot by two feet concrete patch was observed just south of the West 30th Street entrance to the parking garage located on Section 3 of the Subject Property. There is a potential that, based on the location and size of the patch, this patch was a hydraulic lift pit that had been previously closed.

4.0 RECOMMENDATIONS

FLS recommends the following, with regards to the environmental concerns identified within this report:

- FLS recommends that fluorescent lights at the Site be inspected for PCB labeling and disposed of in accordance with local, state, and federal regulations.

- FLS recommends that prior to demolition or any major renovation a comprehensive ACM survey be performed.

- Because all of the lots except Lots 56 and 58 have an "e" designation, the ownership of the Subject Property will have to submit a soil and groundwater sampling plan to the New York City Department of Environmental Protection (NYCDEP) for approval, execute the approved plan, and develop a remediation plan to satisfy the NYCDEP prior to the issuance of any building permits other than demolition. It is recommended that any Phase II sampling undertaken on this site be performed to the requirements of the NYCDEP to allow the data to be used in satisfying the requirements of the "e" designation.

Section 1

- A phase II subsurface investigation should be performed in the vicinity of the asphalt patch at the 333-335 10th Avenue parking lot to determine if the suspected UST has impacted the environmental condition of Section 1 of the Subject Property.

- FLS recommends that further investigative activities be performed in Section 1 of the Subject Property to determine if historic junkyard and filling station operations have impacted the subsurface condition of Section 1.

Section 2

- The 5,000-gallon No. 4 fuel oil AST located in the basement of the 502-504 West 30th Street Subject Building should be maintained in accordance with the Fire Department of New York (FDNY) and New York State Department of Environmental Conservation (NYSDEC) regulations.

- FLS recommends that further investigative activities of Section 2 of the Subject Property be undertaken to determine if historic and current auto repair operations have impacted the subsurface condition of Section 2.

- FLS recommends that the materials inside the drums in the basement of the 502-504 West 30th Street structure be sampled to determine their contents. After the unknown product has been identified, the drums should be disposed of in accordance with local, state, and federal regulations.

Section 3

- FLS recommends that a groundwater sample be collected from the upgradient side of the 529-539 West 29th Street structure to determine if the chemical manufacturer that previously occupied the 515 West 29th Street structure has impacted the environmental condition of the Subject Property.

- The monitoring well located in front or the 529-539 West 29th Street building should be sampled to determine if the historic gasoline underground storage tank located at the Sean Kelly art gallery impacted groundwater beneath Section 3 of the Subject Property.

- FLS recommends that a Phase II Subsurface investigation be performed in the vicinity of the suspected hydraulic lift pit to determine if it impacted the subsurface condition of Section 3.

C: REPORT OF FINDINGS

A site inspection was completed by Mr. Christopher C. De Carlo, Environmental Scientist of FLS, to observe the current condition and operations of the Subject Property. Mr. De Carlo performed the site visit on March 30, 2005 and April 6, 2005. Mr. De Carlo was unaccompanied during the property visit. It should be noted that FLS was unable to gain access to the 506-524 West 30th Street structure; however, observations of the interior of the buildings were made through open loading docks and doors of the structure.

The findings of Fleming-Lee Shue's Phase I ESA are presented in the following sections.

1.0 PROPERTY DESCRIPTION

The Subject Property consists of twelve tax lots on Block 701 in New York, New York County, New York. The Subject Property is located on the west side of 10th Avenue between West 29th Street and West 30th Street (refer to Figures 1 and 2). The legal description of the parcel of land which comprises the Subject Property is Block 701, Lots 16, 30, 33, 36, 37, 42, 43, 45, 52, 55, 56, and 58.

For the purposes of this report, the Subject Property has been divided into three sections based upon current and historic uses. Figure 2 shows the site layout.

The sections are:

- **Section 1** – This section consists of the east portion of the Subject Property and is comprised of Block 701, Lots 36, 37, and 42 (331, 333, 335, 337, 339, 341, and 343 Tenth Avenue and 500 West Thirtieth Street). This section has a total approximate area of 16,658.25 square feet.

  At the time of the property visit, this portion of the Subject Property consisted of three commercial parking lots.

- **Section 2** – This section consists of the central portion of the Subject Property and is comprised of Block 701, Lots 30, 33, 43, 45, 52, and 55 (505, 507, 509, 511, and 513 West 29th Street and 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, and 524 West 30th Street). This section has a total approximate area of 42,462 square feet.

  This portion of the subject property was improved with one vacant seven story building (502-504 West 30th Street); two interconnected buildings used as a parking garage (505-507 West 29th Street and 509-513 West 29th Street); and three interconnected buildings (506-524 West 30th Street). FLS was unable to access the 506-524 West 30th Street structure. Based upon observations from the street, through open loading docks and open doors, this structure is used for auto repair, street vendor food cart storage, and food warehousing. A set of elevated railroad tracks is located above the structures on the east side of Section 2.

- **Section 3** – This section is located on the west side of the Subject Property and consists of Block 701, Lots 16, 56, and 58 (529, 531, 533, 535, 537, and 539 West 29th Street and 526, 528, and 530 West 30th Street). This section has a total approximate area of 21,396.16 square feet.

  This portion of the Subject Property was occupied by one parking lot (530 West 30th Street) and one L-Shaped parking garage (529-539 West 29th Street and 526-528 West 30th Street).

The Site appears on the City of New York Zoning Map 8b (Figure 3). According to this map, the property is designated MI-5 (manufacturing). Currently the Subject Property is located in the West Chelsea re-zoning area. If the current proposed re-districting is adopted then section 1 and the northern portions of Sections 2 and 3 will be designated C6-4 (commercial). The southern portions of Sections 2 and 3 will be designated C6-3 (commercial). An "e" designation is proposed to be placed on all lots except Lots 56 and 58 upon re-zoning.

The neighboring properties to the north, beyond West 30th Street were improved with an abandoned one-story warehouse and elevated railroad tracks. The adjacent properties to the south, north of West 29th Street, were improved with several multi-story structures used as residences, art galleries, freight depots, and commercial offices. The adjacent properties to the south, south of West 29th Street, were improved with several structures used as residences, auto repair shops, a church, and art galleries. The adjacent properties to the east, beyond 10th Avenue, were improved with the United States Postal Service Morgan Annex. The adjacent properties to the west were improved with a large complex of buildings used for warehousing, a vacant lot used for parking, and one small building used as a commercial office. Please refer to *Appendix A: Site Photographs* for more information.

2.0 HISTORICAL SITE USE

To develop a documented history of the Subject Property in New York, New York FLS reviewed historic Sanborn fire insurance maps, historic city directories, available records from city agencies, and on-site evidence of prior use.

2.1 Site Reconnaissance

Section 1 of the subject property is used as commercial parking lots. Section 2 of the subject property is used as a commercial parking garage, as an auto repair shop, food vendor cart storage, and food warehousing. The building located at 502-504 West 30th Street is currently vacant. Section 3 of the Subject Property is used as a commercial parking garage and as a commercial parking lot.

2.2 New York City Department of Buildings (NYCDOB)

FLS reviewed recent permits issued by the NYCDOB via their online database. The following permits present a concern to the environmental property (from 1995):

> On January 30, 1997 a building permit was taken out to install a new concrete pad with a fence for the storage of petroleum at the 530 West 30th Street (Section 1) property. FLS did not observe petroleum tank storage at this portion of the subject property or any evidence of a significant petroleum release from historic tanks.

There were no other permits of environmental concern to the Subject Property.

2.3 Historical Atlases

A review of historical Sanborn fire insurance maps, historical city directories, historical USGS aerial photographs, and historical topographic maps, as provided by EDR, identified a historical snapshot of the Subject Property and the surrounding area.

2.3.1 Historical Sanborn Maps

FLS reviewed historical Sanborn Fire insurance maps for the years: 1890, 1899, 1911, 1930, 1950, 1976, 1979, 1980, 1982, 1985, 1987, 1988, 1991, 1992, 1993, 1994, 1995, and 1996. The following is an outline of the history of the Subject Property and surrounding area from 1892 through 1996, as identified on these maps:

Year	Observations
1890	**Section 1:** Section 1 of the Subject Property was improved with seven tenement style buildings. **Section 2:** Section 2 of the subject property was improved with eight tenement style buildings, three vacant buildings (508, 510-512, and 514-516 30th Street), and one vacant lot that was improved with a small shed (502-504 West 30th Street). The building located at 508 West 30th Street contained one horizontal steam boiler. **Section 3:** Section 1 of the Subject property was improved with nine tenement style buildings. **Surrounding Properties:** The surrounding properties to the north consisted of a factory (operations not discernable due to poor quality of fire insurance map), several tenement style houses and the New York Central & Hudson River Railroad rail yard. The adjacent properties to the south, north of West 29th Street, consisted of several tenement style houses. The adjacent properties to the east were not included on the 1890 Sanborn fire insurance map. The adjacent properties to the west consisted of a sawmill (532-538 West 38th Street) that operated two horizontal steam boilers and several tenement style houses.
1899	**Section 1:** There were no major changes to Section 1 of the Subject Property in comparison to the 1890 Sanborn fire insurance map. **Section 2:** There were no major changes to Section 2 of the Subject Property in comparison to the 1890 fire insurance map with the exception that the building located at 510-512 West 30th Street was used for storage of guitars, the building located at 506 West 30th Street was used as a wagon shed, and the vacant lot located at 502-504 West 30th Street was now improved with a guitar factory that operated two horizontal steam boilers. **Section 3:** There were no major changes to Section 3 of the Subject Property in comparison to the 1890 fire insurance map. **Surrounding Properties:** There were no major changes to the surrounding properties to the north, south, or west in comparison to the 1890 fire insurance map with the exception that the saw mill no longer occupied the 532-538 West 38th Street structure. The adjacent property to the east was not included on the 1899 fire insurance map.
1911	**Section 1:** There were no major changes to Section 1 of the Subject Property in comparison to the 1899 fire insurance map, with the exception that the structure located at 500 West 30th Street was used as a wagon repair shop. **Section 2:** There were no major changes to the southern portion of Section 2 of the Subject Property in comparison to the 1899 fire insurance map. The 524 West 30th Street portion of Section 2 was improved with a stable. The 520-522 West 30th Street portion of Section 2 of the Subject Property was improved with a structure that was occupied by a wagon builder. A large structure was erected on the 502-518 West 30th Street portion of section 2 which contained four horizontal steam boilers and a rooftop tank house (water tank). This structure was occupied by the Hess Brother's Inc. Confectionary Factory. **Section 3:** There were no major changes to Section 3 of the Subject Property in comparison to the 1899 Sanborn fire insurance map. **Surrounding Properties:** There were no major changes to the surrounding properties to the north in comparison to the 1899 fire insurance map. The adjacent properties to the south, north of West 29th Street, were now improved with two stables (525 and 527 West 29th Street), two warehouses (513-515 and 519-521 West 29th Street), and a wagon house (517 West 29th Street). There were no major changes to the neighboring properties to the south, south of West 29th Street, in comparison to the 1899 fire insurance maps. The adjacent property to the east was not included on the 1911 Sanborn fire insurance map. The structures located at the 541-545 West 29th Street portion of the adjoining properties to the west had been demolished and replaced by a garage and store house.

Year	Observations
1930	**Section 1:** The structures previously located on the 339-341 Tenth Avenue portion of Section 1 had been demolished and replaced by a junk yard. **Section 2:** The structures located at the 509-513 West 29th Street and the 510-512 West 30th Street as well as the rear portions of the structures located at 506 and 508 West 30th Street of Section 2 have been demolished and replaced by the Central Railroad right-of-way. **Section 3:** There were no major changes to Section 3 of the Subject Property in comparison to the 1911 fire insurance map. **Surrounding Properties:** There were no major changes to the surrounding properties to the north or west in comparison to the 1911 fire insurance map. The surrounding properties to the east are not included on the 1930 Sanborn fire insurance map. There are no major changes to the adjoining properties to the south, north of West 29th Street, with the exception that the 517 West 29th Street structure is an automobile garage, the 525 West 29th Street structure is occupied by a cabinet maker, and the 527 West 29th Street structure is used as a waste-paper warehouse. There are no major changes to the adjoining properties to the south, south of West 29th Street, with the exception that the 528-532 West 29th Street portion of the adjoining properties to the south is improved with an automobile garage with an unspecified number of 550-gallon buried gasoline tanks.
1950	**Section 1:** The structures located 335, 337, and 339 Tenth Avenue have been demolished and replaced by the junkyard. **Section 2:** There are no major changes to Section 2 of the Subject Property except that it was occupied by the Metal Purchasing Company and was used for metal storage. **Section 3:** With the exception of the 530 West 30th Street structure, all of the structures in Section 3 of the Subject Property have been demolished and replaced by a large L-shaped structure (use cannot be discerned due to poor quality of the Sanborn fire insurance map). **Surrounding Properties:** The structures that had been located on the adjoining properties to the north have been demolished and replaced by a large rectangular structure labeled as a sheet metal cutting and varnish mixing facility for the Metal Purchasing Company. There were no major changes to the adjoining properties to the south or west in comparison to the 1911 fire insurance map. The adjoining properties to the east were not included on the 1950 Sanborn fire insurance map.
1976-1979	**Section 1:** Section 1 of the Subject Property consisted of undeveloped land, labeled as a filling station. **Section 2:** There are no major changes to Section 2 of the Subject Property in comparison to the 1950 fire insurance map. **Section 3:** There are no major changes to Section 3 of the Subject Property in comparison to the 1950 fire insurance map. **Surrounding Properties:** There are no major changes to the surrounding properties to the north, south, or west in comparison to the 1950 fire insurance map. The adjacent properties to the east are not included on the 1976 fire insurance map.
1980-1988	**Section 1:** Section 1 is now used for bus parking. **Section 2:** There are no major changes to Section 2 of the Subject Property in comparison to the 1979 Sanborn fire insurance map. **Section 3:** There are no major changes to Section 3 of the Subject Property in comparison to the 1979 Sanborn fire insurance map **Surrounding Properties:** There are no major changes to the surrounding properties to the north, south, or west in comparison to the 1979 fire insurance map. The adjacent properties to the east are not included on the 1980-1988 fire insurance maps.

Year	Observations
1991-1996	**Section 1:** There are no major changes to Section 1 of the Subject Property in comparison to the 1988 Sanborn fire insurance map. **Section 2:** The structure located at 518-522 West 39th Street has been demolished and consists of undeveloped land. The structures underneath the high-line are now used for auto repair. **Section 3:** There are no major changes to Section three of the Subject Property in comparison to the 1988 Sanborn fire insurance map. **Surrounding Properties:** There are no major changes to the surrounding properties to the north, south, or west in comparison to the 1988 fire insurance map. The adjacent properties to the east are not included on the 1991-1996 fire insurance maps.

2.3.2 Historical City Directories

City Directories for the subject property and the surrounding for the years 1920, 1923, 1927, 1934, 1938, 1942, 1947, 1950, 1956, 1958, 1963, 1968, 1973, 1978, 1983, 1988, 1993, 1998, and 2000 were provided by Environmental Data Resources. Review of the historic city directories revealed that the subject property and the surrounding properties were used for a variety of industrial purposes, such as warehousing, packing and shipping, auto repair, printing, and manufacturing.

The following Table contains the names and addresses of listings from 1920 through 2000 that have the potential to be an environmental concern to the Subject Property, as identified in the city directories:

Year	Uses
1920	No listings of environmental concern.
1923	339 10th Avenue (SP) - Jas Keane Scrap Iron.
1927	No listings of environmental concern
1934	No listings of Environmental Concern
1938	507 West 29th Street (SP) - John T. Stewart Inc. Trucking. 331 10th Avenue (SP) - DA Dealing Trucking Co; Oneida Motor Freight Co. 341 10th Avenue (SP) - Central Iron & Metal Co. Inc.
1942	535 West 29th Street (SP) - WM McCullough Transportation Co. Inc. 343 10th Avenue (SP) - Central Iron & Metal Co. Inc.
1947	530 West 30th Street (SP) - P.J. Trucking Co. 341 10th Avenue (SP) - Central Iron & Metal Co. Inc.
1950	331 10th Avenue (SP) – Times Square Trucking Company 341 10th Avenue (SP) – Central Iron & Metal Company, Inc.
1956	502 West 30th Street (SP) – Odyssey Press Inc., The Publishers 331 10th Avenue (SP) – Jamor Trucking Company 341 10th Avenue (SP) – Central Iron & Metal Company, Inc.
1958	501 West 30th Street (NP) – Enamelstrip Corporation Enameling 502 West 30th Street (SP) – Odyssey Press, Inc. The Publishers; White SS Dental Manufacturing Company 341 10th Avenue (SP) – Central Iron & Metal Company, Inc.
1963	No listings of environmental concern

Year	Uses
1968	515 West 29th Street (NP) – Chemdye Factory 502 West 30th Street (SP) – Wholesale Gas Division
1973	515 West 29th Street (NP) – The Chemdrug Company 333 10th Avenue (SP) – Kelly's Taxi Group
1978	No listings of environmental concern
1983	No listings of environmental concern
1988	No listings of environmental concern
1993	509 West 29th Street (SP) – Jamie's Auto Body
1998	No listings of environmental concern
2000	No listings of environmental concern

NP – Neighboring property
SP – Subject Property

2.3.3 Aerial Photographs

FLS did not review historic aerial photographs for the Subject Property since a more complete history of the property was obtained from Sanborn fire insurance maps and the historic city directories.

2.3.4 Historical Topographic Maps

FLS did not review historic topographic maps for the Subject Property since a more complete history of the property was obtained from Sanborn fire insurance maps and the historic city directories.

2.4 Review of Previous Reports

FLS did not receive previous environmental reports for the Subject Property.

2.5 Summary of Historical Site Use

Subject Property

Section 1

Section 1 of the Subject Property was improved with tenement style housing from before 1890 until circa 1900, when various commercial and industrial operations began to occupy the site. The structures that had been constructed on Section 1 were demolished circa 1920 and Section 1 was used a junkyard and a shipping and receiving depot up until sometime between 1950 and 1976, when it was converted into a filling station. The filling station operations ceased sometime circa 1980 when Section 1 became a commercial a parking lot.

The historic junkyard and filling station operations of Section 1 of the Subject Property have the potential to have impacted the subsurface condition. FLS recommends that further investigative activities be performed in Section 1 of the Subject Property to determine if historic junkyard and filling station operations have impacted the subsurface condition of Section 1.

Section 2

Section 2 of the Subject Property was improved with tenement style housing from before 1890 until they were demolished circa 1910. The structures on the north side of Section 2 were converted into a guitar factory, warehouses, and stables circa 1900. A confectionary factory was built on the northeast side of Section 2 circa 1910. The confectionary factory operations continued until it was abandoned when the central portion of the factory building was demolished and replaced by the Central Railroad right of way (high line) around 1930. The Metal Purchasing Company used the on-site structures for metal storage from the mid 1900's up until they vacated the property circa 1990. The structures located underneath the highline were used for auto repair during the 1990's. The building located at 502 West 30th Street was occupied by a printing company during the mid 1950's and a wholesale gas (most likely compressed gas) supplier during the late 1960's.

The current and historic auto repair operations on the east portion of Section 2 (beneath the high line) have the potential to impact the subsurface condition of the Subject Property. FLS recommends that further investigative activities of Section 2 of the Subject Property be undertaken to determine if historic and current auto repair operations have impacted the subsurface condition of Section 2.

The building located at 502 West 30th Street was occupied by a printing company during the mid 1950's and a wholesale gas (most likely compressed gas) supplier during the late 1960's. It is likely that the printing company used the 502 West 30th Street building for printing. The 502 West 30th Street structure has a basement that is occupied by electrical equipment, heating equipment, and the 5,000-gallon No. 4 fuel oil storage tank. The historic printer is not a concern to the Subject Property since it is likely that the printing equipment would have been located on the upper floors of the 502 West 30th Street building, and any releases associated with the printing operation (incidental spills, leaking equipment, etc.) would have needed to migrate through the floor(s) into the basement and through the foundation of the structure in order to impact subsurface soils and groundwater. Additionally, any routine releases associated with the printing operations (release of wash water, excess materials, etc.) would have been discharged into a drain that was connected to the New York City Department of Environmental Protection (NYCDEP) combined sanitary/stormwater collection system.

Section 3

Section 3 of the subject property consisted of tenement style buildings from before 1890 up until the property was redeveloped by the current structure in the mid 1900's. This building was historically occupied by the Metal Purchasing Company before it was converted into a parking garage.

Surrounding Area

North

The surrounding property to the north was used as a rail yard from before 1890 until the present. A factory and several tenement style houses occupied the adjacent properties to the north from before 1890 until the property was redeveloped with the current structure circa 1950. Review of historic documentation revealed that this structure was occupied by the Metal Purchasing Company, who has historically operated an enameling facility within the structure (501 West 30th Street according to the city directories).

Review of historic documentation revealed that the adjacent property to the north, north of West 30th Street had been used for metal enameling. Based upon surface topography, this site is located hydraulically sidegradient to the subject property, therefore, the historic enameling operations on the adjacent property to the north are not a concern to the subject property.

South

The adjacent properties to the south, north of West 29th Street, were improved with tenement style housed from before 1890 up until they were demolished and replaced by the current structures Circa 1911 until present day. Historic occupants of these structures included warehouses, cabinet makers, chemical manufactures within the 515 West 29th Street Structure), and automobile garages. The adjacent properties to the south were improved with tenement style houses until they were redeveloped with the current garages and commercial buildings circa 1930.

Review of historic documentation revealed that the structure located at 515 West 30th Street (upgradient to Section 3 of the Subject Property) was previously occupied by a chemical manufacturer. No further information regarding the historic operations was obtained through the historic documentation reviewed. FLS recommends that a groundwater sample be collected from the upgradient side of the 529-539 West 29th Street structure to determine if the chemical manufacturer that previously occupied the 515 West 29th Street structure has impacted the environmental condition of the Subject Property.

East

The adjacent properties to the east were not depicted on the fire insurance maps provided to FLS; however, review of the historic city directories revealed that these properties were used for a variety of commercial purposes, none of which presented an environmental concern to the subject property.

West

The adjacent properties to the west were improved with a sawmill and several tenement style housed from at least 1890 until this area was redeveloped with the current buildings during the early 1900's. The buildings were used for a variety of commercial purposes included a couch factory, a metal works, and parking garages. Since the neighboring properties to the west are located hydraulically downgradient to the Subject Property, they do not present a concern to the environmental condition of the Subject Property.

3.0 SITE CHARACTERISTICS

3.1 Topography

The Subject Property is mapped on the *40073-F5 Central Park, NY-NJ* Quadrant 7.5 Minute Topographic Map, published by the USGS, and obtained from *TOPO!* ©2001*, National Geographic Holdings* (Figure 1). Review of the topographic map revealed that the site is located approximately 15 feet above sea level (USGS). In general, the topography in the Subject Property vicinity gently decreases in elevation from the east to west, therefore, the Subject Property and the surrounding properties to the north, east, west, and south would be expected to drain west, toward the Hudson River.

3.2 Site Drainage

Sanitary Sewer Discharge
Sanitary sewage in this area is discharged to the municipal sewer system and treated at an off-site wastewater treatment plant.

Drainage Structures
The Subject Property was observed for the presence of drainage structures (i.e., drywells, drains, sumps, etc.), which may provide routes for toxic and/or hazardous material to reach the surface soils or sewer systems.

No stormwater collection basins were observed on the site. Rainwater is expected to exit the Subject Property via overland sheet flow and enter the New York City

Department of Environmental Protection (NYCDEP) stormwater collection system through stormwater collection basins located in the municipal roadways. The stormwater that falls on the developed portion of the Subject Property is expected to flow into the NYCDEP stormwater collection system via the roof stormwater collection system.

There were several floor drains and a sump in the basement of the 502-504 West 30th Street structure. It is expected that the floor drains discharge into the sump and the sump discharges into the NYCDEP combined sanitary/stormwater sewer.

3.3 Flooding

The Subject Property is located approximately 15 feet above mean sea level. The Subject Property is located on panel 360497-0038-B of the FEMA Flood Insurance rate map, which indicates that the Subject Property is located in flood zone C (areas of minimal flooding) (Figure 5).

3.4 Sensitive Receptors

Sensitive receptors (including wetlands, surface waters, well fields, and groundwater recharge basins) have been identified for the Subject Property. In the event of a spill of toxic or hazardous material on the Subject Property, more costly remedial actions may be required when sensitive receptors are affected.

The nearest sensitive receptor to the Subject Property is the Hudson River, which is located approximately 2,000 feet west of the Subject Property.

3.5 Water Supply

Water is supplied to the Subject Property by the municipal water system of the NYCDEP. Review of the *New York City 2003 Annual Water Quality Report* confirms that the water supply meets the USEPA water quality standards for lead and copper (See Appendix E).

3.6 Monitoring Wells

FLS observed one monitoring well in the sidewalk to the south of the parking garage located at 529-539 West 29th Street (Section 3). Another two monitoring wells were located on the South Side of West 29th Street (Sidegradient to the Subject Property), in front of the Sean Kelly art gallery (536-528 West 29th Street). Review of the historic Sanborn fire insurance maps revealed that an unspecified number of gasoline underground storage tanks (USTs) were present at this property starting circa 1930. A closed gasoline fill port was observed in the center of the two wells on the adjacent property to the south. It is expected that the three monitoring wells were installed as part of a tank closure which had been performed at this property. This site was not listed with a documented release in the regulatory database. The monitoring well located in front or the 529-539 West 29th Street building should be sampled to determine if the historic gasoline underground storage tank located at the Sean Kelly art gallery had impacted groundwater beneath Section 3 of the Subject Property.

4.0 TOXIC AND/OR HAZARDOUS MATERIALS

FLS observed two unlabeled 55-gallon drums in the basement of the 502 West 30th Street structure (Section 2). There was an unknown product in the drums. No staining or leaking was observed in the vicinity of the drums. FLS recommends that the materials inside the drums be sampled to determine their contents. After the unknown product has been identified, the drums should be disposed of in accordance with local, state, and federal regulations.

5.0 PETROLEUM AND OTHER STORAGE TANKS

FLS observed one monitoring well in the sidewalk to the south of the parking garage located at 529-539 West 29th Street (Section 3). Another two monitoring wells were located on the South Side of West 29th Street (Sidegradient to the Subject Property), in front of the Sean Kelly art gallery (536-528 West 29th Street). Review of the historic Sanborn fire insurance maps revealed that an unspecified number of gasoline underground storage tanks (USTs) were present at this property starting circa 1930. A closed gasoline fill port was observed in the center of the two wells on the adjacent property to the south. It is expected that the three monitoring wells were installed as part of a tank closure which had been performed at this property. This site was not listed with a documented release in the regulatory database. The monitoring well located in front or the 529-539 West 29th Street building should be sampled to determine if the historic gasoline underground storage tank located at the Sean Kelly art gallery had impacted groundwater beneath Section 3 of the Subject Property.

6.0 PROPERTY HOUSKEEPING

The Subject Property was observed for indications of poor housekeeping practices (i.e., spills or staining) due to the improper handling of toxic and/or hazardous materials or wastes, and petroleum and chemical products.

6.1 Interior Housekeeping

Hazardous materials stored in the Subject Building were stored in an appropriate manner. Minimal surface staining was observed in the parking garages of the Subject Property. This staining is expected to be associated with minor oil leaks associated with cars that had been stored on site and are not expected to have infiltrated beneath the concrete of the Subject Property. Based upon the above information, the minor staining located throughout interior of the parking garages on the Subject Property is not expected to have affected the subsurface condition of the Subject Property.

A one foot by two feet concrete patch was observed just south of the West 30th Street entrance to the parking garage located on Section 3 of the Subject Property. There is a potential that, based on the location and size of the patch, this patch was a hydraulic lift pit that had been previously closed. FLS recommends that a Phase II Subsurface investigation be performed in the vicinity of the suspected hydraulic lift pit to determine if it impacted the subsurface condition of Section 3.

6.2 Exterior Housekeeping

No evidence or poor housekeeping (i.e. drums, stains, etc.) was noticeable during the site visit. Minimal surface staining was observed in the parking lots of the Subject Property. This staining is expected to be associated with minor oil leaks associated with cars that had been stored on site and are not expected to have infiltrated beneath the asphalt and concrete of the Subject Property. Based upon the above information, the minor staining located throughout the exterior parking areas of the Subject Property is not expected to have affected the subsurface condition of the Subject Property.

A four foot by six foot asphalt patch was observed in the fenced parking lot located at 333-335 10th Avenue (Section 1). Review of the historic Sanborn fire insurance maps revealed that this portion of the Subject Property had been used as a gasoline filling station. This patch may be associated with maintenance of the parking area or with an underground storage tank (UST) removal. No releases associated with Section 1 of the Subject Property were listed in the regulatory database. A phase II subsurface investigation should be performed in the vicinity of the asphalt patch at the 333-335 10th Avenue parking lot to determine if the suspected UST has impacted the environmental condition of Section 1 of the Subject Property.

7.0 ACM AND LEAD BASED PAINT

7.1 Asbestos-Containing Material (ACM)

Definitions
Friable asbestos-containing material (ACM) can be crushed, crumbled or pulverized using hand pressure and are considered to be hazardous when in a deteriorated condition. Non-friable ACMs, such as vinyl asbestos tiles (VATs), roof shingles, and transite are materials where asbestos fibers are contained in a cement or glue like matrix. These are not considered hazardous under normal conditions of use, unless severely damaged or in a badly deteriorated state, or if the material is cut, drilled sanded or otherwise broken up during construction or renovation.

Repair and removal of ACM is required to be undertaken in accordance with the New York State Department of Labor regulations (12 NYCRR Part 56).

Friable and non-friable ACM is divided into the following types: Thermal insulation materials, surfacing materials, and miscellaneous materials.

NYC regulations require the complete removal of all ACM prior to demolition.

Scope of Limited Visual Asbestos Survey
As part of the FLS Phase I ESA a limited visual survey was undertaken to identify certain friable and non-friable materials, which may contain asbestos. No sampling or laboratory analysis was performed as part of this ESA.

Findings of the Limited Visual Asbestos Survey
Suspect asbestos containing drywall, joint compound, acoustic ceiling tiles and presumed asbestos containing 12” x 12” vinyl floor tiles, 9” x 9” vinyl floor tiles, mastic, plaster, aircell pipe insulation, cementitious pipe insulation, boiler breeching, asphalt roofing, and roof flashing were observed in the subject buildings during the site visit.

These results are from a limited visual inspection of the Subject Property and are not intended to be used as a complete asbestos inspection which is required by the New York Department of Labor prior to renovation, construction or demolition activities.

It is possible that additional ACMs are present in the interior finishes of the subject building or in hidden areas such as pipe chases and behind walls.

FLS recommends that prior to demolition or any major renovation a comprehensive ACM survey be performed.

7.2 Lead Based Paint

Consumer sales of lead based paint (containing over 0.06% metallic lead) were banned by the U.S. Consumer Products Safety Commission in 1977. The following observations have been identified with regards to the possibility of the presence of lead based paint on the Subject Property:

Based on the date of construction of the subject building (early to mid 1900's), it is likely that these surfaces may contain lead based paint. Based upon the non-residential use of the subject building, lead-based paint is not a concern.

8.0 POLYCHLORINATED BIPHENYLS (PCBs)

Historically, PCBs were widely used in electrical equipment such as transformers, capacitors, switches and voltage regulators for their cooling properties. The manufacture, processing, commercial distribution, and use (except in a "totally enclosed manner") of PCBs, was banned in 1979, under regulations promulgated pursuant to the Toxic Substance Control Act (40 CFR Part 761). PCB spills are subject to strict reporting, clean up, and disposal requirements due to the toxicity of the substance and its threat to human health and the environment.

The U.S. Environmental Protection Agency (USEPA) classifies transformers in three categories: Non-PCB Transformers, which contain less than 50 parts per million (ppm) PCBs; PCB-Contaminated Transformers, which contain 50 to 500 ppm PCBs; and PCB Transformers which contain more than 500 ppm of PCBs. A transformer whose PCB concentration is unknown is assumed to be PCB-Contaminated.

Fluorescent lights manufactured before 1979 may have PCB containing light ballasts. Based upon the date of construction of the subject buildings (early to mid 1900's), there is a possibility that PCB containing light ballasts are present in the subject building. FLS recommends that fluorescent lights at the Site be inspected for PCB labeling and disposed of in accordance with local, state, and federal regulations.

9.0 RADON

Radon, a naturally occurring radioactive gas, is the product of the decay of radium. Most frequently, radon can be found in rock formations of granite, shale, phosphate, and pitch blend. Radon may also be found in soils contaminated with industrial waste from the mining of uranium and phosphate. Radon, as a gas, can move through the soil and water into the atmosphere, and is a potential health concern in confined areas (such as the basement of a building) where it may reach sufficiently high concentrations to cause physical damage. The USEPA has set an action level of 4.0 Pico Curies/Liter (pCi/L) for continuous long-term exposure to radon gas. If radon gas is measured above this level, United States Environmental Protection Agency (USEPA) suggests testing and remediation measures.

According to data compiled by the New York State Bureau of Radiation Protection, as provided by EDR, New York County, NY is classified as a "Zone 3 Radon Area" with average indoor levels of < 2 pCi/L. Given the low average level of radon in New York County, it is not likely that radon gas levels at the Subject Property exceed the USEPA action level of 4.0 pCi/L, therefore, radon testing is not recommended.

10.0 REGULATORY AGENCY DATABASES

FLS reviewed published governmental records of federal and state environmental databases to identify use, generation, storage, treatment, disposal, and/or release of hazardous substances and/or petroleum products, which may have impacted the Subject Property. The databases reviewed in this assessment and search radii from the Subject Property that surrounding properties were assessed, are as outlined in the *ASTM Standard Method E 1527-00*.

Environmental Data Resources, Inc. (EDR) conducted the search for the regulatory database records and provided the records in the form of a regulatory agency database report. This report has been included as *Appendix B*.

The following table outlines the ASTM standard databases reviewed as well as their corresponding specified search radii from the Subject Property:

Federal and State Regulatory Agency Databases Reviewed	ASTM Specified Search Radii
National Priorities List (NPL)	1.0-mile
Proposed NPL	1.0-mile
Corrective Action Report (CORRACTS)	1.0-mile
Inactive Hazardous Waste Disposal Sites in New York State (SHWS)	1.0-mile
Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)	½-mile
Resource Conservation and Recovery Information System (RCRIS) – Treatment, Storage, and/or Disposal (TSD) facilities	½-mile
Hazardous Substance Waste Disposal Site Inventory (HSWDS)	½-mile
Solid Waste Facility/Landfill (SWF/LF)	½-mile
Leaking Storage Tanks Incidents Report (LTANKS)	½-mile
Emergency Response Notification System (ERNS)	Site
CERCLIS – No Further Remedial Action Planned (NFRAP)	Site & Adjacent
RCRIS – Large/Small Quantity Generators (LQG/SQG)	Site & Adjacent
Registered Aboveground/Underground Storage Tanks (ASTs/USTs)	Site & Adjacent
Chemical Bulk Storage Database (CBS AST/UST)	Site & Adjacent
New York Spills Database (NY Spills)	Site & Adjacent

The following is a description of the results of the review of the aforementioned federal and state regulatory databases with regards to the Subject Property and surrounding area, as provided by EDR.

10.1 U.S. Environmental Protection Agency (USEPA)

National Priorities List (NPL)

The USEPA's NPL identifies confirmed hazardous waste sites (Superfund Sites), which are ranked for cleanup under the Superfund Program. This program was established by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980.

Neither the subject property nor the surrounding properties within a one mile radius were listed as NPL sites.

Resource Conservation and Recovery Act (RCRA)-
Corrective Action Activity (CORRACTS)

The CORRACTS database is a listing of all handlers with RCRA Corrective Action Activity.

Neither Subject Property nor any of the surrounding properties within a ½ mile radius were listed as RCRA-CORRACTS sites.

Comprehensive Environmental Response, Compensation, and Liability
Information System (CERCLIS)

The USEPA's CERCLA Information System (CERCLIS) is a comprehensive database that tracks sites that have been addressed, or need to be addressed under the Superfund program. Sites no longer requiring Superfund evaluations are delisted.

Neither the Subject Property, nor any of the surrounding properties within a ½ mile radius, were listed on the NPL as a CERCLIS site.

CERCLIS - No Further Remedial Action Planned (NFRAP)

CERC-NFRAP facilities are sites formerly designated as CERCLIS, which have been removed from the database. The designation may be lifted because no contamination was found following an initial inspection, the site was not placed on the NPL as contamination was quickly removed, or the contamination was not of adequate significance to require Federal Superfund action or NPL consideration.

Neither the subject property nor any of the adjacent properties were listed as CERCLIS-NFRAP sites.

Resource Conservation and Recovery Information System – Treatment, Storage, and/or Disposal Facilities (RCRIS-TSDF)

USEPA's RCRA-TSDF database is a listing of all legitimate facilities that transport, treat, store and/or dispose of hazardous wastes either now, and/or in the past. TSDF operators are regulated under the RCRA.

Neither the Subject Property, nor any of the surrounding properties within a one-half-mile radius, were listed as a RCRIS-TSDF.

RCRIS – Small Quantity Generators / Large Quantity Generators (RCRIS-SQG/LQG)

RCRIS Hazardous Waste Generators are regulated under the Resource Conservation and Recovery Act (RCRA). A listing of Hazardous waste generators in the area of the Subject Property is useful to assess the types of materials that may be handled, stored or transported in the vicinity of the Subject Property.

Neither the Subject Property nor the adjacent properties were listed in the regulatory agency database as a RCRA-LQG/SQG.

Emergency Response Notification System (ERNS)

The USEPA's ERNS database contains information from federal agencies on CERCLA hazardous substance releases over reportable limits (which vary depending on the material).

The Subject Property was not identified in the ERNS database.

10.2 New York State Department of Environmental Conservation

Hazardous Substance Waste Disposal Site Inventory (HSWDI)

Any known or suspected waste disposal sites for hazardous substances, delisted sites from the Registry of Inactive Hazardous Waste Disposal Sites, and non-registry sites for which Site Investigation (SI) or Preliminary Assessment (PA) reports have been prepared, are included in the HSWDS.

Neither the Subject Property, nor any of the surrounding properties within a one-half mile radius, were listed as a HSWDS site.

State Hazardous Waste (SHW) Sites

Neither the SHW Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along the sites where cleanup will be paid for by potentially responsible parties. The data comes from the NYSDEC Inactive Hazardous Waste Disposal Sites in New York State.

Neither the Subject Property nor any of the surrounding properties within a one mile radius were listed in the regulatory database as a SHW site.

Leaking Storage Tanks Incident Reports (LTANKS)

These records contain an inventory of LTANKS reported from April 1, 1986 through the most recent update. They can be either leaking USTs or leaking ASTs. The causes of the incidents include tank test failures, tank failures, or tank overfills.

The Subject Property was not listed in the regulatory database as an LTANK site.

Review of the regulatory database revealed that there were 122 LTANK sites located within ½ mile of the Subject Property. Of the 122 listings 57 were located sidegradient and 41 were located downgradient to the Subject Property and are unlikely concerns to the subject property. One of the LTANK listings was misplotted and one of the listings was a duplicate of a previous listing. Of the remaining upgradient properties, 18 were listed as case closed; therefore, they are unlikely concerns to the Subject Property.

The property located at 429 West 36th Street (1/4-1/2 mile east-northeast) was listed in the regulatory database as an LTANK site (site identification No. 9610098) due to a tank failure of two 550-gallon gasoline storage tanks. The database indicated that the release affected land and that further investigation of the site was scheduled to be undertaken in 1996. No further information regarding this spill was provided in the regulatory database. Based upon the resource impacted (land) and the distance from the Subject Property, spill No. 9610098 is not a concern to the Subject Property.

The property located at 333 West 34th Street (1/4-1/2 mile east-northeast) was listed as an LTANK site (site identification No. 0305833) due to a integrity test failure on a 10,000-gallon No. 6 fuel oil tank. An integrity test failure is used to detect leaks and/or malfunctioning equipment. Further tests would need to be performed to determine if the tank is leaking. As it is unknown whether or not the UST at 333 West 34th Street is leaking and as the product contained in the UST (No. 6 fuel oil) is a viscous fuel oil which is unlikely to migrate far from the LTANK site, spill No. 0305833 is not a concern to the Subject Property.

The NYPD Midtown South Property located at 357 West 35th Street (1/4-1/2 mile east-northeast) was listed as an LTANK site (site identification No. 0100463 due to a release of diesel fuel into the soil. Review of the regulatory database revealed that the contaminated soil was over excavated and disposed of off-site. Since the contaminated material was removed from the site, spill No. 0100463 is not a concern to the Subject Property.

C&K Properties located at 224 West 30th Street (1/2-1 mile east-southeast) listed as an LTANK site (site identification number 9806038) due to an integrity test failure of a No. 2 fuel oil tank. It is unlikely that this site would affect the environmental condition of the Subject Property as it located more than ½ mile away from the subject property.

Solid Waste Facilities/Landfills (SWF/LF)

SWF/LF database includes listings for all solid waste facilities, including landfills, incinerators, transfer stations, recycling stations, and any other solid waste handlers.

The Subject Property was not listed as a SWF/LF site.

There were two SWF/LF sites located hydraulically downgradient to the Subject Property. Based on the gradient, these sites are not a concern to the Subject Property.

Registered Underground/Aboveground Storage Tanks (USTs/ASTs)

Petroleum Bulk Storage (PBS) facilities with a petroleum storage capacity between 1,100 and 400,000 gallons must be registered with the NYSDEC.

Section 2 of the Subject Property (502 West 30th Street) was listed as a PBS AST facility under PBS number 2-402001. Review of the regulatory database revealed that the site was listed due to the presence of one 5,000-gallon fuel oil AST.

The adjacent property to the north (sidegradient to upgradient) of Metal Purchasing Company (501 West 30th Street)) was listed as PBS UST facility under PBS numb2-043516. Review of the database revealed that the site was listed due to the presence of one closed 5,000-gallon fuel oil UST and one active 1,500-gallon fuel oil AST.

The adjacent property to the south (sidegradient to downgradient) of the distribution center (524 West 29th Street) was listed as a PBS UST facility under PBS number 2-089559. Review of the regulatory database revealed that the site was listed due to the presence of one 2,000-gallon fuel oil UST, one 4,000-gallon gasoline UST, and one 500 gallon gasoline UST.

The adjacent property to the south, north of West 29th Street, (upgradient to Section 3 of the Subject Property) of the Sam-Fay Realty Corporation (515 West 29th Street) was listed as a PBS AST facility under PBS numbers 2-606014 and 2-606180. Review of the regulatory database revealed that the site was listed due to the presence of one or two 3,000-gallon fuel oil ASTs. It appears that, as the tank capacity contents and construction are identical, the double listing of the property was an administrative error.

Chemical Bulk Storage Database (CBS UST/AST)

The CBS UST/AST database includes facilities storing any hazardous substances listed under 6 NYCRR Part 597 in quantities of 185-gallons or greater in an AST or any capacity in an UST. Registration is required by 6 NYCRR Part 597.

Neither the Subject Property nor its adjacent properties were identified in the regulatory agency database as having registered CBS AST facility.

New York Spills (NY Spills) Database

The NY Spills Database was reviewed for spill facilities located on or adjacent to the Subject Property.

The Subject Property is listed in the NY Spills database under spill number 9604278 for a fuel oil release inside the building located at 518 West 30th Street (Section 2). Review of the regulatory database revealed that the spill was closed by the regulatory agency since it was satisfactory cleaned up shortly after it had occurred. Based upon the above information, spill number 9604728 is not a concern.

The subject property was listed in the NY Spills database under spill number 0408382 due to a diesel release from a commercial vehicle in 518 West 30th Street building (Section 2). The regulatory database indicated that the release impacted air only. Spill number 0408382 is not a concern to the Subject Property based upon the media impacted by the release.

Spill number 8907464 was listed in the NY Spills database under the Morgan Parking Lot (adjacent property to the east) at the address of 10th Avenue and West 29th Street. According to the database the spill was caused when a backhoe struck a 275 gallon fuel oil tank that was present in the basement of a structure which had been razed in 1962. The regulatory database indicated that the spill was cleaned and spill number 8907464 was closed on June 25, 1995. Based upon the remediation performed, the media impacted (surface soils) and the regulatory closure of the spill, this spill is a minimal concern to the Subject Property.

Spill number 9603350 occurred in the street immediately due east of the Subject Property. Review of the regulatory database revealed that the spill occurred when a vehicle released 10-gallons of motor oil into the street. This spill is not a concern to the Subject Property because it occurred on an impervious surface, and if the motor oil moved overland toward the Subject Property, it would have been intercepted by the NYCDEP stormwater collection system. Based upon the above information, Spill number 9603350 is not a concern.

Facility Index System (FINDS) Database

The FINDS database contains both facility information and 'pointers' to other sources that contain more detail.

The subject property was not listed in the FINDS Database.

11.0 REGULATORY AGENCY RECORDS AND FILES

11.1 New York City Department of Environmental Protection (NYCDEP)

FLS contacted the NYCDEP and requested information pertaining to hazardous materials storage or incidents, NYCDEP enforcements or actions, NYCDEP permits, or other issues of environmental concern. Upon receipt of a response from the NYCDEP, FLS will review the response and, if conclusions contained within this report have been affected, FLS will submit revised recommendations The Related Companies L.P.

11.2 New York City Fire Department (FDNY)

FLS contacted the FDNY and requested information pertaining to underground storage tanks (USTs) and aboveground storage tanks (ASTs) on the Subject property. FLS has not yet received a response from any of the aforementioned agencies. Upon receipt of the responses from the FDNY, FLS will review the response and, if conclusions contained within this report have been affected, FLS will submit revised recommendations to The Related Companies L.P.

11.3 New York City Department of Buildings (NYCDOB)

FLS reviewed recent permits issued by the NYCDOB via their online database. The following permits present a concern to the environmental property (from 1995):

> On January 30, 1997 a building permit was taken out to install a new concrete pad with a fence for the storage of petroleum at the 530 West 30th Street (Section 1) property. FLS did not observe petroleum tank storage at this portion of the subject property or any evidence of a release from historic tanks.

There were no other permits of environmental concern to the Subject Property.

11.4 New York State Department of Environmental Conservation (NYSDEC)

FLS contacted the NYSDEC to obtain information on NYSDEC files for the Subject Property. FLS has not yet received a response NYSDEC. Upon receipt of the responses from the NYSDEC, FLS will review the response and, if conclusions contained within this report have been affected, FLS will submit revised recommendations to The Related Companies L.P.

Copies of the information requests are included in Appendix F.

D: SCOPE OF WORK

1.0 PURPOSE AND LIMITATIONS

This Phase I Environmental Assessment consists of research into the historic uses and development of the property, examination of available information from governmental agencies, and a visual inspection of the property to determine the possible presence of toxic or hazardous materials including petroleum and chemical products. Based upon the available information, an evaluation is made regarding the *potential* for significant site contamination from either current or historical uses of toxic or hazardous materials or chemical products. This evaluation also considers environmental issues associated with asbestos, lead paint, radon and physical aspects of the site.

The scope of work for this Phase I ESA does not include any testing of building materials, site soils (surface or sub-surface), ground or surface waters or interior or exterior air quality. Therefore, no definitive assessment of the presence of asbestos, lead-based paint, PCB's, radon, soil or groundwater contamination, surface water or sediment contamination form either on-site or off-site sources is made. Other issues that may affect the value or use of the property such as ambient air quality, noise pollution, electromagnetic fields, etc. have not been assessed in this Phase I ESA.

If further determination of any potential contamination, or factors that may affect the value or use of the property, is needed, then testing and/or additional investigation (a Phase II investigation) would be necessary. Fleming-Lee Shue has performed no Phase II for this property.

2.0 CONFORMANCE WITH ASTM STANDARD

This report has been prepared in conformance with the scope of the ASTM Standard of Practice for a Phase I ESA (Practice E 1527-00), as well as generally accepted protocols for lenders. No exceptions to the ASTM scope have been made other than those specifically noted in the text of this document.

3.0. SOURCE OF INFORMATION AND METHODS OF RESEARCH

This Phase I ESA consists of three principal parts: research into the history of the site, a site inspection, and review of applicable regulatory agency records and databases.

Historical site research is used to assess the likelihood of past releases of toxic or hazardous substances, including petroleum products. Sources of historical information for the Subject Property may include one or more of the following:

- Reference documents (historical maps, aerial photographs, etc.)
- Interviews with site contacts, operators, owners, and neighboring property operators, owners and operators.

- USGS topographic maps, land use maps, zoning maps and flood plain maps.

- Local building department officials and tax assessment officials.

The following regulatory agency lists and databases of documented hazardous waste sites, waste handlers, and spills are reviewed:

- USEPA for location of Superfund and CERCLIS sites, ERNS finds, and RCRA Hazardous Waste Handlers and Treatment/Storage/Disposal Facilities list's.

- New York State Department of Environmental Conservation for hazardous waste spills, current SPDES sites, Inactive Hazardous Waste Disposal Sites, Major Oil Storage Facilities, Chemical Bulk Storage and Petroleum Bulk Storage Facilities, Toxic Release Inventory System, Solid Waste Facilities, etc.

The site inspection involves a review of current operations, interviews with knowledgeable site occupants, operators or owner, a visual inspection of accessible areas of the site for indications of significant contamination by toxic or hazardous waste or materials. The site inspection includes the following objectives:

- To identify sources of potential on-site contamination, such as above or underground storage tanks, septic systems, dry wells, interior floor drains, transformers and fluorescent light ballast which may contain PCB's, suspected asbestos-containing materials, and suspected presence of lead-bases paints, etc.

- To examine the site for signs of potential contamination including stained soils, unusual odors, stressed or dead vegetation, improperly stored chemicals, oil slicks on standing waters, on-site waste disposal practices, etc.

- To determine if on-site storage, handling use and disposal of toxic or hazardous materials follows good practice to minimize the potential of spills or site contamination.

- To identify potential off-site sources of contamination through observation of off-site neighboring land use, topography, and drainage patterns.

- To identify on-site and adjacent sensitive receptors such as surface waters, wetlands, infiltration basins, drinking water wells, etc.

Not all objectives listed are applicable to every site. Investigations are tailored to the particular nature of the site under examination. Some information requested from governmental agencies may not have been available at the time of the production of the report. These data may be supplemented to the report if significant to the findings. No information requested in this investigation had not been received prior to production of this report.

In accordance with ASTM standards, a Phase I ESA is not prepared as an environmental compliance report. This Phase I report addresses the general and typical regulation for toxic and hazardous materials, but does not represent to examine specific compliance with legally mandated regulations concerning the handling, storage use or disposal of these materials at the site. Additionally, no representations are made as to compliance with worker exposure standards established by the U.S. Occupational Safety and Health Administration (OSHA).

E: QUALIFICATIONS

Fleming-Lee Shue is an environmental consulting firm whose principals have undertaken environmental pollution development feasibility and environmental site assessment studies since 1981. These site evaluation studies have been prepared for major lenders, public corporations, businesses, developers and governmental agencies. Approximately, 1000 parcels have been evaluated in the metropolitan New York area during the past fifteen years, including Phase I Environmental Site Assessments, comprehensive soil, surface and groundwater and asbestos testing programs, and remediation design and oversight on Listed Inactive Hazardous Waste Sites.

Fleming-Lee Shue's principals for the hazardous waste investigations have over 30 years experience in environmental consulting, with established credentials in the field.

Individual qualifications of Fleming-Lee Shue personnel, including specific credentials of persons involved in the preparation of this report, can be provided upon request.

F: DISCLAIMER

This report is for use by The Related Companies L.P., and is only to be used as a guide in determining the potential for contamination by toxic or hazardous materials on the Site at the time of Fleming-Lee Shue's site visit. This Phase I Environmental Site Assessment (ESA) was undertaken in accordance with generally accepted assessment protocols including the *ASTM Standard Practice for Phase I ESAs*. This Phase I ESA is based principally on the review of historic and regulatory records (made available within a reasonable time period), relating to past occupants and usage of the Subject Property, as well as activities as nearby sites, and upon a visual assessment of the Subject Property, and makes no determinations with respect to portions of the Subject Property and its structures which are not inspected.

This Phase I ESA does not involve any sampling, testing, or laboratory analysis of subsurface soils, groundwater, or building materials or other substances on-site, but constitutes only the professional opinion of Fleming-Lee Shue, based on established procedures and protocols. This Phase I is not, and should not be construed as a guaranty, warranty, or certification of the presence or absence of toxic or hazardous substances, which can be made only with testing, and contains no formal plans or recommendations to rectify or remediate the presence of any toxic or hazardous substances, which may be subject to regulatory approval. Fleming-Lee Shue assumes no liability for the use of this report by any person entity other than the institution and/or entities or persons for whom it has been prepared.

APPENDIX B

Soil Boring Logs 2007

SOIL BORING #: SB5

PROJECT ID:	West 29th Street "e" designation	FLS PROJECT NO.:	10022-007-2
LOCATION:	Lot 45 - North West	GEOLOGIST:	Matthew Carroll
DRILLER:	HydroTech Environmental Corp.		
DRILLING METHOD:	Geoprobe - Direct Push		
SOIL SAMPLING METHOD:	Acetate Liner		
DATE BORING INSTALLED:	1/30/2007		
TOTAL DEPTH:	12.0 feet	DEPTH TO WATER:	11.0 feet

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	DENSITY/ MOISTURE	REC. (IN)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0 2 3	0.0		20	2" bgs concrete to FILL (dark brown and yellow medium grain sand with silt, brick, and concrete), no odor.	SB5 (0-2')
4 5 6 7	0.0		24	FILL (light brown fine to medium grain sand with silt and brick), no odor.	
8 9 10 11	0.0	Wet	48	FILL (light brown and grey medium to coarse grain sand with brick and concrete) to 10.5' bgs, to FILL (light brown sand with cinder ash and concrete) to 11.0' bgs, to grey SILT with sand, wet, no odor. End of Boring	SB5 (9'-11')
12				NOTES: Orginal SB-5 was advanced approximately 10.0 feet west of present location. Refusal depth @ 3.5 feet. SB-5 was relocated to present location and advanced to a depth of 12.0 feet.	

SOIL BORING LOG

DATE: 2/2/2006 DRAWN BY: F. Coppard
SCALE: REV. BY: M. Carroll
FILE NAME: 10022-008

Fleming-Lee Shue, Inc.
158 West 29th Street, 9th Floor
New York, New York 10001
(212) 675-3225

SOIL BORING #: SB6

PROJECT ID:	West 29th Street "e" designation	FLS PROJECT NO.:	10022-007-2
LOCATION:	Lot 45 - South West	GEOLOGIST:	Matthew Carroll
DRILLER:	HydroTech Environmental Corp.		
DRILLING METHOD:	Geoprobe - Direct Push		
SOIL SAMPLING METHOD:	Acetate Liner		
DATE BORING INSTALLED:	1/30/2007		
TOTAL DEPTH:	12.0 feet	DEPTH TO WATER:	11 feet

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	DENSITY/ MOISTURE	REC. (IN)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0 2 3	0.0		36	2" bgs concrete, to FILL (dark brown and grey medium grain sand with silt, brick and concrete), no odor.	SB6 (0-2')
4 5 6 7	0.0		14	FILL (brown silty sand with brick), no odor.	
8 9 10 11	0.0	Wet	36	FILL (brown silty sand with brick) to 8.5' bgs, to concrete to 9.8' bgs, to grey silty SAND to 10.3' bgs, to grey silty organic CLAY, wet, no odor. End of Boring	SB6 (9-11')
12				NOTES: Collected groundwater samples from temporary well via SP sampler. Screened from 24-26' bgs.	

SOIL BORING LOG

DATE: 2/2/2006 DRAWN BY: F. Coppard
SCALE: REV. BY: M. Carroll
FILE NAME: 10022-008

Fleming Lee Shue

Fleming-Lee Shue, Inc.
158 West 29th Street, 9th Floor
New York, New York 10001
(212) 675-3225

SOIL BORING #: SB7

PROJECT ID:	West 29th Street "e" designation	FLS PROJECT NO.:	10022-007-2
LOCATION:	Lots 45/52 border	GEOLOGIST:	Matthew Carroll
DRILLER:	HydroTech Environmental Corp.		
DRILLING METHOD:	Geoprobe - Direct Push		
SOIL SAMPLING METHOD:	Acetate Liner		
DATE BORING INSTALLED:	1/30/2007		
TOTAL DEPTH:	12.0 feet	DEPTH TO WATER:	11 feet

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	DENSITY/ MOISTURE	REC. (IN)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0 2 3	0.0		43	1" bgs concrete, to FILL (brown silty sand and brick), no odor.	SB7 (0-2')
4 5 6 7	0.0		29	FILL (brown silty sand and brick) to 4.2' bgs, to FILL (concrete), to FILL (dark grey sand with silt, brick and embers), no odor.	
8 9 10 11	0.0	Wet	29	FILL (dark grey sand with silt, brick and embers) to 10.0' bgs, to reddish brown medium to coarse grain SAND to 11.5' bgs, to dark grey coarse grain SAND with pebbles, wet, no odor. End of Boring	SB7 (9.0-11.0)
12					

SOIL BORING LOG

DATE:	2/2/2006	DRAWN BY:	F. Coppard
SCALE:		REV. BY:	M. Carroll

FILE NAME: 10022-008

Fleming-Lee Shue, Inc.
158 West 29th Street, 9th Floor
New York, New York 10001
(212) 675-3225

SOIL BORING #: SB10

PROJECT ID:	West 29th Street "e" designation	FLS PROJECT NO.:	10022-008
LOCATION:	Lot 55	GEOLOGIST:	Matthew Carroll
DRILLER:	HydroTech Environmental Corp.		
DRILLING METHOD:	Geoprobe - Direct Push		
SOIL SAMPLING METHOD:	Acetate Liner		
DATE BORING INSTALLED:	1/30/2007		
TOTAL DEPTH:	12.0 feet	DEPTH TO WATER:	11 Feet

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	DENSITY/ MOISTURE	REC. (IN)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0 1 2 3	0.0		36	8" bgs concrete, to FILL (light brown silty fine grain) to 2' bgs, to FILL (light brown sand and brick), no odor.	SB10 (0-2')
4 5 6 7	0.0		36	FILL (light brown silty fine grain sand and brick), no odor.	
8 9 10 11	0.0	Wet	29	FILL (light brown silty fine grain sand and brick), to FILL (grey cinder ash), to grey SILT with sand, wet from 11.0' to 11.5' bgs, no odor. End of Boring	SB10 (9-11')
12					

SOIL BORING LOG

DATE: 2/2/2006 DRAWN BY: F.Coppard
SCALE: REV. BY: M. Carroll
FILE NAME:

Fleming-Lee Shue, Inc.
158 West 29th Street, 9th Floor
New York, New York 10001
(212) 675-3225

SOIL BORING #: SB11

PROJECT ID:	West 29th Street "e" designation	FLS PROJECT NO.:	10022-007-2
LOCATION:	Lot	GEOLOGIST:	Matthew Carroll
DRILLER:	HydroTech Environmental Corp.		
DRILLING METHOD:	Geoprobe - Direct Push		
SOIL SAMPLING METHOD:	Acetate Liner		
DATE BORING INSTALLED:	1/30/2007		
TOTAL DEPTH:	12.0 feet	DEPTH TO WATER:	10 Feet

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	DENSITY/ MOISTURE	REC. (IN)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0, 2, 3	0.0		24	6" bgs concrete, to FILL (brown silty medium grain sand, cinders and cinder ash), no odor.	SB11 (0-2')
4, 5, 6, 7	0.0		36	FILL (brown silty medium grain sand, cinders and cinder ash), to grey sandy SILT, no odor.	
8, 9, 10, 11	0.0	Wet	36	Black silty SAND with pebbles to reddish brown silty SAND, wet @ 10.0' bgs, no odor. End of Boring	SB11 (8-10')
12					

SOIL BORING LOG

DATE: 2/2/2006 DRAWN BY: F.Coppard
SCALE: REV. BY: M. Carroll
FILE NAME:

Fleming-Lee Shue, Inc.
158 West 29th Street, 9th Floor
New York, New York 10001
(212) 675-3225

SOIL BORING #: SB12

PROJECT ID:	West 29th Street "e" designation	FLS PROJECT NO.:	10022-007-2
LOCATION:	Lot 58	GEOLOGIST:	Matthew Carroll
DRILLER:	HydroTech Environmental Corp.		
DRILLING METHOD:	Geoprobe - Direct Push		
SOIL SAMPLING METHOD:	Acetate Liner		
DATE BORING INSTALLED:	1/31/2007		
TOTAL DEPTH:	28.0 feet	DEPTH TO WATER:	11 Feet

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	DENSITY/ MOISTURE	REC. (IN)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0 1 2 3	0.0		36	2" bgs concrete, to FILL (brown silty medium grain sand, cinders and cinder ash), no odor.	SB12 (0-2)
4 5 6 7	0.0		36	FILL (light grey silty sand and brick) to 5.0' bgs, to FILL (light grey silty sand, brick and cinder ash), no odor.	
8 9 10 11	0.0		48	FILL (light grey silty sand and brick), to brown silty SAND with pebbles, wet @ 11.0' bgs, no odor.	SB12 (9-11')
12 13 14 15	0.0	Wet		Brown silty SAND with pebbles, wet, no odor. NOTE: Sample fell out of liner, unknown recovery amount. End of Boring.	
16				NOTES: Collected groundwater samples from temporary well via SP sampler. Screened from 24-28' bgs.	

SOIL BORING LOG

DATE:	2/2/2006	DRAWN BY:	F.Coppard
SCALE:		REV. BY:	M. Carroll
FILE NAME:			

Fleming-Lee Shue, Inc.
158 West 29th Street, 9th Floor
New York, New York 10001
(212) 675-3225

SOIL BORING #: SB13

PROJECT ID:	West 29th Street "e" designation	FLS PROJECT NO.:	10022-007-2
LOCATION:	Lot 52 - North Lot	GEOLOGIST:	Matthew Carroll
DRILLER:	HydroTech Environmental Corp.		
DRILLING METHOD:	Geoprobe - Direct Push		
SOIL SAMPLING METHOD:	Acetate Liner		
DATE BORING INSTALLED:	1/31/2007		
TOTAL DEPTH:	12.0 feet	DEPTH TO WATER:	11 Feet

DEPTH (FT) BELOW SURFACE	OVM READING (PPM)	DENSITY/ MOISTURE	REC. (IN)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0		15	8" bgs concrete, to FILL (black silty sand, pebbles and concrete), no odor.	SB13 (0-2)
1					
2	0.0				
3					
4	0.0		36	FILL (black silty sand, pebbles and concrete) to 6.0' bgs, to FILL (reddish brown sandy silt, pebbles and cinders), no odor.	
5					
6	0.0				
7					
8	0.0		23	FILL with reddish brown sandy silt, pebbles and cinders, increasing sand content, to reddish brown silty SAND with pebbles, wet @ 11.0' bgs, no odor.	
9					
10	0.0				SB13 (9-11')
11		Wet			
12	0.0			NOTES: Collected groundwater samples from temporary well via SP sampler. Screened from 24'-28' bgs.	

SOIL BORING LOG

DATE:	2/2/2006	DRAWN BY:	F.Coppard
SCALE:		REV. BY:	M. Carroll
FILE NAME:			

Fleming-Lee Shue, Inc.
158 West 29th Street, 9th Floor
New York, New York 10001
(212) 675-3225

SOIL BORING #: SB25

PROJECT ID:	West 29th Street "e" designation	FLS PROJECT NO.:	10022-007-2
LOCATION:	Lot 56 - North	GEOLOGIST:	Matthew Carroll
DRILLER:	HydroTech Environmental Corp.		
DRILLING METHOD:	Geoprobe - Direct Push		
SOIL SAMPLING METHOD:	Acetate Liner		
DATE BORING INSTALLED:	2/2/2007		
TOTAL DEPTH:	4.0 feet	DEPTH TO WATER:	N/A

DEPTH (FT) BELOW SURFACE	OVM READING (PPM)	DENSITY/ MOISTURE	REC. (IN)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0		29	Concrete, to FILL (grey sand, pebbles and concrete) to 2.0' bgs, to FILL (grey sand and brick), no odor.	SB25 (0.0-2.0)
1					
2					SB25 (2.0-4.0)
3				Refusal @ 4.0' bgs - schist.	
4				NOTES : Refusal @ 6.0' bgs in previous attempt.	

SOIL BORING LOG

DATE: 2/2/2006 DRAWN BY: F.Coppard
SCALE: REV. BY: M. Carroll
FILE NAME:

Fleming-Lee Shue, Inc.
158 West 29th Street, 9th Floor
New York, New York 10001
(212) 675-3225

SOIL BORING #: SB26

PROJECT ID:	West 29th Street "e" designation	FLS PROJECT NO.:	10022-007-2
LOCATION:	Lot 56- South	GEOLOGIST:	Matthew Carroll
DRILLER:	HydroTech Environmental Corp.		
DRILLING METHOD:	Geoprobe - Direct Push		
SOIL SAMPLING METHOD:	Acetate Liner		
DATE BORING INSTALLED:	2/2/2007		
TOTAL DEPTH:	12.0 feet	DEPTH TO WATER:	11.0 feet

DEPTH (FT) BELOW SURFACE	OVM READING (PPM)	DENSITY/ MOISTURE	REC. (IN)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.0		20	Concrete, to FILL (dark brown silty sand,cinders and glass), no odor.	SB26 (0-2')
1					
2					
3					
4	0.0		29	FILL (dark brown silty sand, cinders and glass), to 6" schist with mica to 6", to FILL (grey sandy silt and pebbles), no odor.	
5					
6					
7					
8	0.0		48	FILL (grey sandy silt and pebbles), wet @ 11.0' bgs, no odor.	
9					
10					SB26 (9-11')
11		Wet		End of Boring	
12					

SOIL BORING LOG

DATE:	2/2/2006	DRAWN BY:	F.Coppard
SCALE:		REV. BY:	M. Carroll
FILE NAME:			

Fleming Lee Shue

Fleming-Lee Shue, Inc.
158 West 29th Street, 9th Floor
New York, New York 10001
(212) 675-3225

APPENDIX C

Remedial Investigation Work Plan - February 2013

Fleming Lee Shue

Environmental Management & Consulting

February 15, 2013

Jennifer Pati, MS
Project Manager
NYC Office of Environmental Remediation
100 Gold Street, 2nd Floor
New York, NY 10038

Re: Related West 30th Street Phase II
518-526 West 30th Street, New York, New York 10001
Manhattan, Block 701 Lots 45, 52, 55, 56 and 58
OER Project Number 13EH-N305M

Dear Ms. Pati:

This Phase II Environmental Site Investigation (ESI) Work Plan has been developed for the above-referenced site. The following scope of work has been developed in response to the proposed development project and the discussions with New York City Office of Environmental Remediation (OER) during the February 6, 2013 meeting onsite. An investigation of soil, soil vapor and groundwater is being performed to characterize the site for potential environmental contamination from historic on-site use and is intended to supplement the 2007 Remedial Investigation (RI) data. The proposed sampling event will address Areas of Concern (AOCs), including historic fill, and will provide general coverage across the site.

Site Location, Current Use, and Proposed Development Plan

The Site is located in the Chelsea neighborhood of Manhattan. The legal description of the site is Tax Block 701, Lots 45, 52, 55, 56 and 58. The Site is a vacant lot where construction trailer offices for the adjacent construction project are located. Groundwater was encountered between 10 to 15 ftbgs during the 2007 RI. Based upon the review of the United States Geological Survey (USGS) 40073-F5 Central Park Quadrant 7.5 Minute 2011 topographic map, groundwater is expected to follow surface topography and flow west and southwest toward the Hudson River.

The Site is an extension of 529 West 29 (Block 701 Tax Lot 16) project. The Site will include a single 26-story tower on a 3 story podium base and will encompass current lots 58, 56, 55, 52, and part of lot 45. The proposed residential, mixed-use building will have one cellar level with frontage along 30th Street between 10th Avenue and 11th Avenue. The cellar level will be used for mechanical rooms, tenant storage, residential accessory spaces and residential amenities. The cellar will have a slightly larger footprint as the podium base above (additional 15'-0" toward the High Line) with at least 12'deep plus foundations. The first floor will have the residential entrance lobby on 30th street and retail use along the remainder of the street frontage. The ground floor has no grade level open spaces proposed. The parking entrance will be located on the first floor as well with primary access 30th street; there will be only a ground floor connection with the existing building at 529 29th Street for vehicular purposes only. The second floor of the building will house permitted accessory parking for the building along with some mechanical rooms. The third floor, last podium floor, will consist of open to below spaces for parking at second level, mechanical spaces, and residential units. Floors 4 to 28 will have 190 residential units ranging from studios to three bed rooms. The exterior of the building will be pre-cast concrete panels with brick veneer, with aluminum and glass punched windows and an Aluminum and glass storefront for the retail portions at the first floor.

The development will be approximately 270,000 gross square feet (including 20,000 square feet of below-grade space) and broken down as follows:

Total Residential Area = 234,000 GSF
Total Commercial Area = 9,000 GSF
Total Parking Area = 10,000 GSF
Total Mechanical Area = 17,000 GSF

Areas of Concern

The subject property consisted of tenement style buildings from before 1890 up until the property was redeveloped in the mid 1900's. The building was occupied by the Metal Purchasing Company until the 1990's and was later converted into a parking garage. The presence of historic fill is identified as on-site AOCs.

Several off-site AOCs were identified in the 2005 Phase I for the Site:

1. The historic junkyard and filling station operations on Lot 37, upgradient from the Site.
2. No. 4 fuel oil was stored in a storage tank located in a vault in the basement of 502-504 West 30th Street, up/cross-gradient from the Site.
3. The historic auto repair operations beneath the high line, upgradient from the Site.
4. The chemical manufacturer located at 515 West 30th Street, upgradient to the Site.

Phase II Work Scope

The following scope of work will be completed at the Site:

1. A geophysical survey was completed across the entire site during the 2007 RI to pre-clear the soil boring locations.

2. Three soil borings will be installed, and a minimum of two soil samples will be collected from 0-2 ftbgs and from 14-15 ftbgs. If elevated photo-ionization detector (PID), visual, or olfactory evidence of contamination is encountered during borehole advancement, a third soil sample will be collected from the 2-foot interval exhibiting the greatest evidence of contamination.

3. Three temporary groundwater monitoring wells will be installed, and three groundwater samples will be collected. Representative groundwater samples will be collected using low-flow sampling techniques.

4. Four soil vapor screening probes will be installed, and four vapor samples will be collected for a duration of 2 hours from 1-2' above the soil/water interface at each location (approximately 8-9 ft bgs).

Sample Analysis

Soil and groundwater samples will be submitted to a New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP)-certified laboratory for Full analysis consisting of:

- Volatile Organic Compounds (VOCs) by EPA Method 8260;
- Semi-volatile organic compounds (SVOCs) by EPA Method 8270;
- Pesticides/Polychlorinated Biphenyls (PCBs) by EPA Method 8081/8082; and
- Target Analyte List (TAL) Metals by EPA Method 6010 and 7471 (All groundwater samples will be analyzed for both filtered and unfiltered metals).

If either light non-aqueous phase liquid (LNAPL) and/or dense non-aqueous phase liquid (DNAPL) are detected, appropriate samples will be collected for characterization and "finger print analysis" and required regulatory reporting (i.e. spills hotline) will be performed.

Soil vapor samples will be analyzed for VOCs by using United States Environmental Protection Agency Method TO-15.

Quality Assurance/Quality Control Procedures

The Quality Assurance /Quality Control (QA/QC) procedures will be used to provide performance information with regard to accuracy, precision, sensitivity, representation, completeness, and comparability associated with the sampling and analysis for this investigation. Field QA/QC procedures will be used (1) to document that samples are representative of actual conditions at the Site and (2) to identify possible cross-contamination from field activities or sample transit. Laboratory QA/QC procedures and analyses will be used to demonstrate whether analytical results have been biased either by interfering compounds in the sample matrix, or by laboratory techniques that may have introduced systematic or random errors to the analytical process. Adequate QA/QC samples will be collected and analyzed at an ELAP-certified laboratory.

Reporting

A Phase II ESI Report will be prepared following completion of the field activities and receipt of the laboratory data. The Report will be prepared using the OER template for the Phase II ESI Report and will provide detailed summaries of the investigative findings. Soil, groundwater and soil vapor analytical results will be compared to the New York State Department of Environmental Conservation (NYSDEC) Part 375-6.8(a) Unrestricted Use Soil Cleanup Objectives, appropriate Part 375-6.8(b) Restricted Soil Cleanup Objectives and NYSDEC Part 703 Groundwater Quality Standards (class GA) or Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards, and NYSDOH October 2006 Final Guidance for Evaluating Soil Vapor Intrusion Matrices. The Report will include an updated Site Plan and analytical summary tables from all constituent compounds (even if non-detectable concentrations are revealed).

Attachments:

.
A map showing the sampling plan is presented in Figure 1.

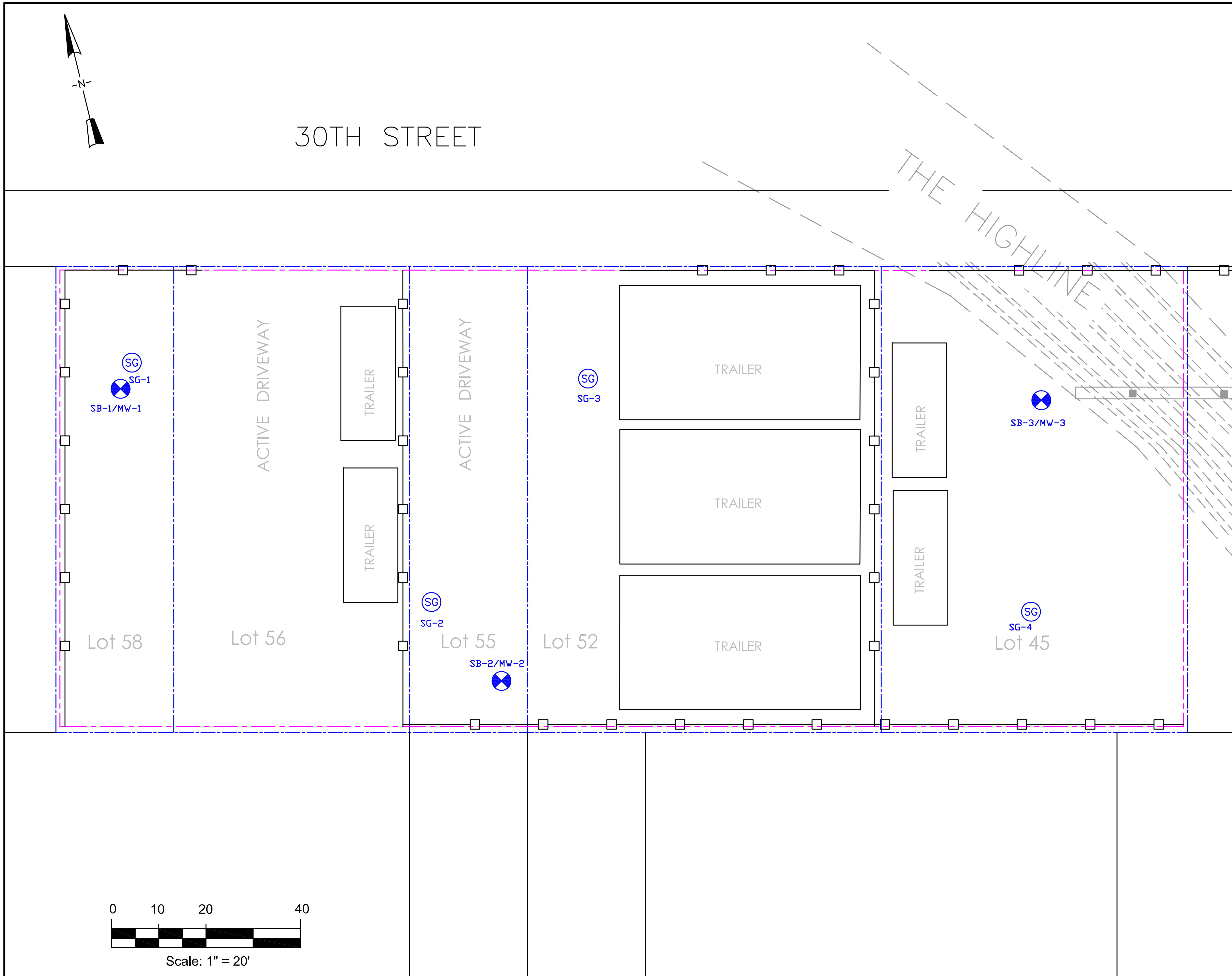
1. SOIL: A geologist will screen the soil samples during borehole advancement for organic vapors with a PID and for visual and olfactory impacts prior to collecting environmental samples. All field work will be recorded in a field log. Geoprobe drilling equipment will be used and if necessary, more advanced drilling technology will be used to complete the site investigation.

2. GROUNDWATER: Temporary groundwater wells will be installed. Representative groundwater samples will be collected using low-flow sampling techniques. Proper screening and sized silica sand pack will be used for noted site conditions. A representative groundwater sample will be collected from each well with a peristaltic pump and dedicated Teflon tubing. Sampling will be conducted in accordance with NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated 2012, and Sampling Guidelines and Protocols, dated March 1991.

3. SOIL VAPOR: Soil vapor samples will be collected for duration of 2 hours at a depth of 1-2 ft above the soil/water interface, at approximately 8-9 ft bgs, from temporary soil vapor sample points. Prior to soil vapor sample collection, air will be purged from the soil vapor points using ¼ -inch polyethylene tube and an air valve connected to a vacuum pump. The vacuum pump will run for at least 5 minutes to evacuate a minimum of three sample probe volumes. Samples will be collected for a minimum of two hour duration in 6-Liter Summa canisters which have been certified clean by the laboratory. Flow rate of both purging and sampling will not exceed 0.2 L/min. All samples will be collected in accordance with the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH October 2006). A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, sampling depth, identity of samplers, sampling methods and devices, soil vapor purge volumes, volume of the soil vapor extracted, vacuum of canisters before and after the samples are collected, apparent moisture content of the sampling zone, and chain of custody protocols. A helium tracer gas will be used in accordance with NYSDOH protocols to verify the integrity of the soil vapor probe seal. A box will serve to keep the tracer gas in contact with the probe, and a portable monitoring device will be used to analyze a sample of soil vapor for the tracer prior to sampling. If the tracer sample results show a significant presence of the tracer, the probe seals will be adjusted to prevent infiltration. As the conclusion of the sampling round, tracer monitoring will be performed a second time to confirm the integrity of the probe seals.

Investigation Health and Safety Plan

An Occupational Safety & Health Administration (OSHA) compliant investigation Health and Safety Plan (HASP) will be implemented during the site work to protect worker safety for all Hazardous Waste Operations and Emergency Response (HAZWOPER) requirements. The Site Safety Coordinator will ensure full compliance of the HASP in accordance with applicable health and safety laws and regulations. All field personnel involved in investigation activities will participate in training required under 29 Code of Federal Regulations 1910.120, including 40-hour hazardous waste operator training and annual 8-hour refresher training. Emergency telephone numbers will be posted at the site location before any work begins. A safety meeting will be conducted before each shift begins. Topics to be discussed include task hazards and protective measures (physical, chemical, environmental); emergency procedures; personal protective equipment (PPE) levels and other relevant safety topics including a highlighted route map to the nearest hospital/emergency room. Meetings will be documented in a log book or specific form



Fleming Lee Shue
Environmental Management & Consulting
158 West 29th Street, 9th Fl.
New York, NY 10001

West 30th Street Phase II
Block 701
Lot 45, 52, 55, 56, 58

FIGURE 1

PROPOSED SAMPLE LOCATIONS

Date
February 2013

Project Number
10022-012-1

LEGEND

- SITE BOUNDARY
- PROPOSED BUILDING FOOTPRINT
- CONSTRUCTION FENCE
- PROPOSED SOIL & GROUNDWATER SAMPLE LOCATION
- PROPOSED SOIL GAS SAMPLE LOCATION

APPENDIX D

Geophysical Work Summary and Maps – February 2007

Hydro Tech Environmental, Corp.

Main Office
2171 Jericho Turnpike, Suite 345
Commack, New York 11725
T (631) 462-5866 • F (631) 462-5877

Brooklyn Office
1111 Fulton Street, 2nd Floor
Brooklyn, New York 11238
T (718) 636-0800 • F (718) 636-0900

www.hydrotechenvironmental.com

February 2, 2007

Mr. Mohamed Ahmed
Fleming Lee Shue
6 West 32nd Street, 4th Floor
New York, New York 10016

Re: Remote Sensing Survey –
331-343 10th Ave, 505-511 & 529-539 West 29th St, New York, NY
HTE # 070029

Dear Mr. Ahmed:

As per your request, Hydro Tech Environmental, Corp. has performed a Remote Sensing Survey at the above referenced Site. The remote sensing survey consisted of the performance of a Ground Penetrating Radar (GPR) survey under the direct oversight of a representative of your office in specified locations. The purpose of the survey was to clear all sampling locations prior to their installation. The remote sensing survey cleared boring locations in Lots 16, 30, 33, 43, 45, 52, 55, 56, and 58.

Description of Fieldwork
The remote sensing survey was performed on January 29, 2007. The GPR survey was performed utilizing a GSSI SIR-3000 Control Unit and a 400-megahertz shielded antenna. The survey was performed over a grid pattern that was determined immediately prior to the survey. The GPR operator wheeled the antenna over the predetermined grid. The GPR survey was performed to clear all sampling locations prior to their installation. The GPR survey was performed over an asphalt surface that was in poor condition.

The GPR takes one "scan" per set unit. The number of scans per unit is based upon the estimated sizes of targets. Based upon the typical size of a UST the GPR was set to run at 50 scans per foot. As each scan is performed, the antenna emits specific radar amplitude into the subsurface. The amplitude of the radar reflected back to the antenna is based upon the differences in the dielectric constants of the subsurface materials. The difference in amplitude obtained during each scan is then graphically displayed at the Control Unit, which are then interpreted by the GPR operator the time of the survey. Additional interpretations are then conducted in the office utilizing specialized computer software. It should be noted that a poor signal was obtained while performing the GPR survey. The signal reached approximately 2 feet below grade.

Remote Sensing Survey Results
The GPR survey did not identify any suspect environmental anomalies in the vicinity of the boring locations.

Any GPR survey described above was performed in accordance with good commercial and customary practice and generally accepted protocols within the consulting industry. **Hydro Tech Environmental, Corp** does not accept responsibility for survey limitations due to inherent technological limitations or site specific conditions, however, **Hydro Tech Environmental, Corp** made appropriate effort to identify and notify the client of such limitations and conditions. In particular, please note that the survey described above does not represent a full utility clearance survey, and does not relieve any party of applicable legal obligations to notify a utility one-call service prior to excavating or drilling.

Very Truly Yours,
Hydro Tech Environmental, Corp.

Kathleen DeVoe

Kathleen De Voe
Project Geologist

CC: HTE File #070029

Attachment #1

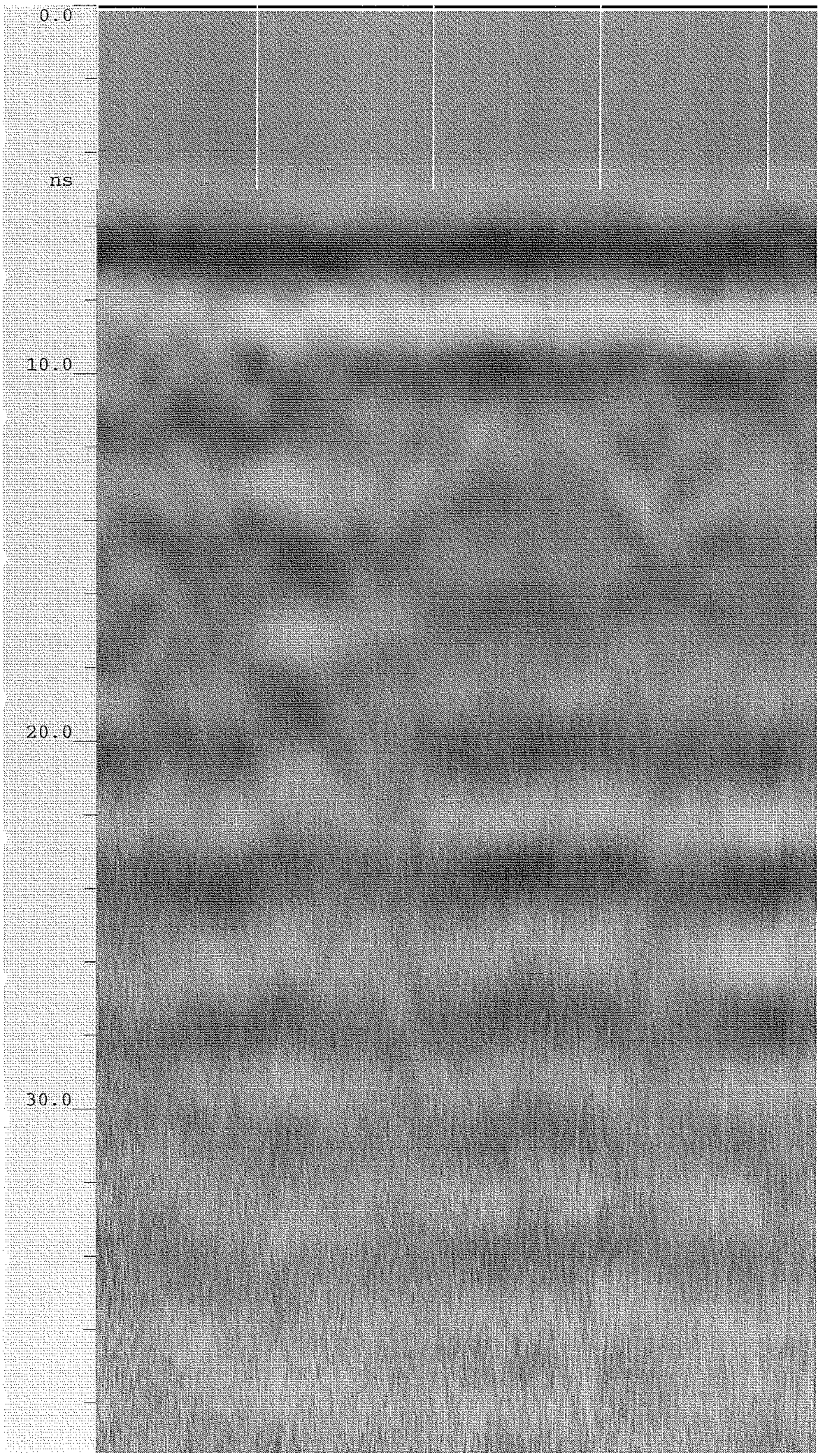
GPR Line Scans

Hydro Tech Environmental, Corp.

TENAVE__001

Created Jan, 29 2007, 09:20:52 Modified Jan, 29 2007, 09:21:20
Channel(s) 1 Samples/Scan 512 Bits/Sample 16
Scans/Second 60 Scans/Meter 196.85 Meters/Mark 0.6096
Diel Constant 8

CHANNEL 1 400MHz
Position 0 nS Range 40 nS
Position Correction 0.725 nS
Vert IIR LP N =1 F =1000 MHz
Vert IIR HP N =1 F =125 MHz
Range Gain (dB) -20.0 12.0 20.0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ns
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20.0
30.0

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Diel Constant 8

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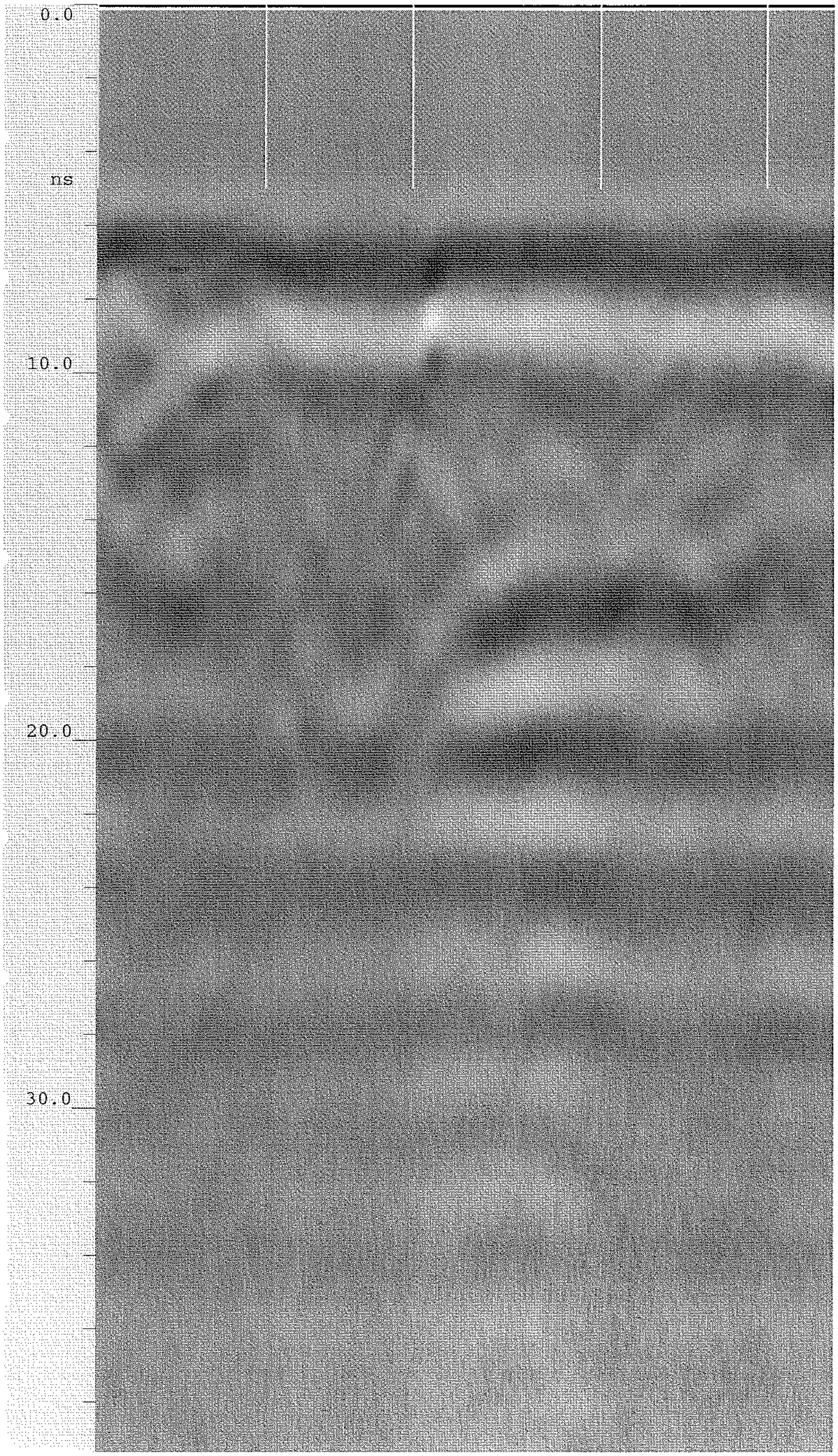
Position 0 nS Range 40 nS
Position Correction 0.725 nS
Vert IIR LP N =1 F =1000 MHz
Vert IIR HP N =1 F =125 MHz
Range Gain (dB) -20.0 12.0 20.0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20.0
30.0

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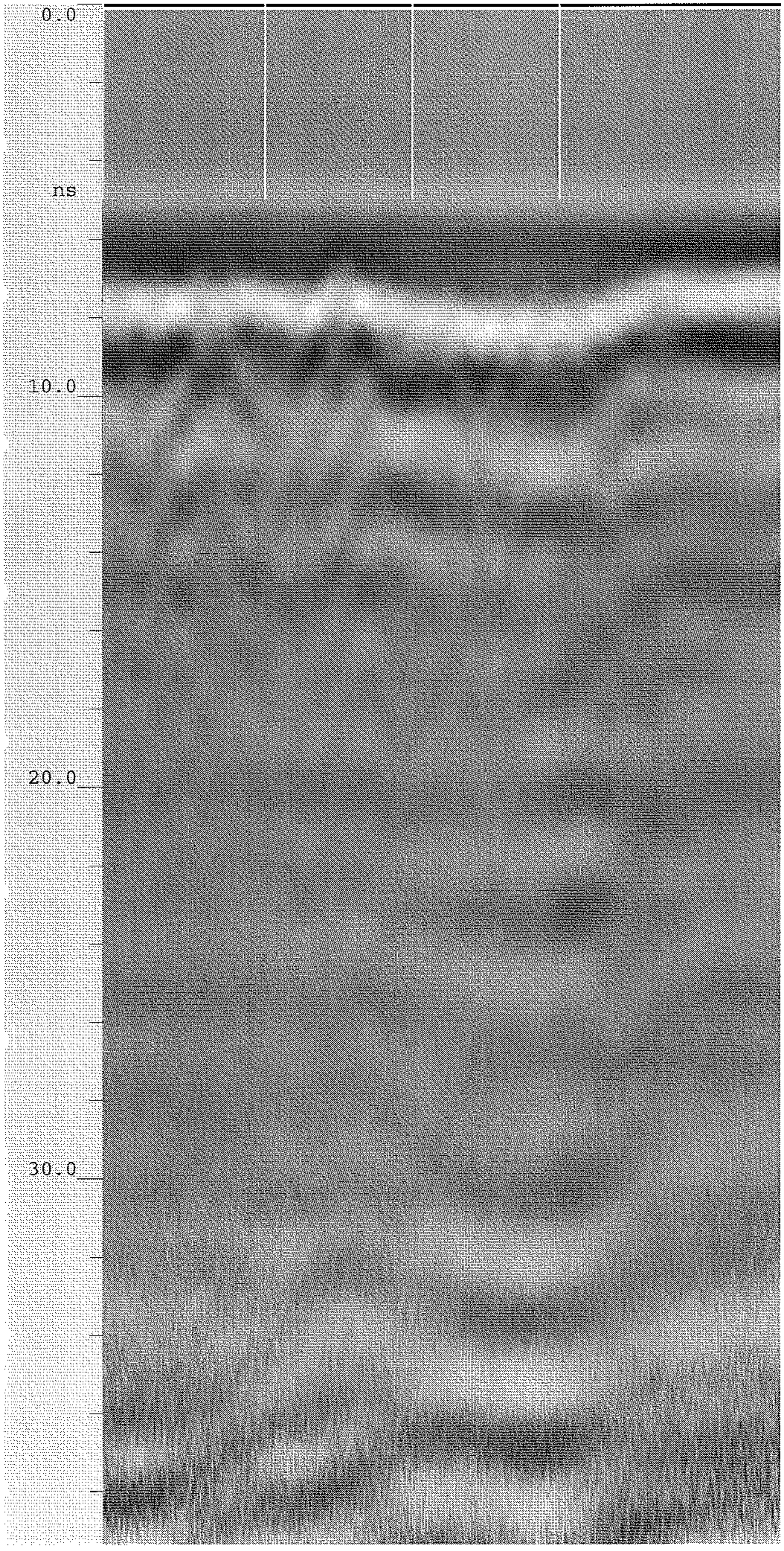
Diel Constant 8

CHANNEL  1  400MHz
Position  0 nS  Range  40 nS
Vert IIR LP N =1 F =1000 MHz
Vert IIR HP N =1 F =125 MHz
Position Correction  0.975 nS
Range Gain (dB)  -20.0 13.0 41.0
```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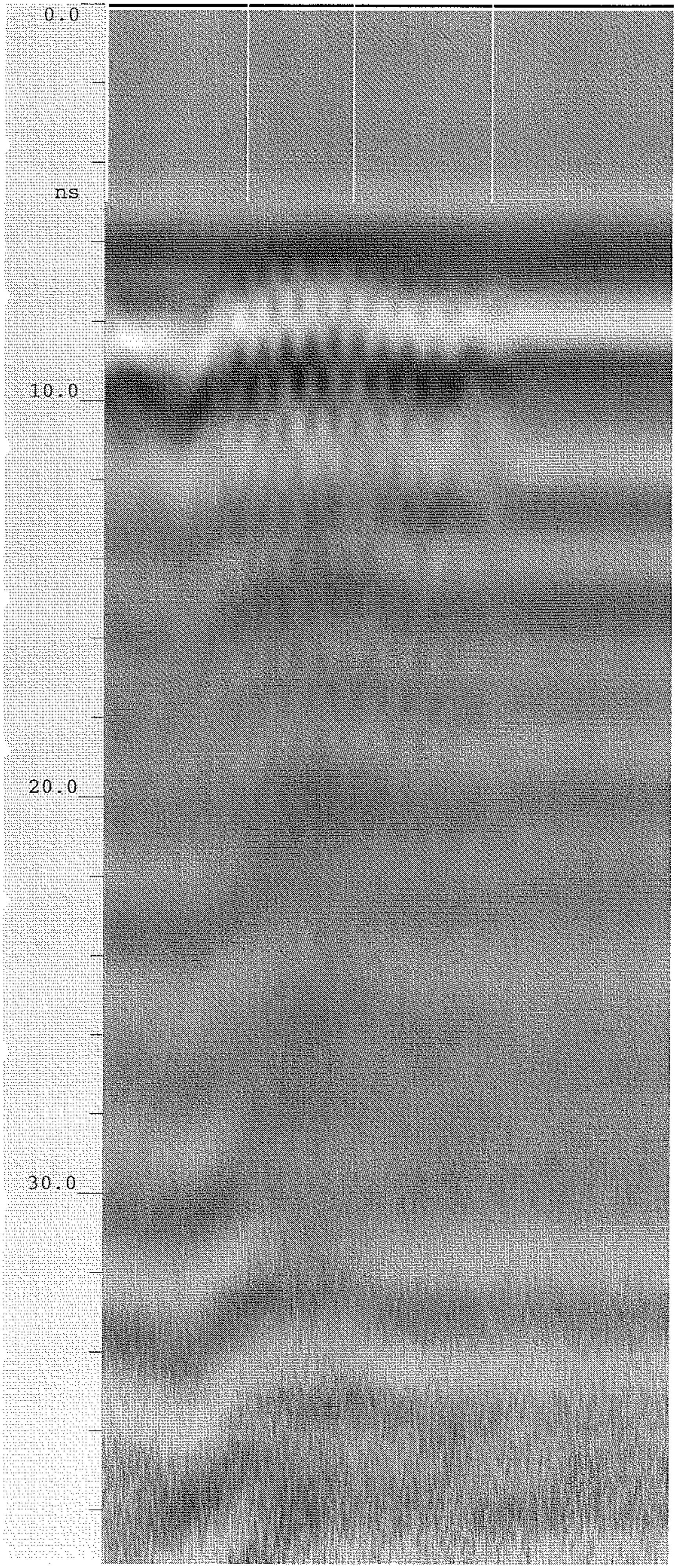
Diel Constant 8

CHANNEL 1 400MHz
Position 0 nS Range 40 nS
Vert IIR LP N =1 F =1000 MHz
Vert IIR HP N =1 F =125 MHz
Position Correction 0.975 nS
Range Gain (dB) -20.0 13.0 41.0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Diel Constant 8

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Position  0 nS  Range  40 nS
Vert IIR LP N =1 F =1000 MHz
Vert IIR HP N =1 F =125 MHz
Position Correction  0.975 nS
Range Gain (dB)  -20.0 13.0 41.0
```

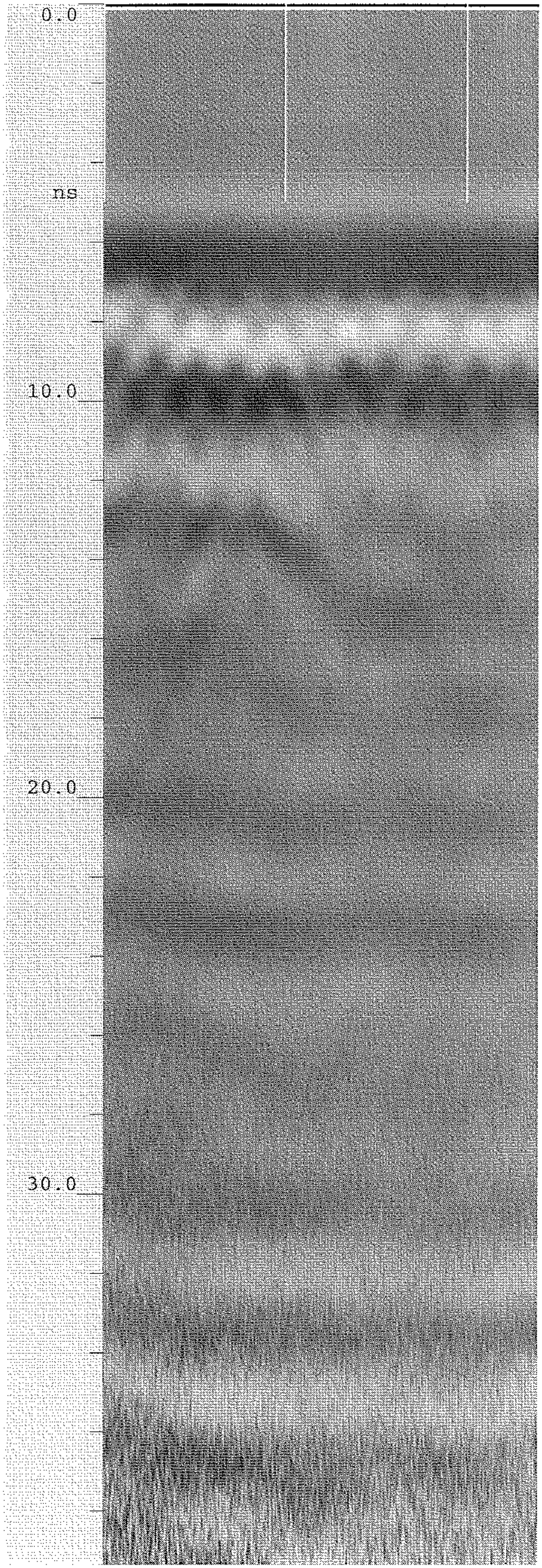
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10.0
20.0
30.0

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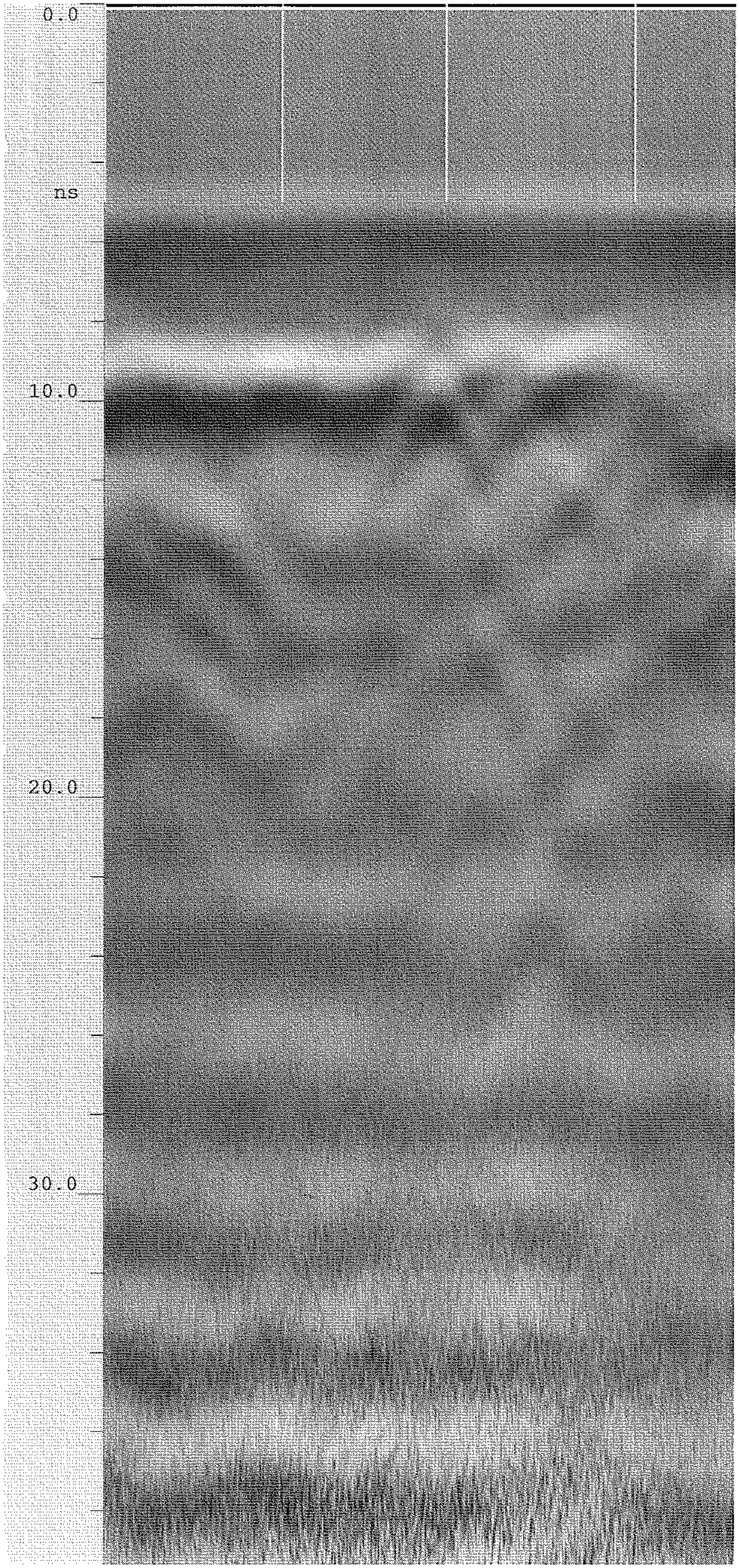
Diel Constant 8

CHANNEL  1  400MHz
Position  0 nS  Range  40 nS
Vert IIR LP N =1 F =1000 MHz
Vert IIR HP N =1 F =125 MHz
Position Correction  0.975 nS
Range Gain (dB)  -20.0 13.0 41.0
```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30.0

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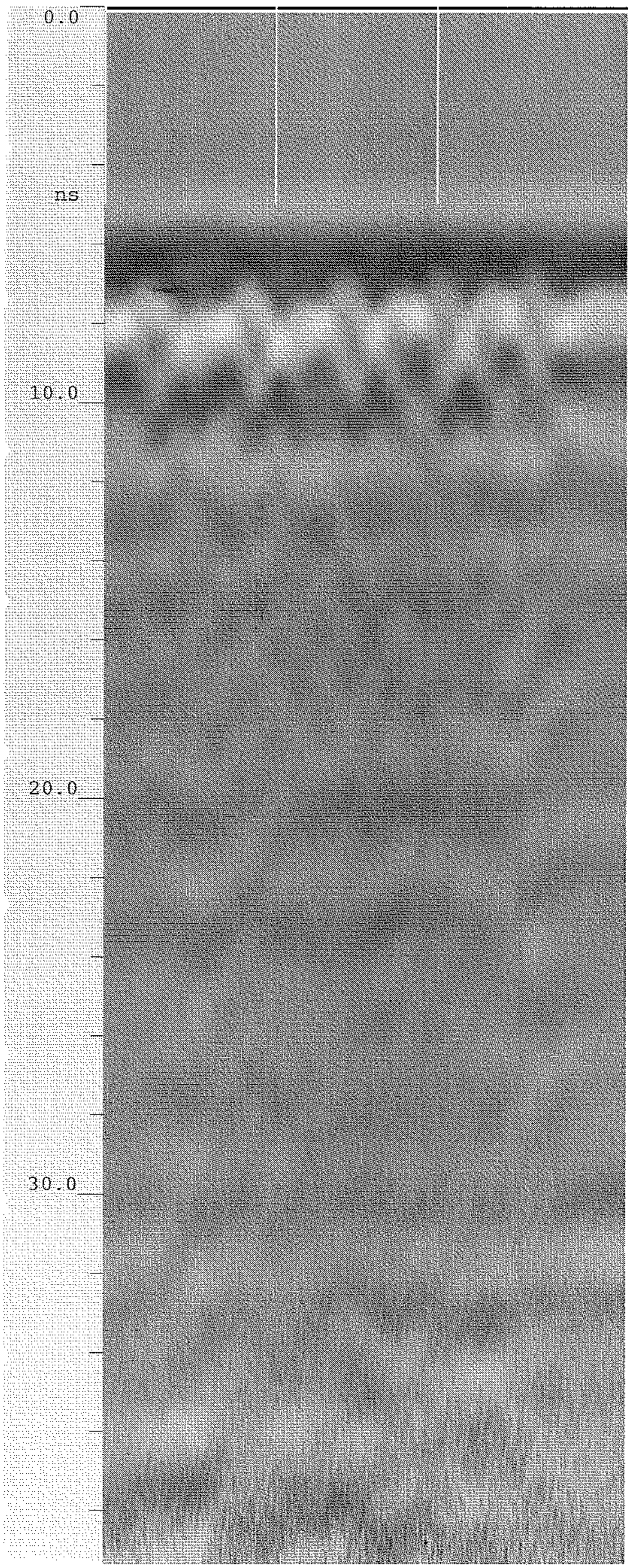
Diel Constant 8

CHANNEL 1 400MHz
Position 0 nS Range 40 nS
Vert IIR LP N =1 F =1000 MHz
Vert IIR HP N =1 F =125 MHz
Position Correction 0.975 nS
Range Gain (dB) -20.0 13.0 41.0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20.0
30.0

TENAVE__070

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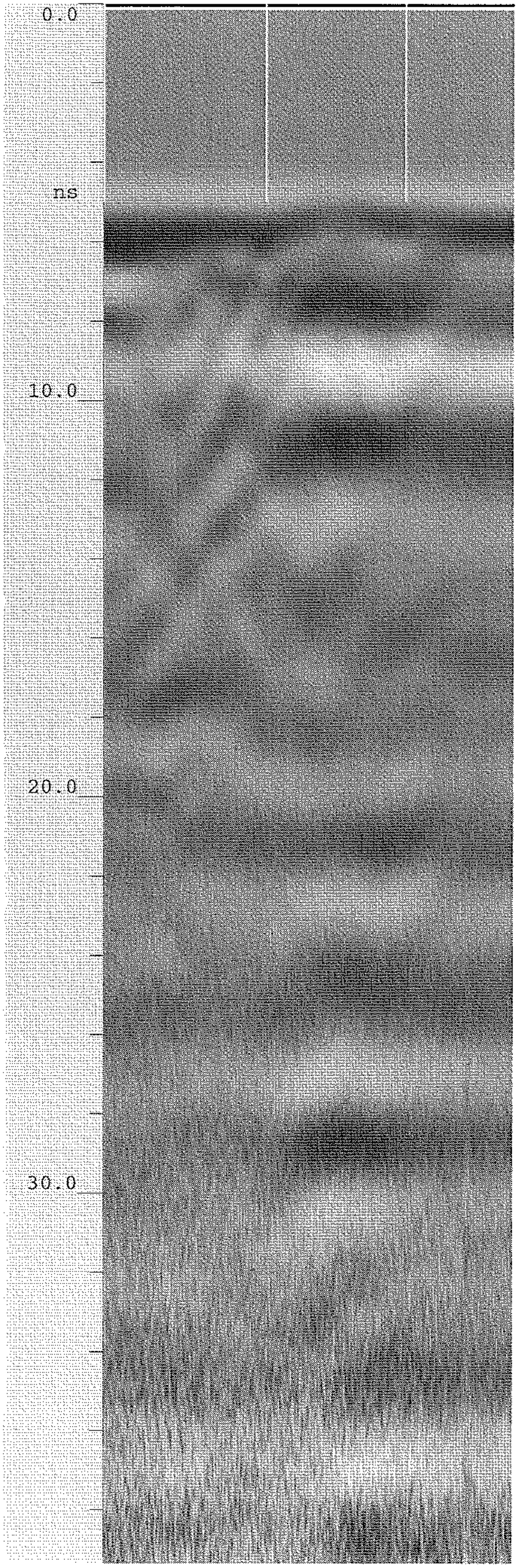
Scans/Second 60 Scans/Meter 196.85 Meters/Mark 0.6096
Diel Constant 8

CHANNEL 1 400MHz
Position 0 nS Range 40 nS
Range Gain (dB) -20.0 21.0 38.0
Position Correction 0.975 nS
Vert IIR LP N =1 F =1000 MHz
Vert IIR HP N =1 F =125 MHz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ns
10.0
20.0
30.0

TENAVE__090

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Scans/Second  60          Scans/Meter  196.85         Meters/Mark  0.6096
Diel Constant 8

CHANNEL  1  400MHz
Position  0 nS  Range  40 nS
Position Correction  0.975 nS
Vert IIR LP N =1 F =1000 MHz
Vert IIR HP N =1 F =125 MHz
Range Gain (dB)  -20.0 16.0 30.0
```

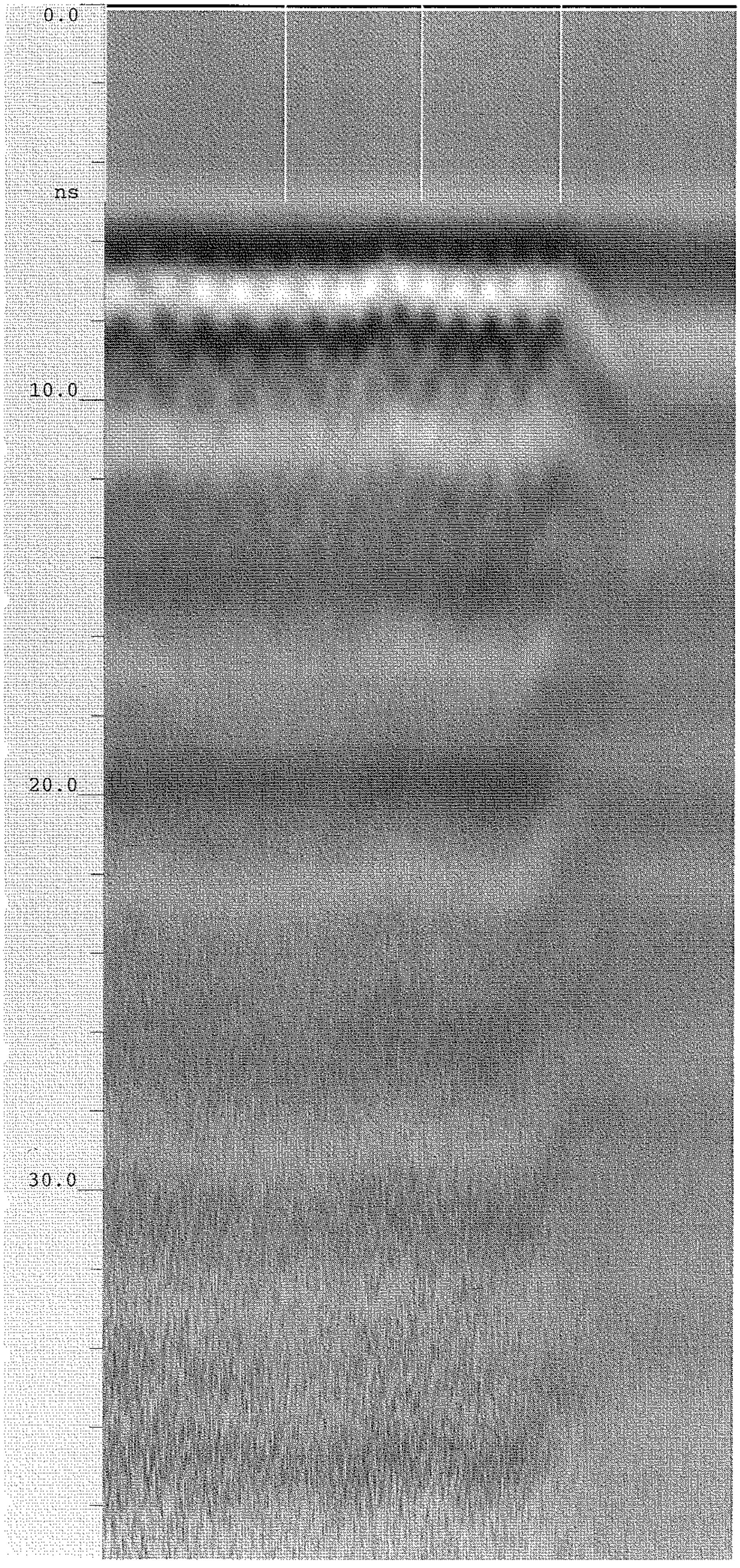
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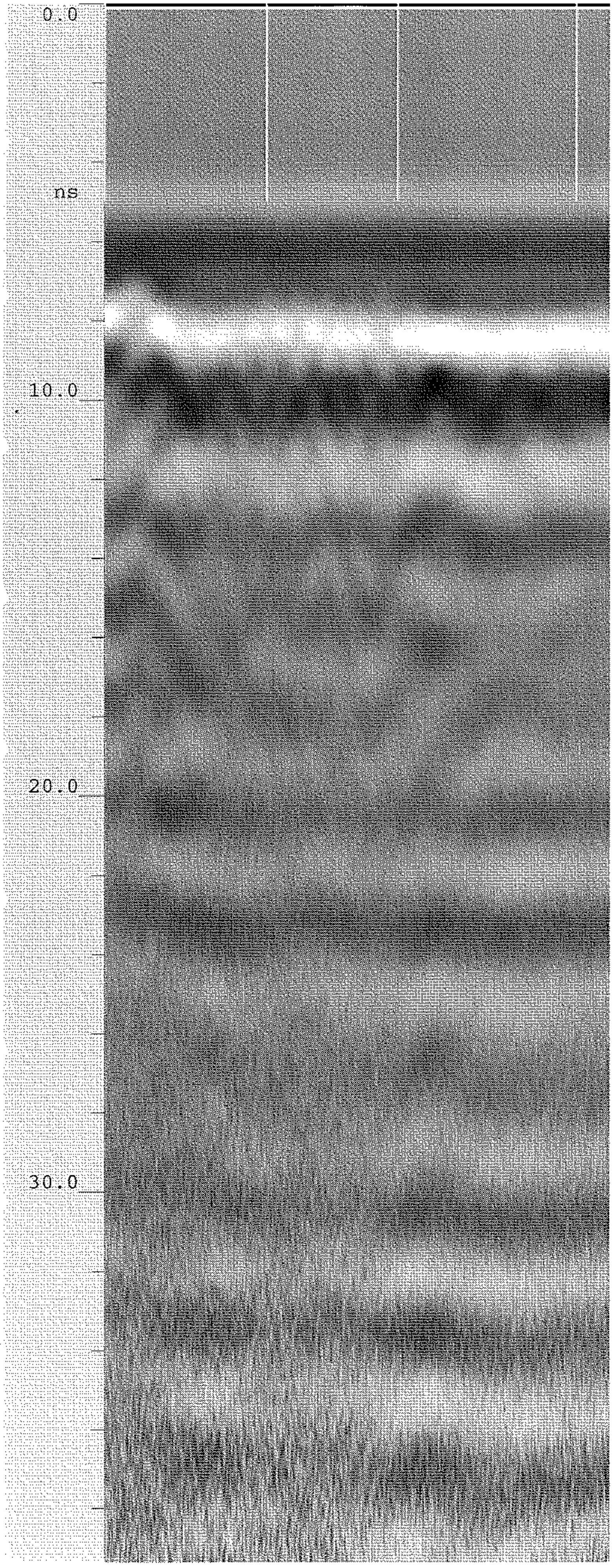
Diel Constant 8

CHANNEL  1  400MHz
Position  0 nS  Range  40 nS
Range Gain (dB)  -20.0 21.0 38.0
Position Correction  0.975 nS
Vert IIR LP N =1 F =1000 MHz
Vert IIR HP N =1 F =125 MHz
```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Scans/Second  60          Scans/Meter  196.85          Meters/Mark  0.6096
Diel Constant 8

CHANNEL  1  400MHz
Position  0 nS  Range  40 nS
Position Correction  0.975 nS
Vert IIR LP N =1 F =1000 MHz
Vert IIR HP N =1 F =125 MHz
Range Gain (dB)  -20.0 16.0 30.0
```

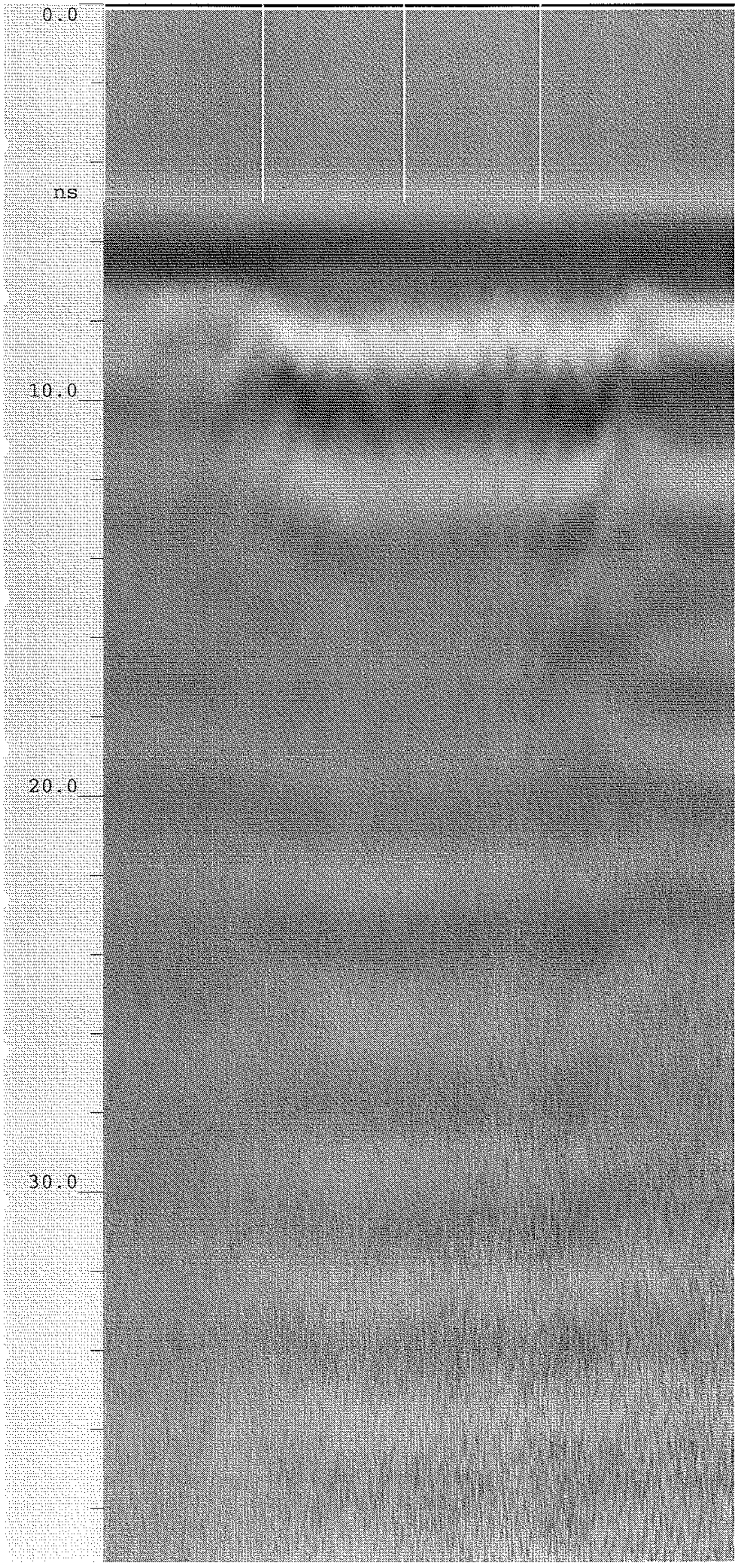
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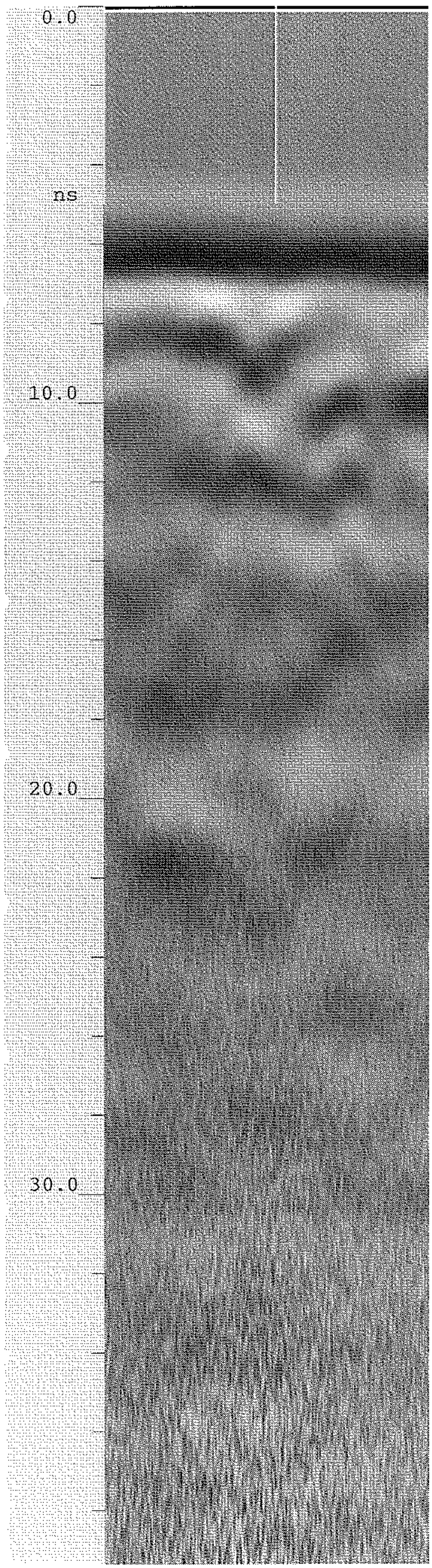
Diel Constant 8

CHANNEL 1 400MHz
Position 0 nS Range 40 nS
Position Correction 0.975 nS
Vert IIR LP N =1 F =1000 MHz
Vert IIR HP N =1 F =125 MHz
Range Gain (dB) -20.0 16.0 30.0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Scans/Second 60 Scans/Meter 196.85 Meters/Mark 0.6096
Diel Constant 8

CHANNEL 1 400MHz
Position 0 nS Range 40 nS
Position Correction 5.475 nS
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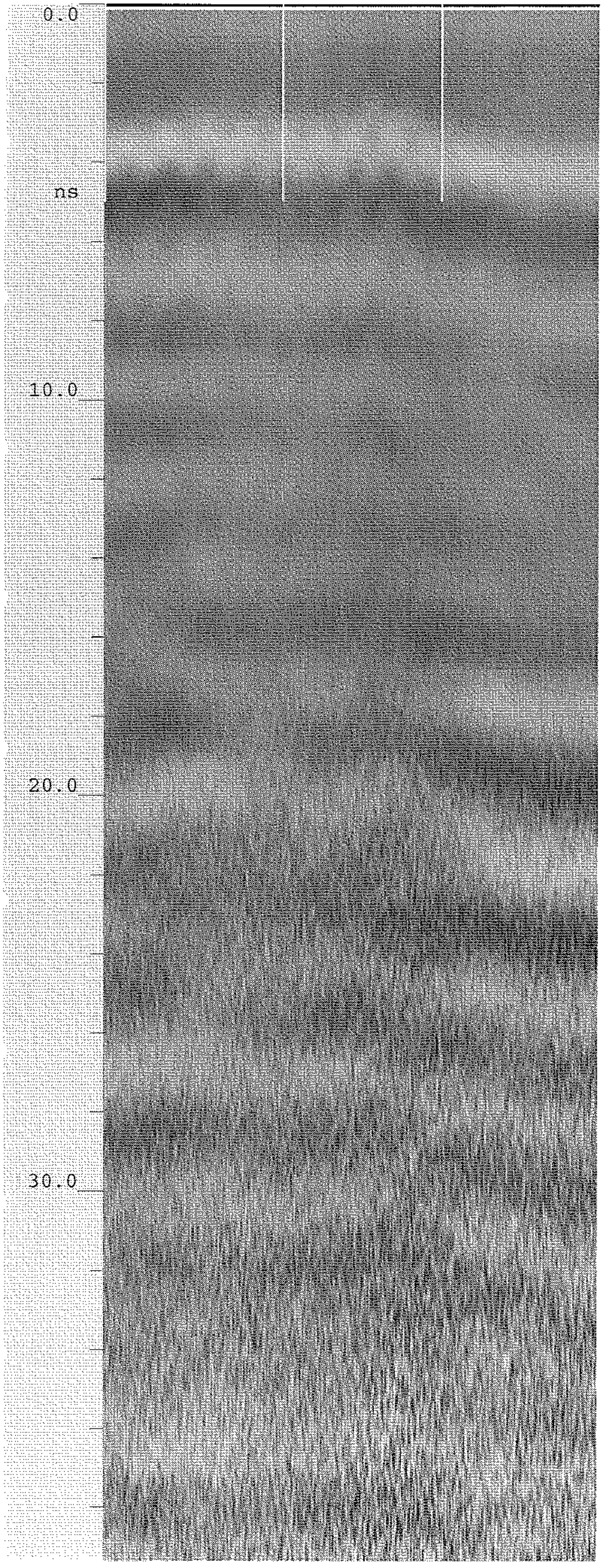
Vert IIR HP N =1 F =125 MHz
Range Gain (dB) -20.0 28.0 37.0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TENAVE__125

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Diel Constant 8

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Position Correction 5.475 nS
Vert IIR LP N =1 F =1000 MHz
Vert IIR HP N =1 F =125 MHz
Range Gain (dB) -20.0 12.0 25.0
26.0 33.0

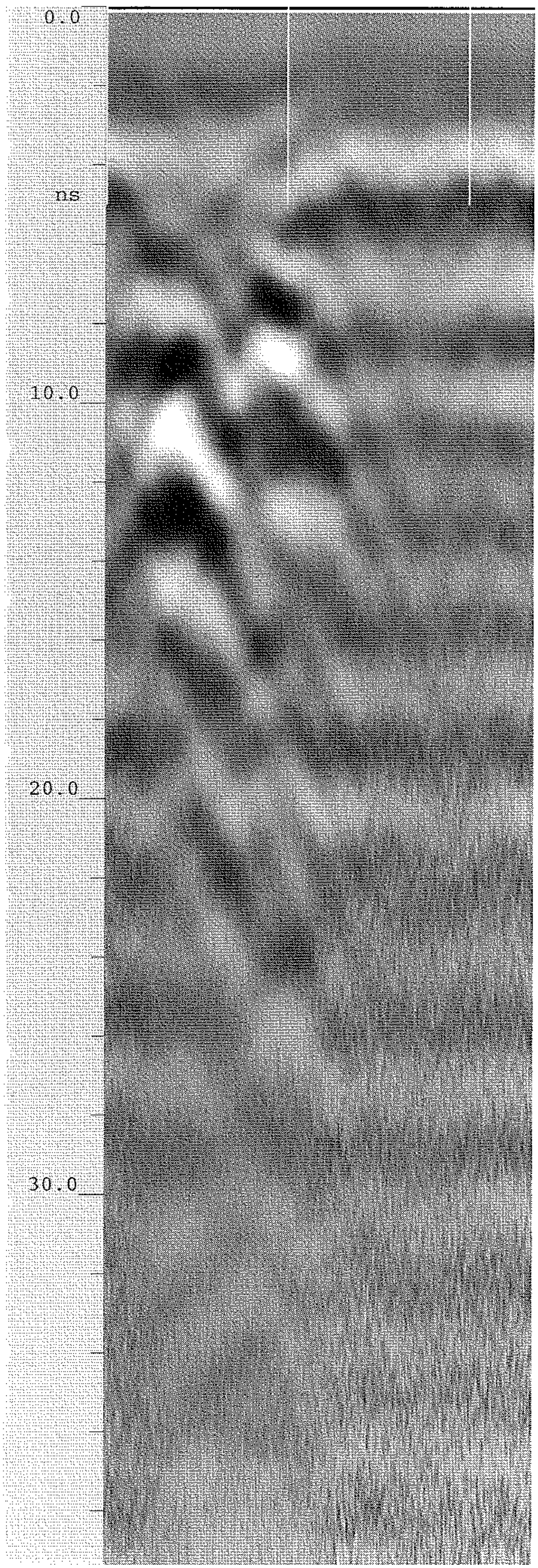
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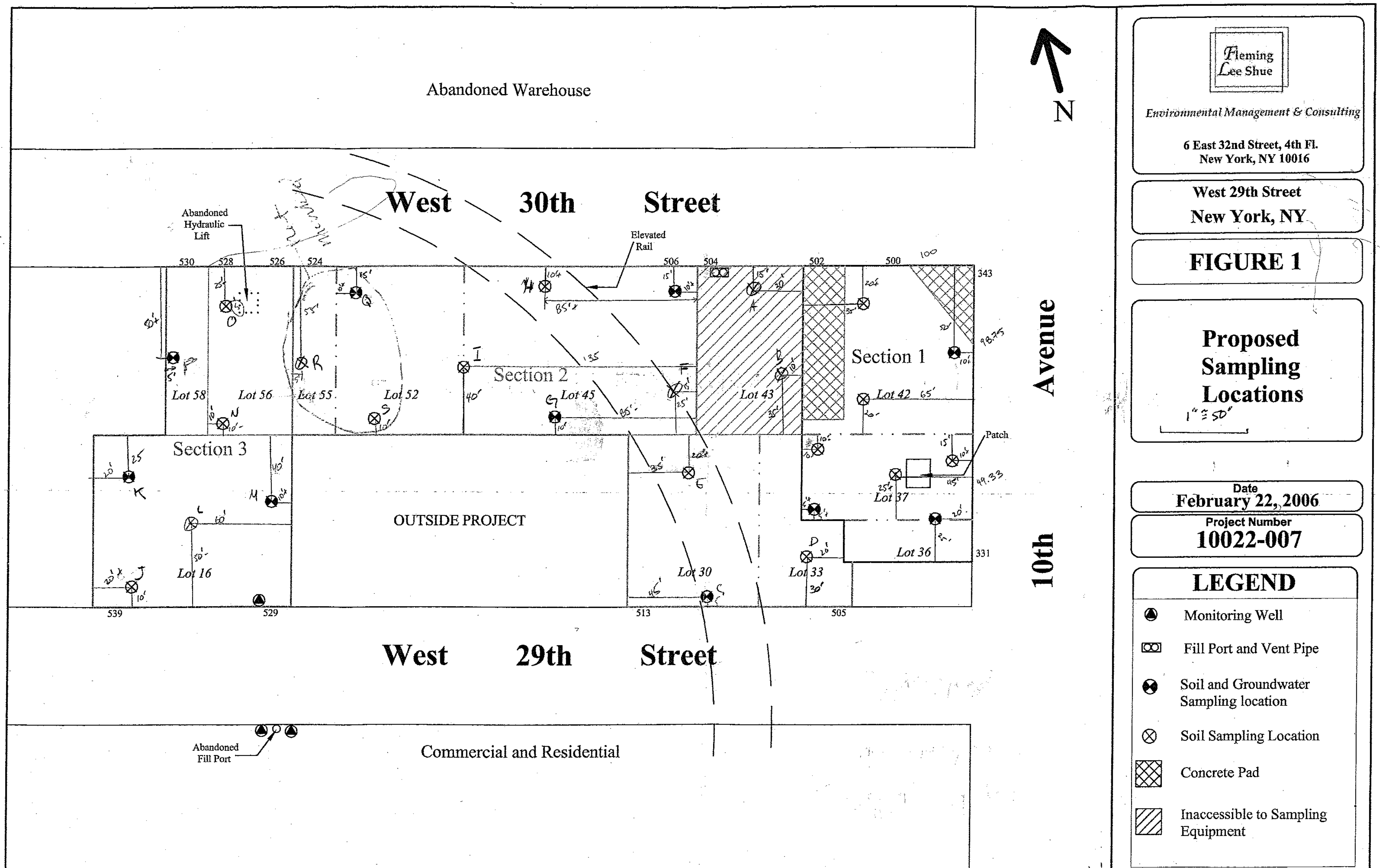
FIGURE 1
Proposed Sampling Locations

Hydro Tech
Environmental, Corp.



Abandoned Warehouse
N
West 30th Street
Abandoned Hydraulic Lift
Elevated Rail
530
528
526
524
506
504
502
500
343
Section 1
Section 2
Section 3
Lot 58
Lot 56
Lot 55
Lot 52
Lot 45
Lot 43
Lot 42
Lot 37
Lot 36
Lot 33
Lot 30
Lot 16
Patch
331
OUTSIDE PROJECT
539
529
513
505
West 29th Street
Abandoned Fill Port
Commercial and Residential
10th Avenue
Fleming Lee Shue
Environmental Management & Consulting
6 East 32nd Street, 4th Fl.
New York, NY 10016
West 29th Street
New York, NY
FIGURE 1
Proposed Sampling Locations
Date
February 22, 2006
Project Number
10022-007
LEGEND
Monitoring Well
Fill Port and Vent Pipe
Soil and Groundwater Sampling location
Soil Sampling Location
Concrete Pad
Inaccessible to Sampling Equipment

APPENDIX E

Soil Borings Logs - 2013

SOIL BORING #: SB-1/MW-1

PROJECT ID: **W. 30th Street Phase II**	FLS PROJECT NO.: 10022-012-2
LOCATION: 518-526 West 30th Street (Block 701 Lots 45, 52, 55, 56 and 58)	GEOLOGIST: KM
DRILLER: Aquifer Drilling and Testing	
DRILLING METHOD: Track-mounted Geoprobe	
SOIL SAMPLING METHOD: Soil Boring/Core Direct Sampling	
DATE BORING INSTALLED: 2/19/2013	
TOTAL DEPTH: 15 ft-bg	DEPTH TO WATER: 9'

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	DENSITY/ MOISTURE	REC. (FT)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0.6		2'	FILL, Asphalt, bricks, ash, cinders	SB-1(0-2') sample collected from 0-2' below grade
			2'	FILL , bricks, concrete fragments, medium-coarse Sand, some silt	
5	0	moist	3.5	FILL - cricks, concrete chips, ash, cinders, coares Sand and some silt	
		wet			
10	0	wet	0.5	light grey sand some silt	
			3.5	light brown coarse Sand some silt	SB-1(14-15') sample collected from 14-15' below grade
15				End of Boring	

SOIL BORING LOG

DATE: 2/19/2013 DRAWN BY: BM
SCALE: Not to scale REV. BY:
FILE NAME:

Fleming-Lee Shue, Inc.
158 West 29th St. 9Fl.
New York, New York 10001
(212) 675-3225

SOIL BORING #: SB-2/MW-2

PROJECT ID: **W. 30th Street Phase II**	FLS PROJECT NO.: 10022-012-2
LOCATION: 518-526 West 30th Street (Block 701 Lots 45, 52, 55, 56 and 58)	GEOLOGIST: KM
DRILLER: Aquifer Drilling and Testing	
DRILLING METHOD: Track-mounted Geoprobe	
SOIL SAMPLING METHOD: Soil Boring/Core Direct Sampling	
DATE BORING INSTALLED: 2/19/2013	
TOTAL DEPTH: 15 ft-bg	DEPTH TO WATER: 8'

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	DENSITY/ MOISTURE	REC. (FT)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0		2	FILL - bricks, coarse Sand, concrete chips.	SB-2(0-2') sample collected from 0-2' below grade
5	0		1	FILL- bricks,coarse Sand, some gravel , some silt	
		moist	2.5	coarse Sand, gravel, silt	
		wet			
10	0	wet	1	coarse Sand, gravel, silt	
			2.5	coarse SAND, silt	SB-2(14-15') sample collected from 14-15' below grade
15				End of Boring	

SOIL BORING LOG

DATE: 2/19/2013 DRAWN BY: BM
SCALE: Not to scale REV. BY:
FILE NAME:

Fleming-Lee Shue, Inc
158 West 29th St. 9Fl.
New York, New York 10001
(212) 675-3225

SOIL BORING #: SB-3/MW-3

PROJECT ID: **W. 30th Street Phase II**	FLS PROJECT NO.: 10022-012-2
LOCATION: 518-526 West 30th Street (Block 701 Lots 45, 52, 55, 56 and 58)	GEOLOGIST: KM
DRILLER: Aquifer Drilling and Testing	
DRILLING METHOD: Track-mounted Geoprobe	
SOIL SAMPLING METHOD: Soil Boring/Core Direct Sampling	
DATE BORING INSTALLED: 2/19/2013	
TOTAL DEPTH: 15 ft-bg	DEPTH TO WATER: 9'

DEPTH (FT) BELOW SURFACE	PID READING (PPM)	DENSITY/ MOISTURE	REC. (FT)	LITHOLOGIC DESCRIPTION	SAMPLE DESIGNATION
0	0		2	FILL- asphalt, gravel , coarse Sand, gravel	SB-3(0-2') sample collected from 0-2' below grade
5	0		2.5	FILL- asphalt, gravel , coarse Sand, gravel	
		wet			
10	0		1.5	FILL- asphalt, gravel , coarse Sand, gravel	
			1.5	Sandy, clayey SILT	
					SB-3(14-15') sample collected from 12-14' below grade
15	0			End of Boring	

SOIL BORING LOG

DATE: 2/19/2013 DRAWN BY: BM
SCALE: Not to scale REV. BY:
FILE NAME:

Fleming Lee Shue

Fleming-Lee Shue, Inc.
158 West 29th St. 9Fl.
New York, New York 10001
(212) 675-3225

APPENDIX F

Soil Vapor Sampling Logs 2013

Appendix E

Soil Vapor Sampling Log

Sample ID	Sample Date	Canister #	Regulator #	Time		Temperature		Pressure	
				Start	End	Start	End	Start	End
SG-1	2/19/2013	A469	FC499	9:40	17:40	42	35	>30	8
SG-2	2/20/2013	A820	FC499	9:54	17:54	36	21	30	7
SG-3	2/20/2013	A076	FC429	9:23	17:23	36	21	29.5	6
SG-4	2/20/2013	A451	FC351	7:50	15:50	36	21	29.5	4

Note: All temperatures are in degrees F
Time is represented as a 24hr clock
Pressures are in Hg.

APPENDIX G

Laboratory Data Deliverables for Soil, Groundwater, and Soil Vapor – February 2013

New Jersey
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LABORATORIES

03/19/13

Technical Report for

Fleming-Lee Shue, Inc.

Related Phase II, West 30th Street, New York, NY

10022-012-2 PO#FP0481

Accutest Job Number: JB29431

Sampling Dates: 02/19/13 - 02/20/13

Report to:

Fleming-Lee Shue, Inc.

bill@flemingleeshue.com

ATTN: Bill Maniquez

Total number of pages in report: **121**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Nancy F. Cole

Nancy Cole
Laboratory Director

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV

New Jersey • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499 • http://www.accutest.com

Sections: 1 2 3 4 5

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Sample Summary

Fleming-Lee Shue, Inc.

Job No: JB29431

Related Phase II, West 30th Street, New York, NY
Project No: 10022-012-2 PO#FP0481

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB29431-1	02/19/13	10:10	BM	02/21/13	SO	Soil	SB-1 (0-2)'
JB29431-2	02/19/13	10:30	BM	02/21/13	SO	Soil	SB-1 (14-15)'
JB29431-3	02/19/13	11:00	BM	02/21/13	AQ	Ground Water	MW-1
JB29431-3F	02/19/13	11:00	BM	02/21/13	AQ	Groundwater Filtered	MW-1
JB29431-4	02/20/13	11:00	BM	02/21/13	SO	Soil	SB-2 (0-2)'
JB29431-5	02/20/13	11:15	BM	02/21/13	SO	Soil	SB-2 (14-15)'
JB29431-6	02/20/13	12:00	BM	02/21/13	AQ	Ground Water	MW-2
JB29431-6F	02/20/13	12:00	BM	02/21/13	AQ	Groundwater Filtered	MW-2
JB29431-7	02/19/13	14:50	BM	02/21/13	SO	Soil	SB-3 (0-2)'
JB29431-8	02/19/13	15:10	BM	02/21/13	SO	Soil	SB-3 (14-15)'
JB29431-9	02/19/13	15:30	BM	02/21/13	AQ	Ground Water	MW-3
JB29431-9F	02/19/13	15:30	BM	02/21/13	AQ	Groundwater Filtered	MW-3
JB29431-10	02/20/13	11:30	BM	02/21/13	AQ	Field Blank Soil	FB022013

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Sample Summary

(continued)

Fleming-Lee Shue, Inc.

Job No: JB29431

Related Phase II, West 30th Street, New York, NY
Project No: 10022-012-2 PO#FP0481

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB29431-11	02/20/13	12:00	BM	02/21/13	AQ	Trip Blank Water	TRIP BLANK
JB29431-12	02/20/13	11:30	BM	02/21/13	AQ	Field Blank Water	FB022013 METALS A
JB29431-13	02/20/13	11:30	BM	02/21/13	AQ	Field Blank Water	FB022013 METALS B
JB29431-14	02/19/13	17:40	BM	02/21/13	AIR	Soil Vapor Comp.	SG-1
JB29431-15	02/20/13	17:54	BM	02/21/13	AIR	Soil Vapor Comp.	SG-2
JB29431-16	02/20/13	17:23	BM	02/21/13	AIR	Soil Vapor Comp.	SG-3
JB29431-17	02/20/13	17:00	BM	02/21/13	AIR	Soil Vapor Comp.	SG-4

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

ACCUTEST LABORATORIES

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Fleming-Lee Shue, Inc. **Job No** JB29431

Site: Related Phase II, West 30th Street, New York, NY **Report Date** 3/15/2013 3:31:11 PM

On 02/21/2013, 13 Sample(s), 1 Trip Blank(s) and 3 Field Blank(s) were received at Accutest Laboratories at a temperature of 1 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB29431 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ **Batch ID:** V3D3592

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB29639-24MS, JB29639-24MSD were used as the QC samples indicated.

Matrix: AQ **Batch ID:** V3D3594

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB29751-1MS, JB29751-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: AQ **Batch ID:** V3D3596

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB29876-3MS, JB29876-3MSD were used as the QC samples indicated.

Matrix: SO **Batch ID:** VA7230

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB29431-4MS, JB29431-4MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Recovery(s) for Methyl Acetate, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dibromo-3-chloropropane, Trichloroethene are outside control limits. Outside control limits due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, Methyl Acetate, Trichloroethene are outside control limits. Outside control limits due to matrix interference.
- RPD(s) for MSD for Dichlorodifluoromethane are outside control limits for sample JB29431-4MSD. Outside control limits due to matrix interference.
- JB29431-4 for Dibromofluoromethane: Outside control limits due to matrix interference. Confirmed by MS/MSD.
- JB29431-4MS for Dibromofluoromethane: Outside control limits due to matrix interference.
- JB29431-4MSD for Dibromofluoromethane: Outside control limits due to matrix interference.

Matrix: SO **Batch ID:** VY5664

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB29431-1MS, JB29431-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- RPD(s) for MSD for 1,2,3-Trichlorobenzene, Trichlorofluoromethane are outside control limits for sample JB29431-1MSD. Outside control limits due to matrix interference.

Volatiles by GCMS By Method TO-15

Matrix: AIR	Batch ID: VW1632

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB29305-5DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270D

Matrix: AQ	**Batch ID:** OP63893

- All samples were extracted within the recommended method holding time.
- Sample(s) JB29269-3MS, JB29269-3MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- RPD(s) for MSD for Hexachlorobutadiene are outside of in house control limits for sample OP63893-MSD.

Matrix: AQ	**Batch ID:** OP63929

- All method blanks for this batch meet method specific criteria.
- Sample(s) JB29413-1MS, JB29413-1MSD were used as the QC samples indicated.
- Blank Spike Recovery(s) for 4-Bromophenyl phenyl ether, 4-Chlorophenyl phenyl ether, Acenaphthene, Dibenzofuran are outside of in hosue control limits.
- Matrix Spike Recovery(s) for 3,3'-Dichlorobenzidine are outside control limits. Outside control limits due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for 3,3'-Dichlorobenzidine are outside control limits. Outside control limits due to matrix interference.
- JB29431-6: Confirmation run.
- JB29431-10: Confirmation run.

Matrix: SO	**Batch ID:** OP63993

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB29726-9MS, JB29726-9MSD were used as the QC samples indicated.
- Matrix Spike Recovery(s) for 2,4-Dinitrophenol, 4,6-Dinitro-o-cresol are outside control limits. Outside control limits due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for 4,6-Dinitro-o-cresol, 2,4-Dinitrophenol are outside control limits. Outside control limits due to matrix interference.
- RPD(s) for MSD for 2,4-Dinitrophenol are outside control limits for sample OP63993-MSD. Outside control limits due to matrix interference.
- JB29431-5 for 2-Fluorobiphenyl: Outside control limits due to matrix interference. Confirmed by re-extraction.
- JB29431-2 for Nitrobenzene-d5: Refer to re-extract.
- JB29431-2 for 2-Fluorophenol: Refer to re-extract.
- JB29431-7 for 2,4,6-Tribromophenol: Outside control limits due to matrix interference. Confirmed by re-extraction.

Matrix: SO	**Batch ID:** OP64282

- Sample(s) JB29854-4MS, JB29854-4MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Blank Spike Recovery(s) for 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2-Chloronaphthalene, 4-Bromophenyl phenyl ether, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, bis(2-Ethylhexyl)phthalate, Butyl benzyl phthalate, Carbazole, Chrysene, Di-n-butyl phthalate, Di-n-octyl phthalate, Dibenzo(a,h)anthracene, Dibenzofuran, Fluoranthene, Fluorene, Hexachlorobenzene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, N-Nitrosodiphenylamine, Naphthalene, Phenanthrene, Pyrene are outside of in house control limits.
- Matrix Spike Recovery(s) for 1,2,4,5-Tetrachlorobenzene, 2,4,6-Trichlorophenol, 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Chlorophenol, 2-Methylphenol, 2-Nitroaniline, 3&4-Methylphenol, 3,3'-Dichlorobenzidine, 3-Nitroaniline, 4-Bromophenyl phenyl ether, 4-Chloro-3-methyl phenol, 4-Chlorophenyl phenyl ether, 4-Nitroaniline, 4-Nitrophenol, Acetophenone, Anthracene, Atrazine, Benzaldehyde, bis(2-Chloroethyl)ether, bis(2-Ethylhexyl)phthalate, Caprolactam, Carbazole, Di-n-octyl phthalate, Dibenzo(a,h)anthracene, Diethyl phthalate, Dimethyl phthalate, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, N-Nitroso-di-n-propylamine, Phenol are outside control limits. Outside control limits due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for 2,4-Dinitrophenol, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane, Phenol, 2-Methylphenol, 3&4-Methylphenol, 4,6-Dinitro-o-cresol, Caprolactam, Pentachlorophenol are outside control limits. Outside control limits due to matrix interference.

Extractables by GCMS By Method SW846 8270D

Matrix: SO	Batch ID: OP64282

- RPD(s) for MSD for 1,2,4,5-Tetrachlorobenzene, 2,3,4,6-Tetrachlorophenol, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Chlorophenol, 2-Methylphenol, 2-Nitroaniline, 2-Nitrophenol, 3&4-Methylphenol, 3,3'-Dichlorobenzidine, 3-Nitroaniline, 4,6-Dinitro-o-cresol, 4-Bromophenyl phenyl ether, 4-Chloro-3-methyl phenol, 4-Chlorophenyl phenyl ether, 4-Nitroaniline, 4-Nitrophenol, Acenaphthylene, Acetophenone, Anthracene, Atrazine, Benzaldehyde, Benzo(a)anthracene, Benzo(g,h,i)perylene, bis(2-Chloroethoxy)methane, bis(2-Chloroethyl)ether, bis(2-Chloroisopropyl)ether, bis(2-Ethylhexyl)phthalate, Butyl benzyl phthalate, Caprolactam, Carbazole, Chrysene, Di-n-octyl phthalate, Dibenzo(a,h)anthracene, Diethyl phthalate, Dimethyl phthalate, Fluoranthene, Hexachlorobenzene, Indeno(1,2,3-cd)pyrene, Isophorone, N-Nitroso-di-n-propylamine, N-Nitrosodiphenylamine, Nitrobenzene, Pentachlorophenol are outside control limits for sample OP64282-MSD. Outside control limits due to matrix interference.
- JB29431-5: Confirmation run.
- JB29431-2: Reextract due to surrogate outside QC limits. Original prep date within holding time.
- JB29431-7: Confirmation run.
- JB29431-7 for 2,4,6-Tribromophenol: Outside control limits due to matrix interference. Confirmed by re-extraction.
- JB29431-5 for 2-Fluorobiphenyl: Outside control limits due to matrix interference. Confirmed by re-extraction.
- OP64282-MSD for 2,4,6-Tribromophenol: Outside control limits due to matrix interference.
- OP64282-MSD for Phenol-d5: Outside control limits due to matrix interference.

Extractables by GC By Method SW846 8081B

Matrix: AQ	Batch ID: OP63914

- All samples were extracted within the recommended method holding time.
- Sample(s) JB29431-6MS, JB29431-6MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Duplicate Recovery(s) for 4,4'-DDT, Endosulfan sulfate, Methoxychlor are outside of in hosue control limits.

Matrix: SO	Batch ID: OP64269

- All method blanks for this batch meet method specific criteria.
- Sample(s) JB29431-5MS, JB29431-5MSD were used as the QC samples indicated.
- JB29431-5: Re-extracted due to lab contaminated on original extract. originally prep date was within holding time.
- JB29431-4: Re-extracted due to lab contaminated on original extract. originally prep date was within holding time.
- JB29431-2: Re-extracted due to lab contaminated on original extract. originally prep date was within holding time.
- JB29431-1: Re-extracted due to lab contaminated on original extract. originally prep date was within holding time.
- JB29431-8: Re-extracted due to lab contaminated on original extract. originally prep date was within holding time.
- JB29431-7: Re-extracted due to lab contaminated on original extract. originally prep date was within holding time.

Extractables by GC By Method SW846 8082A

Matrix: AQ	**Batch ID:** OP63910

- All samples were extracted within the recommended method holding time.
- Sample(s) JB29449-1MS, JB29449-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- RPD(s) for MSD for Aroclor 1016, Aroclor 1260 are outside control limits for sample OP63910-MSD. Analytical precision exceeds standard laboratory control limits.

Matrix: SO	**Batch ID:** OP64040

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB29431-1MS, JB29431-1MSD were used as the QC samples indicated.
- JB29431-8 for Decachlorobiphenyl: Outside control limits due to matrix interference.

Metals By Method SW846 6010C

Matrix: AQ	**Batch ID:** MP70136

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB29431-3FMS, JB29431-3FMSD, JB29431-3FSDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Aluminum, Arsenic, Chromium, Cobalt, Copper, Iron, Nickel, Selenium, Silver, Zinc are outside control limits for sample MP70136-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Matrix: SO	**Batch ID:** MP70135

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB29892-8MS, JB29892-8MSD, JB29892-8SDL were used as the QC samples for metals.
- Matrix Spike Recovery(s) for Antimony are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- Matrix Spike Duplicate Recovery(s) for Antimony are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- Matrix Spike Recovery(s) for Aluminum are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- RPD(s) for Serial Dilution for Silver, Sodium are outside control limits for sample MP70135-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Metals By Method SW846 7470A

Matrix: AQ	**Batch ID:** MP70212

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB29431-3MS, JB29431-3MSD were used as the QC samples for metals.

Metals By Method SW846 7471B

Matrix: SO	**Batch ID:** MP70105

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB29407-1MS, JB29407-1MSD were used as the QC samples for metals.
- RPD(s) for MSD for Mercury are outside control limits for sample MP70105-S2. High rpd due to possible sample nonhomogeneity.

Wet Chemistry By Method SM2540 G-97

Matrix: SO	**Batch ID:** GN80539

- The data for SM2540 G-97 meets quality control requirements.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

Summary of Hits

Job Number: JB29431
Account: Fleming-Lee Shue, Inc.
Project: Related Phase II, West 30th Street, New York, NY
Collected: 02/19/13 thru 02/20/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB29431-1	**SB-1 (0-2)'**					
Tetrachloroethene		0.92 J	5.3	0.18	ug/kg	SW846 8260B
Fluoranthene		17.4 J	34	15	ug/kg	SW846 8270D
Pyrene		15.6 J	34	13	ug/kg	SW846 8270D
4,4'-DDT [a]		1.3	0.72	0.36	ug/kg	SW846 8081B
Aluminum		11200	58		mg/kg	SW846 6010C
Arsenic		3.4	2.3		mg/kg	SW846 6010C
Barium		127	23		mg/kg	SW846 6010C
Beryllium		1.3	0.23		mg/kg	SW846 6010C
Calcium		34400	580		mg/kg	SW846 6010C
Chromium		21.8	1.2		mg/kg	SW846 6010C
Cobalt		11.9	5.8		mg/kg	SW846 6010C
Copper		7.2	2.9		mg/kg	SW846 6010C
Iron		17000	58		mg/kg	SW846 6010C
Lead		10.0	2.3		mg/kg	SW846 6010C
Magnesium		14800	580		mg/kg	SW846 6010C
Manganese		576	1.7		mg/kg	SW846 6010C
Mercury		0.048	0.033		mg/kg	SW846 7471B
Nickel		37.6	4.6		mg/kg	SW846 6010C
Potassium		6190	1200		mg/kg	SW846 6010C
Vanadium		25.8	5.8		mg/kg	SW846 6010C
Zinc		58.6	2.3		mg/kg	SW846 6010C
JB29431-2	**SB-1 (14-15)'**					
Acenaphthylene [b]		28.7 J	36	11	ug/kg	SW846 8270D
Dimethyl phthalate [b]		50.2 J	72	13	ug/kg	SW846 8270D
Aluminum		4940	56		mg/kg	SW846 6010C
Barium		32.6	23		mg/kg	SW846 6010C
Beryllium		0.53	0.23		mg/kg	SW846 6010C
Calcium		1760	560		mg/kg	SW846 6010C
Chromium		10.6	1.1		mg/kg	SW846 6010C
Copper		11.1	2.8		mg/kg	SW846 6010C
Iron		8630	56		mg/kg	SW846 6010C
Lead		3.7	2.3		mg/kg	SW846 6010C
Magnesium		2140	560		mg/kg	SW846 6010C
Manganese		143	1.7		mg/kg	SW846 6010C
Nickel		10.3	4.5		mg/kg	SW846 6010C
Vanadium		14.2	5.6		mg/kg	SW846 6010C
Zinc		14.3	2.3		mg/kg	SW846 6010C
JB29431-3	**MW-1**					
Methylene chloride		5.7	2.0	0.70	ug/l	SW846 8260B

Summary of Hits

Job Number: JB29431
Account: Fleming-Lee Shue, Inc.
Project: Related Phase II, West 30th Street, New York, NY
Collected: 02/19/13 thru 02/20/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Toluene		0.27 J	1.0	0.23	ug/l	SW846 8260B
o-Xylene		0.26 J	1.0	0.24	ug/l	SW846 8260B
Xylene (total)		0.66 J	1.0	0.24	ug/l	SW846 8260B
Diethyl phthalate		4.5	2.0	0.33	ug/l	SW846 8270D
Aluminum		3040	200		ug/l	SW846 6010C
Calcium		161000	5000		ug/l	SW846 6010C
Iron		3160	100		ug/l	SW846 6010C
Magnesium		54400	5000		ug/l	SW846 6010C
Manganese		3380	15		ug/l	SW846 6010C
Potassium		28300	10000		ug/l	SW846 6010C
Selenium		16.1	10		ug/l	SW846 6010C
Sodium		173000	10000		ug/l	SW846 6010C
JB29431-3F	**MW-1**					
Calcium		181000	5000		ug/l	SW846 6010C
Magnesium		61400	5000		ug/l	SW846 6010C
Manganese		3660	15		ug/l	SW846 6010C
Potassium		31800	10000		ug/l	SW846 6010C
Selenium		20.5	10		ug/l	SW846 6010C
Sodium		194000	10000		ug/l	SW846 6010C
JB29431-4	**SB-2 (0-2)'**					
Acetone		51.5	13	2.1	ug/kg	SW846 8260B
Methylene chloride		9.4	6.3	1.6	ug/kg	SW846 8260B
Toluene		0.86 J	1.3	0.13	ug/kg	SW846 8260B
m,p-Xylene		0.63 J	1.3	0.22	ug/kg	SW846 8260B
o-Xylene		0.28 J	1.3	0.17	ug/kg	SW846 8260B
Xylene (total)		0.91 J	1.3	0.17	ug/kg	SW846 8260B
Dimethyl phthalate		34.6 J	65	11	ug/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		130	65	29	ug/kg	SW846 8270D
Fluoranthene		29.5 J	33	14	ug/kg	SW846 8270D
Phenanthrene		21.8 J	33	15	ug/kg	SW846 8270D
Pyrene		23.8 J	33	12	ug/kg	SW846 8270D
4,4'-DDT [a]		1.6	0.66	0.33	ug/kg	SW846 8081B
Aluminum		4300	55		mg/kg	SW846 6010C
Arsenic		3.5	2.2		mg/kg	SW846 6010C
Barium		35.2	22		mg/kg	SW846 6010C
Beryllium		0.54	0.22		mg/kg	SW846 6010C
Calcium		29000	550		mg/kg	SW846 6010C
Chromium		8.9	1.1		mg/kg	SW846 6010C
Copper		11.9	2.7		mg/kg	SW846 6010C
Iron		8210	55		mg/kg	SW846 6010C
Lead		397	2.2		mg/kg	SW846 6010C

Summary of Hits

Job Number: JB29431
Account: Fleming-Lee Shue, Inc.
Project: Related Phase II, West 30th Street, New York, NY
Collected: 02/19/13 thru 02/20/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Magnesium		1780	550		mg/kg	SW846 6010C
Manganese		140	1.6		mg/kg	SW846 6010C
Mercury		0.25	0.035		mg/kg	SW846 7471B
Nickel		4.7	4.4		mg/kg	SW846 6010C
Vanadium		9.2	5.5		mg/kg	SW846 6010C
Zinc		46.5	2.2		mg/kg	SW846 6010C
JB29431-5	**SB-2 (14-15)'**					
Carbon disulfide		0.67 J	5.5	0.13	ug/kg	SW846 8260B
Aluminum		7940	58		mg/kg	SW846 6010C
Barium		38.3	23		mg/kg	SW846 6010C
Beryllium		0.90	0.23		mg/kg	SW846 6010C
Calcium		1530	580		mg/kg	SW846 6010C
Chromium		21.2	1.2		mg/kg	SW846 6010C
Copper		14.7	2.9		mg/kg	SW846 6010C
Iron		12500	58		mg/kg	SW846 6010C
Lead		7.6	2.3		mg/kg	SW846 6010C
Magnesium		2600	580		mg/kg	SW846 6010C
Manganese		177	1.7		mg/kg	SW846 6010C
Nickel		16.9	4.7		mg/kg	SW846 6010C
Potassium		1750	1200		mg/kg	SW846 6010C
Vanadium		21.9	5.8		mg/kg	SW846 6010C
Zinc		20.6	2.3		mg/kg	SW846 6010C
JB29431-6	**MW-2**					
Chloroform		1.2	1.0	0.20	ug/l	SW846 8260B
Ethylbenzene		0.56 J	1.0	0.23	ug/l	SW846 8260B
m,p-Xylene		2.4	1.0	0.42	ug/l	SW846 8260B
o-Xylene		1.6	1.0	0.24	ug/l	SW846 8260B
Xylene (total)		4.1	1.0	0.24	ug/l	SW846 8260B
2-Methylnaphthalene		1.4	1.0	0.38	ug/l	SW846 8270D
Naphthalene		1.2	1.0	0.26	ug/l	SW846 8270D
Aluminum		2240	200		ug/l	SW846 6010C
Calcium		109000	5000		ug/l	SW846 6010C
Iron		2920	100		ug/l	SW846 6010C
Lead		16.4	3.0		ug/l	SW846 6010C
Magnesium		23700	5000		ug/l	SW846 6010C
Manganese		559	15		ug/l	SW846 6010C
Potassium		11200	10000		ug/l	SW846 6010C
Sodium		103000	10000		ug/l	SW846 6010C

Summary of Hits

Job Number: JB29431
Account: Fleming-Lee Shue, Inc.
Project: Related Phase II, West 30th Street, New York, NY
Collected: 02/19/13 thru 02/20/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB29431-6F	**MW-2**					
Calcium		115000	5000		ug/l	SW846 6010C
Iron		427	100		ug/l	SW846 6010C
Magnesium		23900	5000		ug/l	SW846 6010C
Manganese		602	15		ug/l	SW846 6010C
Potassium		11600	10000		ug/l	SW846 6010C
Sodium		107000	10000		ug/l	SW846 6010C
JB29431-7	**SB-3 (0-2)'**					
Acetone		13.7	10	1.7	ug/kg	SW846 8260B
Benzene		0.17 J	1.0	0.12	ug/kg	SW846 8260B
Tetrachloroethene		0.62 J	5.1	0.17	ug/kg	SW846 8260B
Toluene		1.3	1.0	0.11	ug/kg	SW846 8260B
Acenaphthene		40.8	31	9.1	ug/kg	SW846 8270D
Acenaphthylene		18.1 J	31	10	ug/kg	SW846 8270D
Anthracene		114	31	11	ug/kg	SW846 8270D
Benzo(a)anthracene		348	31	10	ug/kg	SW846 8270D
Benzo(a)pyrene		312	31	9.5	ug/kg	SW846 8270D
Benzo(b)fluoranthene		374	31	10	ug/kg	SW846 8270D
Benzo(g,h,i)perylene		212	31	12	ug/kg	SW846 8270D
Benzo(k)fluoranthene		123	31	12	ug/kg	SW846 8270D
Carbazole		28.7 J	62	14	ug/kg	SW846 8270D
Chrysene		379	31	11	ug/kg	SW846 8270D
Dibenzo(a,h)anthracene		58.4	31	11	ug/kg	SW846 8270D
Dibenzofuran		16.3 J	62	9.3	ug/kg	SW846 8270D
Dimethyl phthalate		36.2 J	62	11	ug/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		162	62	28	ug/kg	SW846 8270D
Fluoranthene		721	31	14	ug/kg	SW846 8270D
Fluorene		32.0	31	10	ug/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		178	31	11	ug/kg	SW846 8270D
Phenanthrene		562	31	14	ug/kg	SW846 8270D
Pyrene		707	31	12	ug/kg	SW846 8270D
4,4'-DDT [a]		3.7	0.73	0.36	ug/kg	SW846 8081B
Aluminum		5430	57		mg/kg	SW846 6010C
Arsenic		8.2	2.3		mg/kg	SW846 6010C
Barium		127	23		mg/kg	SW846 6010C
Beryllium		0.81	0.23		mg/kg	SW846 6010C
Calcium		34700	570		mg/kg	SW846 6010C
Chromium		16.4	1.1		mg/kg	SW846 6010C
Copper		59.7	2.9		mg/kg	SW846 6010C
Iron		12000	57		mg/kg	SW846 6010C
Lead		177	2.3		mg/kg	SW846 6010C
Magnesium		5580	570		mg/kg	SW846 6010C

Summary of Hits

Job Number: JB29431
Account: Fleming-Lee Shue, Inc.
Project: Related Phase II, West 30th Street, New York, NY
Collected: 02/19/13 thru 02/20/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Manganese		197	1.7		mg/kg	SW846 6010C
Mercury		0.52	0.036		mg/kg	SW846 7471B
Nickel		12.9	4.6		mg/kg	SW846 6010C
Vanadium		25.1	5.7		mg/kg	SW846 6010C
Zinc		131	2.3		mg/kg	SW846 6010C
JB29431-8	**SB-3 (14-15)'**					
Acenaphthene		624	36	10	ug/kg	SW846 8270D
Acenaphthylene		928	36	12	ug/kg	SW846 8270D
Anthracene		2180	36	13	ug/kg	SW846 8270D
Benzo(a)anthracene		5350	180	59	ug/kg	SW846 8270D
Benzo(a)pyrene		4960	180	55	ug/kg	SW846 8270D
Benzo(b)fluoranthene		5840	180	60	ug/kg	SW846 8270D
Benzo(g,h,i)perylene		3080	36	13	ug/kg	SW846 8270D
Benzo(k)fluoranthene		1900	180	68	ug/kg	SW846 8270D
1,1'-Biphenyl		107	72	4.2	ug/kg	SW846 8270D
Carbazole		813	72	17	ug/kg	SW846 8270D
Chrysene		5280	180	61	ug/kg	SW846 8270D
Dibenzo(a,h)anthracene		990	36	12	ug/kg	SW846 8270D
Dibenzofuran		953	72	11	ug/kg	SW846 8270D
Fluoranthene		14600	180	80	ug/kg	SW846 8270D
Fluorene		1190	36	12	ug/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		2750	36	13	ug/kg	SW846 8270D
2-Methylnaphthalene		310	72	20	ug/kg	SW846 8270D
Naphthalene		366	36	9.9	ug/kg	SW846 8270D
Phenanthrene		13900	180	82	ug/kg	SW846 8270D
Pyrene		11800	180	69	ug/kg	SW846 8270D
Aluminum		8750	59		mg/kg	SW846 6010C
Arsenic		2.8	2.3		mg/kg	SW846 6010C
Barium		61.7	23		mg/kg	SW846 6010C
Beryllium		0.81	0.23		mg/kg	SW846 6010C
Calcium		4260	590		mg/kg	SW846 6010C
Chromium		17.3	1.2		mg/kg	SW846 6010C
Copper		14.2	2.9		mg/kg	SW846 6010C
Iron		12900	59		mg/kg	SW846 6010C
Lead		69.5	2.3		mg/kg	SW846 6010C
Magnesium		2710	590		mg/kg	SW846 6010C
Manganese		255	1.8		mg/kg	SW846 6010C
Mercury		0.16	0.038		mg/kg	SW846 7471B
Nickel		15.2	4.7		mg/kg	SW846 6010C
Potassium		1330	1200		mg/kg	SW846 6010C
Vanadium		22.8	5.9		mg/kg	SW846 6010C
Zinc		45.4	2.3		mg/kg	SW846 6010C

Summary of Hits

Job Number: JB29431
Account: Fleming-Lee Shue, Inc.
Project: Related Phase II, West 30th Street, New York, NY
Collected: 02/19/13 thru 02/20/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB29431-9	**MW-3**					
Ethylbenzene		9.5	1.0	0.23	ug/l	SW846 8260B
Isopropylbenzene		3.7	2.0	0.45	ug/l	SW846 8260B
Methylene chloride		5.6	2.0	0.70	ug/l	SW846 8260B
Toluene		1.5	1.0	0.23	ug/l	SW846 8260B
m,p-Xylene		49.2	1.0	0.42	ug/l	SW846 8260B
o-Xylene		37.6	1.0	0.24	ug/l	SW846 8260B
Xylene (total)		86.8	1.0	0.24	ug/l	SW846 8260B
Acenaphthene		1.2	1.0	0.26	ug/l	SW846 8270D
Benzo(a)anthracene		0.65 J	1.0	0.23	ug/l	SW846 8270D
1,1'-Biphenyl		1.9	1.0	0.30	ug/l	SW846 8270D
Carbazole		3.5	1.0	0.36	ug/l	SW846 8270D
Chrysene		0.56 J	1.0	0.29	ug/l	SW846 8270D
Fluoranthene		2.2	1.0	0.32	ug/l	SW846 8270D
Fluorene		1.6	1.0	0.28	ug/l	SW846 8270D
2-Methylnaphthalene		18.2	1.0	0.38	ug/l	SW846 8270D
Naphthalene		13.5	1.0	0.26	ug/l	SW846 8270D
Phenanthrene		4.4	1.0	0.29	ug/l	SW846 8270D
Pyrene		1.8	1.0	0.27	ug/l	SW846 8270D
Aluminum		1760	200		ug/l	SW846 6010C
Barium		426	200		ug/l	SW846 6010C
Calcium		202000	5000		ug/l	SW846 6010C
Iron		17500	100		ug/l	SW846 6010C
Lead		116	3.0		ug/l	SW846 6010C
Magnesium		63800	5000		ug/l	SW846 6010C
Manganese		2280	15		ug/l	SW846 6010C
Potassium		36400	10000		ug/l	SW846 6010C
Sodium		513000	20000		ug/l	SW846 6010C
Zinc		75.2	20		ug/l	SW846 6010C
JB29431-9F	**MW-3**					
Barium		405	200		ug/l	SW846 6010C
Calcium		217000	5000		ug/l	SW846 6010C
Iron		16600	100		ug/l	SW846 6010C
Magnesium		69000	5000		ug/l	SW846 6010C
Manganese		2410	15		ug/l	SW846 6010C
Potassium		39100	10000		ug/l	SW846 6010C
Sodium		580000	20000		ug/l	SW846 6010C
Zinc		51.8	20		ug/l	SW846 6010C

JB29431-10 **FB022013**

No hits reported in this sample.

Summary of Hits

Job Number: JB29431
Account: Fleming-Lee Shue, Inc.
Project: Related Phase II, West 30th Street, New York, NY
Collected: 02/19/13 thru 02/20/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method

JB29431-11 TRIP BLANK

No hits reported in this sample.

JB29431-12 FB022013 METALS A

No hits reported in this sample.

JB29431-13 FB022013 METALS B

No hits reported in this sample.

JB29431-14 SG-1

Analyte	Result/Qual	RL	MDL	Units	Method
Acetone	33.3	0.80	0.28	ppbv	TO-15
Benzene	0.68 J	0.80	0.11	ppbv	TO-15
Chloroform	4.8	0.80	0.10	ppbv	TO-15
Dichlorodifluoromethane	0.61 J	0.80	0.095	ppbv	TO-15
Ethanol	12.9	2.0	0.68	ppbv	TO-15
Ethylbenzene	0.82	0.80	0.12	ppbv	TO-15
Ethyl Acetate	1.2	0.80	0.51	ppbv	TO-15
Heptane	0.81	0.80	0.11	ppbv	TO-15
Isopropyl Alcohol	1.1	0.80	0.26	ppbv	TO-15
Methylene chloride	1.4	0.80	0.22	ppbv	TO-15
Methyl ethyl ketone	1.7	0.80	0.17	ppbv	TO-15
Propylene	2.7	2.0	0.14	ppbv	TO-15
Tertiary Butyl Alcohol	0.59 J	0.80	0.20	ppbv	TO-15
Tetrachloroethylene	1.7	0.16	0.097	ppbv	TO-15
Toluene	9.1	0.80	0.13	ppbv	TO-15
Trichloroethylene	0.21	0.16	0.14	ppbv	TO-15
m,p-Xylene	2.6	0.80	0.23	ppbv	TO-15
Xylenes (total)	2.6	0.80	0.15	ppbv	TO-15
Acetone	79.1	1.9	0.67	ug/m3	TO-15
Benzene	2.2 J	2.6	0.35	ug/m3	TO-15
Chloroform	23	3.9	0.49	ug/m3	TO-15
Dichlorodifluoromethane	3.0 J	4.0	0.47	ug/m3	TO-15
Ethanol	24.3	3.8	1.3	ug/m3	TO-15
Ethylbenzene	3.6	3.5	0.52	ug/m3	TO-15
Ethyl Acetate	4.3	2.9	1.8	ug/m3	TO-15
Heptane	3.3	3.3	0.45	ug/m3	TO-15
Isopropyl Alcohol	2.7	2.0	0.64	ug/m3	TO-15
Methylene chloride	4.9	2.8	0.76	ug/m3	TO-15
Methyl ethyl ketone	5.0	2.4	0.50	ug/m3	TO-15
Propylene	4.6	3.4	0.24	ug/m3	TO-15

Summary of Hits

Job Number: JB29431
Account: Fleming-Lee Shue, Inc.
Project: Related Phase II, West 30th Street, New York, NY
Collected: 02/19/13 thru 02/20/13

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Tertiary Butyl Alcohol	1.8 J	2.4	0.61	ug/m3	TO-15
Tetrachloroethylene	12	1.1	0.66	ug/m3	TO-15
Toluene	34	3.0	0.49	ug/m3	TO-15
Trichloroethylene	1.1	0.86	0.75	ug/m3	TO-15
m,p-Xylene	11	3.5	1.0	ug/m3	TO-15
Xylenes (total)	11	3.5	0.65	ug/m3	TO-15
JB29431-15 SG-2					
Acetone	56.0	0.80	0.28	ppbv	TO-15
Benzene	0.68 J	0.80	0.11	ppbv	TO-15
Carbon disulfide	0.88	0.80	0.094	ppbv	TO-15
Chloroform	1.1	0.80	0.10	ppbv	TO-15
Dichlorodifluoromethane	0.56 J	0.80	0.095	ppbv	TO-15
Ethanol	4.5	2.0	0.68	ppbv	TO-15
Ethylbenzene	1.5	0.80	0.12	ppbv	TO-15
Heptane	1.7	0.80	0.11	ppbv	TO-15
Hexane	2.5	0.80	0.20	ppbv	TO-15
Methylene chloride	1.5	0.80	0.22	ppbv	TO-15
Methyl ethyl ketone	1.2	0.80	0.17	ppbv	TO-15
Propylene	4.2	2.0	0.14	ppbv	TO-15
1,2,4-Trimethylbenzene	0.39 J	0.80	0.12	ppbv	TO-15
Tetrachloroethylene	1.9	0.16	0.097	ppbv	TO-15
Toluene	13.2	0.80	0.13	ppbv	TO-15
m,p-Xylene	4.7	0.80	0.23	ppbv	TO-15
o-Xylene	1.4	0.80	0.15	ppbv	TO-15
Xylenes (total)	6.0	0.80	0.15	ppbv	TO-15
Acetone	133	1.9	0.67	ug/m3	TO-15
Benzene	2.2 J	2.6	0.35	ug/m3	TO-15
Carbon disulfide	2.7	2.5	0.29	ug/m3	TO-15
Chloroform	5.4	3.9	0.49	ug/m3	TO-15
Dichlorodifluoromethane	2.8 J	4.0	0.47	ug/m3	TO-15
Ethanol	8.5	3.8	1.3	ug/m3	TO-15
Ethylbenzene	6.5	3.5	0.52	ug/m3	TO-15
Heptane	7.0	3.3	0.45	ug/m3	TO-15
Hexane	8.8	2.8	0.70	ug/m3	TO-15
Methylene chloride	5.2	2.8	0.76	ug/m3	TO-15
Methyl ethyl ketone	3.5	2.4	0.50	ug/m3	TO-15
Propylene	7.2	3.4	0.24	ug/m3	TO-15
1,2,4-Trimethylbenzene	1.9 J	3.9	0.59	ug/m3	TO-15
Tetrachloroethylene	13	1.1	0.66	ug/m3	TO-15
Toluene	49.7	3.0	0.49	ug/m3	TO-15
m,p-Xylene	20	3.5	1.0	ug/m3	TO-15
o-Xylene	6.1	3.5	0.65	ug/m3	TO-15
Xylenes (total)	26	3.5	0.65	ug/m3	TO-15

Summary of Hits

Job Number: JB29431
Account: Fleming-Lee Shue, Inc.
Project: Related Phase II, West 30th Street, New York, NY
Collected: 02/19/13 thru 02/20/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB29431-16	**SG-3**					
Acetone		65.4	0.80	0.28	ppbv	TO-15
Benzene		0.56 J	0.80	0.11	ppbv	TO-15
Carbon disulfide		4.5	0.80	0.094	ppbv	TO-15
Chloroform		12.8	0.80	0.10	ppbv	TO-15
Dichlorodifluoromethane		0.72 J	0.80	0.095	ppbv	TO-15
Ethanol		12.0	2.0	0.68	ppbv	TO-15
Heptane		0.71 J	0.80	0.11	ppbv	TO-15
Methylene chloride		1.5	0.80	0.22	ppbv	TO-15
Methyl ethyl ketone		1.8	0.80	0.17	ppbv	TO-15
Propylene		2.3	2.0	0.14	ppbv	TO-15
Tetrachloroethylene		1.8	0.16	0.097	ppbv	TO-15
Toluene		5.8	0.80	0.13	ppbv	TO-15
Trichloroethylene		1.3	0.16	0.14	ppbv	TO-15
m,p-Xylene		0.87	0.80	0.23	ppbv	TO-15
Xylenes (total)		0.87	0.80	0.15	ppbv	TO-15
Acetone		155	1.9	0.67	ug/m3	TO-15
Benzene		1.8 J	2.6	0.35	ug/m3	TO-15
Carbon disulfide		14	2.5	0.29	ug/m3	TO-15
Chloroform		62.5	3.9	0.49	ug/m3	TO-15
Dichlorodifluoromethane		3.6 J	4.0	0.47	ug/m3	TO-15
Ethanol		22.6	3.8	1.3	ug/m3	TO-15
Heptane		2.9 J	3.3	0.45	ug/m3	TO-15
Methylene chloride		5.2	2.8	0.76	ug/m3	TO-15
Methyl ethyl ketone		5.3	2.4	0.50	ug/m3	TO-15
Propylene		4.0	3.4	0.24	ug/m3	TO-15
Tetrachloroethylene		12	1.1	0.66	ug/m3	TO-15
Toluene		22	3.0	0.49	ug/m3	TO-15
Trichloroethylene		7.0	0.86	0.75	ug/m3	TO-15
m,p-Xylene		3.8	3.5	1.0	ug/m3	TO-15
Xylenes (total)		3.8	3.5	0.65	ug/m3	TO-15
JB29431-17	**SG-4**					
Acetone		23.9	0.80	0.28	ppbv	TO-15
Benzene		0.42 J	0.80	0.11	ppbv	TO-15
Dichlorodifluoromethane		0.61 J	0.80	0.095	ppbv	TO-15
Ethanol		22.6	2.0	0.68	ppbv	TO-15
Isopropyl Alcohol		1.2	0.80	0.26	ppbv	TO-15
Methylene chloride		0.79 J	0.80	0.22	ppbv	TO-15
Tertiary Butyl Alcohol		1.5	0.80	0.20	ppbv	TO-15
Tetrachloroethylene		0.17	0.16	0.097	ppbv	TO-15
Toluene		1.4	0.80	0.13	ppbv	TO-15

Summary of Hits

Job Number: JB29431
Account: Fleming-Lee Shue, Inc.
Project: Related Phase II, West 30th Street, New York, NY
Collected: 02/19/13 thru 02/20/13

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Acetone	56.8	1.9	0.67	ug/m3	TO-15
Benzene	1.3 J	2.6	0.35	ug/m3	TO-15
Dichlorodifluoromethane	3.0 J	4.0	0.47	ug/m3	TO-15
Ethanol	42.6	3.8	1.3	ug/m3	TO-15
Isopropyl Alcohol	2.9	2.0	0.64	ug/m3	TO-15
Methylene chloride	2.7 J	2.8	0.76	ug/m3	TO-15
Tertiary Butyl Alcohol	4.5	2.4	0.61	ug/m3	TO-15
Tetrachloroethylene	1.2	1.1	0.66	ug/m3	TO-15
Toluene	5.3	3.0	0.49	ug/m3	TO-15

(a) Re-extracted due to lab contaminated on original extract. originally prep date was within holding time. Reported from 1st signal. %RSD of initial calibration on 2nd signal exceed method criteria (20 %) so using for confirmation only.
(b) Reextract due to surrogate outside QC limits. Original prep date within holding time.

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Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SB-1 (0-2)'		
Lab Sample ID:	JB29431-1	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	91.5
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y131575.D	1	03/02/13	RS	n/a	n/a	VY5664
Run #2							

	Initial Weight
Run #1	5.2 g
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	11	1.8	ug/kg	
71-43-2	Benzene	ND	1.1	0.13	ug/kg	
74-97-5	Bromochloromethane	ND	5.3	0.28	ug/kg	
75-27-4	Bromodichloromethane	ND	5.3	0.11	ug/kg	
75-25-2	Bromoform	ND	5.3	0.16	ug/kg	
74-83-9	Bromomethane	ND	5.3	0.29	ug/kg	
78-93-3	2-Butanone (MEK)	ND	11	2.5	ug/kg	
75-15-0	Carbon disulfide	ND	5.3	0.12	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.3	0.14	ug/kg	
108-90-7	Chlorobenzene	ND	5.3	0.11	ug/kg	
75-00-3	Chloroethane	ND	5.3	0.24	ug/kg	
67-66-3	Chloroform	ND	5.3	0.087	ug/kg	
74-87-3	Chloromethane	ND	5.3	0.20	ug/kg	
110-82-7	Cyclohexane	ND	5.3	0.13	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	0.94	ug/kg	
124-48-1	Dibromochloromethane	ND	5.3	0.17	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	0.13	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	5.3	0.20	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	5.3	0.20	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	5.3	0.18	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.3	0.24	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.3	0.14	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	0.14	ug/kg	
75-35-4	1,1-Dichloroethene	ND	5.3	0.27	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	5.3	0.19	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	5.3	0.25	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.3	0.16	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.3	0.15	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.3	0.16	ug/kg	
123-91-1	1,4-Dioxane	ND	130	63	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	0.28	ug/kg	
76-13-1	Freon 113	ND	5.3	0.45	ug/kg	

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (0-2)'		
Lab Sample ID:	JB29431-1	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	91.5
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.3	0.65	ug/kg	
98-82-8	Isopropylbenzene	ND	5.3	0.078	ug/kg	
79-20-9	Methyl Acetate	ND	5.3	2.7	ug/kg	
108-87-2	Methylcyclohexane	ND	5.3	0.18	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	0.25	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.3	0.79	ug/kg	
75-09-2	Methylene chloride	ND	5.3	1.3	ug/kg	
100-42-5	Styrene	ND	5.3	0.096	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.3	0.14	ug/kg	
127-18-4	Tetrachloroethene	0.92	5.3	0.18	ug/kg	J
108-88-3	Toluene	ND	1.1	0.11	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.3	0.17	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.3	0.15	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.3	0.11	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.3	0.18	ug/kg	
79-01-6	Trichloroethene	ND	5.3	0.18	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.3	0.31	ug/kg	
75-01-4	Vinyl chloride	ND	5.3	0.15	ug/kg	
	m,p-Xylene	ND	1.1	0.18	ug/kg	
95-47-6	o-Xylene	ND	1.1	0.15	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	0.15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
17060-07-0	1,2-Dichloroethane-D4	101%		70-122%
2037-26-5	Toluene-D8	108%		81-127%
460-00-4	4-Bromofluorobenzene	104%		66-132%

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RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (0-2)'		
Lab Sample ID:	JB29431-1	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	91.5
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3P17480.D	1	03/07/13	KH	03/01/13	OP63993	E3P797
Run #2							

	Initial Weight	Final Volume
Run #1	32.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	170	34	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	170	34	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	170	54	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	170	56	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	670	41	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	670	41	ug/kg	
95-48-7	2-Methylphenol	ND	67	38	ug/kg	
	3&4-Methylphenol	ND	67	43	ug/kg	
88-75-5	2-Nitrophenol	ND	170	36	ug/kg	
100-02-7	4-Nitrophenol	ND	340	57	ug/kg	
87-86-5	Pentachlorophenol	ND	340	57	ug/kg	
108-95-2	Phenol	ND	67	35	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	170	35	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	170	39	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	170	32	ug/kg	
83-32-9	Acenaphthene	ND	34	9.7	ug/kg	
208-96-8	Acenaphthylene	ND	34	11	ug/kg	
98-86-2	Acetophenone	ND	170	5.9	ug/kg	
120-12-7	Anthracene	ND	34	12	ug/kg	
1912-24-9	Atrazine	ND	170	6.6	ug/kg	
56-55-3	Benzo(a)anthracene	ND	34	11	ug/kg	
50-32-8	Benzo(a)pyrene	ND	34	10	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	34	11	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	34	12	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	34	13	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	67	12	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	67	19	ug/kg	
92-52-4	1,1'-Biphenyl	ND	67	3.9	ug/kg	
100-52-7	Benzaldehyde	ND	170	7.7	ug/kg	
91-58-7	2-Chloronaphthalene	ND	67	10	ug/kg	
106-47-8	4-Chloroaniline	ND	170	11	ug/kg	
86-74-8	Carbazole	ND	67	16	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (0-2)'		
Lab Sample ID:	JB29431-1	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	91.5
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	67	11	ug/kg	
218-01-9	Chrysene	ND	34	11	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	67	14	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	67	10	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	67	10	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	67	10	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	67	15	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	67	13	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	170	8.5	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	34	11	ug/kg	
132-64-9	Dibenzofuran	ND	67	10	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	67	7.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	67	16	ug/kg	
84-66-2	Diethyl phthalate	ND	67	11	ug/kg	
131-11-3	Dimethyl phthalate	ND	67	12	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	67	30	ug/kg	
206-44-0	Fluoranthene	17.4	34	15	ug/kg	J
86-73-7	Fluorene	ND	34	11	ug/kg	
118-74-1	Hexachlorobenzene	ND	67	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	34	9.3	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	340	34	ug/kg	
67-72-1	Hexachloroethane	ND	170	9.3	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	34	12	ug/kg	
78-59-1	Isophorone	ND	67	9.0	ug/kg	
91-57-6	2-Methylnaphthalene	ND	67	19	ug/kg	
88-74-4	2-Nitroaniline	ND	170	15	ug/kg	
99-09-2	3-Nitroaniline	ND	170	13	ug/kg	
100-01-6	4-Nitroaniline	ND	170	13	ug/kg	
91-20-3	Naphthalene	ND	34	9.2	ug/kg	
98-95-3	Nitrobenzene	ND	67	9.7	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	67	8.2	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	170	20	ug/kg	
85-01-8	Phenanthrene	ND	34	15	ug/kg	
129-00-0	Pyrene	15.6	34	13	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	170	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	32%		21-116%
4165-62-2	Phenol-d5	34%		19-117%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (0-2)'		
Lab Sample ID:	JB29431-1	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	91.5
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	52%		24-136%
4165-60-0	Nitrobenzene-d5	37%		21-122%
321-60-8	2-Fluorobiphenyl	36%		30-117%
1718-51-0	Terphenyl-d14	63%		31-129%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (0-2)'		
Lab Sample ID:	JB29431-1	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8081B SW846 3546	**Percent Solids:**	91.5
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	4G29283.D	1	03/12/13	DS	03/09/13	OP64269	G4G737
Run #2							

	Initial Weight	Final Volume
Run #1	15.1 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.72	0.33	ug/kg	
319-84-6	alpha-BHC	ND	0.72	0.22	ug/kg	
319-85-7	beta-BHC	ND	0.72	0.45	ug/kg	
319-86-8	delta-BHC	ND	0.72	0.36	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.72	0.35	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.72	0.27	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.72	0.50	ug/kg	
60-57-1	Dieldrin	ND	0.72	0.28	ug/kg	
72-54-8	4,4'-DDD	ND	0.72	0.40	ug/kg	
72-55-9	4,4'-DDE	ND	0.72	0.29	ug/kg	
50-29-3	4,4'-DDT [b]	1.3	0.72	0.36	ug/kg	
72-20-8	Endrin	ND	0.72	0.23	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.72	0.31	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.72	0.38	ug/kg	
959-98-8	Endosulfan-I	ND	0.72	0.27	ug/kg	
33213-65-9	Endosulfan-II	ND	0.72	0.43	ug/kg	
76-44-8	Heptachlor	ND	0.72	0.35	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.72	0.27	ug/kg	
72-43-5	Methoxychlor	ND	1.4	0.71	ug/kg	
53494-70-5	Endrin ketone	ND	0.72	0.29	ug/kg	
8001-35-2	Toxaphene	ND	18	9.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	83%		23-137%
877-09-8	Tetrachloro-m-xylene	89%		23-137%
2051-24-3	Decachlorobiphenyl	81%		22-160%
2051-24-3	Decachlorobiphenyl	87%		22-160%

(a) Re-extracted due to lab contaminated on original extract. originally prep date was within holding time.
(b) Reported from 1st signal. %RSD of initial calibration on 2nd signal exceed method criteria (20 %) so using for confirmation only.

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (0-2)'		
Lab Sample ID:	JB29431-1	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8082A SW846 3546	**Percent Solids:**	91.5
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX130804.D	1	03/05/13	JR	03/02/13	OP64040	GXX4607
Run #2							

	Initial Weight	Final Volume
Run #1	15.8 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	35	9.0	ug/kg	
11104-28-2	Aroclor 1221	ND	35	21	ug/kg	
11141-16-5	Aroclor 1232	ND	35	18	ug/kg	
53469-21-9	Aroclor 1242	ND	35	11	ug/kg	
12672-29-6	Aroclor 1248	ND	35	11	ug/kg	
11097-69-1	Aroclor 1254	ND	35	16	ug/kg	
11096-82-5	Aroclor 1260	ND	35	11	ug/kg	
11100-14-4	Aroclor 1268	ND	35	10	ug/kg	
37324-23-5	Aroclor 1262	ND	35	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	80%		22-141%
877-09-8	Tetrachloro-m-xylene	81%		22-141%
2051-24-3	Decachlorobiphenyl	83%		18-163%
2051-24-3	Decachlorobiphenyl	81%		18-163%

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (0-2)'		
Lab Sample ID:	JB29431-1	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
		Percent Solids:	91.5
Project:	Related Phase II, West 30th Street, New York, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	11200	58	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.3	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Arsenic	3.4	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Barium	127	23	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Beryllium	1.3	0.23	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.58	0.58	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Calcium	34400	580	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Chromium	21.8	1.2	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Cobalt	11.9	5.8	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Copper	7.2	2.9	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Iron	17000	58	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Lead	10.0	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Magnesium	14800	580	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Manganese	576	1.7	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Mercury	0.048	0.033	mg/kg	1	03/01/13	03/01/13	CS	SW846 7471B [1]	SW846 7471B [3]
Nickel	37.6	4.6	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Potassium	6190	1200	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.3	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.58	0.58	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 1200	1200	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.2	1.2	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Vanadium	25.8	5.8	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Zinc	58.6	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA30597
(2) Instrument QC Batch: MA30619
(3) Prep QC Batch: MP70105
(4) Prep QC Batch: MP70135

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB-1 (14-15)'		
Lab Sample ID:	JB29431-2	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	89.7
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y131576.D	1	03/02/13	RS	n/a	n/a	VY5664
Run #2							

	Initial Weight
Run #1	4.8 g
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	12	2.0	ug/kg	
71-43-2	Benzene	ND	1.2	0.14	ug/kg	
74-97-5	Bromochloromethane	ND	5.8	0.31	ug/kg	
75-27-4	Bromodichloromethane	ND	5.8	0.12	ug/kg	
75-25-2	Bromoform	ND	5.8	0.18	ug/kg	
74-83-9	Bromomethane	ND	5.8	0.32	ug/kg	
78-93-3	2-Butanone (MEK)	ND	12	2.8	ug/kg	
75-15-0	Carbon disulfide	ND	5.8	0.14	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.8	0.15	ug/kg	
108-90-7	Chlorobenzene	ND	5.8	0.13	ug/kg	
75-00-3	Chloroethane	ND	5.8	0.26	ug/kg	
67-66-3	Chloroform	ND	5.8	0.096	ug/kg	
74-87-3	Chloromethane	ND	5.8	0.22	ug/kg	
110-82-7	Cyclohexane	ND	5.8	0.14	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	12	1.0	ug/kg	
124-48-1	Dibromochloromethane	ND	5.8	0.19	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.15	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	5.8	0.22	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	5.8	0.22	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	5.8	0.20	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.8	0.26	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.8	0.16	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.16	ug/kg	
75-35-4	1,1-Dichloroethene	ND	5.8	0.30	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	5.8	0.21	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	5.8	0.28	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.8	0.18	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.8	0.16	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.8	0.18	ug/kg	
123-91-1	1,4-Dioxane	ND	150	69	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.31	ug/kg	
76-13-1	Freon 113	ND	5.8	0.50	ug/kg	

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (14-15)'		
Lab Sample ID:	JB29431-2	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	89.7
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.8	0.72	ug/kg	
98-82-8	Isopropylbenzene	ND	5.8	0.086	ug/kg	
79-20-9	Methyl Acetate	ND	5.8	3.0	ug/kg	
108-87-2	Methylcyclohexane	ND	5.8	0.20	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.27	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.8	0.87	ug/kg	
75-09-2	Methylene chloride	ND	5.8	1.5	ug/kg	
100-42-5	Styrene	ND	5.8	0.11	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.8	0.15	ug/kg	
127-18-4	Tetrachloroethene	ND	5.8	0.20	ug/kg	
108-88-3	Toluene	ND	1.2	0.12	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.8	0.19	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.8	0.16	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.8	0.12	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.8	0.20	ug/kg	
79-01-6	Trichloroethene	ND	5.8	0.20	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.8	0.35	ug/kg	
75-01-4	Vinyl chloride	ND	5.8	0.17	ug/kg	
	m,p-Xylene	ND	1.2	0.20	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.16	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		70-130%
17060-07-0	1,2-Dichloroethane-D4	101%		70-122%
2037-26-5	Toluene-D8	107%		81-127%
460-00-4	4-Bromofluorobenzene	103%		66-132%

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (14-15)'		
Lab Sample ID:	JB29431-2	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	89.7
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2P20930.D	1	03/12/13	ALS	03/11/13	OP64282	E2P923
Run #2	3P17481.D	1	03/07/13	KH	03/01/13	OP63993	E3P797

	Initial Weight	Final Volume
Run #1	31.1 g	1.0 ml
Run #2	31.4 g	1.0 ml

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	180	36	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	36	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	58	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	60	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	720	44	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	720	44	ug/kg	
95-48-7	2-Methylphenol	ND	72	41	ug/kg	
	3&4-Methylphenol	ND	72	46	ug/kg	
88-75-5	2-Nitrophenol	ND	180	38	ug/kg	
100-02-7	4-Nitrophenol	ND	360	61	ug/kg	
87-86-5	Pentachlorophenol	ND	360	61	ug/kg	
108-95-2	Phenol	ND	72	38	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	37	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	42	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	34	ug/kg	
83-32-9	Acenaphthene	ND	36	10	ug/kg	
208-96-8	Acenaphthylene	28.7	36	11	ug/kg	J
98-86-2	Acetophenone	ND	180	6.3	ug/kg	
120-12-7	Anthracene	ND	36	13	ug/kg	
1912-24-9	Atrazine	ND	180	7.1	ug/kg	
56-55-3	Benzo(a)anthracene	ND	36	12	ug/kg	
50-32-8	Benzo(a)pyrene	ND	36	11	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	36	12	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	36	13	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	36	13	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	72	13	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	72	21	ug/kg	
92-52-4	1,1'-Biphenyl	ND	72	4.2	ug/kg	
100-52-7	Benzaldehyde	ND	180	8.2	ug/kg	
91-58-7	2-Chloronaphthalene	ND	72	11	ug/kg	
106-47-8	4-Chloroaniline	ND	180	11	ug/kg	
86-74-8	Carbazole	ND	72	17	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (14-15)'		
Lab Sample ID:	JB29431-2	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	89.7
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	72	11	ug/kg	
218-01-9	Chrysene	ND	36	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	72	14	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	72	11	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	72	11	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	72	11	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	72	16	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	72	14	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	180	9.1	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	36	12	ug/kg	
132-64-9	Dibenzofuran	ND	72	11	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	72	8.0	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	72	17	ug/kg	
84-66-2	Diethyl phthalate	ND	72	12	ug/kg	
131-11-3	Dimethyl phthalate	50.2	72	13	ug/kg	J
117-81-7	bis(2-Ethylhexyl)phthalate	ND	72	32	ug/kg	
206-44-0	Fluoranthene	ND	36	16	ug/kg	
86-73-7	Fluorene	ND	36	12	ug/kg	
118-74-1	Hexachlorobenzene	ND	72	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	36	10	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	360	37	ug/kg	
67-72-1	Hexachloroethane	ND	180	10	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	36	12	ug/kg	
78-59-1	Isophorone	ND	72	9.6	ug/kg	
91-57-6	2-Methylnaphthalene	ND	72	20	ug/kg	
88-74-4	2-Nitroaniline	ND	180	16	ug/kg	
99-09-2	3-Nitroaniline	ND	180	14	ug/kg	
100-01-6	4-Nitroaniline	ND	180	14	ug/kg	
91-20-3	Naphthalene	ND	36	9.8	ug/kg	
98-95-3	Nitrobenzene	ND	72	10	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	72	8.7	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	21	ug/kg	
85-01-8	Phenanthrene	ND	36	16	ug/kg	
129-00-0	Pyrene	ND	36	14	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	48%	20% [b]	21-116%
4165-62-2	Phenol-d5	65%	22%	19-117%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (14-15)'		
Lab Sample ID:	JB29431-2	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	89.7
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	63%	42%	24-136%
4165-60-0	Nitrobenzene-d5	35%	18% b	21-122%
321-60-8	2-Fluorobiphenyl	38%	17% b	30-117%
1718-51-0	Terphenyl-d14	62%	67%	31-129%

(a) Reextract due to surrogate outside QC limits. Original prep date within holding time.
(b) Refer to re-extract.

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (14-15)'		
Lab Sample ID:	JB29431-2	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8081B SW846 3546	**Percent Solids:**	89.7
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	4G29234.D	1	03/11/13	DS	03/09/13	OP64269	G4G736
Run #2							

	Initial Weight	Final Volume
Run #1	15.7 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.71	0.33	ug/kg	
319-84-6	alpha-BHC	ND	0.71	0.21	ug/kg	
319-85-7	beta-BHC	ND	0.71	0.44	ug/kg	
319-86-8	delta-BHC	ND	0.71	0.35	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.71	0.35	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.71	0.26	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.71	0.49	ug/kg	
60-57-1	Dieldrin	ND	0.71	0.28	ug/kg	
72-54-8	4,4'-DDD	ND	0.71	0.39	ug/kg	
72-55-9	4,4'-DDE	ND	0.71	0.29	ug/kg	
50-29-3	4,4'-DDT	ND	0.71	0.35	ug/kg	
72-20-8	Endrin	ND	0.71	0.23	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.71	0.31	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.71	0.37	ug/kg	
959-98-8	Endosulfan-I	ND	0.71	0.27	ug/kg	
33213-65-9	Endosulfan-II	ND	0.71	0.43	ug/kg	
76-44-8	Heptachlor	ND	0.71	0.35	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.71	0.27	ug/kg	
72-43-5	Methoxychlor	ND	1.4	0.70	ug/kg	
53494-70-5	Endrin ketone	ND	0.71	0.29	ug/kg	
8001-35-2	Toxaphene	ND	18	8.9	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	96%		23-137%
877-09-8	Tetrachloro-m-xylene	107%		23-137%
2051-24-3	Decachlorobiphenyl	79%		22-160%
2051-24-3	Decachlorobiphenyl	77%		22-160%

(a) Re-extracted due to lab contaminated on original extract. originally prep date was within holding time.

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (14-15)'		
Lab Sample ID:	JB29431-2	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8082A SW846 3546	**Percent Solids:**	89.7
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX130805.D	1	03/05/13	JR	03/02/13	OP64040	GXX4607
Run #2							

	Initial Weight	Final Volume
Run #1	16.4 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	34	8.8	ug/kg	
11104-28-2	Aroclor 1221	ND	34	20	ug/kg	
11141-16-5	Aroclor 1232	ND	34	17	ug/kg	
53469-21-9	Aroclor 1242	ND	34	11	ug/kg	
12672-29-6	Aroclor 1248	ND	34	10	ug/kg	
11097-69-1	Aroclor 1254	ND	34	16	ug/kg	
11096-82-5	Aroclor 1260	ND	34	11	ug/kg	
11100-14-4	Aroclor 1268	ND	34	10	ug/kg	
37324-23-5	Aroclor 1262	ND	34	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	84%		22-141%
877-09-8	Tetrachloro-m-xylene	88%		22-141%
2051-24-3	Decachlorobiphenyl	91%		18-163%
2051-24-3	Decachlorobiphenyl	90%		18-163%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-1 (14-15)'		
Lab Sample ID:	JB29431-2	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
		Percent Solids:	89.7
Project:	Related Phase II, West 30th Street, New York, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4940	56	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.3	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Arsenic	< 2.3	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Barium	32.6	23	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Beryllium	0.53	0.23	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.56	0.56	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Calcium	1760	560	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Chromium	10.6	1.1	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.6	5.6	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Copper	11.1	2.8	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Iron	8630	56	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Lead	3.7	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Magnesium	2140	560	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Manganese	143	1.7	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Mercury	< 0.035	0.035	mg/kg	1	03/01/13	03/01/13	CS	SW846 7471B [1]	SW846 7471B [3]
Nickel	10.3	4.5	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.3	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.56	0.56	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Vanadium	14.2	5.6	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Zinc	14.3	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA30597
(2) Instrument QC Batch: MA30619
(3) Prep QC Batch: MP70105
(4) Prep QC Batch: MP70135

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	JB29431-3	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D83543.D	1	02/28/13	NT	n/a	n/a	V3D3594
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.3	ug/l	
71-43-2	Benzene	ND	1.0	0.24	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.30	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.21	ug/l	
75-25-2	Bromoform	ND	4.0	0.21	ug/l	
74-83-9	Bromomethane	ND	2.0	0.22	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.4	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.19	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.22	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.23	ug/l	
75-00-3	Chloroethane	ND	1.0	0.26	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
74-87-3	Chloromethane	ND	1.0	0.21	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.35	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	0.54	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.20	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.22	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.22	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.30	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.27	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.11	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.19	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.19	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.21	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.48	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.19	ug/l	
123-91-1	1,4-Dioxane	ND	130	75	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
76-13-1	Freon 113	ND	5.0	0.53	ug/l	

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	JB29431-3	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.0	1.1	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
79-20-9	Methyl Acetate	ND	5.0	1.2	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	0.83	ug/l	
75-09-2	Methylene chloride	5.7	2.0	0.70	ug/l	
100-42-5	Styrene	ND	5.0	0.21	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.21	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.28	ug/l	
108-88-3	Toluene	0.27	1.0	0.23	ug/l	J
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.28	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.24	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.29	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.22	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.21	ug/l	
	m,p-Xylene	ND	1.0	0.42	ug/l	
95-47-6	o-Xylene	0.26	1.0	0.24	ug/l	J
1330-20-7	Xylene (total)	0.66	1.0	0.24	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		81-121%
17060-07-0	1,2-Dichloroethane-D4	105%		74-127%
2037-26-5	Toluene-D8	103%		80-122%
460-00-4	4-Bromofluorobenzene	98%		78-116%

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	JB29431-3	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F21098.D	1	03/04/13	NAP	02/26/13	OP63893	EF5097
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.97	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	1.8	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	1.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	1.5	ug/l	
51-28-5	2,4-Dinitrophenol	ND	20	17	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	20	0.99	ug/l	
95-48-7	2-Methylphenol	ND	2.0	1.0	ug/l	
	3&4-Methylphenol	ND	2.0	0.93	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	1.5	ug/l	
100-02-7	4-Nitrophenol	ND	10	5.2	ug/l	
87-86-5	Pentachlorophenol	ND	10	1.4	ug/l	
108-95-2	Phenol	ND	2.0	1.3	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.0	0.94	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.6	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	1.3	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
98-86-2	Acetophenone	ND	2.0	0.29	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
1912-24-9	Atrazine	ND	5.0	0.49	ug/l	
100-52-7	Benzaldehyde	ND	5.0	3.3	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.36	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.29	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.30	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.30	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.53	ug/l	
86-74-8	Carbazole	ND	1.0	0.36	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	JB29431-3	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.69	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.31	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.31	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	2.0	0.45	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.31	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	2.0	0.43	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	2.0	0.46	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.36	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.27	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.56	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.31	ug/l	
84-66-2	Diethyl phthalate	4.5	2.0	0.33	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.28	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.59	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.34	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.51	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	7.1	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.55	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
78-59-1	Isophorone	ND	2.0	0.27	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.38	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	1.1	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	1.3	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	1.7	ug/l	
91-20-3	Naphthalene	ND	1.0	0.26	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.42	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.30	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.31	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.31	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	41%		10-83%
4165-62-2	Phenol-d5	22%		10-74%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	JB29431-3	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	89%		24-148%
4165-60-0	Nitrobenzene-d5	81%		38-129%
321-60-8	2-Fluorobiphenyl	56%		42-117%
1718-51-0	Terphenyl-d14	91%		14-132%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	JB29431-3	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G89121.D	1	03/05/13	DS	02/26/13	OP63914	G1G2926
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.010	0.0079	ug/l	
319-84-6	alpha-BHC	ND	0.010	0.0023	ug/l	
319-85-7	beta-BHC	ND	0.010	0.0023	ug/l	
319-86-8	delta-BHC	ND	0.010	0.0019	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.010	0.0017	ug/l	
5103-71-9	alpha-Chlordane	ND	0.010	0.0029	ug/l	
5103-74-2	gamma-Chlordane	ND	0.010	0.0021	ug/l	
60-57-1	Dieldrin	ND	0.010	0.0016	ug/l	
72-54-8	4,4'-DDD	ND	0.010	0.0025	ug/l	
72-55-9	4,4'-DDE	ND	0.010	0.0017	ug/l	
50-29-3	4,4'-DDT	ND	0.010	0.0032	ug/l	
72-20-8	Endrin	ND	0.010	0.0020	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.010	0.0019	ug/l	
7421-93-4	Endrin aldehyde	ND	0.010	0.0037	ug/l	
53494-70-5	Endrin ketone	ND	0.010	0.0047	ug/l	
959-98-8	Endosulfan-I	ND	0.010	0.0028	ug/l	
33213-65-9	Endosulfan-II	ND	0.010	0.0020	ug/l	
76-44-8	Heptachlor	ND	0.010	0.0022	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.010	0.0026	ug/l	
72-43-5	Methoxychlor	ND	0.020	0.0041	ug/l	
8001-35-2	Toxaphene	ND	0.25	0.15	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	108%		26-145%
877-09-8	Tetrachloro-m-xylene	113%		26-145%
2051-24-3	Decachlorobiphenyl	69%		10-141%
2051-24-3	Decachlorobiphenyl	67%		10-141%

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	JB29431-3	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8082A SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G78174.D	1	03/02/13	JR	02/26/13	OP63910	G2G2601
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.50	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.50	0.27	ug/l	
11141-16-5	Aroclor 1232	ND	0.50	0.39	ug/l	
53469-21-9	Aroclor 1242	ND	0.50	0.086	ug/l	
12672-29-6	Aroclor 1248	ND	0.50	0.15	ug/l	
11097-69-1	Aroclor 1254	ND	0.50	0.14	ug/l	
11096-82-5	Aroclor 1260	ND	0.50	0.21	ug/l	
11100-14-4	Aroclor 1268	ND	0.50	0.13	ug/l	
37324-23-5	Aroclor 1262	ND	0.50	0.060	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	90%		27-144%
877-09-8	Tetrachloro-m-xylene	94%		27-144%
2051-24-3	Decachlorobiphenyl	59%		10-139%
2051-24-3	Decachlorobiphenyl	87%		10-139%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	JB29431-3	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
		Percent Solids:	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3040	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Calcium	161000	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Iron	3160	100	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Lead	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Magnesium	54400	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Manganese	3380	15	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	03/05/13	03/05/13	CS	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Potassium	28300	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Selenium	16.1	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Sodium	173000	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Thallium	< 2.0	2.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Zinc	< 20	20	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA30617
(2) Instrument QC Batch: MA30632
(3) Prep QC Batch: MP70136
(4) Prep QC Batch: MP70212

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-1		
Lab Sample ID:	JB29431-3F	**Date Sampled:**	02/19/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	02/21/13
		Percent Solids:	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Calcium	181000	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Iron	< 100	100	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Lead	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Magnesium	61400	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Manganese	3660	15	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	03/05/13	03/05/13	CS	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Potassium	31800	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Selenium	20.5	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Sodium	194000	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Thallium	< 2.0	2.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Zinc	< 20	20	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA30617
(2) Instrument QC Batch: MA30632
(3) Prep QC Batch: MP70136
(4) Prep QC Batch: MP70212

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB-2 (0-2)'		
Lab Sample ID:	JB29431-4	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	92.4
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A192043.D	1	02/27/13	OTR	n/a	n/a	VA7230
Run #2							

	Initial Weight
Run #1	4.3 g
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	51.5	13	2.1	ug/kg	
71-43-2	Benzene	ND	1.3	0.15	ug/kg	
74-97-5	Bromochloromethane	ND	6.3	0.33	ug/kg	
75-27-4	Bromodichloromethane	ND	6.3	0.13	ug/kg	
75-25-2	Bromoform	ND	6.3	0.19	ug/kg	
74-83-9	Bromomethane	ND	6.3	0.34	ug/kg	
78-93-3	2-Butanone (MEK)	ND	13	3.0	ug/kg	
75-15-0	Carbon disulfide	ND	6.3	0.15	ug/kg	
56-23-5	Carbon tetrachloride	ND	6.3	0.17	ug/kg	
108-90-7	Chlorobenzene	ND	6.3	0.14	ug/kg	
75-00-3	Chloroethane	ND	6.3	0.29	ug/kg	
67-66-3	Chloroform	ND	6.3	0.10	ug/kg	
74-87-3	Chloromethane	ND	6.3	0.23	ug/kg	
110-82-7	Cyclohexane	ND	6.3	0.16	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	13	1.1	ug/kg	
124-48-1	Dibromochloromethane	ND	6.3	0.21	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.16	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	6.3	0.24	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	6.3	0.24	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	6.3	0.22	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.3	0.29	ug/kg	
75-34-3	1,1-Dichloroethane	ND	6.3	0.17	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.17	ug/kg	
75-35-4	1,1-Dichloroethene	ND	6.3	0.32	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	6.3	0.23	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	6.3	0.30	ug/kg	
78-87-5	1,2-Dichloropropane	ND	6.3	0.19	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	6.3	0.17	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	6.3	0.20	ug/kg	
123-91-1	1,4-Dioxane	ND	160	75	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.33	ug/kg	
76-13-1	Freon 113	ND	6.3	0.54	ug/kg	

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (0-2)'		
Lab Sample ID:	JB29431-4	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	92.4
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	6.3	0.78	ug/kg	
98-82-8	Isopropylbenzene	ND	6.3	0.094	ug/kg	
79-20-9	Methyl Acetate	ND	6.3	3.3	ug/kg	
108-87-2	Methylcyclohexane	ND	6.3	0.21	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.30	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.3	0.95	ug/kg	
75-09-2	Methylene chloride	9.4	6.3	1.6	ug/kg	
100-42-5	Styrene	ND	6.3	0.12	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	6.3	0.17	ug/kg	
127-18-4	Tetrachloroethene	ND	6.3	0.22	ug/kg	
108-88-3	Toluene	0.86	1.3	0.13	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	6.3	0.21	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.3	0.17	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	6.3	0.13	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	6.3	0.22	ug/kg	
79-01-6	Trichloroethene	ND	6.3	0.22	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.3	0.38	ug/kg	
75-01-4	Vinyl chloride	ND	6.3	0.18	ug/kg	
	m,p-Xylene	0.63	1.3	0.22	ug/kg	J
95-47-6	o-Xylene	0.28	1.3	0.17	ug/kg	J
1330-20-7	Xylene (total)	0.91	1.3	0.17	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	35% [a]		70-130%
17060-07-0	1,2-Dichloroethane-D4	82%		70-122%
2037-26-5	Toluene-D8	105%		81-127%
460-00-4	4-Bromofluorobenzene	102%		66-132%

(a) Outside control limits due to matrix interference. Confirmed by MS/MSD.

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (0-2)'		
Lab Sample ID:	JB29431-4	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	92.4
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3P17482.D	1	03/07/13	KH	03/01/13	OP63993	E3P797
Run #2							

	Initial Weight	Final Volume
Run #1	33.3 g	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	160	33	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	160	33	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	160	52	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	160	55	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	650	40	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	650	40	ug/kg	
95-48-7	2-Methylphenol	ND	65	37	ug/kg	
	3&4-Methylphenol	ND	65	41	ug/kg	
88-75-5	2-Nitrophenol	ND	160	34	ug/kg	
100-02-7	4-Nitrophenol	ND	330	55	ug/kg	
87-86-5	Pentachlorophenol	ND	330	56	ug/kg	
108-95-2	Phenol	ND	65	34	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	160	33	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	160	38	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	160	31	ug/kg	
83-32-9	Acenaphthene	ND	33	9.4	ug/kg	
208-96-8	Acenaphthylene	ND	33	10	ug/kg	
98-86-2	Acetophenone	ND	160	5.7	ug/kg	
120-12-7	Anthracene	ND	33	11	ug/kg	
1912-24-9	Atrazine	ND	160	6.4	ug/kg	
56-55-3	Benzo(a)anthracene	ND	33	11	ug/kg	
50-32-8	Benzo(a)pyrene	ND	33	9.9	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	33	11	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	33	12	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	33	12	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	65	12	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	65	19	ug/kg	
92-52-4	1,1'-Biphenyl	ND	65	3.8	ug/kg	
100-52-7	Benzaldehyde	ND	160	7.5	ug/kg	
91-58-7	2-Chloronaphthalene	ND	65	10	ug/kg	
106-47-8	4-Chloroaniline	ND	160	10	ug/kg	
86-74-8	Carbazole	ND	65	15	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (0-2)'		
Lab Sample ID:	JB29431-4	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	92.4
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	65	10	ug/kg	
218-01-9	Chrysene	ND	33	11	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	65	13	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	65	9.8	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	65	9.7	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	65	9.8	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	65	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	65	12	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	160	8.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	33	11	ug/kg	
132-64-9	Dibenzofuran	ND	65	9.7	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	65	7.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	65	16	ug/kg	
84-66-2	Diethyl phthalate	ND	65	11	ug/kg	
131-11-3	Dimethyl phthalate	34.6	65	11	ug/kg	J
117-81-7	bis(2-Ethylhexyl)phthalate	130	65	29	ug/kg	
206-44-0	Fluoranthene	29.5	33	14	ug/kg	J
86-73-7	Fluorene	ND	33	11	ug/kg	
118-74-1	Hexachlorobenzene	ND	65	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	33	9.0	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	330	33	ug/kg	
67-72-1	Hexachloroethane	ND	160	9.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	33	11	ug/kg	
78-59-1	Isophorone	ND	65	8.7	ug/kg	
91-57-6	2-Methylnaphthalene	ND	65	18	ug/kg	
88-74-4	2-Nitroaniline	ND	160	14	ug/kg	
99-09-2	3-Nitroaniline	ND	160	13	ug/kg	
100-01-6	4-Nitroaniline	ND	160	13	ug/kg	
91-20-3	Naphthalene	ND	33	8.9	ug/kg	
98-95-3	Nitrobenzene	ND	65	9.4	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	65	7.9	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	160	19	ug/kg	
85-01-8	Phenanthrene	21.8	33	15	ug/kg	J
129-00-0	Pyrene	23.8	33	12	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	160	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	40%		21-116%
4165-62-2	Phenol-d5	52%		19-117%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (0-2)'		
Lab Sample ID:	JB29431-4	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	92.4
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	34%		24-136%
4165-60-0	Nitrobenzene-d5	49%		21-122%
321-60-8	2-Fluorobiphenyl	55%		30-117%
1718-51-0	Terphenyl-d14	73%		31-129%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (0-2)'		
Lab Sample ID:	JB29431-4	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8081B SW846 3546	**Percent Solids:**	92.4
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	4G29235.D	1	03/11/13	DS	03/09/13	OP64269	G4G736
Run #2							

	Initial Weight	Final Volume
Run #1	16.4 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.66	0.30	ug/kg	
319-84-6	alpha-BHC	ND	0.66	0.20	ug/kg	
319-85-7	beta-BHC	ND	0.66	0.41	ug/kg	
319-86-8	delta-BHC	ND	0.66	0.33	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.66	0.32	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.66	0.24	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.66	0.46	ug/kg	
60-57-1	Dieldrin	ND	0.66	0.26	ug/kg	
72-54-8	4,4'-DDD	ND	0.66	0.36	ug/kg	
72-55-9	4,4'-DDE	ND	0.66	0.27	ug/kg	
50-29-3	4,4'-DDT [b]	1.6	0.66	0.33	ug/kg	
72-20-8	Endrin	ND	0.66	0.21	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.66	0.28	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.66	0.35	ug/kg	
959-98-8	Endosulfan-I	ND	0.66	0.25	ug/kg	
33213-65-9	Endosulfan-II	ND	0.66	0.40	ug/kg	
76-44-8	Heptachlor	ND	0.66	0.32	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.66	0.25	ug/kg	
72-43-5	Methoxychlor	ND	1.3	0.65	ug/kg	
53494-70-5	Endrin ketone	ND	0.66	0.27	ug/kg	
8001-35-2	Toxaphene	ND	16	8.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	85%		23-137%
877-09-8	Tetrachloro-m-xylene	90%		23-137%
2051-24-3	Decachlorobiphenyl	69%		22-160%
2051-24-3	Decachlorobiphenyl	74%		22-160%

(a) Re-extracted due to lab contaminated on original extract. originally prep date was within holding time.
(b) Reported from 1st signal. %RSD of initial calibration on 2nd signal exceed method criteria (20 %) so using for confirmation only.

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (0-2)'		
Lab Sample ID:	JB29431-4	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8082A SW846 3546	**Percent Solids:**	92.4
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX130806.D	1	03/05/13	JR	03/02/13	OP64040	GXX4607
Run #2							

	Initial Weight	Final Volume
Run #1	15.2 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	36	9.3	ug/kg	
11104-28-2	Aroclor 1221	ND	36	21	ug/kg	
11141-16-5	Aroclor 1232	ND	36	18	ug/kg	
53469-21-9	Aroclor 1242	ND	36	11	ug/kg	
12672-29-6	Aroclor 1248	ND	36	11	ug/kg	
11097-69-1	Aroclor 1254	ND	36	17	ug/kg	
11096-82-5	Aroclor 1260	ND	36	12	ug/kg	
11100-14-4	Aroclor 1268	ND	36	10	ug/kg	
37324-23-5	Aroclor 1262	ND	36	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	76%		22-141%
877-09-8	Tetrachloro-m-xylene	76%		22-141%
2051-24-3	Decachlorobiphenyl	72%		18-163%
2051-24-3	Decachlorobiphenyl	75%		18-163%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (0-2)'		
Lab Sample ID:	JB29431-4	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
		Percent Solids:	92.4
Project:	Related Phase II, West 30th Street, New York, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4300	55	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Arsenic	3.5	2.2	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Barium	35.2	22	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Beryllium	0.54	0.22	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.55	0.55	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Calcium	29000	550	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Chromium	8.9	1.1	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.5	5.5	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Copper	11.9	2.7	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Iron	8210	55	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Lead	397	2.2	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Magnesium	1780	550	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Manganese	140	1.6	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Mercury	0.25	0.035	mg/kg	1	03/01/13	03/01/13	CS	SW846 7471B [1]	SW846 7471B [3]
Nickel	4.7	4.4	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.55	0.55	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Vanadium	9.2	5.5	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Zinc	46.5	2.2	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA30597
(2) Instrument QC Batch: MA30619
(3) Prep QC Batch: MP70105
(4) Prep QC Batch: MP70135

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB-2 (14-15)'		
Lab Sample ID:	JB29431-5	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	82.7
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y131577.D	1	03/02/13	RS	n/a	n/a	VY5664
Run #2							

	Initial Weight
Run #1	5.5 g
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	11	1.9	ug/kg	
71-43-2	Benzene	ND	1.1	0.13	ug/kg	
74-97-5	Bromochloromethane	ND	5.5	0.29	ug/kg	
75-27-4	Bromodichloromethane	ND	5.5	0.12	ug/kg	
75-25-2	Bromoform	ND	5.5	0.17	ug/kg	
74-83-9	Bromomethane	ND	5.5	0.30	ug/kg	
78-93-3	2-Butanone (MEK)	ND	11	2.6	ug/kg	
75-15-0	Carbon disulfide	0.67	5.5	0.13	ug/kg	J
56-23-5	Carbon tetrachloride	ND	5.5	0.15	ug/kg	
108-90-7	Chlorobenzene	ND	5.5	0.12	ug/kg	
75-00-3	Chloroethane	ND	5.5	0.25	ug/kg	
67-66-3	Chloroform	ND	5.5	0.091	ug/kg	
74-87-3	Chloromethane	ND	5.5	0.20	ug/kg	
110-82-7	Cyclohexane	ND	5.5	0.14	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	0.98	ug/kg	
124-48-1	Dibromochloromethane	ND	5.5	0.18	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	0.14	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	5.5	0.21	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	5.5	0.21	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	5.5	0.19	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.5	0.25	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.5	0.15	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	0.15	ug/kg	
75-35-4	1,1-Dichloroethene	ND	5.5	0.28	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	5.5	0.20	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	5.5	0.26	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.5	0.17	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.5	0.15	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.5	0.17	ug/kg	
123-91-1	1,4-Dioxane	ND	140	65	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	0.29	ug/kg	
76-13-1	Freon 113	ND	5.5	0.47	ug/kg	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (14-15)'		
Lab Sample ID:	JB29431-5	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	82.7
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.5	0.68	ug/kg	
98-82-8	Isopropylbenzene	ND	5.5	0.082	ug/kg	
79-20-9	Methyl Acetate	ND	5.5	2.9	ug/kg	
108-87-2	Methylcyclohexane	ND	5.5	0.19	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	0.26	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.5	0.83	ug/kg	
75-09-2	Methylene chloride	ND	5.5	1.4	ug/kg	
100-42-5	Styrene	ND	5.5	0.10	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.5	0.15	ug/kg	
127-18-4	Tetrachloroethene	ND	5.5	0.19	ug/kg	
108-88-3	Toluene	ND	1.1	0.12	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.5	0.18	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.5	0.15	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.5	0.12	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.5	0.19	ug/kg	
79-01-6	Trichloroethene	ND	5.5	0.19	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.5	0.33	ug/kg	
75-01-4	Vinyl chloride	ND	5.5	0.16	ug/kg	
	m,p-Xylene	ND	1.1	0.19	ug/kg	
95-47-6	o-Xylene	ND	1.1	0.15	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	0.15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-130%
17060-07-0	1,2-Dichloroethane-D4	104%		70-122%
2037-26-5	Toluene-D8	108%		81-127%
460-00-4	4-Bromofluorobenzene	102%		66-132%

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (14-15)'			
Lab Sample ID:	JB29431-5		**Date Sampled:**	02/20/13
Matrix:	SO - Soil		**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C		**Percent Solids:**	82.7
Project:	Related Phase II, West 30th Street, New York, NY			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3P17483.D	1	03/07/13	KH	03/01/13	OP63993	E3P797
Run #2 [a]	2P20931.D	1	03/12/13	ALS	03/11/13	OP64282	E2P923

	Initial Weight	Final Volume
Run #1	32.9 g	1.0 ml
Run #2	30.7 g	1.0 ml

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	180	37	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	37	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	59	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	62	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	740	45	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	740	45	ug/kg	
95-48-7	2-Methylphenol	ND	74	42	ug/kg	
	3&4-Methylphenol	ND	74	47	ug/kg	
88-75-5	2-Nitrophenol	ND	180	39	ug/kg	
100-02-7	4-Nitrophenol	ND	370	62	ug/kg	
87-86-5	Pentachlorophenol	ND	370	63	ug/kg	
108-95-2	Phenol	ND	74	39	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	38	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	43	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	35	ug/kg	
83-32-9	Acenaphthene	ND	37	11	ug/kg	
208-96-8	Acenaphthylene	ND	37	12	ug/kg	
98-86-2	Acetophenone	ND	180	6.5	ug/kg	
120-12-7	Anthracene	ND	37	13	ug/kg	
1912-24-9	Atrazine	ND	180	7.2	ug/kg	
56-55-3	Benzo(a)anthracene	ND	37	12	ug/kg	
50-32-8	Benzo(a)pyrene	ND	37	11	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	37	12	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	37	14	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	37	14	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	74	13	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	74	21	ug/kg	
92-52-4	1,1'-Biphenyl	ND	74	4.3	ug/kg	
100-52-7	Benzaldehyde	ND	180	8.5	ug/kg	
91-58-7	2-Chloronaphthalene	ND	74	11	ug/kg	
106-47-8	4-Chloroaniline	ND	180	12	ug/kg	
86-74-8	Carbazole	ND	74	17	ug/kg	

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (14-15)'		
Lab Sample ID:	JB29431-5	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	82.7
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	74	12	ug/kg	
218-01-9	Chrysene	ND	37	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	74	15	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	74	11	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	74	11	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	74	11	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	74	16	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	74	14	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	180	9.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	37	13	ug/kg	
132-64-9	Dibenzofuran	ND	74	11	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	74	8.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	74	18	ug/kg	
84-66-2	Diethyl phthalate	ND	74	13	ug/kg	
131-11-3	Dimethyl phthalate	ND	74	13	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	74	32	ug/kg	
206-44-0	Fluoranthene	ND	37	16	ug/kg	
86-73-7	Fluorene	ND	37	12	ug/kg	
118-74-1	Hexachlorobenzene	ND	74	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	37	10	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	370	37	ug/kg	
67-72-1	Hexachloroethane	ND	180	10	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	37	13	ug/kg	
78-59-1	Isophorone	ND	74	9.9	ug/kg	
91-57-6	2-Methylnaphthalene	ND	74	21	ug/kg	
88-74-4	2-Nitroaniline	ND	180	16	ug/kg	
99-09-2	3-Nitroaniline	ND	180	15	ug/kg	
100-01-6	4-Nitroaniline	ND	180	14	ug/kg	
91-20-3	Naphthalene	ND	37	10	ug/kg	
98-95-3	Nitrobenzene	ND	74	11	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	74	9.0	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	22	ug/kg	
85-01-8	Phenanthrene	ND	37	17	ug/kg	
129-00-0	Pyrene	ND	37	14	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	24%	39%	21-116%
4165-62-2	Phenol-d5	26%	53%	19-117%

ND = Not detected　　MDL - Method Detection Limit　　J = Indicates an estimated value
RL = Reporting Limit　　B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range　　N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (14-15)'		
Lab Sample ID:	JB29431-5	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	82.7
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	50%	49%	24-136%
4165-60-0	Nitrobenzene-d5	27%	27%	21-122%
321-60-8	2-Fluorobiphenyl	28% [b]	29% [b]	30-117%
1718-51-0	Terphenyl-d14	63%	53%	31-129%

(a) Confirmation run.
(b) Outside control limits due to matrix interference. Confirmed by re-extraction.

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (14-15)'		
Lab Sample ID:	JB29431-5	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8081B SW846 3546	**Percent Solids:**	82.7
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	4G29248.D	1	03/11/13	DS	03/09/13	OP64269	G4G736
Run #2							

	Initial Weight	Final Volume
Run #1	15.6 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.78	0.36	ug/kg	
319-84-6	alpha-BHC	ND	0.78	0.23	ug/kg	
319-85-7	beta-BHC	ND	0.78	0.48	ug/kg	
319-86-8	delta-BHC	ND	0.78	0.38	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.78	0.38	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.78	0.29	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.78	0.53	ug/kg	
60-57-1	Dieldrin	ND	0.78	0.30	ug/kg	
72-54-8	4,4'-DDD	ND	0.78	0.42	ug/kg	
72-55-9	4,4'-DDE	ND	0.78	0.31	ug/kg	
50-29-3	4,4'-DDT	ND	0.78	0.38	ug/kg	
72-20-8	Endrin	ND	0.78	0.25	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.78	0.33	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.78	0.41	ug/kg	
959-98-8	Endosulfan-I	ND	0.78	0.29	ug/kg	
33213-65-9	Endosulfan-II	ND	0.78	0.46	ug/kg	
76-44-8	Heptachlor	ND	0.78	0.38	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.78	0.29	ug/kg	
72-43-5	Methoxychlor	ND	1.6	0.76	ug/kg	
53494-70-5	Endrin ketone	ND	0.78	0.32	ug/kg	
8001-35-2	Toxaphene	ND	19	9.8	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	68%		23-137%
877-09-8	Tetrachloro-m-xylene	74%		23-137%
2051-24-3	Decachlorobiphenyl	72%		22-160%
2051-24-3	Decachlorobiphenyl	76%		22-160%

(a) Re-extracted due to lab contaminated on original extract. originally prep date was within holding time.

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (14-15)'		
Lab Sample ID:	JB29431-5	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8082A SW846 3546	**Percent Solids:**	82.7
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX130807.D	1	03/05/13	JR	03/02/13	OP64040	GXX4607
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	40	10	ug/kg	
11104-28-2	Aroclor 1221	ND	40	24	ug/kg	
11141-16-5	Aroclor 1232	ND	40	20	ug/kg	
53469-21-9	Aroclor 1242	ND	40	13	ug/kg	
12672-29-6	Aroclor 1248	ND	40	12	ug/kg	
11097-69-1	Aroclor 1254	ND	40	18	ug/kg	
11096-82-5	Aroclor 1260	ND	40	13	ug/kg	
11100-14-4	Aroclor 1268	ND	40	12	ug/kg	
37324-23-5	Aroclor 1262	ND	40	13	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	89%		22-141%
877-09-8	Tetrachloro-m-xylene	88%		22-141%
2051-24-3	Decachlorobiphenyl	92%		18-163%
2051-24-3	Decachlorobiphenyl	93%		18-163%

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-2 (14-15)'		
Lab Sample ID:	JB29431-5	**Date Sampled:**	02/20/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
		Percent Solids:	82.7
Project:	Related Phase II, West 30th Street, New York, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	7940	58	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.3	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Arsenic	< 2.3	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Barium	38.3	23	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Beryllium	0.90	0.23	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.58	0.58	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Calcium	1530	580	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Chromium	21.2	1.2	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.8	5.8	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Copper	14.7	2.9	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Iron	12500	58	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Lead	7.6	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Magnesium	2600	580	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Manganese	177	1.7	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Mercury	< 0.038	0.038	mg/kg	1	03/01/13	03/01/13	CS	SW846 7471B [1]	SW846 7471B [3]
Nickel	16.9	4.7	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Potassium	1750	1200	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.3	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.58	0.58	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 1200	1200	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.2	1.2	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Vanadium	21.9	5.8	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Zinc	20.6	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA30597
(2) Instrument QC Batch: MA30619
(3) Prep QC Batch: MP70105
(4) Prep QC Batch: MP70135

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-2		
Lab Sample ID:	JB29431-6	**Date Sampled:**	02/20/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D83571.D	1	03/01/13	NT	n/a	n/a	V3D3596
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.3	ug/l	
71-43-2	Benzene	ND	1.0	0.24	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.30	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.21	ug/l	
75-25-2	Bromoform	ND	4.0	0.21	ug/l	
74-83-9	Bromomethane	ND	2.0	0.22	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.4	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.19	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.22	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.23	ug/l	
75-00-3	Chloroethane	ND	1.0	0.26	ug/l	
67-66-3	Chloroform	1.2	1.0	0.20	ug/l	
74-87-3	Chloromethane	ND	1.0	0.21	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.35	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	0.54	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.20	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.22	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.22	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.30	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.27	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.11	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.19	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.19	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.21	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.48	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.19	ug/l	
123-91-1	1,4-Dioxane	ND	130	75	ug/l	
100-41-4	Ethylbenzene	0.56	1.0	0.23	ug/l	J
76-13-1	Freon 113	ND	5.0	0.53	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-2		
Lab Sample ID:	JB29431-6	**Date Sampled:**	02/20/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.0	1.1	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
79-20-9	Methyl Acetate	ND	5.0	1.2	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	0.83	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.70	ug/l	
100-42-5	Styrene	ND	5.0	0.21	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.21	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.28	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.28	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.24	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.29	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.22	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.21	ug/l	
	m,p-Xylene	2.4	1.0	0.42	ug/l	
95-47-6	o-Xylene	1.6	1.0	0.24	ug/l	
1330-20-7	Xylene (total)	4.1	1.0	0.24	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		81-121%
17060-07-0	1,2-Dichloroethane-D4	110%		74-127%
2037-26-5	Toluene-D8	103%		80-122%
460-00-4	4-Bromofluorobenzene	98%		78-116%

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-2		
Lab Sample ID:	JB29431-6	**Date Sampled:**	02/20/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F21343.D	1	03/11/13	NAP	02/27/13	OP63929	EF5106
Run #2 [a]	2P20797.D	1	03/07/13	ALS	03/01/13	OP63929	E2P918

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	1000 ml	1.0 ml

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.97	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	1.8	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	1.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	1.5	ug/l	
51-28-5	2,4-Dinitrophenol	ND	20	17	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	20	0.99	ug/l	
95-48-7	2-Methylphenol	ND	2.0	1.0	ug/l	
	3&4-Methylphenol	ND	2.0	0.93	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	1.5	ug/l	
100-02-7	4-Nitrophenol	ND	10	5.2	ug/l	
87-86-5	Pentachlorophenol	ND	10	1.4	ug/l	
108-95-2	Phenol	ND	2.0	1.3	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.0	0.94	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.6	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	1.3	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
98-86-2	Acetophenone	ND	2.0	0.29	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
1912-24-9	Atrazine	ND	5.0	0.49	ug/l	
100-52-7	Benzaldehyde	ND	5.0	3.3	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.36	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.29	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.30	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.30	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.53	ug/l	
86-74-8	Carbazole	ND	1.0	0.36	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-2		
Lab Sample ID:	JB29431-6	**Date Sampled:**	02/20/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.69	ug/l	
218-01-9	Chrysene	ND	1.0	0.29	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.31	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.31	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	2.0	0.45	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.31	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	2.0	0.43	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	2.0	0.46	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.36	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.27	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.56	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.31	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.33	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.28	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.59	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.32	ug/l	
86-73-7	Fluorene	ND	1.0	0.28	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.34	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.51	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	7.1	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.55	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
78-59-1	Isophorone	ND	2.0	0.27	ug/l	
91-57-6	2-Methylnaphthalene	1.4	1.0	0.38	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	1.1	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	1.3	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	1.7	ug/l	
91-20-3	Naphthalene	1.2	1.0	0.26	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.42	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.30	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.31	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.29	ug/l	
129-00-0	Pyrene	ND	1.0	0.27	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.31	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	45%	38%	10-83%
4165-62-2	Phenol-d5	32%	26%	10-74%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-2		
Lab Sample ID:	JB29431-6	**Date Sampled:**	02/20/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	99%	92%	24-148%
4165-60-0	Nitrobenzene-d5	83%	77%	38-129%
321-60-8	2-Fluorobiphenyl	82%	80%	42-117%
1718-51-0	Terphenyl-d14	79%	86%	14-132%

(a) Confirmation run.

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-2		
Lab Sample ID:	JB29431-6	**Date Sampled:**	02/20/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G89122.D	1	03/05/13	DS	02/26/13	OP63914	G1G2926
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.010	0.0079	ug/l	
319-84-6	alpha-BHC	ND	0.010	0.0023	ug/l	
319-85-7	beta-BHC	ND	0.010	0.0023	ug/l	
319-86-8	delta-BHC	ND	0.010	0.0019	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.010	0.0017	ug/l	
5103-71-9	alpha-Chlordane	ND	0.010	0.0029	ug/l	
5103-74-2	gamma-Chlordane	ND	0.010	0.0021	ug/l	
60-57-1	Dieldrin	ND	0.010	0.0016	ug/l	
72-54-8	4,4'-DDD	ND	0.010	0.0025	ug/l	
72-55-9	4,4'-DDE	ND	0.010	0.0017	ug/l	
50-29-3	4,4'-DDT	ND	0.010	0.0032	ug/l	
72-20-8	Endrin	ND	0.010	0.0020	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.010	0.0019	ug/l	
7421-93-4	Endrin aldehyde	ND	0.010	0.0037	ug/l	
53494-70-5	Endrin ketone	ND	0.010	0.0047	ug/l	
959-98-8	Endosulfan-I	ND	0.010	0.0028	ug/l	
33213-65-9	Endosulfan-II	ND	0.010	0.0020	ug/l	
76-44-8	Heptachlor	ND	0.010	0.0022	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.010	0.0026	ug/l	
72-43-5	Methoxychlor	ND	0.020	0.0041	ug/l	
8001-35-2	Toxaphene	ND	0.25	0.15	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	100%		26-145%
877-09-8	Tetrachloro-m-xylene	100%		26-145%
2051-24-3	Decachlorobiphenyl	82%		10-141%
2051-24-3	Decachlorobiphenyl	77%		10-141%

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-2		
Lab Sample ID:	JB29431-6	**Date Sampled:**	02/20/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8082A SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX131112.D	1	03/12/13	JR	02/26/13	OP63910	GXX4614
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.50	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.50	0.27	ug/l	
11141-16-5	Aroclor 1232	ND	0.50	0.39	ug/l	
53469-21-9	Aroclor 1242	ND	0.50	0.086	ug/l	
12672-29-6	Aroclor 1248	ND	0.50	0.15	ug/l	
11097-69-1	Aroclor 1254	ND	0.50	0.14	ug/l	
11096-82-5	Aroclor 1260	ND	0.50	0.21	ug/l	
11100-14-4	Aroclor 1268	ND	0.50	0.13	ug/l	
37324-23-5	Aroclor 1262	ND	0.50	0.060	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	105%		27-144%
877-09-8	Tetrachloro-m-xylene	106%		27-144%
2051-24-3	Decachlorobiphenyl	94%		10-139%
2051-24-3	Decachlorobiphenyl	100%		10-139%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-2		
Lab Sample ID:	JB29431-6	**Date Sampled:**	02/20/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
		Percent Solids:	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	2240	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Calcium	109000	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Iron	2920	100	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Lead	16.4	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Magnesium	23700	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Manganese	559	15	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	03/05/13	03/05/13	CS	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Potassium	11200	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Sodium	103000	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Thallium	< 2.0	2.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Zinc	< 20	20	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA30617
(2) Instrument QC Batch: MA30632
(3) Prep QC Batch: MP70136
(4) Prep QC Batch: MP70212

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-2
Lab Sample ID: JB29431-6F
Matrix: AQ - Groundwater Filtered
Date Sampled: 02/20/13
Date Received: 02/21/13
Percent Solids: n/a
Project: Related Phase II, West 30th Street, New York, NY

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Antimony	< 6.0	6.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Arsenic	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Barium	< 200	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Beryllium	< 1.0	1.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Cadmium	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Calcium	115000	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Chromium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Cobalt	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Copper	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Iron	427	100	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Lead	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Magnesium	23900	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Manganese	602	15	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Mercury	< 0.20	0.20	ug/l	1	03/05/13	03/05/13	CS	SW846 7470A 2	SW846 7470A 4
Nickel	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Potassium	11600	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Selenium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Silver	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Sodium	107000	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Thallium	< 2.0	2.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Vanadium	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3
Zinc	< 20	20	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C 1	SW846 3010A 3

(1) Instrument QC Batch: MA30617
(2) Instrument QC Batch: MA30632
(3) Prep QC Batch: MP70136
(4) Prep QC Batch: MP70212

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB-3 (0-2)'		
Lab Sample ID:	JB29431-7	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	89.9
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y131578.D	1	03/02/13	RS	n/a	n/a	VY5664
Run #2							

	Initial Weight
Run #1	5.5 g
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	13.7	10	1.7	ug/kg	
71-43-2	Benzene	0.17	1.0	0.12	ug/kg	J
74-97-5	Bromochloromethane	ND	5.1	0.27	ug/kg	
75-27-4	Bromodichloromethane	ND	5.1	0.11	ug/kg	
75-25-2	Bromoform	ND	5.1	0.15	ug/kg	
74-83-9	Bromomethane	ND	5.1	0.28	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	2.4	ug/kg	
75-15-0	Carbon disulfide	ND	5.1	0.12	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.1	0.13	ug/kg	
108-90-7	Chlorobenzene	ND	5.1	0.11	ug/kg	
75-00-3	Chloroethane	ND	5.1	0.23	ug/kg	
67-66-3	Chloroform	ND	5.1	0.084	ug/kg	
74-87-3	Chloromethane	ND	5.1	0.19	ug/kg	
110-82-7	Cyclohexane	ND	5.1	0.13	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	0.90	ug/kg	
124-48-1	Dibromochloromethane	ND	5.1	0.17	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	0.13	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	5.1	0.19	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	5.1	0.19	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	5.1	0.18	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.1	0.23	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.1	0.14	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.14	ug/kg	
75-35-4	1,1-Dichloroethene	ND	5.1	0.26	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	5.1	0.19	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	5.1	0.24	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.1	0.16	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.1	0.14	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.1	0.16	ug/kg	
123-91-1	1,4-Dioxane	ND	130	60	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.27	ug/kg	
76-13-1	Freon 113	ND	5.1	0.43	ug/kg	

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-3 (0-2)'		
Lab Sample ID:	JB29431-7	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	89.9
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.1	0.63	ug/kg	
98-82-8	Isopropylbenzene	ND	5.1	0.075	ug/kg	
79-20-9	Methyl Acetate	ND	5.1	2.6	ug/kg	
108-87-2	Methylcyclohexane	ND	5.1	0.17	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.24	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.1	0.76	ug/kg	
75-09-2	Methylene chloride	ND	5.1	1.3	ug/kg	
100-42-5	Styrene	ND	5.1	0.093	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.1	0.13	ug/kg	
127-18-4	Tetrachloroethene	0.62	5.1	0.17	ug/kg	J
108-88-3	Toluene	1.3	1.0	0.11	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.1	0.17	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.1	0.14	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.1	0.11	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.1	0.18	ug/kg	
79-01-6	Trichloroethene	ND	5.1	0.18	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.1	0.30	ug/kg	
75-01-4	Vinyl chloride	ND	5.1	0.15	ug/kg	
	m,p-Xylene	ND	1.0	0.18	ug/kg	
95-47-6	o-Xylene	ND	1.0	0.14	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		70-130%
17060-07-0	1,2-Dichloroethane-D4	107%		70-122%
2037-26-5	Toluene-D8	109%		81-127%
460-00-4	4-Bromofluorobenzene	103%		66-132%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-3 (0-2)'		
Lab Sample ID:	JB29431-7	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	89.9
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3P17484.D	1	03/07/13	KH	03/01/13	OP63993	E3P797
Run #2 [a]	2P20932.D	1	03/12/13	ALS	03/11/13	OP64282	E2P923

	Initial Weight	Final Volume
Run #1	35.6 g	1.0 ml
Run #2	30.7 g	1.0 ml

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	160	32	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	160	31	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	160	50	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	160	52	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	620	38	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	620	38	ug/kg	
95-48-7	2-Methylphenol	ND	62	36	ug/kg	
	3&4-Methylphenol	ND	62	40	ug/kg	
88-75-5	2-Nitrophenol	ND	160	33	ug/kg	
100-02-7	4-Nitrophenol	ND	310	53	ug/kg	
87-86-5	Pentachlorophenol	ND	310	53	ug/kg	
108-95-2	Phenol	ND	62	33	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	160	32	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	160	36	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	160	29	ug/kg	
83-32-9	Acenaphthene	40.8	31	9.1	ug/kg	
208-96-8	Acenaphthylene	18.1	31	10	ug/kg	J
98-86-2	Acetophenone	ND	160	5.5	ug/kg	
120-12-7	Anthracene	114	31	11	ug/kg	
1912-24-9	Atrazine	ND	160	6.2	ug/kg	
56-55-3	Benzo(a)anthracene	348	31	10	ug/kg	
50-32-8	Benzo(a)pyrene	312	31	9.5	ug/kg	
205-99-2	Benzo(b)fluoranthene	374	31	10	ug/kg	
191-24-2	Benzo(g,h,i)perylene	212	31	12	ug/kg	
207-08-9	Benzo(k)fluoranthene	123	31	12	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	62	11	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	62	18	ug/kg	
92-52-4	1,1'-Biphenyl	ND	62	3.6	ug/kg	
100-52-7	Benzaldehyde	ND	160	7.2	ug/kg	
91-58-7	2-Chloronaphthalene	ND	62	9.7	ug/kg	
106-47-8	4-Chloroaniline	ND	160	10	ug/kg	
86-74-8	Carbazole	28.7	62	14	ug/kg	J

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-3 (0-2)'		
Lab Sample ID:	JB29431-7	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	89.9
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	62	9.8	ug/kg	
218-01-9	Chrysene	379	31	11	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	62	13	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	62	9.4	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	62	9.3	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	62	9.4	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	62	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	62	12	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	160	7.9	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	58.4	31	11	ug/kg	
132-64-9	Dibenzofuran	16.3	62	9.3	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	62	6.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	62	15	ug/kg	
84-66-2	Diethyl phthalate	ND	62	11	ug/kg	
131-11-3	Dimethyl phthalate	36.2	62	11	ug/kg	J
117-81-7	bis(2-Ethylhexyl)phthalate	162	62	28	ug/kg	
206-44-0	Fluoranthene	721	31	14	ug/kg	
86-73-7	Fluorene	32.0	31	10	ug/kg	
118-74-1	Hexachlorobenzene	ND	62	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	31	8.7	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	310	32	ug/kg	
67-72-1	Hexachloroethane	ND	160	8.7	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	178	31	11	ug/kg	
78-59-1	Isophorone	ND	62	8.4	ug/kg	
91-57-6	2-Methylnaphthalene	ND	62	17	ug/kg	
88-74-4	2-Nitroaniline	ND	160	14	ug/kg	
99-09-2	3-Nitroaniline	ND	160	12	ug/kg	
100-01-6	4-Nitroaniline	ND	160	12	ug/kg	
91-20-3	Naphthalene	ND	31	8.5	ug/kg	
98-95-3	Nitrobenzene	ND	62	9.0	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	62	7.6	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	160	19	ug/kg	
85-01-8	Phenanthrene	562	31	14	ug/kg	
129-00-0	Pyrene	707	31	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	160	9.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	43%	23%	21-116%
4165-62-2	Phenol-d5	60%	36%	19-117%

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-3 (0-2)'		
Lab Sample ID:	JB29431-7	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	89.9
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	16% [b]	14% [b]	24-136%
4165-60-0	Nitrobenzene-d5	70%	32%	21-122%
321-60-8	2-Fluorobiphenyl	66%	39%	30-117%
1718-51-0	Terphenyl-d14	67%	40%	31-129%

(a) Confirmation run.
(b) Outside control limits due to matrix interference. Confirmed by re-extraction.

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-3 (0-2)'		
Lab Sample ID:	JB29431-7	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8081B SW846 3546	**Percent Solids:**	89.9
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	4G29284.D	1	03/12/13	DS	03/09/13	OP64269	G4G737
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.73	0.33	ug/kg	
319-84-6	alpha-BHC	ND	0.73	0.22	ug/kg	
319-85-7	beta-BHC	ND	0.73	0.45	ug/kg	
319-86-8	delta-BHC	ND	0.73	0.36	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.73	0.36	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.73	0.27	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.73	0.50	ug/kg	
60-57-1	Dieldrin	ND	0.73	0.28	ug/kg	
72-54-8	4,4'-DDD	ND	0.73	0.40	ug/kg	
72-55-9	4,4'-DDE	ND	0.73	0.29	ug/kg	
50-29-3	4,4'-DDT [b]	3.7	0.73	0.36	ug/kg	
72-20-8	Endrin	ND	0.73	0.24	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.73	0.31	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.73	0.38	ug/kg	
959-98-8	Endosulfan-I	ND	0.73	0.28	ug/kg	
33213-65-9	Endosulfan-II	ND	0.73	0.44	ug/kg	
76-44-8	Heptachlor	ND	0.73	0.35	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.73	0.27	ug/kg	
72-43-5	Methoxychlor	ND	1.5	0.71	ug/kg	
53494-70-5	Endrin ketone	ND	0.73	0.30	ug/kg	
8001-35-2	Toxaphene	ND	18	9.2	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	69%		23-137%
877-09-8	Tetrachloro-m-xylene	88%		23-137%
2051-24-3	Decachlorobiphenyl	94%		22-160%
2051-24-3	Decachlorobiphenyl	85%		22-160%

(a) Re-extracted due to lab contaminated on original extract. originally prep date was within holding time.
(b) Reported from 1st signal. %RSD of initial calibration on 2nd signal exceed method criteria (20 %) so using for confirmation only.

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-3 (0-2)'		
Lab Sample ID:	JB29431-7	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8082A SW846 3546	**Percent Solids:**	89.9
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX130808.D	1	03/05/13	JR	03/02/13	OP64040	GXX4607
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	36	9.5	ug/kg	
11104-28-2	Aroclor 1221	ND	36	22	ug/kg	
11141-16-5	Aroclor 1232	ND	36	18	ug/kg	
53469-21-9	Aroclor 1242	ND	36	12	ug/kg	
12672-29-6	Aroclor 1248	ND	36	11	ug/kg	
11097-69-1	Aroclor 1254	ND	36	17	ug/kg	
11096-82-5	Aroclor 1260	ND	36	12	ug/kg	
11100-14-4	Aroclor 1268	ND	36	11	ug/kg	
37324-23-5	Aroclor 1262	ND	36	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	76%		22-141%
877-09-8	Tetrachloro-m-xylene	75%		22-141%
2051-24-3	Decachlorobiphenyl	94%		18-163%
2051-24-3	Decachlorobiphenyl	80%		18-163%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-3 (0-2)'		
Lab Sample ID:	JB29431-7	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
		Percent Solids:	89.9
Project:	Related Phase II, West 30th Street, New York, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5430	57	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.3	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Arsenic	8.2	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Barium	127	23	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Beryllium	0.81	0.23	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.57	0.57	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Calcium	34700	570	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Chromium	16.4	1.1	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.7	5.7	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Copper	59.7	2.9	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Iron	12000	57	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Lead	177	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Magnesium	5580	570	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Manganese	197	1.7	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Mercury	0.52	0.036	mg/kg	1	03/01/13	03/01/13	CS	SW846 7471B [1]	SW846 7471B [3]
Nickel	12.9	4.6	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.3	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.57	0.57	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Vanadium	25.1	5.7	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Zinc	131	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA30597
(2) Instrument QC Batch: MA30619
(3) Prep QC Batch: MP70105
(4) Prep QC Batch: MP70135

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB-3 (14-15)'		
Lab Sample ID:	JB29431-8	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	86.0
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y131579.D	1	03/02/13	RS	n/a	n/a	VY5664
Run #2							

	Initial Weight
Run #1	5.3 g
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	11	1.9	ug/kg	
71-43-2	Benzene	ND	1.1	0.13	ug/kg	
74-97-5	Bromochloromethane	ND	5.5	0.29	ug/kg	
75-27-4	Bromodichloromethane	ND	5.5	0.12	ug/kg	
75-25-2	Bromoform	ND	5.5	0.17	ug/kg	
74-83-9	Bromomethane	ND	5.5	0.30	ug/kg	
78-93-3	2-Butanone (MEK)	ND	11	2.6	ug/kg	
75-15-0	Carbon disulfide	ND	5.5	0.13	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.5	0.15	ug/kg	
108-90-7	Chlorobenzene	ND	5.5	0.12	ug/kg	
75-00-3	Chloroethane	ND	5.5	0.25	ug/kg	
67-66-3	Chloroform	ND	5.5	0.091	ug/kg	
74-87-3	Chloromethane	ND	5.5	0.20	ug/kg	
110-82-7	Cyclohexane	ND	5.5	0.14	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	0.98	ug/kg	
124-48-1	Dibromochloromethane	ND	5.5	0.18	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	0.14	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	5.5	0.21	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	5.5	0.21	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	5.5	0.19	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.5	0.25	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.5	0.15	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	0.15	ug/kg	
75-35-4	1,1-Dichloroethene	ND	5.5	0.28	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	5.5	0.20	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	5.5	0.26	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.5	0.17	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.5	0.15	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.5	0.17	ug/kg	
123-91-1	1,4-Dioxane	ND	140	65	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	0.29	ug/kg	
76-13-1	Freon 113	ND	5.5	0.47	ug/kg	

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-3 (14-15)'		
Lab Sample ID:	JB29431-8	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	86.0
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.5	0.68	ug/kg	
98-82-8	Isopropylbenzene	ND	5.5	0.082	ug/kg	
79-20-9	Methyl Acetate	ND	5.5	2.9	ug/kg	
108-87-2	Methylcyclohexane	ND	5.5	0.19	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	0.26	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.5	0.82	ug/kg	
75-09-2	Methylene chloride	ND	5.5	1.4	ug/kg	
100-42-5	Styrene	ND	5.5	0.10	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.5	0.14	ug/kg	
127-18-4	Tetrachloroethene	ND	5.5	0.19	ug/kg	
108-88-3	Toluene	ND	1.1	0.12	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.5	0.18	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.5	0.15	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.5	0.12	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.5	0.19	ug/kg	
79-01-6	Trichloroethene	ND	5.5	0.19	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.5	0.33	ug/kg	
75-01-4	Vinyl chloride	ND	5.5	0.16	ug/kg	
	m,p-Xylene	ND	1.1	0.19	ug/kg	
95-47-6	o-Xylene	ND	1.1	0.15	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	0.15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		70-130%
17060-07-0	1,2-Dichloroethane-D4	105%		70-122%
2037-26-5	Toluene-D8	109%		81-127%
460-00-4	4-Bromofluorobenzene	101%		66-132%

ND = Not detected　　MDL - Method Detection Limit　　J = Indicates an estimated value
RL = Reporting Limit　　B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range　　N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-3 (14-15)'		
Lab Sample ID:	JB29431-8	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	86.0
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3P17485.D	1	03/07/13	KH	03/01/13	OP63993	E3P797
Run #2	3P17564.D	5	03/09/13	ALS	03/01/13	OP63993	E3P799

	Initial Weight	Final Volume
Run #1	32.2 g	1.0 ml
Run #2	32.2 g	1.0 ml

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	180	36	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	36	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	58	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	61	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	720	44	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	720	44	ug/kg	
95-48-7	2-Methylphenol	ND	72	41	ug/kg	
	3&4-Methylphenol	ND	72	46	ug/kg	
88-75-5	2-Nitrophenol	ND	180	38	ug/kg	
100-02-7	4-Nitrophenol	ND	360	61	ug/kg	
87-86-5	Pentachlorophenol	ND	360	62	ug/kg	
108-95-2	Phenol	ND	72	38	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	37	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	42	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	34	ug/kg	
83-32-9	Acenaphthene	624	36	10	ug/kg	
208-96-8	Acenaphthylene	928	36	12	ug/kg	
98-86-2	Acetophenone	ND	180	6.4	ug/kg	
120-12-7	Anthracene	2180	36	13	ug/kg	
1912-24-9	Atrazine	ND	180	7.1	ug/kg	
56-55-3	Benzo(a)anthracene	5350 [a]	180	59	ug/kg	
50-32-8	Benzo(a)pyrene	4960 [a]	180	55	ug/kg	
205-99-2	Benzo(b)fluoranthene	5840 [a]	180	60	ug/kg	
191-24-2	Benzo(g,h,i)perylene	3080	36	13	ug/kg	
207-08-9	Benzo(k)fluoranthene	1900 [a]	180	68	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	72	13	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	72	21	ug/kg	
92-52-4	1,1'-Biphenyl	107	72	4.2	ug/kg	
100-52-7	Benzaldehyde	ND	180	8.3	ug/kg	
91-58-7	2-Chloronaphthalene	ND	72	11	ug/kg	
106-47-8	4-Chloroaniline	ND	180	12	ug/kg	
86-74-8	Carbazole	813	72	17	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-3 (14-15)'		
Lab Sample ID:	JB29431-8	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	86.0
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	72	11	ug/kg	
218-01-9	Chrysene	5280 [a]	180	61	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	72	15	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	72	11	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	72	11	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	72	11	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	72	16	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	72	14	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	180	9.2	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	990	36	12	ug/kg	
132-64-9	Dibenzofuran	953	72	11	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	72	8.0	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	72	18	ug/kg	
84-66-2	Diethyl phthalate	ND	72	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	72	13	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	72	32	ug/kg	
206-44-0	Fluoranthene	14600 [a]	180	80	ug/kg	
86-73-7	Fluorene	1190	36	12	ug/kg	
118-74-1	Hexachlorobenzene	ND	72	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	36	10	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	360	37	ug/kg	
67-72-1	Hexachloroethane	ND	180	10	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2750	36	13	ug/kg	
78-59-1	Isophorone	ND	72	9.7	ug/kg	
91-57-6	2-Methylnaphthalene	310	72	20	ug/kg	
88-74-4	2-Nitroaniline	ND	180	16	ug/kg	
99-09-2	3-Nitroaniline	ND	180	14	ug/kg	
100-01-6	4-Nitroaniline	ND	180	14	ug/kg	
91-20-3	Naphthalene	366	36	9.9	ug/kg	
98-95-3	Nitrobenzene	ND	72	10	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	72	8.8	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	22	ug/kg	
85-01-8	Phenanthrene	13900 [a]	180	82	ug/kg	
129-00-0	Pyrene	11800 [a]	180	69	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	35%	35%	21-116%
4165-62-2	Phenol-d5	41%	37%	19-117%

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-3 (14-15)'		
Lab Sample ID:	JB29431-8	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3550C	**Percent Solids:**	86.0
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	67%	65%	24-136%
4165-60-0	Nitrobenzene-d5	41%	37%	21-122%
321-60-8	2-Fluorobiphenyl	49%	47%	30-117%
1718-51-0	Terphenyl-d14	64%	65%	31-129%

(a) Result is from Run# 2

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SB-3 (14-15)'
Lab Sample ID: JB29431-8 **Date Sampled:** 02/19/13
Matrix: SO - Soil **Date Received:** 02/21/13
Method: SW846 8081B SW846 3546 **Percent Solids:** 86.0
Project: Related Phase II, West 30th Street, New York, NY

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	4G29285.D	1	03/12/13	DS	03/09/13	OP64269	G4G737
Run #2							

	Initial Weight	Final Volume
Run #1	15.2 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.76	0.35	ug/kg	
319-84-6	alpha-BHC	ND	0.76	0.23	ug/kg	
319-85-7	beta-BHC	ND	0.76	0.48	ug/kg	
319-86-8	delta-BHC	ND	0.76	0.38	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.76	0.37	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.76	0.28	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.76	0.53	ug/kg	
60-57-1	Dieldrin	ND	0.76	0.30	ug/kg	
72-54-8	4,4'-DDD	ND	0.76	0.42	ug/kg	
72-55-9	4,4'-DDE	ND	0.76	0.31	ug/kg	
50-29-3	4,4'-DDT	ND	0.76	0.38	ug/kg	
72-20-8	Endrin	ND	0.76	0.25	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.76	0.33	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.76	0.40	ug/kg	
959-98-8	Endosulfan-I	ND	0.76	0.29	ug/kg	
33213-65-9	Endosulfan-II	ND	0.76	0.46	ug/kg	
76-44-8	Heptachlor	ND	0.76	0.37	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.76	0.29	ug/kg	
72-43-5	Methoxychlor	ND	1.5	0.75	ug/kg	
53494-70-5	Endrin ketone	ND	0.76	0.31	ug/kg	
8001-35-2	Toxaphene	ND	19	9.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	74%		23-137%
877-09-8	Tetrachloro-m-xylene	82%		23-137%
2051-24-3	Decachlorobiphenyl	93%		22-160%
2051-24-3	Decachlorobiphenyl	122%		22-160%

(a) Re-extracted due to lab contaminated on original extract. originally prep date was within holding time.

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-3 (14-15)'		
Lab Sample ID:	JB29431-8	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
Method:	SW846 8082A SW846 3546	**Percent Solids:**	86.0
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX130809.D	1	03/05/13	JR	03/02/13	OP64040	GXX4607
Run #2							

	Initial Weight	Final Volume
Run #1	15.6 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	37	9.7	ug/kg	
11104-28-2	Aroclor 1221	ND	37	22	ug/kg	
11141-16-5	Aroclor 1232	ND	37	19	ug/kg	
53469-21-9	Aroclor 1242	ND	37	12	ug/kg	
12672-29-6	Aroclor 1248	ND	37	11	ug/kg	
11097-69-1	Aroclor 1254	ND	37	17	ug/kg	
11096-82-5	Aroclor 1260	ND	37	12	ug/kg	
11100-14-4	Aroclor 1268	ND	37	11	ug/kg	
37324-23-5	Aroclor 1262	ND	37	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	72%		22-141%
877-09-8	Tetrachloro-m-xylene	72%		22-141%
2051-24-3	Decachlorobiphenyl	89%		18-163%
2051-24-3	Decachlorobiphenyl	351% [a]		18-163%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-3 (14-15)'		
Lab Sample ID:	JB29431-8	**Date Sampled:**	02/19/13
Matrix:	SO - Soil	**Date Received:**	02/21/13
		Percent Solids:	86.0
Project:	Related Phase II, West 30th Street, New York, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	8750	59	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.3	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Arsenic	2.8	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Barium	61.7	23	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Beryllium	0.81	0.23	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.59	0.59	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Calcium	4260	590	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Chromium	17.3	1.2	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.9	5.9	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Copper	14.2	2.9	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Iron	12900	59	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Lead	69.5	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Magnesium	2710	590	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Manganese	255	1.8	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Mercury	0.16	0.038	mg/kg	1	03/01/13	03/01/13	CS	SW846 7471B [1]	SW846 7471B [3]
Nickel	15.2	4.7	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Potassium	1330	1200	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.3	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.59	0.59	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 1200	1200	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.2	1.2	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Vanadium	22.8	5.9	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]
Zinc	45.4	2.3	mg/kg	1	03/01/13	03/05/13	ND	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA30597
(2) Instrument QC Batch: MA30619
(3) Prep QC Batch: MP70105
(4) Prep QC Batch: MP70135

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	JB29431-9	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D83572.D	1	03/01/13	NT	n/a	n/a	V3D3596
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.3	ug/l	
71-43-2	Benzene	ND	1.0	0.24	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.30	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.21	ug/l	
75-25-2	Bromoform	ND	4.0	0.21	ug/l	
74-83-9	Bromomethane	ND	2.0	0.22	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.4	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.19	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.22	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.23	ug/l	
75-00-3	Chloroethane	ND	1.0	0.26	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
74-87-3	Chloromethane	ND	1.0	0.21	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.35	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	0.54	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.20	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.22	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.22	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.30	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.27	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.11	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.19	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.19	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.21	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.48	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.19	ug/l	
123-91-1	1,4-Dioxane	ND	130	75	ug/l	
100-41-4	Ethylbenzene	9.5	1.0	0.23	ug/l	
76-13-1	Freon 113	ND	5.0	0.53	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	JB29431-9	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.0	1.1	ug/l	
98-82-8	Isopropylbenzene	3.7	2.0	0.45	ug/l	
79-20-9	Methyl Acetate	ND	5.0	1.2	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	0.83	ug/l	
75-09-2	Methylene chloride	5.6	2.0	0.70	ug/l	
100-42-5	Styrene	ND	5.0	0.21	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.21	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.28	ug/l	
108-88-3	Toluene	1.5	1.0	0.23	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.28	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.24	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.29	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.22	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.21	ug/l	
	m,p-Xylene	49.2	1.0	0.42	ug/l	
95-47-6	o-Xylene	37.6	1.0	0.24	ug/l	
1330-20-7	Xylene (total)	86.8	1.0	0.24	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		81-121%
17060-07-0	1,2-Dichloroethane-D4	110%		74-127%
2037-26-5	Toluene-D8	103%		80-122%
460-00-4	4-Bromofluorobenzene	96%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	JB29431-9	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F21099.D	1	03/04/13	NAP	02/26/13	OP63893	EF5097
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.97	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	1.8	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	1.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	1.5	ug/l	
51-28-5	2,4-Dinitrophenol	ND	20	17	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	20	0.99	ug/l	
95-48-7	2-Methylphenol	ND	2.0	1.0	ug/l	
	3&4-Methylphenol	ND	2.0	0.93	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	1.5	ug/l	
100-02-7	4-Nitrophenol	ND	10	5.2	ug/l	
87-86-5	Pentachlorophenol	ND	10	1.4	ug/l	
108-95-2	Phenol	ND	2.0	1.3	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.0	0.94	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.6	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	1.3	ug/l	
83-32-9	Acenaphthene	1.2	1.0	0.26	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.23	ug/l	
98-86-2	Acetophenone	ND	2.0	0.29	ug/l	
120-12-7	Anthracene	ND	1.0	0.29	ug/l	
1912-24-9	Atrazine	ND	5.0	0.49	ug/l	
100-52-7	Benzaldehyde	ND	5.0	3.3	ug/l	
56-55-3	Benzo(a)anthracene	0.65	1.0	0.23	ug/l	J
50-32-8	Benzo(a)pyrene	ND	1.0	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.46	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.51	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.36	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.29	ug/l	
92-52-4	1,1'-Biphenyl	1.9	1.0	0.30	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.30	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.53	ug/l	
86-74-8	Carbazole	3.5	1.0	0.36	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	JB29431-9	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.69	ug/l	
218-01-9	Chrysene	0.56	1.0	0.29	ug/l	J
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.31	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.31	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	2.0	0.45	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.31	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	2.0	0.43	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	2.0	0.46	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.36	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.38	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.27	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.56	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.31	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.33	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.28	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.59	ug/l	
206-44-0	Fluoranthene	2.2	1.0	0.32	ug/l	
86-73-7	Fluorene	1.6	1.0	0.28	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.34	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.51	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	7.1	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.55	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.37	ug/l	
78-59-1	Isophorone	ND	2.0	0.27	ug/l	
91-57-6	2-Methylnaphthalene	18.2	1.0	0.38	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	1.1	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	1.3	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	1.7	ug/l	
91-20-3	Naphthalene	13.5	1.0	0.26	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.42	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.30	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.31	ug/l	
85-01-8	Phenanthrene	4.4	1.0	0.29	ug/l	
129-00-0	Pyrene	1.8	1.0	0.27	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.31	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	35%		10-83%
4165-62-2	Phenol-d5	23%		10-74%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	JB29431-9	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	97%		24-148%
4165-60-0	Nitrobenzene-d5	69%		38-129%
321-60-8	2-Fluorobiphenyl	62%		42-117%
1718-51-0	Terphenyl-d14	91%		14-132%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	JB29431-9	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G89123.D	1	03/05/13	DS	02/26/13	OP63914	G1G2926
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.010	0.0079	ug/l	
319-84-6	alpha-BHC	ND	0.010	0.0023	ug/l	
319-85-7	beta-BHC	ND	0.010	0.0023	ug/l	
319-86-8	delta-BHC	ND	0.010	0.0019	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.010	0.0017	ug/l	
5103-71-9	alpha-Chlordane	ND	0.010	0.0029	ug/l	
5103-74-2	gamma-Chlordane	ND	0.010	0.0021	ug/l	
60-57-1	Dieldrin	ND	0.010	0.0016	ug/l	
72-54-8	4,4'-DDD	ND	0.010	0.0025	ug/l	
72-55-9	4,4'-DDE	ND	0.010	0.0017	ug/l	
50-29-3	4,4'-DDT	ND	0.010	0.0032	ug/l	
72-20-8	Endrin	ND	0.010	0.0020	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.010	0.0019	ug/l	
7421-93-4	Endrin aldehyde	ND	0.010	0.0037	ug/l	
53494-70-5	Endrin ketone	ND	0.010	0.0047	ug/l	
959-98-8	Endosulfan-I	ND	0.010	0.0028	ug/l	
33213-65-9	Endosulfan-II	ND	0.010	0.0020	ug/l	
76-44-8	Heptachlor	ND	0.010	0.0022	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.010	0.0026	ug/l	
72-43-5	Methoxychlor	ND	0.020	0.0041	ug/l	
8001-35-2	Toxaphene	ND	0.25	0.15	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	37%		26-145%
877-09-8	Tetrachloro-m-xylene	48%		26-145%
2051-24-3	Decachlorobiphenyl	63%		10-141%
2051-24-3	Decachlorobiphenyl	60%		10-141%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	JB29431-9	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
Method:	SW846 8082A SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G78181.D	1	03/02/13	JR	02/26/13	OP63910	G2G2601
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.50	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.50	0.27	ug/l	
11141-16-5	Aroclor 1232	ND	0.50	0.39	ug/l	
53469-21-9	Aroclor 1242	ND	0.50	0.086	ug/l	
12672-29-6	Aroclor 1248	ND	0.50	0.15	ug/l	
11097-69-1	Aroclor 1254	ND	0.50	0.14	ug/l	
11096-82-5	Aroclor 1260	ND	0.50	0.21	ug/l	
11100-14-4	Aroclor 1268	ND	0.50	0.13	ug/l	
37324-23-5	Aroclor 1262	ND	0.50	0.060	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	53%		27-144%
877-09-8	Tetrachloro-m-xylene	40%		27-144%
2051-24-3	Decachlorobiphenyl	45%		10-139%
2051-24-3	Decachlorobiphenyl	33%		10-139%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	JB29431-9	**Date Sampled:**	02/19/13
Matrix:	AQ - Ground Water	**Date Received:**	02/21/13
		Percent Solids:	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	1760	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Antimony	< 6.0	6.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Arsenic	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Barium	426	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Beryllium	< 1.0	1.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Cadmium	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Calcium	202000	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Chromium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Cobalt	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Copper	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Iron	17500	100	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Lead	116	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Magnesium	63800	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Manganese	2280	15	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Mercury	< 0.20	0.20	ug/l	1	03/05/13	03/05/13	CS	SW846 7470A [3]	SW846 7470A [5]
Nickel	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Potassium	36400	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Selenium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Silver	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Sodium	513000	20000	ug/l	2	03/01/13	03/05/13	BL	SW846 6010C [2]	SW846 3010A [4]
Thallium	< 2.0	2.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Vanadium	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]
Zinc	75.2	20	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [4]

(1) Instrument QC Batch: MA30617
(2) Instrument QC Batch: MA30626
(3) Instrument QC Batch: MA30632
(4) Prep QC Batch: MP70136
(5) Prep QC Batch: MP70212

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-3		
Lab Sample ID:	JB29431-9F	**Date Sampled:**	02/19/13
Matrix:	AQ - Groundwater Filtered	**Date Received:**	02/21/13
		Percent Solids:	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Antimony	< 6.0	6.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Arsenic	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Barium	405	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Beryllium	< 1.0	1.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Cadmium	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Calcium	217000	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Chromium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Cobalt	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Copper	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Iron	16600	100	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Lead	< 3.0	3.0	ug/l	1	03/01/13	03/06/13	BL	SW846 6010C [4]	SW846 3010A [5]
Magnesium	69000	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Manganese	2410	15	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Mercury	< 0.20	0.20	ug/l	1	03/05/13	03/05/13	CS	SW846 7470A [3]	SW846 7470A [6]
Nickel	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Potassium	39100	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Selenium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Silver	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Sodium	580000	20000	ug/l	2	03/01/13	03/05/13	BL	SW846 6010C [2]	SW846 3010A [5]
Thallium	< 2.0	2.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Vanadium	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]
Zinc	51.8	20	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [5]

(1) Instrument QC Batch: MA30617
(2) Instrument QC Batch: MA30626
(3) Instrument QC Batch: MA30632
(4) Instrument QC Batch: MA30637
(5) Prep QC Batch: MP70136
(6) Prep QC Batch: MP70212

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FB022013		
Lab Sample ID:	JB29431-10	**Date Sampled:**	02/20/13
Matrix:	AQ - Field Blank Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D83494.D	1	02/27/13	NT	n/a	n/a	V3D3592
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.3	ug/l	
71-43-2	Benzene	ND	1.0	0.24	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.30	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.21	ug/l	
75-25-2	Bromoform	ND	4.0	0.21	ug/l	
74-83-9	Bromomethane	ND	2.0	0.22	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.4	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.19	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.22	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.23	ug/l	
75-00-3	Chloroethane	ND	1.0	0.26	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
74-87-3	Chloromethane	ND	1.0	0.21	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.35	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	0.54	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.20	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.22	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.22	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.30	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.27	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.11	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.19	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.19	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.21	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.48	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.19	ug/l	
123-91-1	1,4-Dioxane	ND	130	75	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
76-13-1	Freon 113	ND	5.0	0.53	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FB022013		
Lab Sample ID:	JB29431-10	**Date Sampled:**	02/20/13
Matrix:	AQ - Field Blank Soil	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.0	1.1	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
79-20-9	Methyl Acetate	ND	5.0	1.2	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	0.83	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.70	ug/l	
100-42-5	Styrene	ND	5.0	0.21	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.21	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.28	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.28	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.24	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.29	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.22	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.21	ug/l	
	m,p-Xylene	ND	1.0	0.42	ug/l	
95-47-6	o-Xylene	ND	1.0	0.24	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		81-121%
17060-07-0	1,2-Dichloroethane-D4	111%		74-127%
2037-26-5	Toluene-D8	104%		80-122%
460-00-4	4-Bromofluorobenzene	99%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FB022013		
Lab Sample ID:	JB29431-10	**Date Sampled:**	02/20/13
Matrix:	AQ - Field Blank Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F21344.D	1	03/11/13	NAP	02/27/13	OP63929	EF5106
Run #2 [a]	2P20784.D	1	03/07/13	ALS	03/01/13	OP63929	E2P918

	Initial Volume	Final Volume
Run #1	950 ml	1.0 ml
Run #2	975 ml	1.0 ml

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.3	1.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.3	1.9	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.3	1.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.3	1.6	ug/l	
51-28-5	2,4-Dinitrophenol	ND	21	17	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	21	1.0	ug/l	
95-48-7	2-Methylphenol	ND	2.1	1.1	ug/l	
	3&4-Methylphenol	ND	2.1	0.97	ug/l	
88-75-5	2-Nitrophenol	ND	5.3	1.6	ug/l	
100-02-7	4-Nitrophenol	ND	11	5.5	ug/l	
87-86-5	Pentachlorophenol	ND	11	1.5	ug/l	
108-95-2	Phenol	ND	2.1	1.3	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.3	0.99	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.3	1.6	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.3	1.4	ug/l	
83-32-9	Acenaphthene	ND	1.1	0.28	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.24	ug/l	
98-86-2	Acetophenone	ND	2.1	0.30	ug/l	
120-12-7	Anthracene	ND	1.1	0.30	ug/l	
1912-24-9	Atrazine	ND	5.3	0.51	ug/l	
100-52-7	Benzaldehyde	ND	5.3	3.4	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.1	0.24	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.1	0.24	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.1	0.48	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.1	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.1	0.54	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.1	0.38	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.1	0.30	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.1	0.32	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.1	0.31	ug/l	
106-47-8	4-Chloroaniline	ND	5.3	0.56	ug/l	
86-74-8	Carbazole	ND	1.1	0.38	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FB022013		
Lab Sample ID:	JB29431-10	**Date Sampled:**	02/20/13
Matrix:	AQ - Field Blank Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.1	0.73	ug/l	
218-01-9	Chrysene	ND	1.1	0.30	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.1	0.32	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.1	0.32	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	2.1	0.48	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.1	0.33	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	2.1	0.45	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	2.1	0.49	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.3	0.38	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.1	0.40	ug/l	
132-64-9	Dibenzofuran	ND	5.3	0.28	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.1	0.58	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.1	0.32	ug/l	
84-66-2	Diethyl phthalate	ND	2.1	0.34	ug/l	
131-11-3	Dimethyl phthalate	ND	2.1	0.30	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.1	0.62	ug/l	
206-44-0	Fluoranthene	ND	1.1	0.33	ug/l	
86-73-7	Fluorene	ND	1.1	0.29	ug/l	
118-74-1	Hexachlorobenzene	ND	1.1	0.36	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.1	0.54	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	7.5	ug/l	
67-72-1	Hexachloroethane	ND	2.1	0.58	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.1	0.39	ug/l	
78-59-1	Isophorone	ND	2.1	0.29	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	0.40	ug/l	
88-74-4	2-Nitroaniline	ND	5.3	1.2	ug/l	
99-09-2	3-Nitroaniline	ND	5.3	1.3	ug/l	
100-01-6	4-Nitroaniline	ND	5.3	1.7	ug/l	
91-20-3	Naphthalene	ND	1.1	0.27	ug/l	
98-95-3	Nitrobenzene	ND	2.1	0.44	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.1	0.32	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.3	0.32	ug/l	
85-01-8	Phenanthrene	ND	1.1	0.31	ug/l	
129-00-0	Pyrene	ND	1.1	0.28	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.1	0.32	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	49%	35%	10-83%
4165-62-2	Phenol-d5	37%	24%	10-74%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FB022013		
Lab Sample ID:	JB29431-10	**Date Sampled:**	02/20/13
Matrix:	AQ - Field Blank Soil	**Date Received:**	02/21/13
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	98%	85%	24-148%
4165-60-0	Nitrobenzene-d5	82%	70%	38-129%
321-60-8	2-Fluorobiphenyl	72%	69%	42-117%
1718-51-0	Terphenyl-d14	84%	87%	14-132%

(a) Confirmation run.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FB022013		
Lab Sample ID:	JB29431-10	**Date Sampled:**	02/20/13
Matrix:	AQ - Field Blank Soil	**Date Received:**	02/21/13
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G89109.D	1	03/05/13	DS	02/26/13	OP63914	G1G2926
Run #2							

	Initial Volume	Final Volume
Run #1	960 ml	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.010	0.0082	ug/l	
319-84-6	alpha-BHC	ND	0.010	0.0024	ug/l	
319-85-7	beta-BHC	ND	0.010	0.0024	ug/l	
319-86-8	delta-BHC	ND	0.010	0.0019	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.010	0.0018	ug/l	
5103-71-9	alpha-Chlordane	ND	0.010	0.0030	ug/l	
5103-74-2	gamma-Chlordane	ND	0.010	0.0022	ug/l	
60-57-1	Dieldrin	ND	0.010	0.0017	ug/l	
72-54-8	4,4'-DDD	ND	0.010	0.0026	ug/l	
72-55-9	4,4'-DDE	ND	0.010	0.0018	ug/l	
50-29-3	4,4'-DDT	ND	0.010	0.0033	ug/l	
72-20-8	Endrin	ND	0.010	0.0021	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.010	0.0020	ug/l	
7421-93-4	Endrin aldehyde	ND	0.010	0.0038	ug/l	
53494-70-5	Endrin ketone	ND	0.010	0.0049	ug/l	
959-98-8	Endosulfan-I	ND	0.010	0.0029	ug/l	
33213-65-9	Endosulfan-II	ND	0.010	0.0021	ug/l	
76-44-8	Heptachlor	ND	0.010	0.0023	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.010	0.0027	ug/l	
72-43-5	Methoxychlor	ND	0.021	0.0042	ug/l	
8001-35-2	Toxaphene	ND	0.26	0.15	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	80%		26-145%
877-09-8	Tetrachloro-m-xylene	82%		26-145%
2051-24-3	Decachlorobiphenyl	48%		10-141%
2051-24-3	Decachlorobiphenyl	47%		10-141%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FB022013		
Lab Sample ID:	JB29431-10	**Date Sampled:**	02/20/13
Matrix:	AQ - Field Blank Soil	**Date Received:**	02/21/13
Method:	SW846 8082A SW846 3510C	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G78182.D	1	03/02/13	JR	02/26/13	OP63910	G2G2601
Run #2							

	Initial Volume	Final Volume
Run #1	960 ml	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.52	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.52	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.52	0.40	ug/l	
53469-21-9	Aroclor 1242	ND	0.52	0.090	ug/l	
12672-29-6	Aroclor 1248	ND	0.52	0.15	ug/l	
11097-69-1	Aroclor 1254	ND	0.52	0.15	ug/l	
11096-82-5	Aroclor 1260	ND	0.52	0.22	ug/l	
11100-14-4	Aroclor 1268	ND	0.52	0.14	ug/l	
37324-23-5	Aroclor 1262	ND	0.52	0.063	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	94%		27-144%
877-09-8	Tetrachloro-m-xylene	99%		27-144%
2051-24-3	Decachlorobiphenyl	59%		10-139%
2051-24-3	Decachlorobiphenyl	44%		10-139%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JB29431-11	**Date Sampled:**	02/20/13
Matrix:	AQ - Trip Blank Water	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D83495.D	1	02/27/13	NT	n/a	n/a	V3D3592
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.3	ug/l	
71-43-2	Benzene	ND	1.0	0.24	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.30	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.21	ug/l	
75-25-2	Bromoform	ND	4.0	0.21	ug/l	
74-83-9	Bromomethane	ND	2.0	0.22	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.4	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.19	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.22	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.23	ug/l	
75-00-3	Chloroethane	ND	1.0	0.26	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
74-87-3	Chloromethane	ND	1.0	0.21	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.35	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	0.54	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.20	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.22	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.22	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.30	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.27	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.11	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.19	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.19	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.21	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.48	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.19	ug/l	
123-91-1	1,4-Dioxane	ND	130	75	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
76-13-1	Freon 113	ND	5.0	0.53	ug/l	

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JB29431-11	**Date Sampled:**	02/20/13
Matrix:	AQ - Trip Blank Water	**Date Received:**	02/21/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.0	1.1	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
79-20-9	Methyl Acetate	ND	5.0	1.2	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	0.83	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.70	ug/l	
100-42-5	Styrene	ND	5.0	0.21	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.21	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.28	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.28	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.24	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.29	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.22	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.21	ug/l	
	m,p-Xylene	ND	1.0	0.42	ug/l	
95-47-6	o-Xylene	ND	1.0	0.24	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		81-121%
17060-07-0	1,2-Dichloroethane-D4	110%		74-127%
2037-26-5	Toluene-D8	103%		80-122%
460-00-4	4-Bromofluorobenzene	99%		78-116%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FB022013 METALS A		
Lab Sample ID:	JB29431-12	**Date Sampled:**	02/20/13
Matrix:	AQ - Field Blank Water	**Date Received:**	02/21/13
		Percent Solids:	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Calcium	< 5000	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Iron	< 100	100	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Lead	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Magnesium	< 5000	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Manganese	< 15	15	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	03/05/13	03/05/13	CS	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Potassium	< 10000	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Sodium	< 10000	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Thallium	< 2.0	2.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Zinc	< 20	20	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA30617
(2) Instrument QC Batch: MA30632
(3) Prep QC Batch: MP70136
(4) Prep QC Batch: MP70212

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FB022013 METALS B		
Lab Sample ID:	JB29431-13	**Date Sampled:**	02/20/13
Matrix:	AQ - Field Blank Water	**Date Received:**	02/21/13
		Percent Solids:	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Calcium	< 5000	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Iron	< 100	100	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Lead	< 3.0	3.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Magnesium	< 5000	5000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Manganese	< 15	15	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	03/05/13	03/05/13	CS	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Potassium	< 10000	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Sodium	< 10000	10000	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Thallium	< 2.0	2.0	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]
Zinc	< 20	20	ug/l	1	03/01/13	03/04/13	GT	SW846 6010C [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA30617
(2) Instrument QC Batch: MA30632
(3) Prep QC Batch: MP70136
(4) Prep QC Batch: MP70212

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SG-1		
Lab Sample ID:	JB29431-14	**Date Sampled:**	02/19/13
Matrix:	AIR - Soil Vapor Comp. Summa ID: A469	**Date Received:**	02/21/13
Method:	TO-15	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W40508.D	1	02/23/13	YMH	n/a	n/a	VW1632
Run #2							

	Initial Volume
Run #1	100 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
67-64-1	58.08	Acetone	33.3	0.80	0.28	ppbv		79.1	1.9	0.67	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.80	0.11	ppbv		ND	1.8	0.24	ug/m3
71-43-2	78.11	Benzene	0.68	0.80	0.11	ppbv	J	2.2	2.6	0.35	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.80	0.12	ppbv		ND	5.4	0.80	ug/m3
75-25-2	252.8	Bromoform	ND	0.80	0.12	ppbv		ND	8.3	1.2	ug/m3
74-83-9	94.94	Bromomethane	ND	0.80	0.096	ppbv		ND	3.1	0.37	ug/m3
593-60-2	106.9	Bromoethene	ND	0.80	0.11	ppbv		ND	3.5	0.48	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.80	0.19	ppbv		ND	4.1	0.98	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.80	0.094	ppbv		ND	2.5	0.29	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.80	0.16	ppbv		ND	3.7	0.74	ug/m3
75-00-3	64.52	Chloroethane	ND	0.80	0.14	ppbv		ND	2.1	0.37	ug/m3
67-66-3	119.4	Chloroform	4.8	0.80	0.10	ppbv		23	3.9	0.49	ug/m3
74-87-3	50.49	Chloromethane	ND	0.80	0.22	ppbv		ND	1.7	0.45	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.80	0.14	ppbv		ND	2.5	0.44	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.80	0.12	ppbv		ND	4.1	0.62	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.80	0.078	ppbv		ND	5.0	0.49	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.80	0.20	ppbv		ND	2.8	0.69	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.80	0.078	ppbv		ND	3.2	0.32	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.80	0.090	ppbv		ND	3.2	0.36	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.80	0.12	ppbv		ND	6.1	0.92	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.80	0.11	ppbv		ND	3.2	0.45	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.80	0.14	ppbv		ND	3.7	0.65	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.80	0.47	ppbv		ND	2.9	1.7	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.61	0.80	0.095	ppbv	J	3.0	4.0	0.47	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.80	0.14	ppbv		ND	6.8	1.2	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.80	0.11	ppbv		ND	3.2	0.44	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.80	0.10	ppbv		ND	3.2	0.40	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.80	0.13	ppbv		ND	3.6	0.59	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.80	0.11	ppbv		ND	4.8	0.66	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.80	0.15	ppbv		ND	4.8	0.90	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.80	0.24	ppbv		ND	4.8	1.4	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.80	0.096	ppbv		ND	3.6	0.44	ug/m3

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SG-1		
Lab Sample ID:	JB29431-14	**Date Sampled:**	02/19/13
Matrix:	AIR - Soil Vapor Comp. Summa ID: A469	**Date Received:**	02/21/13
Method:	TO-15	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
64-17-5	46.07	Ethanol	12.9	2.0	0.68	ppbv		24.3	3.8	1.3	ug/m3
100-41-4	106.2	Ethylbenzene	0.82	0.80	0.12	ppbv		3.6	3.5	0.52	ug/m3
141-78-6	88	Ethyl Acetate	1.2	0.80	0.51	ppbv		4.3	2.9	1.8	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.80	0.11	ppbv		ND	3.9	0.54	ug/m3
76-13-1	187.4	Freon 113	ND	0.80	0.11	ppbv		ND	6.1	0.84	ug/m3
76-14-2	170.9	Freon 114	ND	0.80	0.093	ppbv		ND	5.6	0.65	ug/m3
142-82-5	100.2	Heptane	0.81	0.80	0.11	ppbv		3.3	3.3	0.45	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.80	0.12	ppbv		ND	8.5	1.3	ug/m3
110-54-3	86.17	Hexane	ND	0.80	0.20	ppbv		ND	2.8	0.70	ug/m3
591-78-6	100	2-Hexanone	ND	0.80	0.21	ppbv		ND	3.3	0.86	ug/m3
67-63-0	60.1	Isopropyl Alcohol	1.1	0.80	0.26	ppbv		2.7	2.0	0.64	ug/m3
75-09-2	84.94	Methylene chloride	1.4	0.80	0.22	ppbv		4.9	2.8	0.76	ug/m3
78-93-3	72.11	Methyl ethyl ketone	1.7	0.80	0.17	ppbv		5.0	2.4	0.50	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.80	0.34	ppbv		ND	3.3	1.4	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.80	0.18	ppbv		ND	2.9	0.65	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.80	0.15	ppbv		ND	3.3	0.61	ug/m3
115-07-1	42	Propylene	2.7	2.0	0.14	ppbv		4.6	3.4	0.24	ug/m3
100-42-5	104.1	Styrene	ND	0.80	0.098	ppbv		ND	3.4	0.42	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.80	0.097	ppbv		ND	4.4	0.53	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.80	0.14	ppbv		ND	5.5	0.96	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.80	0.14	ppbv		ND	4.4	0.76	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.80	0.38	ppbv		ND	5.9	2.8	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.80	0.12	ppbv		ND	3.9	0.59	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.80	0.18	ppbv		ND	3.9	0.88	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.80	0.12	ppbv		ND	3.7	0.56	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	0.59	0.80	0.20	ppbv	J	1.8	2.4	0.61	ug/m3
127-18-4	165.8	Tetrachloroethylene	1.7	0.16	0.097	ppbv		12	1.1	0.66	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.80	0.30	ppbv		ND	2.4	0.88	ug/m3
108-88-3	92.14	Toluene	9.1	0.80	0.13	ppbv		34	3.0	0.49	ug/m3
79-01-6	131.4	Trichloroethylene	0.21	0.16	0.14	ppbv		1.1	0.86	0.75	ug/m3
75-69-4	137.4	Trichlorofluoromethane	ND	0.80	0.11	ppbv		ND	4.5	0.62	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.80	0.087	ppbv		ND	2.0	0.22	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.80	0.22	ppbv		ND	2.8	0.77	ug/m3
	106.2	m,p-Xylene	2.6	0.80	0.23	ppbv		11	3.5	1.0	ug/m3
95-47-6	106.2	o-Xylene	ND	0.80	0.15	ppbv		ND	3.5	0.65	ug/m3
1330-20-7	106.2	Xylenes (total)	2.6	0.80	0.15	ppbv		11	3.5	0.65	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	94%		65-128%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SG-2		
Lab Sample ID:	JB29431-15	**Date Sampled:**	02/20/13
Matrix:	AIR - Soil Vapor Comp. Summa ID: A820	**Date Received:**	02/21/13
Method:	TO-15	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W40509.D	1	02/23/13	YMH	n/a	n/a	VW1632
Run #2							

	Initial Volume
Run #1	100 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
67-64-1	58.08	Acetone	56.0	0.80	0.28	ppbv		133	1.9	0.67	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.80	0.11	ppbv		ND	1.8	0.24	ug/m3
71-43-2	78.11	Benzene	0.68	0.80	0.11	ppbv	J	2.2	2.6	0.35	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.80	0.12	ppbv		ND	5.4	0.80	ug/m3
75-25-2	252.8	Bromoform	ND	0.80	0.12	ppbv		ND	8.3	1.2	ug/m3
74-83-9	94.94	Bromomethane	ND	0.80	0.096	ppbv		ND	3.1	0.37	ug/m3
593-60-2	106.9	Bromoethene	ND	0.80	0.11	ppbv		ND	3.5	0.48	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.80	0.19	ppbv		ND	4.1	0.98	ug/m3
75-15-0	76.14	Carbon disulfide	0.88	0.80	0.094	ppbv		2.7	2.5	0.29	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.80	0.16	ppbv		ND	3.7	0.74	ug/m3
75-00-3	64.52	Chloroethane	ND	0.80	0.14	ppbv		ND	2.1	0.37	ug/m3
67-66-3	119.4	Chloroform	1.1	0.80	0.10	ppbv		5.4	3.9	0.49	ug/m3
74-87-3	50.49	Chloromethane	ND	0.80	0.22	ppbv		ND	1.7	0.45	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.80	0.14	ppbv		ND	2.5	0.44	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.80	0.12	ppbv		ND	4.1	0.62	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.80	0.078	ppbv		ND	5.0	0.49	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.80	0.20	ppbv		ND	2.8	0.69	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.80	0.078	ppbv		ND	3.2	0.32	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.80	0.090	ppbv		ND	3.2	0.36	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.80	0.12	ppbv		ND	6.1	0.92	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.80	0.11	ppbv		ND	3.2	0.45	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.80	0.14	ppbv		ND	3.7	0.65	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.80	0.47	ppbv		ND	2.9	1.7	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.56	0.80	0.095	ppbv	J	2.8	4.0	0.47	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.80	0.14	ppbv		ND	6.8	1.2	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.80	0.11	ppbv		ND	3.2	0.44	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.80	0.10	ppbv		ND	3.2	0.40	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.80	0.13	ppbv		ND	3.6	0.59	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.80	0.11	ppbv		ND	4.8	0.66	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.80	0.15	ppbv		ND	4.8	0.90	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.80	0.24	ppbv		ND	4.8	1.4	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.80	0.096	ppbv		ND	3.6	0.44	ug/m3

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SG-2		
Lab Sample ID:	JB29431-15	**Date Sampled:**	02/20/13
Matrix:	AIR - Soil Vapor Comp. Summa ID: A820	**Date Received:**	02/21/13
Method:	TO-15	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
64-17-5	46.07	Ethanol	4.5	2.0	0.68	ppbv		8.5	3.8	1.3	ug/m3
100-41-4	106.2	Ethylbenzene	1.5	0.80	0.12	ppbv		6.5	3.5	0.52	ug/m3
141-78-6	88	Ethyl Acetate	ND	0.80	0.51	ppbv		ND	2.9	1.8	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.80	0.11	ppbv		ND	3.9	0.54	ug/m3
76-13-1	187.4	Freon 113	ND	0.80	0.11	ppbv		ND	6.1	0.84	ug/m3
76-14-2	170.9	Freon 114	ND	0.80	0.093	ppbv		ND	5.6	0.65	ug/m3
142-82-5	100.2	Heptane	1.7	0.80	0.11	ppbv		7.0	3.3	0.45	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.80	0.12	ppbv		ND	8.5	1.3	ug/m3
110-54-3	86.17	Hexane	2.5	0.80	0.20	ppbv		8.8	2.8	0.70	ug/m3
591-78-6	100	2-Hexanone	ND	0.80	0.21	ppbv		ND	3.3	0.86	ug/m3
67-63-0	60.1	Isopropyl Alcohol	ND	0.80	0.26	ppbv		ND	2.0	0.64	ug/m3
75-09-2	84.94	Methylene chloride	1.5	0.80	0.22	ppbv		5.2	2.8	0.76	ug/m3
78-93-3	72.11	Methyl ethyl ketone	1.2	0.80	0.17	ppbv		3.5	2.4	0.50	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.80	0.34	ppbv		ND	3.3	1.4	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.80	0.18	ppbv		ND	2.9	0.65	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.80	0.15	ppbv		ND	3.3	0.61	ug/m3
115-07-1	42	Propylene	4.2	2.0	0.14	ppbv		7.2	3.4	0.24	ug/m3
100-42-5	104.1	Styrene	ND	0.80	0.098	ppbv		ND	3.4	0.42	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.80	0.097	ppbv		ND	4.4	0.53	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.80	0.14	ppbv		ND	5.5	0.96	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.80	0.14	ppbv		ND	4.4	0.76	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.80	0.38	ppbv		ND	5.9	2.8	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	0.39	0.80	0.12	ppbv	J	1.9	3.9	0.59	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.80	0.18	ppbv		ND	3.9	0.88	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.80	0.12	ppbv		ND	3.7	0.56	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.80	0.20	ppbv		ND	2.4	0.61	ug/m3
127-18-4	165.8	Tetrachloroethylene	1.9	0.16	0.097	ppbv		13	1.1	0.66	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.80	0.30	ppbv		ND	2.4	0.88	ug/m3
108-88-3	92.14	Toluene	13.2	0.80	0.13	ppbv		49.7	3.0	0.49	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.16	0.14	ppbv		ND	0.86	0.75	ug/m3
75-69-4	137.4	Trichlorofluoromethane	ND	0.80	0.11	ppbv		ND	4.5	0.62	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.80	0.087	ppbv		ND	2.0	0.22	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.80	0.22	ppbv		ND	2.8	0.77	ug/m3
	106.2	m,p-Xylene	4.7	0.80	0.23	ppbv		20	3.5	1.0	ug/m3
95-47-6	106.2	o-Xylene	1.4	0.80	0.15	ppbv		6.1	3.5	0.65	ug/m3
1330-20-7	106.2	Xylenes (total)	6.0	0.80	0.15	ppbv		26	3.5	0.65	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	94%		65-128%

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SG-3		
Lab Sample ID:	JB29431-16	**Date Sampled:**	02/20/13
Matrix:	AIR - Soil Vapor Comp. Summa ID: A076	**Date Received:**	02/21/13
Method:	TO-15	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W40510.D	1	02/23/13	YMH	n/a	n/a	VW1632
Run #2							

	Initial Volume
Run #1	100 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
67-64-1	58.08	Acetone	65.4	0.80	0.28	ppbv		155	1.9	0.67	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.80	0.11	ppbv		ND	1.8	0.24	ug/m3
71-43-2	78.11	Benzene	0.56	0.80	0.11	ppbv	J	1.8	2.6	0.35	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.80	0.12	ppbv		ND	5.4	0.80	ug/m3
75-25-2	252.8	Bromoform	ND	0.80	0.12	ppbv		ND	8.3	1.2	ug/m3
74-83-9	94.94	Bromomethane	ND	0.80	0.096	ppbv		ND	3.1	0.37	ug/m3
593-60-2	106.9	Bromoethene	ND	0.80	0.11	ppbv		ND	3.5	0.48	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.80	0.19	ppbv		ND	4.1	0.98	ug/m3
75-15-0	76.14	Carbon disulfide	4.5	0.80	0.094	ppbv		14	2.5	0.29	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.80	0.16	ppbv		ND	3.7	0.74	ug/m3
75-00-3	64.52	Chloroethane	ND	0.80	0.14	ppbv		ND	2.1	0.37	ug/m3
67-66-3	119.4	Chloroform	12.8	0.80	0.10	ppbv		62.5	3.9	0.49	ug/m3
74-87-3	50.49	Chloromethane	ND	0.80	0.22	ppbv		ND	1.7	0.45	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.80	0.14	ppbv		ND	2.5	0.44	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.80	0.12	ppbv		ND	4.1	0.62	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.80	0.078	ppbv		ND	5.0	0.49	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.80	0.20	ppbv		ND	2.8	0.69	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.80	0.078	ppbv		ND	3.2	0.32	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.80	0.090	ppbv		ND	3.2	0.36	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.80	0.12	ppbv		ND	6.1	0.92	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.80	0.11	ppbv		ND	3.2	0.45	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.80	0.14	ppbv		ND	3.7	0.65	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.80	0.47	ppbv		ND	2.9	1.7	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.72	0.80	0.095	ppbv	J	3.6	4.0	0.47	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.80	0.14	ppbv		ND	6.8	1.2	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.80	0.11	ppbv		ND	3.2	0.44	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.80	0.10	ppbv		ND	3.2	0.40	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.80	0.13	ppbv		ND	3.6	0.59	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.80	0.11	ppbv		ND	4.8	0.66	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.80	0.15	ppbv		ND	4.8	0.90	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.80	0.24	ppbv		ND	4.8	1.4	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.80	0.096	ppbv		ND	3.6	0.44	ug/m3

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SG-3		
Lab Sample ID:	JB29431-16	**Date Sampled:**	02/20/13
Matrix:	AIR - Soil Vapor Comp. Summa ID: A076	**Date Received:**	02/21/13
Method:	TO-15	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
64-17-5	46.07	Ethanol	12.0	2.0	0.68	ppbv		22.6	3.8	1.3	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.80	0.12	ppbv		ND	3.5	0.52	ug/m3
141-78-6	88	Ethyl Acetate	ND	0.80	0.51	ppbv		ND	2.9	1.8	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.80	0.11	ppbv		ND	3.9	0.54	ug/m3
76-13-1	187.4	Freon 113	ND	0.80	0.11	ppbv		ND	6.1	0.84	ug/m3
76-14-2	170.9	Freon 114	ND	0.80	0.093	ppbv		ND	5.6	0.65	ug/m3
142-82-5	100.2	Heptane	0.71	0.80	0.11	ppbv	J	2.9	3.3	0.45	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.80	0.12	ppbv		ND	8.5	1.3	ug/m3
110-54-3	86.17	Hexane	ND	0.80	0.20	ppbv		ND	2.8	0.70	ug/m3
591-78-6	100	2-Hexanone	ND	0.80	0.21	ppbv		ND	3.3	0.86	ug/m3
67-63-0	60.1	Isopropyl Alcohol	ND	0.80	0.26	ppbv		ND	2.0	0.64	ug/m3
75-09-2	84.94	Methylene chloride	1.5	0.80	0.22	ppbv		5.2	2.8	0.76	ug/m3
78-93-3	72.11	Methyl ethyl ketone	1.8	0.80	0.17	ppbv		5.3	2.4	0.50	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.80	0.34	ppbv		ND	3.3	1.4	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.80	0.18	ppbv		ND	2.9	0.65	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.80	0.15	ppbv		ND	3.3	0.61	ug/m3
115-07-1	42	Propylene	2.3	2.0	0.14	ppbv		4.0	3.4	0.24	ug/m3
100-42-5	104.1	Styrene	ND	0.80	0.098	ppbv		ND	3.4	0.42	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.80	0.097	ppbv		ND	4.4	0.53	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.80	0.14	ppbv		ND	5.5	0.96	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.80	0.14	ppbv		ND	4.4	0.76	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.80	0.38	ppbv		ND	5.9	2.8	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.80	0.12	ppbv		ND	3.9	0.59	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.80	0.18	ppbv		ND	3.9	0.88	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.80	0.12	ppbv		ND	3.7	0.56	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.80	0.20	ppbv		ND	2.4	0.61	ug/m3
127-18-4	165.8	Tetrachloroethylene	1.8	0.16	0.097	ppbv		12	1.1	0.66	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.80	0.30	ppbv		ND	2.4	0.88	ug/m3
108-88-3	92.14	Toluene	5.8	0.80	0.13	ppbv		22	3.0	0.49	ug/m3
79-01-6	131.4	Trichloroethylene	1.3	0.16	0.14	ppbv		7.0	0.86	0.75	ug/m3
75-69-4	137.4	Trichlorofluoromethane	ND	0.80	0.11	ppbv		ND	4.5	0.62	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.80	0.087	ppbv		ND	2.0	0.22	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.80	0.22	ppbv		ND	2.8	0.77	ug/m3
	106.2	m,p-Xylene	0.87	0.80	0.23	ppbv		3.8	3.5	1.0	ug/m3
95-47-6	106.2	o-Xylene	ND	0.80	0.15	ppbv		ND	3.5	0.65	ug/m3
1330-20-7	106.2	Xylenes (total)	0.87	0.80	0.15	ppbv		3.8	3.5	0.65	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	89%		65-128%

ND = Not detected   MDL - Method Detection Limit   J = Indicates an estimated value
RL = Reporting Limit   B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range   N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SG-4		
Lab Sample ID:	JB29431-17	**Date Sampled:**	02/20/13
Matrix:	AIR - Soil Vapor Comp. Summa ID: A451	**Date Received:**	02/21/13
Method:	TO-15	**Percent Solids:**	n/a
Project:	Related Phase II, West 30th Street, New York, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W40511.D	1	02/23/13	YMH	n/a	n/a	VW1632
Run #2							

	Initial Volume
Run #1	100 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
67-64-1	58.08	Acetone	23.9	0.80	0.28	ppbv		56.8	1.9	0.67	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.80	0.11	ppbv		ND	1.8	0.24	ug/m3
71-43-2	78.11	Benzene	0.42	0.80	0.11	ppbv	J	1.3	2.6	0.35	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.80	0.12	ppbv		ND	5.4	0.80	ug/m3
75-25-2	252.8	Bromoform	ND	0.80	0.12	ppbv		ND	8.3	1.2	ug/m3
74-83-9	94.94	Bromomethane	ND	0.80	0.096	ppbv		ND	3.1	0.37	ug/m3
593-60-2	106.9	Bromoethene	ND	0.80	0.11	ppbv		ND	3.5	0.48	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.80	0.19	ppbv		ND	4.1	0.98	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.80	0.094	ppbv		ND	2.5	0.29	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.80	0.16	ppbv		ND	3.7	0.74	ug/m3
75-00-3	64.52	Chloroethane	ND	0.80	0.14	ppbv		ND	2.1	0.37	ug/m3
67-66-3	119.4	Chloroform	ND	0.80	0.10	ppbv		ND	3.9	0.49	ug/m3
74-87-3	50.49	Chloromethane	ND	0.80	0.22	ppbv		ND	1.7	0.45	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.80	0.14	ppbv		ND	2.5	0.44	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.80	0.12	ppbv		ND	4.1	0.62	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.80	0.078	ppbv		ND	5.0	0.49	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.80	0.20	ppbv		ND	2.8	0.69	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.80	0.078	ppbv		ND	3.2	0.32	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.80	0.090	ppbv		ND	3.2	0.36	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.80	0.12	ppbv		ND	6.1	0.92	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.80	0.11	ppbv		ND	3.2	0.45	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.80	0.14	ppbv		ND	3.7	0.65	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.80	0.47	ppbv		ND	2.9	1.7	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.61	0.80	0.095	ppbv	J	3.0	4.0	0.47	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.80	0.14	ppbv		ND	6.8	1.2	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.80	0.11	ppbv		ND	3.2	0.44	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.80	0.10	ppbv		ND	3.2	0.40	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.80	0.13	ppbv		ND	3.6	0.59	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.80	0.11	ppbv		ND	4.8	0.66	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.80	0.15	ppbv		ND	4.8	0.90	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.80	0.24	ppbv		ND	4.8	1.4	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.80	0.096	ppbv		ND	3.6	0.44	ug/m3

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SG-4
Lab Sample ID: JB29431-17 **Date Sampled:** 02/20/13
Matrix: AIR - Soil Vapor Comp. Summa ID: A451 **Date Received:** 02/21/13
Method: TO-15 **Percent Solids:** n/a
Project: Related Phase II, West 30th Street, New York, NY

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
64-17-5	46.07	Ethanol	22.6	2.0	0.68	ppbv		42.6	3.8	1.3	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.80	0.12	ppbv		ND	3.5	0.52	ug/m3
141-78-6	88	Ethyl Acetate	ND	0.80	0.51	ppbv		ND	2.9	1.8	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.80	0.11	ppbv		ND	3.9	0.54	ug/m3
76-13-1	187.4	Freon 113	ND	0.80	0.11	ppbv		ND	6.1	0.84	ug/m3
76-14-2	170.9	Freon 114	ND	0.80	0.093	ppbv		ND	5.6	0.65	ug/m3
142-82-5	100.2	Heptane	ND	0.80	0.11	ppbv		ND	3.3	0.45	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.80	0.12	ppbv		ND	8.5	1.3	ug/m3
110-54-3	86.17	Hexane	ND	0.80	0.20	ppbv		ND	2.8	0.70	ug/m3
591-78-6	100	2-Hexanone	ND	0.80	0.21	ppbv		ND	3.3	0.86	ug/m3
67-63-0	60.1	Isopropyl Alcohol	1.2	0.80	0.26	ppbv		2.9	2.0	0.64	ug/m3
75-09-2	84.94	Methylene chloride	0.79	0.80	0.22	ppbv	J	2.7	2.8	0.76	ug/m3
78-93-3	72.11	Methyl ethyl ketone	ND	0.80	0.17	ppbv		ND	2.4	0.50	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.80	0.34	ppbv		ND	3.3	1.4	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.80	0.18	ppbv		ND	2.9	0.65	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.80	0.15	ppbv		ND	3.3	0.61	ug/m3
115-07-1	42	Propylene	ND	2.0	0.14	ppbv		ND	3.4	0.24	ug/m3
100-42-5	104.1	Styrene	ND	0.80	0.098	ppbv		ND	3.4	0.42	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.80	0.097	ppbv		ND	4.4	0.53	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.80	0.14	ppbv		ND	5.5	0.96	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.80	0.14	ppbv		ND	4.4	0.76	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.80	0.38	ppbv		ND	5.9	2.8	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.80	0.12	ppbv		ND	3.9	0.59	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.80	0.18	ppbv		ND	3.9	0.88	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.80	0.12	ppbv		ND	3.7	0.56	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	1.5	0.80	0.20	ppbv		4.5	2.4	0.61	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.17	0.16	0.097	ppbv		1.2	1.1	0.66	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.80	0.30	ppbv		ND	2.4	0.88	ug/m3
108-88-3	92.14	Toluene	1.4	0.80	0.13	ppbv		5.3	3.0	0.49	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.16	0.14	ppbv		ND	0.86	0.75	ug/m3
75-69-4	137.4	Trichlorofluoromethane	ND	0.80	0.11	ppbv		ND	4.5	0.62	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.80	0.087	ppbv		ND	2.0	0.22	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.80	0.22	ppbv		ND	2.8	0.77	ug/m3
	106.2	m,p-Xylene	ND	0.80	0.23	ppbv		ND	3.5	1.0	ug/m3
95-47-6	106.2	o-Xylene	ND	0.80	0.15	ppbv		ND	3.5	0.65	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.80	0.15	ppbv		ND	3.5	0.65	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	91%		65-128%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

New Jersey
ACCUTEST
LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Summa Canister and Flow Controller Log

SO
FB
WTB

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

Priority 18303368 PAGE 1 OF 2

FED-EX Tracking # | Bottle Order Control #
Accutest Quote # | Accutest Job # JB29431

Client / Reporting Information
Company Name: FLEMING LEE SHUE
Street Address: 158 W 29TH STREET
City: NEW YORK State: NY Zip:
Project Contact: KEVIN MCGUINNESS E-mail:
Phone #: 212-675-3225 Fax #:
Sampler(s) Name(s): BILL MANN/QUIST Phone #:

Project Information
Project Name: RELATED WEST 30TH ST. Phase II
Street: 518 W 30TH ST.
City: NEW YORK State: NY
Project #: 10022-012-2
Client Purchase Order #: FP0481
Project Manager: KEVIN MCGUINNESS

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet): VOCs 8260; SVOCs 8270; Pesticides/PCBs 8081/8082; TAL Metals 6010/7471; pH/Hexavalent Cr

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	VOCs 8260	SVOCs 8270	Pest/PCBs 8081/8082	TAL Metals 6010/7471	LAB USE ONLY
-1	SB-1 (0-2)'		2/19/13	1010	BM	SO	2					2				X	X	X	X	E 88
-2	SB-1 (14-15)'		2/19/13	1030	BM	SO	2					2				X	X	X	X	19 DS
-3	MW-1		2/19/13	1100	BM	GW	9	3		2		4				X	X	X	X	
-4	SB-2 (0-2)'		2/20/13	1100	BM	SO	2					2				X	X	X	X	D 30
-5	SB-2 (14-15)'		2/20/13	1115	BM	SO	2					2				X	X	X	X	A 13
-6	MW-2		2/21/13	1500	BM	GW	9	3		2		4				X	X	X	X	2166
-7	SB-3 (0-2)'		2/19/13	1450	BM	SO	2					2				X	X	X	X	
-8	SB-3 (14-15)'		2/19/13	1510	BM	SO	2					2				X	X	X	X	
-9	MW-3		2/19/13	1530	BM	GW	9	3		2		4				X	X	X	X	
-10	FB022013		2/20/13	1130	BM	AQ	9	3		2		4				X	X	X	X	
-11	Trip BLANK		2/14/13	1500		W	2	2												

Turnaround Time (Business days)
- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [ ] other

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information
- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [x] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions
-12 FB022013 METALS A (SC)
-13 FB022013 METALS B 2/23/13

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 BILL MANN	2/21/13 1500	1 KEITH	2 KEITH	2/21/13	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time: 2:29	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[ ] Intact [ ] Not intact	Preserved where applicable [x] On Ice [x] Cooler Temp. 1.0°C

2A TAS 2/21/13 D.G.

5.1

5

JB29431: Chain of Custody
Page 1 of 4

AIR

Priority 18303368

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CHAIN OF CUSTODY

ACCUTEST LABORATORIES

Air Sampling Field Data Sheet

FED-EX Tracking #

Bottle Order Control #: T14 - 2/12/2013-54

PAGE 2 OF 2

Lab Quote #

Lab Job #: ~~JB29364~~ JB29431

Client / Reporting Information

Company Name	Fleming-Lee Shue
Address	158 W. 29th St. #9
City	New York
State	NY
Zip	10001
Project Contact	Bill Mariquez
E-mail	Bill@FlemingLeeShue.Com
Phone #	646 584 2319
Fax #	212 675 3224
Sampler(s) Name(s)	Bill Mariquez, Raphael Rosenbaum
Project Name	Related W. 30th Phase II
Street	518 W. 30th Street
City	New York
State	NY
Project #	10022-012-2
Client Purchase Order #	FP 0481

Weather Parameters

Temperature (Fahrenheit)			
Start:	40°	Maximum:	48°
Stop:	30°	Minimum:	30°
Atmoshpheric Pressure (inches of Hg)			
Start:	30.05	Maximum:	30.05
Stop:	29.9 in.	Minimum:	29.7 in
Other weather comment:			

Requested Analysis: Standard TO-15 Reporting List

Lab Sample #	Field ID / Point of Collection	Air Type: Indoor(I) Soil Vap(SV) Ambient(A)	Canister Serial #	Canister Size 6L or 1L	Flow Controller Serial #	Start Date	Start Time (24hr clock)	Start Canister Pressure ("Hg)	Start Interior Temp (F)	Start Sampler Init.	Stop Date	Stop Time (24hr clock)	Stop Canister Pressure ("Hg)	Stop Interior Temp (F)	Stop Sampler Init.	Standard TO-15 Reporting List
-1 -14	SG-1	SV	A469	6L	FC499	2/19/13	940	30	42°	BM	2/19/13	1740	8	35°	BM	X
-2 -15	SG-2	SV	A820	6L	FC499	2/20/13	954	30	30°	BM	2/20/13	1754	7	30°	BM	X
-3 -16	SG-3	SV	A076	6L	FC429	2/20/13	923	29.5	30°	BM	2/20/13	1723	6	30°	BM	X
-4 -17	SG-4	SV	A451	6L	FC351	2/20/13	900	29.5	30°	BM	2/20/13	1700	4	30°	BM	X
SC																

S 4/7/11

Turnaround Time (Business days)

Standard - 15 Days	
10 Day	X
5 Day	
3 Day	
2 Day	
1 Day	
Other	

Approved By: RR

Date: 2/21/13

Data Deliverable Information

All NJDEP TO-15 is mandatory Full T1

Comm A	
Comm B	X
Reduced T2	
Full T1	~~X~~
Other:	

Comments / Remarks

FC499 used twice, as FC479 showed initial pressure of 17Hg, and was therefore taken out of service.

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Laboratory: 1 [signature]	Date Time: 2/14/13 1445	Received By: 1 [signature]	Relinquished By: 2 KST-H	Date Time: 2/13/13 8:29	Received By: 2 [signature]
Relinquished by: 3	Date Time:	Received By: 3 KST-H	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #		

2B

SIM

JB29431: Chain of Custody
Page 2 of 4

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB29431 **Client:** FLEMING LEE SHUE - NY **Project:** 10022-012-2

Date / Time Received: 2/21/2013 14:30 **Delivery Method:** Other Courier **Airbill #'s:** PRIORITY # 18303368

Cooler Temps (Initial/Adjusted): #1: (1/1); 0

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	Bar Therm	
3. Cooler media:	Ice (Bag)	
4. No, Coolers	1	

Quality Control_Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☑	☐	☐
2. Trip Blank listed on COC:	☑	☐	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☑	☐	☐

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments -10 BOTH METAL VOLUMES ARE LABELED FOR METALS. NO "FF" LABEL. NO "F" SUFFIX FOR FB

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

JB29431: Chain of Custody
Page 3 of 4

Sample Receipt Summary - Problem Resolution

Accutest Job Number: JB29431

CSR: Tammy McCloskey **Response Date:** 2/22/2013

Response: 1) JB29364 and JB29431 should be one job

-10 as we are unable to tell the difference between the total and field filtered metals volumes please assign each it's own sample number. For LIMS login call one FB022013 Metals A and the other FB022013 Metals B. Log both in with matrix of WFB

per Bill Maniquez

Summa Canister and Flow Controller Log

Job Number: JB29431
Account: FLSNYNY Fleming-Lee Shue, Inc.
Project: Related Phase II, West 30th Street, New York, NY
Received: 02/21/13

SUMMA CANISTERS

Shipping							Receiving						
Summa ID	L	Vac " Hg	Date Out	By	SCC Batch	SCC FileID	Sample Number	Date In	By	Vac " Hg	Pres psig	Final psig	Dil Fact
A469	6	29.4	02/14/13	FZ	CP5954	W40129.D	JB29431-14	02/22/13	RC	7.5			1
A820	6	29.4	02/14/13	FZ	CP5962	3W32093.D	JB29431-15	02/22/13	RC	6.5			1
A076	6	29.4	02/14/13	FZ	CP5962	3W32093.D	JB29431-16	02/22/13	RC	6			1
A451	6	29.4	02/14/13	FZ	CP5962	3W32093.D	JB29431-17	02/22/13	RC	5			1

FLOW CONTROLLERS

Shipping					Receiving		
Flow Crtl ID	Date Out	By	cc/ min	Time hrs.	Date In	By	cc/ min
FC351	02/14/13	FZ	10.2	8	02/22/13	RC	10.4
FC429	02/14/13	FZ	10.2	8	02/22/13	RC	10.5
FC479	02/14/13	FZ	10.2	8	02/22/13	RC	10.6
FC499	02/14/13	FZ	10.2	8	02/25/13	RC	10.5

Accutest Bottle Order(s):
TM-2/12/2013-54

Prep Date	Room Temp(F)	Bar Pres "Hg
02/14/13	70	29.92

APPENDIX D

Sustainability Statement

APPENDIX D
SUSTAINABILITY STATEMENT

This Sustainability Statement documents sustainable activities and green remediation efforts planned under this remedial action.

Reuse of Clean Recyclable Materials. Reuse of clean, locally-derived recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction.

An estimate of the quantity (in tons) of clean, non-virgin materials (reported by type of material) reused under this plan will be quantified and reported in the Remedial Action Report (RAR).

Reduce Consumption of Virgin and Non-Renewable Resources. Reduced consumption of virgin and non-renewable resources lowers the overall environmental impact of the project on the region by conserving these resources.

An estimate of the quantity (in tons) of virgin and non-renewable resources, the use of which will be avoided under this plan, will be quantified and reported in the RAR.

Reduced Energy Consumption and Promotion of Greater Energy Efficiency. Reduced energy consumption lowers greenhouse gas emissions, improves local air quality, lessens in-city power generation requirements, can lower traffic congestion, and provides substantial cost savings.

Best efforts will be made to quantify energy efficiencies achieved during the remediation and will be reported in the RAR. Where energy savings cannot be easily quantified, a gross indicator of the amount of energy saved or the means by which energy savings was achieved will be reported.

Conversion to Clean Fuels. Use of clean fuel improves NYC's air quality by reducing harmful emissions. An estimate of the volume of clean fuels used during remedial activities will be quantified and reported in the RAR.

Recontamination Control. Recontamination after cleanup and redevelopment is completed undermines the value of work performed, may result in a property that is less protective of public health or the environment, and may necessitate additional cleanup work later or impede future redevelopment. Recontamination can arise from future releases that occur within the property or by influx of contamination from off-Site.

An estimate of the area of the Site that utilizes recontamination controls under this plan will be reported in the RAR in square feet.

Stormwater Retention. Stormwater retention improves water quality by lowering the rate of combined storm-water and sewer discharges to NYC's sewage treatment plants during periods of precipitation, and reduces the volume of untreated influent to local surface waters.

An estimate of the enhanced stormwater retention capability of the redevelopment project will be included in the RAR.

Linkage with Green Building. Green buildings provide a multitude of benefits to the city across a broad range of areas, such as reduction of energy consumption, conservation of resources, and reduction in toxic materials use.

The number of Green Buildings that are associated with this brownfield redevelopment property will be reported in the RAR. The total square footage of green building space created as a function of this brownfield redevelopment will be quantified for residential, commercial and industrial/manufacturing uses.

Paperless Voluntary Cleanup Program. West 30th Highline Holdings, L.L.C. is participating in OER's Paperless Voluntary Cleanup Program. Under this program, submission of electronic documents will replace submission of hard copies for the review of project documents, communications and milestone reports.

Low-Energy Project Management Program. West 30th Highline Holdings, L.L.C.is participating in OER's low-energy project management program. Under this program, whenever possible, meetings are held using remote communication technologies, such as videoconferencing and teleconferencing to reduce energy consumption and traffic congestion associated with personal transportation.

Trees and Plantings. Trees and other plantings provide habitat and add to NYC's environmental quality in a wide variety of ways. Native plant species and native habitat provide optimal support to local fauna, promote local biodiversity, and require less maintenance.

An estimate of the land area that will be vegetated, including the number of trees planted or preserved, will be reported in square feet in the RAR.

APPENDIX E

Soil/Materials Management Plan

APPENDIX F

Vapor Barrier Specifications / Waterproofing Membrane

PRODUCT INFORMATION

Preprufe® 300R & 160R

Pre-applied waterproofing membranes that bond integrally to poured concrete for use below slabs or behind basement walls on confined sites.

Advantages

- **Forms a unique continuous adhesive bond to concrete poured against it –** prevents water migration and makes it unaffected by ground settlement beneath slabs
- **Fully-adhered watertight laps** and detailing
- **Provides a barrier to water, moisture and gas –** physically isolates the structure from the surrounding ground
- **BBA Certified** for basement Grades 2, 3, & 4 to BS 8102:1990
- **Zero permeance** to moisture
- **Solar reflective –** reduced temperature gain
- **Simple and quick to install –** requiring no priming or fillets
- **Can be applied to permanent formwork –** allows maximum use of confined sites
- **Self protecting –** can be trafficked immediately after application and ready for immediate placing of reinforcement
- **Unaffected by wet conditions –** cannot activate prematurely
- **Inherently waterproof, non-reactive system:**
  - not reliant on confining pressures or hydration
  - unaffected by freeze/thaw, wet/dry cycling
- **Chemical resistant –** effective in most types of soils and waters, protects structure from salt or sulphate attack

Description

Preprufe® 300R & 160R membranes are unique composite sheets comprising a thick HDPE film, an aggressive pressure sensitive adhesive and a weather resistant protective coating.

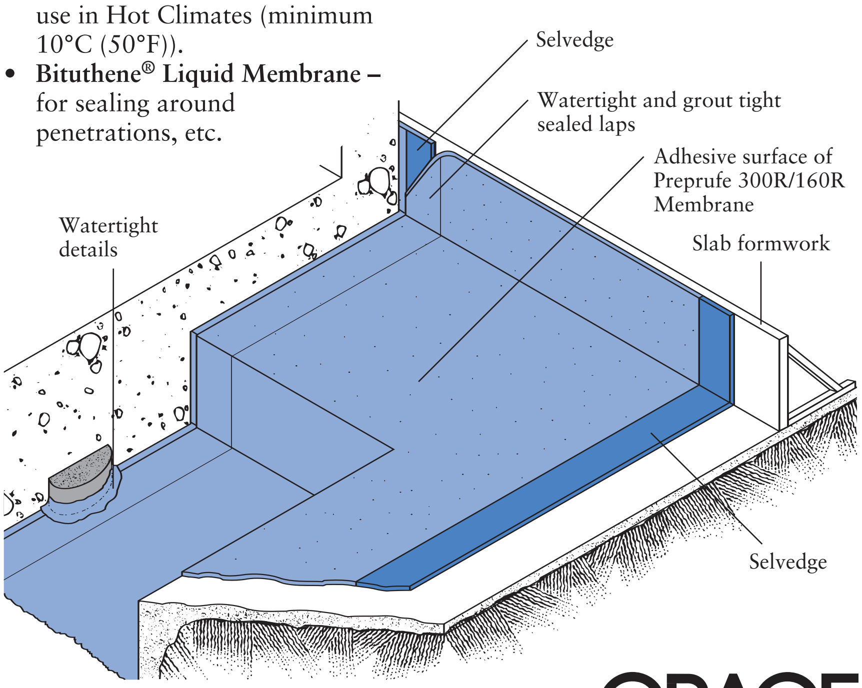
Unlike conventional non-adhering membranes, which are vulnerable to water ingress tracking between the unbonded membrane and structure, the unique Preprufe bond to concrete prevents ingress or migration of water around the structure.

The Preprufe R System includes:

- **Preprufe 300R –** heavy-duty grade for use below slabs and on rafts (i.e. mud slabs). Designed to accept the placing of heavy reinforcement using conventional concrete spacers.
- **Preprufe 160R –** thinner grade for blindside, zero property line applications against soil retention systems.
- **Preprufe Tape LT –** for covering cut edges, roll ends, penetrations and detailing (temperatures between -4°C (25°F) and +30°C (86°F)).
- **Preprufe Tape HC –** as above for use in Hot Climates (minimum 10°C (50°F)).
- **Bituthene® Liquid Membrane –** for sealing around penetrations, etc.

Preprufe 300R & 160R membranes are applied either horizontally to smooth prepared concrete, carton forms or well rolled and compacted sand or crushed stone substrate; or vertically to permanent formwork or adjoining structures. Concrete is then cast directly against the adhesive side of the membranes. The specially developed Preprufe adhesive layers work together to form a continuous and integral seal to the structure.

Preprufe can be returned up the inside face of slab formwork but is not recommended for conventional twin-sided formwork on walls, etc. Use Bituthene self-adhesive membrane or Procor® fluid applied membrane to walls after removal of formwork for a fully bonded system to all structural surfaces.



Installation

The most current application instructions, detail drawings and technical letters can be viewed at www.graceconstruction.com. Technical letters are provided for the following subjects to assist in the installation of Preprufe:

- Chemical Resistance
- Minimizing Concrete Shrinkage and Curling
- Rebar Chairs on Preprufe 300R Membrane
- Removal of Formwork Placed Against Preprufe Membranes
- Winter Lap Sealing and the use of Preprufe Tape LT

For other technical information contact your local Grace representative.

Preprufe 300R & 160R membranes are supplied in rolls 1.2 m (4 ft) wide, with a selvedge on one side to provide self-adhered laps for continuity between rolls. The rolls of Preprufe Membrane and Preprufe Tape are interwound with a disposable plastic release liner which must be removed before placing reinforcement and concrete.

Substrate Preparation

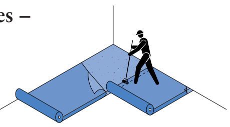
All surfaces – It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 12 mm (0.5 in.). Grout around all penetrations such as utility conduits, etc. for stability.

Horizontal – The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates. The surface does not need to be dry, but standing water must be removed.

Vertical – Use concrete, plywood, insulation or other approved facing to sheet piling to provide support to the membrane. Board systems such as timber lagging must be close butted to provide support and not more than 12 mm (0.5 in.) out of alignment.

Membrane Installation

Preprufe can be applied at temperatures of -4°C (25°F) or above. When installing Preprufe in cold or marginal weather conditions <13°C (55°F) the use of Preprufe Tape LT is recommended at all laps and detailing. Preprufe Tape LT should be applied to clean, dry surfaces and the release liner must be removed immediately after application.

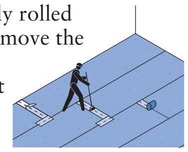


Horizontal substrates – Place the membrane HDPE film side to the substrate with the clear plastic release liner facing towards the concrete pour. End laps should be staggered to avoid a build up of layers. Leave plastic release liner in position until overlap procedure is completed.

Accurately position succeeding sheets to overlap the previous sheet 75 mm (3 in.) along the marked selvedge. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back the plastic release liner from between the overlaps as the two layers are bonded together. Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller. Completely remove the plastic liner to expose the protective coating. Any initial tack will quickly disappear.

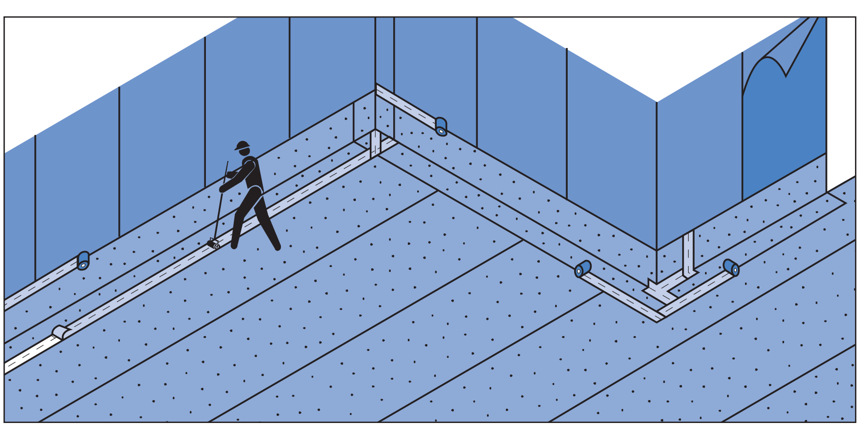
Refer to Grace Tech Letters for information on suitable rebar chairs for Preprufe.

Vertical substrates – Mechanically fasten the membrane vertically using fasteners appropriate to the substrate with the the clear plastic release liner facing towards the concrete pour. The membrane may be installed in any convenient length. Secure the top of the membrane using a batten such as a termination bar or similar 50 mm (2 in.) below the top edge. Fastening can be made through the selvedge so that the membrane lays flat and allows firmly rolled overlaps. Immediately remove the plastic release liner. Any additional fasteners must be covered with a patch of Preprufe Tape.



Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Roll firmly to ensure a watertight seal.

Roll ends and cut edges – Overlap all roll ends and cut edges by a minimum 75 mm (3 in.) and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary. Allow to dry and apply Preprufe Tape LT (or HC in hot climates) centered over the lap and roll firmly. Immediately remove printed plastic release liner from the tape.



Details

Refer to Preprufe Field Application Manual, Section V Application Instructions or visit www.graceconstruction.com. This Manual gives comprehensive guidance and standard details for:

- internal and external corners
- penetrations
- tiebacks
- columns
- grade beam pilecaps
- tie-ins
- terminations

Membrane Repair

Inspect the membrane before installation of reinforcement steel, formwork and final placement of concrete. The membrane can be easily cleaned by jet washing if required. Repair damage by wiping the area with a damp cloth to ensure the area is clean and free from dust, and allow to dry. Repair small punctures (12 mm (0.5 in.) or less) and slices by applying Preprufe Tape centered over the damaged area and roll firmly. Remove the release liner from the tape. Repair holes and large punctures by applying a patch of Preprufe membrane, which extends 150 mm (6 in.) beyond the damaged area. Seal all edges of the patch with Preprufe Tape, remove the release liner from the tape and roll firmly. Any areas of damaged adhesive should be covered with Preprufe Tape. Remove printed plastic release liner from tape. Where exposed selvedge has lost adhesion or laps have not been sealed, ensure the area is clean and dry and cover with fresh Preprufe Tape, rolling firmly. Alternatively, use a hot air gun or similar to activate adhesive and firmly roll lap to achieve continuity.

Pouring of Concrete

Ensure the plastic release liner is removed from all areas of Preprufe R Membrane and Tape.

It is recommended that concrete be poured within 56 days (42 days in hot climates) of application of the membrane. Concrete must be placed and compacted carefully to avoid damage to the membrane. Never use a sharp object to consolidate the concrete.

Removal of Formwork

Preprufe membranes can be applied to removable formwork, such as slab perimeters, elevator and lift pits, etc. Once the concrete is poured the formwork must remain in place until the concrete has gained sufficient compressive strength to develop the surface bond. Preprufe membranes are not recommended for conventional twin-sided wall forming systems.

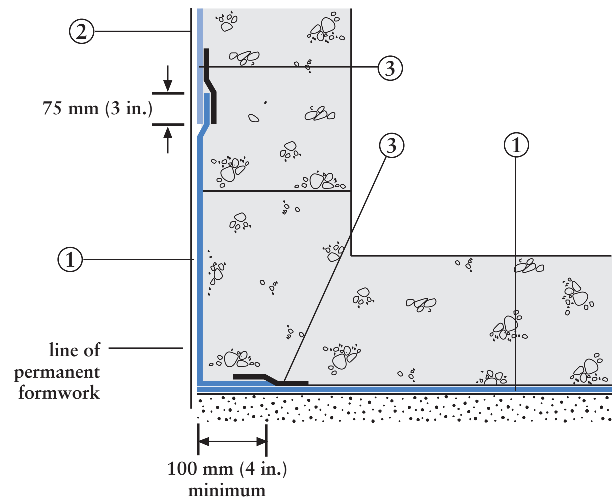
A minimum concrete compressive strength of 10 N/mm^2 (1500 psi) is recommended prior to stripping formwork supporting Preprufe membranes. Premature stripping may result in displacement of the membrane and/or spalling of the concrete.

As a guide, to reach the minimum compressive strength stated above, a structural concrete mix with an ultimate strength of 40 N/mm^2 (6000 psi) will typically require a cure time of approximately 6 days at an average ambient temperature of -4°C (25°F), or 2 days at 21°C (70°F).

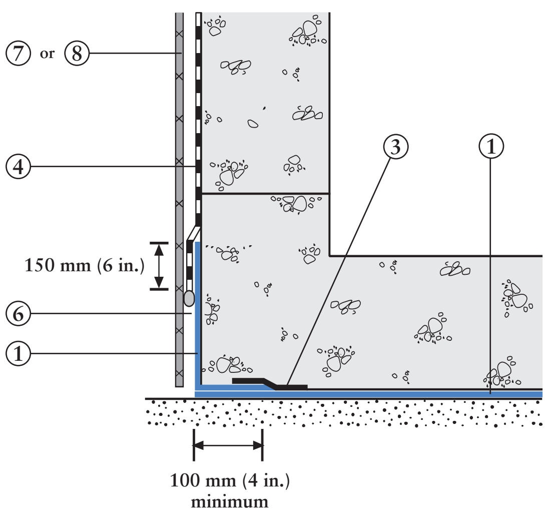
Detail Drawings

Details shown are typical illustrations and not working details. For a list of the most current details, visit us at www.graceconstruction.com. For technical assistance with detailing and problem solving please call toll free at 866-333-3SBM (3726).

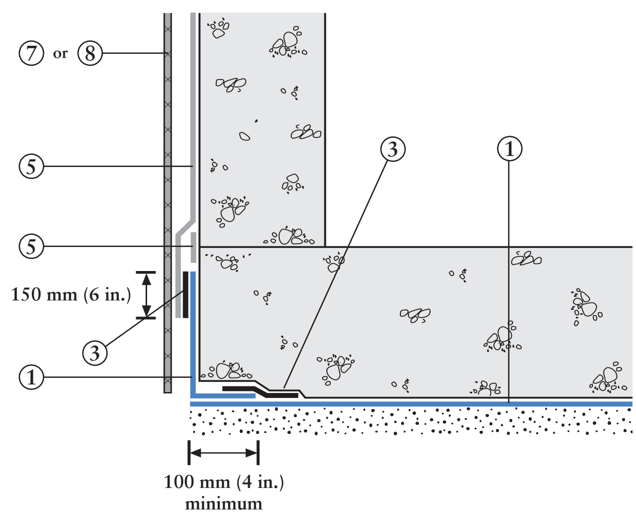
Wall base detail against permanent shutter



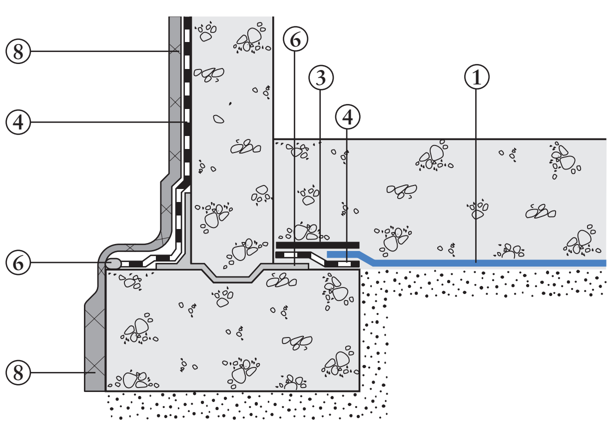
Bituthene wall base detail (Option 1)



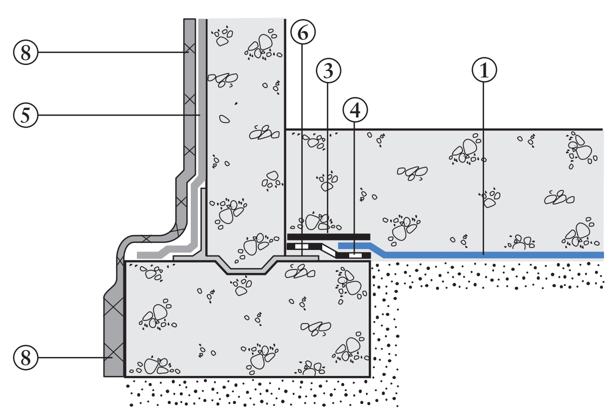
Procor wall base detail (Option 1)



Bituthene wall base detail (Option 2)



Procor wall base detail (Option 2)



1 Preprufe 300R
2 Preprufe 160R
3 Preprufe Tape
4 Bituthene
5 Procor
6 Bituthene Liquid Membrane
7 Protection
8 Hydroduct®

Supply

Dimensions (Nominal)	Preprufe 300R Membrane	Preprufe 160R Membrane	Preprufe Tape (LT or HC*)
Thickness	1.2 mm (0.046 in.)	0.8 mm (0.032 in.)	
Roll size	1.2 m x 30 m (4 ft x 98 ft)	1.2 m x 35 m (4 ft x 115 ft)	100 mm x 15 m (4 in. x 49 ft)
Roll area	36 m^2 (392 ft^2)	42 m^2 (460 ft^2)	
Roll weight	50 kg (108 lbs)	42 kg (92 lbs)	2 kg (4.3 lbs)
Minimum side/end laps	75 mm (3 in.)	75 mm (3 in.)	75 mm (3 in.)

*LT denotes Low Temperature (between -4°C (25°F) and +30°C (86°F))
HC denotes Hot Climate (>+10°C (50°F))

Ancillary Products

Bituthene Liquid Membrane – 5.7 liter (1.5 US gal) or 15.1 liter (4 US gal)

Physical Properties

Property	Typical Value 300R	Typical Value 160R	Test Method
Color	white	white	
Thickness	1.2 mm (0.046 in.) nominal	0.8 mm (0.032 in.) nominal	ASTM D3767
Low temperature flexibility	Unaffected at -23°C (-10°F)	Unaffected at -23°C (-10°F)	ASTM D1970
Resistance to hydrostatic head, minimum	70 m (231 ft)	70 m (231 ft)	ASTM D5385, modified[1]
Elongation, minimum	300%	300%	ASTM D412, modified[2]
Tensile strength, film, minimum	27.6 MPa (4000 psi)	27.6 MPa (4000 psi)	ASTM D412
Crack cycling at -23°C (-10°F), 100 cycles	Unaffected	Unaffected	ASTM C836
Puncture resistance, minimum	990 N (221 lbs)	445 N (100 lbs)	ASTM E154
Peel adhesion to concrete, minimum	880 N/m (5.0 lbs/in.) width	880 N/m (5.0 lbs/in.) width	ASTM D903, modified[3]
Lap peel adhesion	440 N/m (2.5 lbs/in.) width	440 N/m (2.5 lbs/in.) width	ASTM D1876, modified[4]
Permeance to water vapor Transmission, maximum	0.01 perms (0.6 ng/(Pa × s × m^2))	0.01 perms (0.6 ng/(Pa × s × m^2))	ASTM E96, method B
Water absorption, maximum	0.5%	0.5%	ASTM D570
Methane permeability	9.1 mls/m^2/day	N/A	University of London, QMW College[3]
Permeability[5] (hydraulic conductivity)	K=<1.4 x 10^{-11}cm.s^{-1}	K=<1.4 x 10^{-11}cm.s^{-1}	ASTM D5084-90

Footnotes:
1. Hydrostatic head tests of Preprufe Membranes are performed by casting concrete against the membrane with a lap. Before the concrete cures, a 3 mm (0.125 in.) spacer is inserted perpendicular to the membrane to create a gap. The cured block is placed in a chamber where water is introduced to the membrane surface up to the head indicated.
2. Elongation of membrane is run at a rate of 50 mm (2 in.) per minute.
3. Concrete is cast against the protective coating surface of the membrane and allowed to properly dry (7 days minimum). Peel adhesion of membrane to concrete is measured at a rate of 50 mm (2 in.) per minute at room temperature.
4. The test is conducted 15 minutes after the lap is formed (per Grace published recommendations) and run at a rate of 50 mm (2 in.) per minute at -4°C (25°F).
5. Result is lower limit of apparatus. Membrane therefore considered impermeable.

Specification Clauses

Preprufe 300R or 160R shall be applied with its adhesive face presented to receive fresh concrete to which it will integrally bond. Only Grace Construction Products approved membranes shall be bonded to Preprufe 300R/160R. All Preprufe 300R/160R system materials shall be supplied by Grace Construction Products, and applied strictly in accordance with their instructions. Specimen performance and formatted clauses are also available.

NOTE: Use Preprufe Tape to tie-in Procor with Preprufe.

Health and Safety

Refer to relevant Material Safety data sheet. Complete rolls should be handled by a minimum of two persons.

For Technical Assistance call toll free at 866-333-3SBM (3726).

Visit our web site at www.graceconstruction.com

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PF-111C Printed in USA 11/05 FA/LI/1M

GRACE Construction Products

Preprufe®

Pre-applied waterproof membranes that develop an adhesive bond to poured concrete to prevent water migration. For use below slabs and on basement walls.

Description

Preprufe® waterproof membranes are composite sheets comprising a robust HPDE backing, a pressure sensitive adhesive and a trafficable weather resistant coating.

Uniquely, the membrane develops a continuous adhesive bond to concrete poured against it. This prevents water migration between the structure and the membrane, substantially reducing the risk of leaks.

Applications

- Water and vapour proofing all basement grades to BS 8102:1990.
- Waterproofing civil engineering sub - structures.
- Methane, carbon dioxide and radon gas protection in excess of the standard membrane requirements in BRE Reports 211 (Radon) and 212 (Methane and Carbon Dioxide).

Independent Assessments

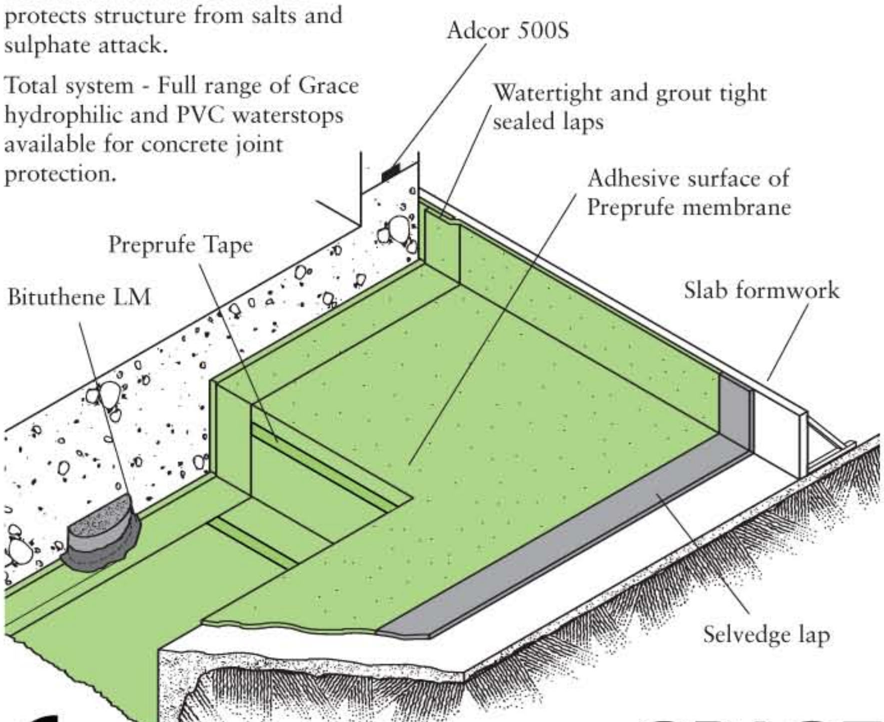
- BBA Certificate No. 97/3325.
- Mott MacDonald Special Services Report May 2001.
- International Certifications.

Advantages

- Versatile - can be used beneath foundation slabs and with single or double-sided formwork systems.
- Seals adhesively to concrete - the only technology proven to resist water migration.
- Lightweight, flexible - easy to handle and install without special corner pieces.
- No butt joints - all joints have bonded 'selvedge' or Preprufe Tape overlaps for increased leak protection.
- Inert - unaffected by groundwater contaminants, ponded water or wet/dry cycling.
- Remains sealed to structure - even if ground settles.
- Smooth surface membrane - site contamination easily removed.
- Excellent chemical resistance - protects structure from salts and sulphate attack.
- Total system - Full range of Grace hydrophilic and PVC waterstops available for concrete joint protection.

System Components

- Preprufe® 160R - used typically with concrete slab sections up to 350 mm thickness and vertically with single and double sided formwork systems.
- Preprufe® 300R - used typically with concrete slab sections greater than 350 mm thickness. Superior damage resistance.
- Preprufe® Tape - incorporating Preprufe coating for continuous concrete adhesion at taped edges and details.
- Bituthene® LM - high performance liquid membrane for detailing terminations at pile caps and pipe penetrations.
- Adcor® 500S - hydro-expansive waterstop for concrete construction joints.



Details shown are typical illustrations only and not working drawings. For assistance with working drawings and additional technical advice please contact Grace Technical Services

Application

Material Storage

Sequence deliveries to avoid delays, but minimise on-site storage. Select a safe, covered secure location for material storage. Store materials for each day's use in a location that won't require movement a second time. Do not double-stack pallets of waterproofing on the job site. Store protection boards flat and off the ground. Provide cover on top and all sides.

Substrate Preparation

Suitable substrates include:

- concrete blinding
- well compacted sand on rolled crushed stone
- rigid insulation
- clay heave boards
- permanent formwork
- removable formwork
- 19 mm plywood
- Hydroduct drainage sheets
- Adjacent sub-structures

Substrates should be uniform with no gaps or voids greater than 12mm. Where these exist fill with a material of sufficient strength to support the membrane. All substrates must be free of loose aggregate and sharp protrusions. Where possible, avoid sloping or rounded concrete blinding.

In crushed stone applications, it is important to create a sound and solid substrate around "through slab" penetrations to eliminate movement during the concrete pour. Excessive movement may jeopardise the waterproofing integrity around the penetration. Grout around the penetration prior to installing the membrane for stabilisation.

The surface does not need to be dry, but standing water must be removed. Substrates must have sufficient rigidity not to move during the concrete pour. Boarded substrates must be close butted to provide support and not more than 12 mm out of alignment.

Installation - General

Tools /materials required:

Heavy duty lap roller

Stanley /Utility knives

Tape measure

Cotton cleaning cloths

Plywood or similar cutting board

Thin metal straight edge

Chalk line

Broom

2 metre long pipe or heavy broom handle

Hot air heat gun

Grace MR2 paddle for mixing Bituthene LM

Round nose trowel or spatula

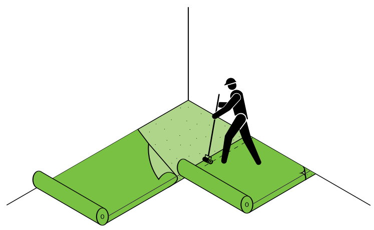
Required protection and/or drainage boards and other ancillary products

Preprufe membranes are supplied in rolls 1.2m wide with a self adhesive selvedge on one edge to enable fully bonded laps between adjacent rolls. All other laps must be taped with Preprufe Tape.

Minimum application temperature +5ºC.

When installing Preprufe in cold or marginal weather conditions (<13°C) the use of Preprufe Tape LT is recommended at <u>all</u> laps and detailing. Preprufe Tape LT should be applied to clean dry surfaces and the release liner must be removed immediately after application.

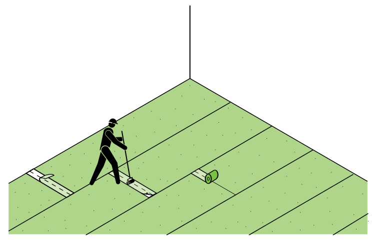
Installation - Horizontal



Place the membrane with the removeable plastic release liner uppermost. End laps should be staggered to avoid a build up of layers. Leave plastic release liner in position until overlap procedure is completed. Accurately position subsequent sheets to overlap the previous sheet 75mm along the selvedge. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back the plastic release liner from between the overlaps as the two layers are bonded together. Ensure a continuous bond is achieved without creases and roll firmly. On completion of the installation, **ensure complete removal of the plastic release liner from all membrane and tape.**

End Laps and Cut Edges

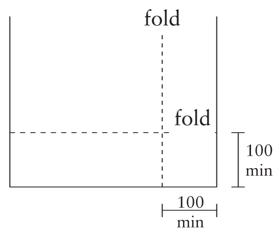
Overlap all roll ends and cut edges by a minimum 75mm and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary. Allow to dry and apply Preprufe Tape centred over the lap and roll firmly. Refer also to Preprufe Standard Details.



Corners

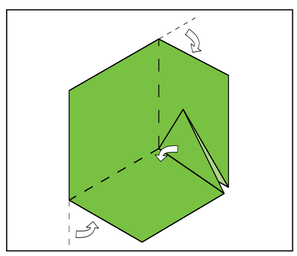
Internal and external corners should be formed as shown in the diagrams returning the membrane a minimum of 100mm and sealing with Preprufe Tape. Ensure that the apex of the corner is covered and sealed with Tape and **roll firmly**. Crease and fold the membrane to ensure a close fit to the substrate profile and avoid hollows.

①



Internal

②



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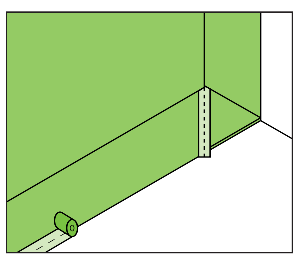
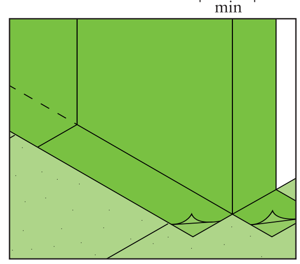
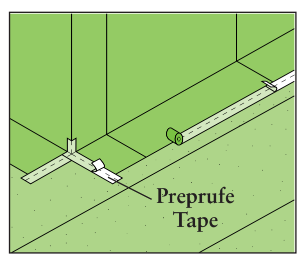


External

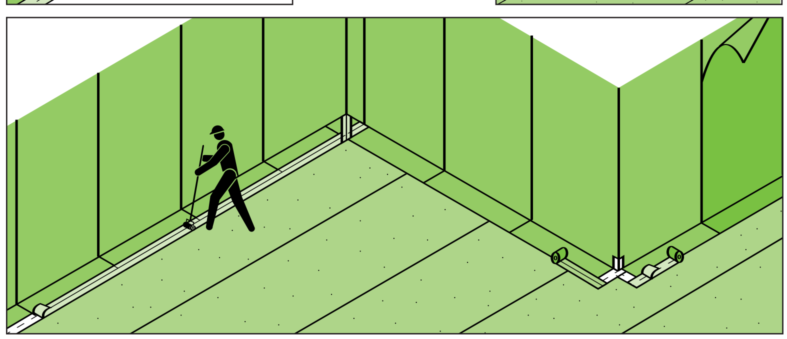
②



③



④



Internal & External Corners

Internal & external corners should be formed as shown in the diagrams below. Ensure that all laps are 100 mm minimum, taped with Preprufe Tape and well rolled. Crease and fold the membrane to ensure a close fit to the substrate profile.

Penetrations

To seal around penetrations such as service pipes, pile heads, lightning conductors, etc. mark and cut membrane tight to the penetration. If the membrane is not aligned within 12mm of the penetration, apply Preprufe Tape lapped onto the membrane and butted tight to the penetration. For pipe penetrations, wrap the pipe with Preprufe Tape. Mix and apply Bituthene LM around the penetrations using a fillet to provide a watertight seal between the Preprufe membrane and Tape. Refer also to Preprufe Standard Details.

Membrane Repair

Inspect the membrane for damage before installation of reinforcement steel, shuttering and final placement of concrete. Clean by jet washing if required.

Wipe the area with a damp cloth to ensure the area is clean and free from dust, and allow to dry. For minor repairs, apply Preprufe Tape centrally over the damaged area and roll firmly. For larger repairs use a patch of Preprufe and tape all edges with Preprufe Tape. Remove plastic release liner from Tape.

Where exposed selvedge has lost adhesion or laps have not been sealed, ensure the area is clean and dry and overband with Preprufe Tape and roll firmly.

Installation - Vertical

Apply the membrane with the thick white plastic face against the substrate. Mechanically fasten the membrane vertically using flat headed fixings appropriate to the substrate. The membrane may be installed in any convenient length. Secure the top of the membrane using a batten or fixing 50mm below the top edge. Use fixings at typically 600 mm centres to secure the membrane flat against the substrate. Fixings can be made through the selvedge, this allows firmly rolled overlaps, which are covered by the subsequent strip of Preprufe. Any exposed fixings should be patched with Preprufe Tape. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back the plastic release liner from between the overlaps as the two layers are bonded together. Ensure a continuous bond is achieved without creases and roll firmly. On completion of the installation, **completely remove the plastic release liner from all membrane and tape.**

Formwork Lining

Preprufe can be pre-applied to vertical formwork. Contact Grace for further guidance.

Removal of Formwork

Preprufe membranes can be applied to removable single and double sided formwork, slab perimeter formwork, pile caps, etc. Once concrete is poured the formwork must remain in place until the concrete has gained sufficient compressive strength to develop the surface bond with Preprufe.

A minimum concrete compressive strength of 10 N/mm^2 is recommended prior to stripping formwork supporting Preprufe membranes. Premature stripping may result in loss of adhesion between the membrane and concrete.

Wall Waterproofing Options

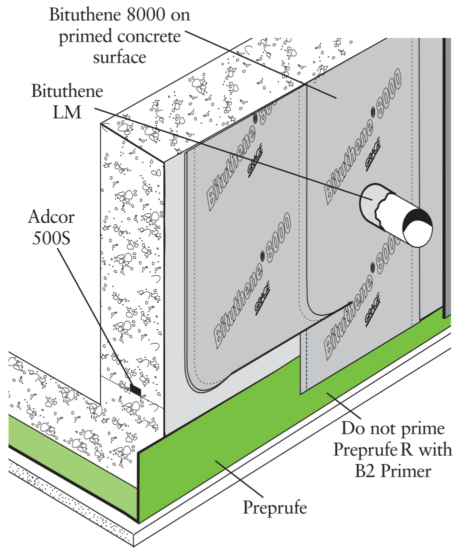
Grace also offers alternatives to pre-applying Preprufe to vertical formwork.

For conventional application to walls after formwork removal use either:

- Bituthene® 8000 - self adhesive sheet waterproofing membrane
- Procor® 75 - spray applied liquid waterproofing membrane.

Selection of the most cost-effective solution will depend on the construction programme, type of formwork system, wall height etc.

See separate data sheets for further information.



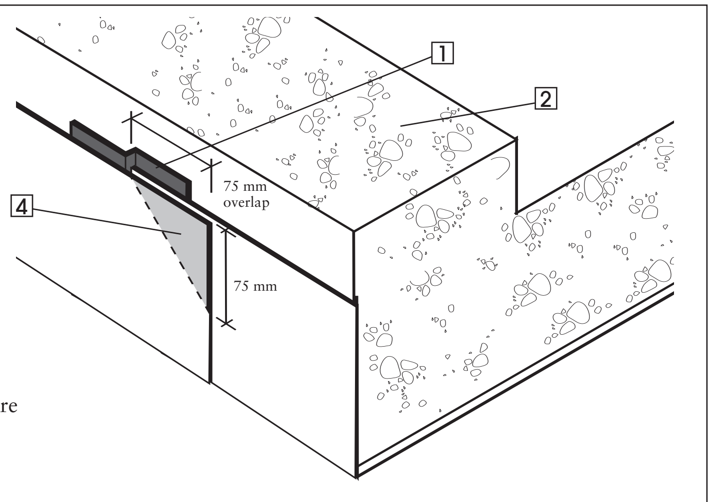
Bituthene 8000 post applied to walls in conjunction with Preprufe® below slabs

Preprufe Preparation When Bituthene Is Used on Walls

Inspect the Preprufe around the perimeter edge of the concrete slab. Identify any exposed non-selvedge overlaps in Preprufe. To ensure continuity of the fully bonded system, carefully cut and remove a 75 mm triangular piece of the top flap of Preprufe only, as shown shaded in the standard detail, Slab Perimeter Detail - non selvedge lap'.

Slab Perimeter Detail

1. Taped non-selvedge lap
2. Poured Concrete
3. Remove formwork
4. Cut and remove shaded piece before applying Bituthene



Supply

Preprufe®	300R	160R	Tape LT* or HC*
Thickness (nominal)	1.2 mm	0.8 mm	0.7 mm
Roll size	1.2 x 30.0 m	1.2 x 35.0 m	100 mm x 15.0 m
Roll area	36.0 m^2	42 m^2	
Roll weight	50 kgs	42 kgs	2 kgs
Minimum edge/end laps	75 mm	75 mm	75 mm

*LT denotes for temperature between -4^{0}C and +30^{0}C

*HC denotes for temperature between +10^{0}C and +40^{0}C

Ancillary Products

Adcor® 500S	5 m rolls
Bituthene® LM	5.7 litre
Paddle MR2 (80mm dia) for mixing	Unit
Lap Roller	Unit

Typical Properties

	Preprufe 300R	Preprufe 160R
Thickness (mm)	1.2	0.8
Adhesion to concrete (N/mm)	2.88	2.88
Shear strength of joints (N/mm)	9.52	9.52
Hydrostatic head resistance (m) ASTM D 5385 mod.	> 70	> 70
Water resistance (EN 1928)	pass at 60 kPa	
Puncture resistance (N)	990	445
Water vapour transmission rate (g/m^2/24 hrs)	0	0
Methane permeability (mls/m^2/24 hrs)	9.1	34.8
Radon transmission (m/s)	<21 x 10^{-9}	21 x 10^{-9}

Ancillary Products

Adcor® 500S
Hydrophilic waterstop for construction joints and pipe entries.

AT System – Co-extruded PVC waterstops for movement joints.

Bituthene Protection Board - protection against damage from backfill.

Limitations of Use

- Do not use Preprufe between concrete infilled hollow block walls.
- It is recommended that concrete be poured within 56 days (42 days in hot climates) of application of the membrane.

NBS Specification Clause

Refer to clause J40 297

Health & Safety

There is no requirement for a Material Safety Data Sheet for Preprufe. For health and safety questions on this product please contact Grace.

For Bituthene LM, read the product label and Material Safety Data Sheet (MSDS) before use. Users must comply with all risk and safety phrases.

MSDS's can be obtained from Grace Construction Products or from our web site at www.graceconstruction.com.

CE 0836

Grace Construction Products Ltd
Ajax Avenue, Slough
Berkshire SL1 4BH United Kingdom
06 **06/F005**

EN 13967
Preprufe 160R and 300R
Waterproofing Membranes, Type T
Watertightness : Pass at 60 kPa

Visit our web site at www.graceconstruction.com

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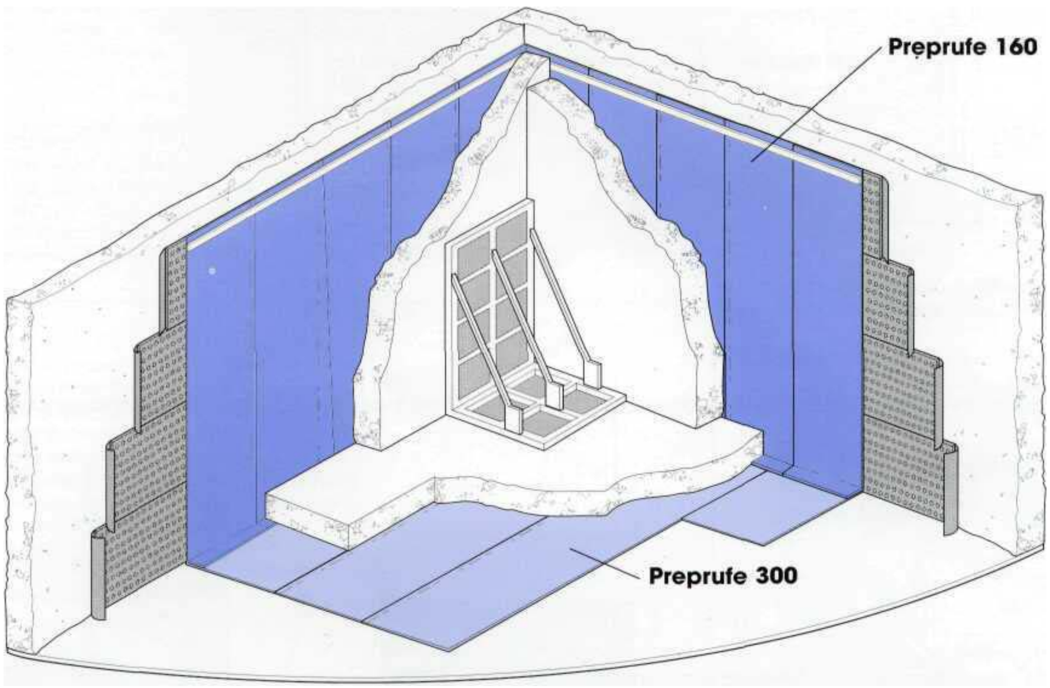
GRACE
Construction Products

Foundation Protection

P R O D U C T I N F O R M A T I O N

Preprufe®

Unique pre-applied waterproofing membranes that bond to poured concrete.



Principal Applications

- Basement Waterproofing - provides protection to Grades 2, 3, & 4 as defined by British Standard 8102:1990
- Sub-slab Methane Protection

System Advantages

- Forms permanent mechanical bond to poured concrete
- Prevents water tracking between membrane and structure
- Unaffected by settlement of substrate below suspended slabs
- Eliminates requirement for protection boards, etc.
- Simple application, no priming or fillets
- Maximises use of confined sites
- Year round application advantages

The Preprufe™ System

Preprufe membranes are unique multi-layered composite sheets comprising a thick HDPE film, a highly aggressive pressure sensitive adhesive and a weather resistant protective coating.

The Preprufe System includes:

- Preprufe 300 - tough, heavy duty grade for horizontal use below slabs and rafts. Surface treated to allow foot traffic and the placing of steel reinforcement using appropriate spacers or chairs.
- Preprufe 160 - lighter grade for vertical tanking against permanent formwork
- Preprufe Tape - for overbanding roll ends, cut edges, and detailing
- Bituthene Liquid Membrane - for sealing around penetrations, etc.

Preprufe™ membranes are applied horizontally to smooth prepared concrete or well rolled sand blinding, or vertically to temporary works or adjoining structures. Reinforced concrete is then cast directly against the adhesive side of the membranes. The specially developed Preprufe™ adhesive layers then work together to form a continuous and permanent bond to the concrete cast against it.

Preprufe membranes are supplied in rolls 1.2m wide with a selvedge on one side to provide sealed laps for continuity between rolls. The rolls of Preprufe and Tape are interwound with a disposable plastic release liner which must be removed before placing reinforcement and concrete.

GRACE
Construction Products

Application

Substrate Preparation

All Surfaces - It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 12mm. Hydroduct drainage composites provide an excellent surface for the membrane with the additional benefit of positive sub structure drainage.

Horizontal Blinding - Substrate should be monolithic concrete or well compacted sand blinding on granular fill as specified by the structural engineer. The blinding must be free of loose aggregate and sharp protrusions. An angular profiled blinding is recommended rather than a sloping or rounded substrate. The surface does not need to be dry but standing water must be removed to prevent overlaps being contaminated and waterproofing properties compromised.

Vertical sheet piling - Use concrete or 19mm plywood to face up sheet piling and provide support to the membrane. Sheets must be close butted to provide support and not more than 12mm out of alignment.

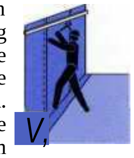
Membrane Installation

Preprufe membranes shall be laid with adjacent rolls overlapped and overbanded where necessary and firmly rolled to ensure complete adhesion and watertight continuity between layers. Preprufe can be applied at temperatures of -4°C or above. To facilitate application during cold or damp conditions, the selvedge and tape adhesive may need gentle warming using a gas torch or similar to remove moisture or condensation and improve initial adhesion.

Preprufe 300 - Unroll the membrane black film side to the substrate. End laps should be staggered to avoid a build up of layers. Leave plastic release liner in position until overlap procedure is completed.

Accurately position succeeding sheets to overlap the previous sheet 75mm along the black selvedge. Ensure the underside of the succeeding sheet is clean, dry and free from dust before attempting to overlap.

Peel back the plastic release liner from between the overlaps as the two layers are bonded together. Ensure a continuous bond is achieved without creases and roll firmly. Completely remove the plastic liner to expose the white protective coating. Any initial tack will quickly disappear.

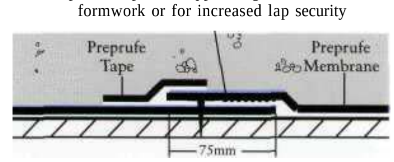


Preprufe 160 - Mechanically fasten the membrane vertically using appropriate fixings to suit the substrate. The membrane may be installed in any convenient length. Secure the top of the membrane using a batten or fixing 50mm below the top edge. Fixings can be made through the black selvedge so that the membrane lays flat and allows good well rolled overlaps. Immediately remove the plastic release liner. Ensure the underside of the succeeding sheet is clean, dry and free from dust before attempting to overlap. Roll firmly to ensure a watertight seal.

Roll Ends & Cut Edges - Overlap roll ends and cut edges by a minimum 75mm and wipe the area with a damp cloth to ensure the area is clean and free from dust. Allow to dry and apply Preprufe Tape centred over the lap and roll firmly. Remove plastic release liner from Tape. Double sided Bitutape can be used between laps to bond exposed flap when Preprufe is applied against removable formwork or where required for increased lap security.

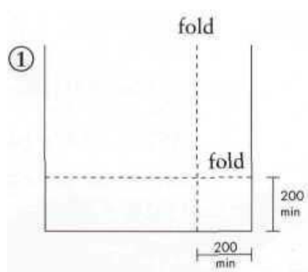
Roll end or cut edge detail

Bitutape 30mm can be used to bond exposed flap when applied against removable formwork or for increased lap security

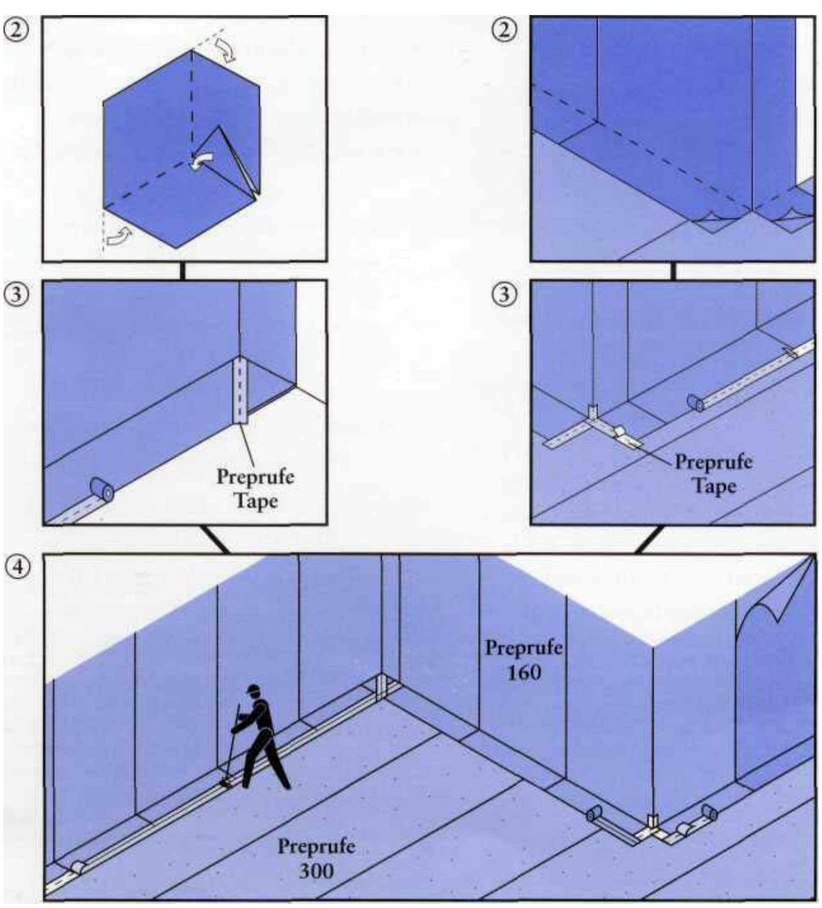


Corners

Internal and external corners should be formed as shown in the diagrams returning the membrane a minimum of 200mm and sealing with Preprufe Tape. Ensure that the apex of the corner is covered and sealed with Tape and roll firmly. Crease and fold the membrane to ensure a close fit to the substrate profile and avoid hollows. Double sided Bitutape may be used between overlaps to assist application and increase security.



Internal External



Penetrations

Use the following steps to seal around unavoidable penetrations such as service pipes, piles, lightening conductors, pits etc.

1. Scribe membrane tight to the penetration. If the membrane is not within 12mm of the penetration, apply Preprufe Tape to cover the gap.
2. Wrap the penetration with Preprufe Tape by positioning the Tape 12mm above the membrane.
3. Mix and Apply Bituthene Liquid Membrane around the penetrations using a fillet to provide a watertight seal between the Preprufe membrane and Tape.

Bituthene Tie-ins

If the Preprufe membrane ties into other Bituthene membranes or where the waterproofing and concrete placement will be in more than one lift, leave an additional 300mm flap of Preprufe exposed. Complete the detail after the concrete is poured.

Membrane Repair

Inspect the membrane before installation of reinforcement, shuttering and finally placement of concrete.

In the event of damage, repair by wiping the area with a damp cloth to ensure the area is clean and free from dust, and allow to dry. Apply Preprufe Tape centrally over the damaged area and roll firmly. Any areas of exposed black adhesive should be overbanded with Preprufe Tape. Remove plastic release liner from Tape.

Where an exposed selvedge has lost adhesion or laps have not been sealed, ensure the area is clean and dry and overband with fresh Preprufe Tape and roll firmly. Alternatively, use a soft gas torch or similar to activate adhesive and firmly roll lap to achieve continuity.

Pouring of Concrete

Ensure the plastic release liner is removed from all areas of Preprufe membrane and Tape.

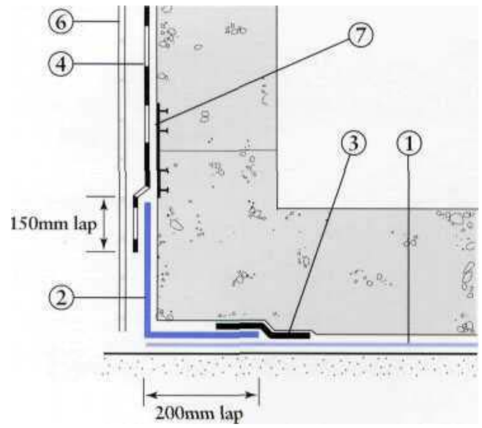
Cast concrete within 40 days of application of the membrane. Concrete must be placed and compacted carefully to avoid damage to the membrane.

Removal of Formwork

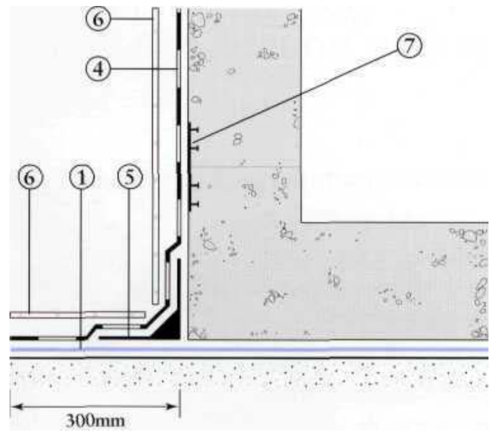
Preprufe membranes can be applied to removable shuttering, such as slab perimeters, lift pits, etc. Once the concrete is poured the formwork must remain in place until the concrete has gained sufficient Compressive strength to develop the surface bond.
A minimum concrete Compressive strength of 10 N/mm^2 is recommended prior to stripping formwork supporting Preprufe membranes.

Premature stripping may result in loss of adhesion between the membrane and concrete. As a guide, to reach the minimum Compressive strength stated above, a structural concrete mix with an ultimate strength of 40 N/mm^2 will typically require a cure time of approximately 6 days at an average ambient temperature of 4°C, or 2 days at 21°C. For further guidance, please consult our Technical Services Department.

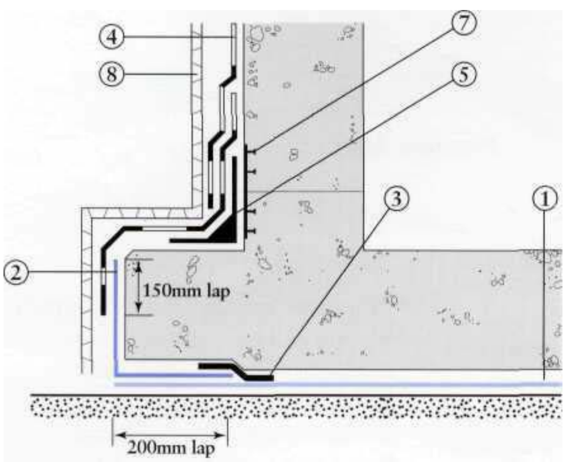
Wall base detail



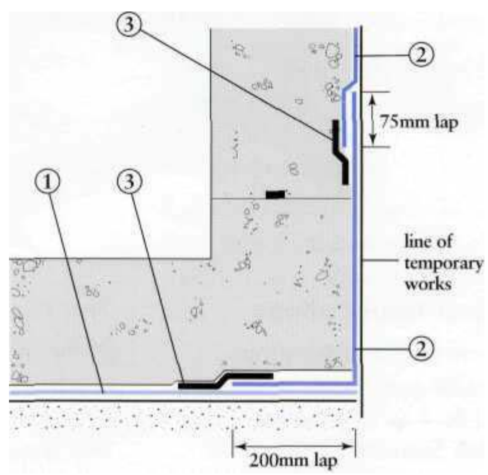
Alternative wall base detail for early shutter



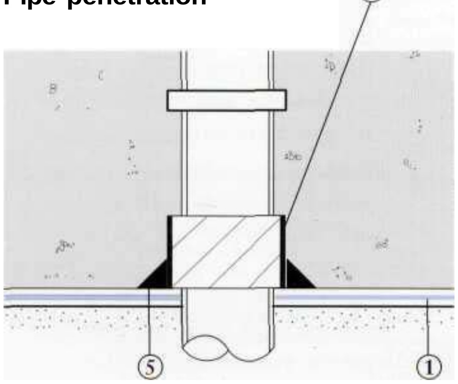
Wall base with toe detail showing drainage



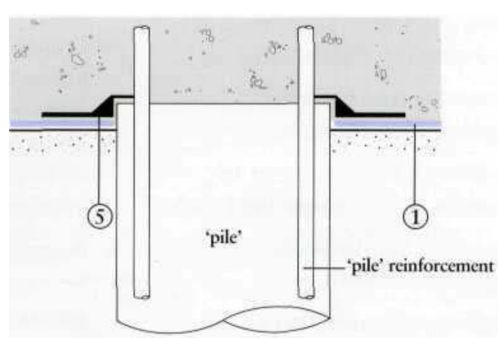
Wall base detail against temporary works



Pipe penetration



Pile detail



1 Preprufe 300
2 Preprufe 160
3 Preprufe Tape
4 Bituthene 3000
5 Bituthene Liquid Membrane
6 Servipak Protection
7 Serviseal Waterstop as required
8 Hydroduct Drainage

Details shown are typical illustrations and not working details. For assistance with detailing and problem solving please contact our Technical Department.

Supply

Bituthene Preprufe	300	160	Tape
Thickness (nominal)	1.4	1.0	1.0
Roll size	1.22 x 30.4m	1.22 x38.1m	100mm x 15.2m
Roll area	$37.0m^2$	$46.5m^2$	$1.52m^2$
Roll weight	62kgs	56kgs	2kgs
Minimum edge laps	75mm	75mm	NA
Minimum end laps	75mm	75mm	50mm

Physical Properties

Property	Typical Value 300	160	Test Method
Colour	Black with white protective coating and surface treatment	Black with white protective coating	
Thickness	1.42 mm	1.07 mm	ASTM D3767 Method A
Peel adhesion to concrete	880 N/m		ASTM D903 Modified[1]
Lap adhesion	528 N/m		ASTM D1876 Modified[2]
Methane Permeability	$9.1 mls/m^2/day$	N/A	University of London, QMW College
Resistance to hydrostatic head	70m		ASTM D5385 Modified[3]
Low temperature flexibility	Unaffected at -23°C		ASTM D1970
Puncture resistance	990 N minimum	445 N minimum	ASTM E 154
Tensile strength, film	27600 kPa		ASTM D412
Elongation	300%		ASTM D412 Modified[4]
Moisture Vapour Transmission	$0.38\ g/m^2/24$ hours		ASTM E96-94

Footnotes:

1. Concrete is cast against the white treated surface of the membrane and allowed to properly dry (7 days minimum). Peel adhesion of the membrane to the concrete is measured at a rate of 50 mm per minute at room temperature.
2. The test is conducted 15 minutes after the lap is formed and run at a rate of 50 mm per minute at -4°C.
3. Hydrostatic head tests are performed by casting concrete against the membrane with a lap. The cured block is placed in a chamber where water is introduced to the membrane surface up to a head of 70 m.
4. Rate of separation: 50mm per minute

Ancillary Products

Bituthene Liquid Membrane (LM)	5.7 litre & 15.1 litre packs
Bitutape 30mm wide	12 m roll
Servicised Paddle MR2 (80mm dia) for mixing Bituthene LM	Unit
Servicised Lap Roller	Unit

Specification Clauses

Bituthene Preprufe 300 or 160 shall be applied with its adhesive face presented to receive fresh concrete to which it will mechanically adhere. Only ancillary, complementary or Bituthene membranes shall be bonded to Bituthene Preprufe. All Bituthene Preprufe system materials shall be supplied by Grace Construction Products and fixed strictly in accordance with their instructions.

Specimen performance and formatted clauses are also available.

Health and Safety

Refer to relevant Material Safety data sheet. Complete rolls should be handled by a minimum of two persons.

APPENDIX G

Construction Health and Safety Plan

518-526 West 30th Street,
Manhattan, New York
Block 701 Lot 45, 52, 55, 56 and 58

CONSTRUCTION HEALTH AND SAFETY PLAN

Prepared For:
West 30th Highline Holdings, L.L.C.
c/o The Related Companies L.P.
60 Columbus Circle
New York, NY 10023
FLS Project Number: 10022-012-1

Submitted to:
New York City Office of Environmental Remediation
253 Broadway, 14th Floor
New York, NY 10007

Submitted by:

Arnold Fleming P.E.

&

Fleming Lee Shue

Environmental Management & Consulting
158 West 29th Street, 9th Floor
New York, New York 10001

June 2013

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1.0 Introduction

Fleming-Lee Shue, Inc. (FLS) has prepared this Construction Health and Safety Plan (CHASP) on behalf of West 30th Highline Holdings, L.L.C. for the 518-526 West 30th Street Site (Site).The Site consists of Tax Lots 45,52,55,56 and 58 on Block 701 in New York, New York County, New York. The Site is located on mid-block of west 30th Street between 10th and 11th Avenues (figure 1).

The purpose of this CHASP is to identify the real and potential hazards associated with environmental activities related to and conducted during the planned construction and to stipulate appropriate health and safety procedures, particularly where hazardous materials are potentially present. The procedures and guidelines contained in this document are intended to minimize exposure to chemical, physical and biological hazards that may be present in the soil, groundwater, or air and to reduce the potential for accidents and injuries.

This CHASP is based on the premise that accidents are preventable and that accident prevention is the responsibility of all individuals on the project team. Usually accidents are the result of dangerous actions, conditions and/or equipment. Therefore, the goal of this CHASP is to prevent all accidents by developing a sense of safety, health awareness, and safe work habits in field and construction personnel, and by ensuring that the safety requirements of this CHASP are fulfilled. Strict adherence to these health and safety guidelines will reduce, but not eliminate, the potential for injury on the sites.

The procedures described in this document were developed in accordance with the provisions of Occupational Safety and Health Administration (OSHA) rule 29 CFR 1910.120 and FLS' experience with similar projects. All Site workers must read and comprehend this generic CHASP before entering the construction area. The Health and Safety Officer (HSO) or designee will ensure that personnel have reviewed the CHASP and will provide an opportunity to ask health and safety questions during attendance at a pre-construction safety meeting. Field personnel will sign the acknowledgment form (Attachment I) maintained on-site at the construction office by the HSO. The recommended health and safety guidelines in this document may be modified, if warranted, by additional information obtained prior to, or during construction. The HSO will also maintain copies of pertinent health and safety records for all field personnel.

The Occupational Safety and Health Act (1970) requires:

- Employers shall furnish each employee with a place of employment free from recognized hazards that are causing or likely to cause death or serious physical harm.
- Employers must comply with occupational health and safety standards and rules, regulations and orders pursuant to the Act, that are applicable to company business and operations.
- All employees must comply with occupational health and safety standards and regulations under the Act, which are applicable to their actions and situations.
- Employees are encouraged to contact their immediate superior for information that will help them understand their responsibilities under the Act.

1.1 Site Development Plan

The redevelopment project includes multiple lots within Block 701, including lots 45,52,55,56 and 58. The Site is an extension of 529 West 29 (Block 701 Tax Lot 16) project. The Site will include a single 26-story tower on a 3 story podium base and will encompass current lots 58, 56, 55, 52 and part of lot 45. The proposed residential, mixed use building will have one cellar level with frontage along 30th Street between 10th Avenue and 11th Avenue. The cellar level will be used for mechanical rooms, tenant storage, residential accessory spaces and residential amenities. The cellar will have a slightly larger footprint as the podium base above (additional 15'-0" toward the High Line) with at least 12'deep plus foundations. The first floor will have the residential entrance lobby on 30th street and retail use along the remainder of the street frontage. The ground floor has no grade level open spaces proposed. The parking entrance will be located on the first floor as well with primary access 30th street; there will be only a ground floor connection with the existing building at 529 29th Street for vehicular purposes only. The second floor of the building will house permitted accessory parking for the building along with some mechanical rooms. The third floor, last podium floor, will consist of open to below spaces for parking at second level, mechanical spaces, and residential units. Floors 4 to 28 will have 190 residential units ranging from studios to three bed rooms. The exterior of the building will be pre-cast concrete panels with brick veneer, with aluminum and glass punched windows and an Aluminum and glass storefront for the retail portions at the first floor. The development will be approximately 270,000 gross square feet, including 20,000 square feet of below grade space.

1.1.1 Site Description

The Site consists of Tax Lots 45,52,55,56 and 58 on Block 701 in New York, New York County, New York and is located at 518-526 W 230h Street. Figure 1 shows the Site location. The Site is 23,700-square feet and is bounded by the Lot 16 project to the south and West 30th Street to the north. To the east, the Site is bounded by Lot 44 and the High Line. The High Line is a New York City linear park built on the former elevated New York Central Railroad spur called the West Side Line. Currently, the site is a vacant lot. According to the Department of City Planning, the Site is included in the special West Chelsea District Zone that allows for the development of new residential/ commercial buildings and facilities the reuse of High Line as an open linear park.

Historically, the Site consisted of tenement style buildings from before 1890 up until the property was redeveloped structure in the mid 1900's. This building was occupied by the Metal Purchasing Company before it was converted into a parking garage. Currently, the Site is a vacant lot.

1.1.2 Previous Site Investigation Results

1.1.2.1 Phase I Environmental Site Assessment (ESA) (April 2005).

FLS performed a Phase I ESA for the Site in April 2005. The Phase I ESA indicated several recognized environmental conditions pertaining to the Site:

- Review of historic documentation revealed that the adjacent property to the north, north of West 30th Street had been used for metal enameling. Based upon surface topography, this site is located hydraulically side-gradient to the Site; therefore, these operations are not a concern to the Site.

- A four foot by six foot asphalt patch was observed in the fenced parking lot located at 333-335 10th Avenue. Review of the historic Sanborn fire insurance maps revealed that this site had been used as a gasoline filling station. This patch may be associated with maintenance of the parking area or with an underground storage tank (UST) removal. No releases associated were listed in the regulatory database, and are therefore not a concern to the Site.

- The historic junkyard and filling station operations of Lot 37, up-gradient from the Site, may have potentially impacted subsurface conditions on the Site.

- No. 4 fuel oil was stored in a storage tank located in a vault in the basement of 502-504 West 30th Street (up/cross-gradient from the Site). Review of the regulatory database revealed this building was listed as a Petroleum Bulk Storage (PBS) Aboveground Storage Tank (AST) facility under PBS facility number 2-402001 due to the presence of one 5,000-gallon fuel oil AST. These operations may have potentially impacted subsurface conditions on the Site.

- The historic auto repair operations up-gradient from the Site, beneath the high line, have the potential to have impacted the Site soils and groundwater.

- The demolished building located at 502 West 30th Street (up/cross-gradient from the Site) was occupied by a printing company during the mid 1950's and a wholesale gas supplier during the late 1960's most likely compressed gas). It is likely that the printing company used the 502 West 30th Street building for printing. The 502 West 30th Street structure had a basement that was occupied by electrical equipment, heating equipment, and a 5,000-gallon No. 4 fuel oil AST.

The historic printer is not a concern to the Site since it is likely that the printing equipment would have been located on the upper floors of the 502 West 30th Street building, and any releases associated with the printing operation (incidental spills, leaking equipment, etc.) would have needed to migrate through the floor(s) into the basement and through the foundation of the structure in order to impact subsurface soils and groundwater. Additionally, any routine releases associated with the printing operations (release of wash water, excess materials, etc.) would have been discharged into a drain that was connected to the New York City Department of Environmental Protection (NYCDEP) combined sanitary/storm water collection system. These operations are therefore not a concern to the Site.

- Review of historic documentation revealed that the structure located at 515 West 30th Street (up-gradient to the Site) was previously occupied by a chemical manufacturer. No further information regarding the historic operations was obtained through the historic documentation reviewed. These operations have the potential to have impacted the Site soils and groundwater.

- FLS observed one monitoring well in the sidewalk to the south of the Site. Another two monitoring wells were located on the South Side of West 29th Street (cross-gradient to the Site); in front of the Sean Kelly art gallery (536-528 West 29th Street). Review of the historic Sanborn fire insurance maps revealed that an unspecified number of gasoline underground storage tanks (USTs) were present at this property starting circa 1930. A closed gasoline fill port was observed in the center of the two wells on the adjacent property to the south. It is expected that the three monitoring wells were installed as part of a tank closure which had been performed at this property. This site was not listed with a documented release in the regulatory database, and is therefore not a concern to the Site.

- A one-foot by two-foot concrete patch was observed at the adjacent property to the north of the Site (cross-gradient). Based on the location and size of the patch, this patch may have been a hydraulic lift pit that had been previously closed, and may have potentially impacted subsurface conditions on the Site.

1.1.2.2 FLS March 2012 Remedial Investigation Report

The Remedial Investigation characterized the environmental conditions at the Site. The findings were documented in the March 2012 Remedial Investigation Report. The findings are summarized herein:

- The stratigraphy consists of 2-8 feet of urban fill underlain by a minimum of 8 feet of silty sand.

- The results of the laboratory analysis of samples of the fill material identified polycyclic aromatic hydrocarbons (PAHs) and metals at concentrations exceeding the NYS Unrestricted Use Soil Cleanup Criteria.

- The results of the laboratory analysis of the groundwater samples identified elevated concentrations of metals.

- The results of the laboratory analysis of the soil vapor samples did not identify any volatile organic compounds at concentrations exceeding regulatory standards.

2.0 Potential Chemical and Physical Hazards

2.1 Potential Chemical Hazards

This CHASP focuses on the following chemicals of concern:

- VOC
    - Benzene
    - PCE
    - 1,1,1 TCA
    - TCE
    - 1,1-DCA
    - 1,1-DCE
    - cis-1,2-DCE
    - trans-1,2-DCE
    - Vinyl Chloride
- SVOCs
    - PAHs
- Metals
    - Arsenic
    - Barium
    - Beryllium
    - Cadmium
    - Chromium
    - Copper
    - Lead
    - Manganese
    - Mercury
    - Nickel
    - Selenium
    - Zinc
- PCBs
    - Total PCBs

Attachment II lists the Recognized and Suspected Health Hazards and permissible exposure limits for the chemicals known to be present at the Site. Material Safety Data Sheets (MSDS) for these chemicals are also included in Attachment II. The chemical hazards will be minimized by limiting exposure of personnel to hazardous conditions and by the use of personnel protective equipment (PPE).

2.2 Physical Hazards

Physical hazards potentially present at the site include, but are not limited to, the following:

- Slips, trips, and falls (uneven terrain, excavations, and slippery surfaces) hazards;
- Environmental (heat/cold) stress;
- Noise hazards; and
- Use of heavy equipment

Physical hazards associated with lockout/tag-out, scaffolds, confined spaces and other construction equipment are addressed in Sections 3.9 and 4 of this CHASP. A discussion of heat stress and cold stress and related illnesses is provided in Attachment III.

2.3 Biological Hazards

General biological hazards present at the site include, but are not limited to, the following:

- Bites or stings from insects (particularly ticks) resulting in skin inflammation, disease, or allergic response; and
- Allergens and toxins from plants and animals, producing dermatitis, rhinitis, or asthma.

3.0 Health and Safety Protocol

3.1 Site/Work Hazard Evaluation

Upon review of contaminant levels, physical and biological hazards, exposure routes and the nature of the construction tasks, it has been determined that Level D protection will be used during construction activities. Personal protection levels are described in more detail in Section 3.6 and air monitoring is discussed in Section 5.

3.2 Project Team Organization

All personnel who participate in field activities will be required to attend a Health and Safety meeting prior to the commencement of field activities. The project team organization is shown on Table 1, and the roles are described below.

Health and Safety Officer (HSO)

- Administers all aspects of the occupational health and safety program;
- Develops programs and technical guidance to identify and remove physical, chemical, and biological hazards from facilities, operations, and sites;
- Assists management and supervisors in the health and safety training of employees;
- Conducts inspections to identify unhealthy or unsafe conditions or work practices;
- Investigates all accidents and takes action to eliminate accident causes;
- Monitors to determine the degree of hazard;
- Determines the protection levels and equipment required to ensure the safety of personnel;
- Evaluates on-site conditions (i.e., weather and chemical hazard information) and recommending to the project manager and/or the field coordinator, modifications to the work plan and personnel protection levels;
- Monitors performance of all personnel to ensure compliance with the required safety procedures;
- Ensures that all personnel have been trained in proper site-safety procedures including the use of PPE, and have read and signed the Acknowledgment Form (Attachment I);
- Conducts daily briefings as necessary;
- Halts work if necessary;
- Ensures strict adherence to the Site CHASP; and
- Reviews personnel medical monitoring participation.

Project Manager

- Familiar with health and safety regulations related to area of responsibility.
- Directs and coordinates health and safety activities within area of responsibility.
- Ensures arrangements for prompt medical attention in case of serious injury
- Requires all employees supervised to use individual protective equipment and safety devices.
- Ensures that safety equipment is available, maintained, used, and stored correctly.

- Instructs and trains all persons within area of responsibility in health and safety requirements.
- Conducts frequent and regular health and safety inspections of work area. Directs correction of unsafe conditions.
- Conducts weekly safety briefings with all supervisors and/or workers.
- Requires all subcontractors and subcontractor personnel to comply with health and safety regulations.

All Employees

The minimum personnel qualifications for each individual participating in field activities are:

- OSHA-specific medicals including, but not limited to, audiometric testing under the hearing conservation program and medical approval for the use of respirators;
- Participation in the FLS Occupational Health Monitoring Program;
- Successful completion of the 40-hour OSHA health and safety training for hazardous material sites (29 CFR 1910.120[e][3][i]) and valid/up-to-date 8-hour refresher training (29 CFR 1910.120[e][4]);
- Additionally, it is strongly recommended that all field personnel be trained in first aid and Cardio-Pulmonary Resuscitation (CPR);
- Be familiar with and comply with proper health and safety practices;
- Use the required safety devices and proper personal protective safety equipment; and
- Notify HSO/supervisor immediately of unsafe conditions/acts, accidents, and injuries.

3.3 Training

Knowledge of the safety rules supplemented by compliance is essential to safety. New employees will be provided orientation training and will be furnished information and literature covering the company health and safety policies, rules, and procedures. This orientation training must be provided prior to the employee's visit to the Site.

All employees will have successfully completed the 40-hour OSHA health and safety training for hazardous material sites (29 CFR 1910.120[e][3][i]) and valid/up-to-date 8-hour refresher training (29 CFR 1910.120[e][4]).

Employees must read the CHASP and project-specific Work Plan, which contains the applicable regulations/standards for their job.

Prior to beginning work on-Site, and weekly thereafter, the HSO will lead safety training sessions and/or "tailgate" training meetings. These meetings will be conducted to provide information and training on new equipment, new procedures, new chemicals, refresher/remedial training in specific areas, or meet annual requirements. Such training may be held in conjunction with the safety briefings/meetings addressed elsewhere in this program.

If necessary, the HSO will ensure that employees are scheduled and provided specialized training as required. Examples of specified training include (but are not limited to):

- Safe handling/use of flammables, poisons, or toxics;
- Respirator care/use;
- Hazard communication (hazardous chemicals);
- Slip, trip and fall hazards and fall protection;
- Blood-borne Pathogens (Non-Medical).

Specialized training will be documented in the employees' personnel records and/or in a master training record.

3.4 Subcontractor Compliance

The provisions of these health and safety responsibilities apply to subcontractors and their employees working for FLS. Failure to fulfill this requirement is a failure to meet the conditions of the contract.

3.5 Personal Hygiene

Eating, drinking and the use of tobacco products in the work area are prohibited. The use by site personnel of alcohol or other non-prescription drugs that could impair the ability to function at the work site is prohibited. The use of some prescription drugs may impair the ability to function and can create safety problems on-site. Field personnel taking prescription medication should alert the HSO in case of an emergency. Beards or facial hair that could interfere with the use of a respirator are not permitted. Dermal contact with groundwater should be avoided. This includes avoiding walking through puddles, pools, and mud, sitting or leaning on or against drums, equipment, or on the ground. Field personnel should wash their hands before eating, smoking, using the toilet, etc. Field personnel should wash their hands and face and shower (daily) as soon as possible after leaving the site.

3.6 Levels of Personal Protection

Personal protective equipment (PPE) must be worn as required for each job in all operations where there is an exposure to hazardous conditions.

3.6.1 Level D

Level D applies to work in areas where the possibility of contact with potentially contaminated groundwater and soil exists. The protective equipment required for Level D includes, but is not limited to, the following:

- Work clothes or coveralls;
- Safety boots, with steel toe;
- Safety glasses;
- Hard hat;
- Reflective vest;
- Disposable latex gloves;
- Hearing protection, to be used as needed

3.6.2 Level C

Level C is selected only when the type of material and the concentration are known, and pose a moderate level of respiratory risk to the site worker. Level C is required when PID readings indicate a consistent level of 5 ppm or above of total volatile organics in the worker breathing zone. Level C protection will include, but is not limited to, the following:

- Protective clothing and other equipment required for Level D;
- Full-face air purifying respirator (APR) with high efficiency particulate/organic vapor cartridges (ultra-twin with GMCH cartridges);
- Saranex-coated disposable coveralls with hoods; and
- Boot covers.

3.7 General Workplace Safety Rules

- Report unsafe conditions, accidents, injuries, or incidents to the HSO and Project Manager.
- Use eye and/or face protection where there is danger from flying objects or particles, (such as when grinding, chipping, burning and welding, etc.) or from hazardous chemical splashes.
- Dress properly. Loose clothing and jewelry shall not be worn.

- Keep all equipment in safe working condition. Never use defective tools or equipment.
- Report any defective tools or equipment to immediate supervisor.
- Properly care for and be responsible for all PPE.
- Do not leave materials in aisles, walkways, stairways, work areas, roadways, or other points of egress.
- Practice good housekeeping at all times.
- Training on equipment is required prior to unsupervised operation.
- During work, pause every few minutes and assess surrounding conditions.
- Crossing highways and major roadways is not recommended. Expect movement of cars and buses at any time along any roadway, regardless of traffic signals, stop signs, yield signs, etc.
- When walking on right-of-ways or road-shoulders, keep a sharp lookout in both directions.
- For personal safety, be cognizant of your surroundings and ensure that equipment is properly secured.

3.8 Housekeeping

- Proper housekeeping is the foundation for a safe work environment. It definitely helps prevent accidents and fires, as well as creating a professional appearance in the work area.
- Material will be piled or stored in a stable manner so that it will not be subject to falling.
- Combustible scrap, debris, and garbage shall be removed from the work area at frequent and regular intervals.
- Stairways, walkways, exit doors, in front of electrical panels, or access to fire fighting equipment will be kept clear of materials, supplies, trash, and debris.

3.9 Fire Prevention

- All firefighting equipment shall be conspicuously located, accessible, and inspected periodically, and maintained in operating condition. An annual service check and monthly visual inspections are required for fire extinguisher.
- All employees must know the location of firefighting equipment in the work area and have knowledge of its use and application.

3.10 Industrial Hygiene and Occupational Health

- Toilet facilities shall be provided as required for the number of workers.
- A first aid kit and portable eyewash station shall be kept on site.
- An adequate supply of potable water shall be provided.
- The use of a common drinking cup is prohibited.
- When no medical facility is reasonably accessible (time and distance) to the worksite, a person who has a valid certificate of first aid training will be available at the worksite to render first aid.
- Employees must be protected against exposure to hazardous noise levels by controlling exposure or by use of proper PPE.

3.11 Construction Equipment Safety Rules

A discussion of health and safety issues related FLS employees performing work in the vicinity of common construction elements, such as electrical; compressed gas cylinders; ladders; aerial lifts; cranes; welding and brazing; tools; safety railings and other fall protection; scaffolds; excavations and trenches; motor vehicles and mechanized equipment, is provided in Attachment IV.

4.0 Individual Health and Safety Programs Listings

OSHA standards specify various individual programs that may be applicable to work performed on construction sites. Highlights of these programs are provided below, and specific written programs or procedures may be included into this written program, attached, or developed separately.

4.1 Hazard Communication Program

If employees are exposed to or work with hazardous chemicals at the job site, this program is required. Important elements of the written program are required to include a master listing of chemicals; maintaining material safety data sheets on each chemical; and training of employees on the program, the chemicals exposed to, and material safety data sheets.

4.2 Confined Space Entry Program

If employees enter a confined space that contains or has the potential to contain an atmospheric or physical hazard, this program is required. Either the ANSI Z117.1-1989 Safety Requirements for Confined Spaces program or the OSHA General Industry Permit Require Confined Spaces program must be used as guidance to develop the company's program. Primary elements of the program are identification of applicable confined spaces, testing/ monitoring, control or elimination of hazards, protective equipment, entry authorization, attendants, training, and rescue. No FLS employee is authorized to enter a confined space without the above training and notification to the project manager or HSO.

4.3 Respiratory Protection Program

If employees are exposed to hazardous/toxic chemical, paint or other gases, vapors, fumes, dusts, or mists above the permissible exposure limit, and/or employees wear respirators, this program is required. Program elements are written program for the selection, maintenance, care, and use of respirators; fit testing, training, and employee evaluation for use.

4.4 Occupational Noise Exposure / Hearing Conservation Program

If employees are exposed to noise levels above the permissible noise exposures, protection against the effects of noise and an effective hearing conservation program are required. Such a program would include elements such as written program, noise monitoring, hearing evaluations and follow-on testing, personal protective equipment (hearing protection), and maintenance of medical records.

4.5 Emergency Response Plan

If employees are engaged in emergency response to a hazardous substance/chemical release, an emergency response plan must be developed and implemented to handle anticipated emergencies. Program elements include a written response plan, identification and training of responding employees, medical surveillance and consultation, and post response operations.

4.6 Asbestos Control Program

If employees are exposed to asbestos fibers during construction activities, then an initial monitoring for asbestos exposure must be made. If the monitoring results are above the permissible exposure limit (PEL), this program is required. Program elements include regulated areas, exposure monitoring, medical surveillance and records maintenance, engineering controls, personnel protective equipment, and training.

4.7 Lead Exposure Program

If employees are exposed to lead during construction activities, then an initial monitoring for lead exposure must be made. If the monitoring results are above the permissible exposure limit (PEL), this program is required. Program elements include regulated areas, exposure monitoring, medical surveillance and records maintenance, engineering controls, personnel protective equipment, and training.

4.8 Dust Suppression Plan

The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

1. Applying water on haul roads.
2. Wetting equipment and excavation faces.
3. Spraying water on buckets during excavation and dumping.
4. Hauling materials in properly sealed or watertight containers.
5. Restricting vehicle speeds to 10 mph.
6. Covering excavated areas and material after excavation activity ceases.
7. Reducing the excavation size and/or number of excavations.
8. Applying a dust suppressant, such as calcium chloride, in high vehicle traffic areas.

To evaluate the effectiveness of the dust suppression measures, air monitoring utilizing real-time dust-monitoring equipment will be performed. The requirements for air monitoring during post-remediation soil disturbance activities are presented in Section 5.

5.0 Work Area Air Monitoring

In addition to the worker breathing zone air monitoring described in Section 3.1, air quality at the work area will also be monitored
During soil excavation, particulate monitoring will be performed using a real-time particulate monitor that will monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

Object to be measured: Dust, Mists, Aerosols
Size range: <0.1 to 10 microns
Sensitivity: 0.001 mg/m3
Range: 0.001 to 10 mg/m3
Overall Accuracy: ±10% as compared to gravimetric analysis of stearic acid or reference dust.

Particulate levels will be monitored immediately downwind at the working site and integrated over a period not to exceed 15 minutes. The action level will be established at 150 ug/m3 over the integrated period not to exceed 15 minutes.

6.0 DECONTAMINATION

6.1 Site/Work Area Organization

A typical site work area will consist of an exclusion zone where the actual field activity will take place; a decontamination zone; and a command post located outside the decontamination area and exclusion zones.

Levels of personal protection in the exclusion zone will vary depending on air monitoring data, and will be specified by the Site HSO.

6.2 Personnel Decontamination

Decontamination (decon) of personnel consists of physically removing soil or contaminants using the correct procedures for washing and removal of PPE. Decon will take place in the designated decontamination zone using the following steps, if applicable:

- Soap and potable water wash and potable water rinse of gloves;
- Tyvek removal;
- Glove removal; and
- Field washes of hands and face.

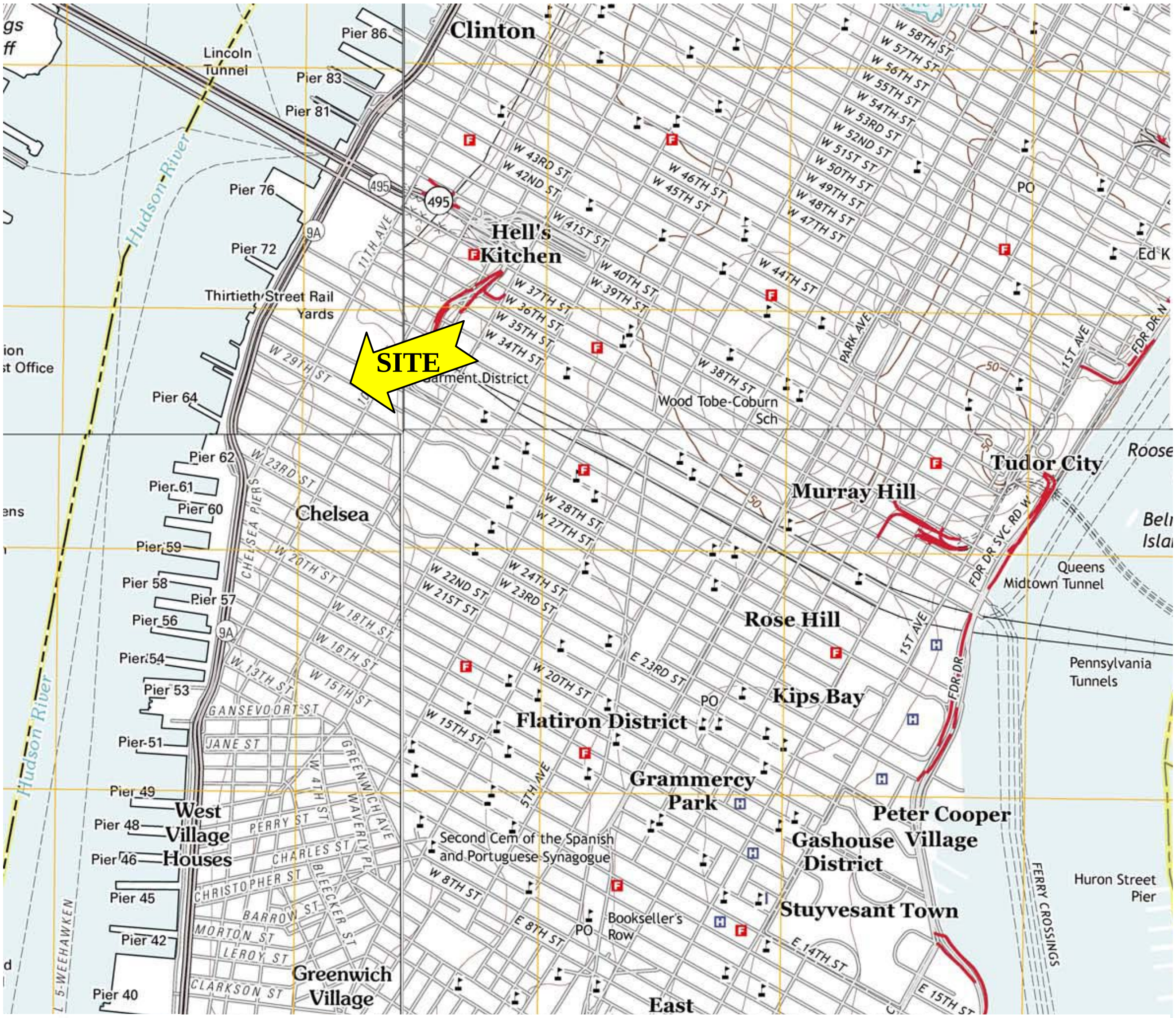
7.0 Emergency and Contingency Plan

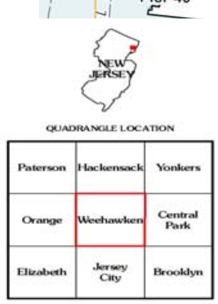
Emergency communications will be maintained during all on-site field activities. The emergency route to the hospital is depicted on Figure 2 and emergency contacts and their phone numbers are presented in Table 2.

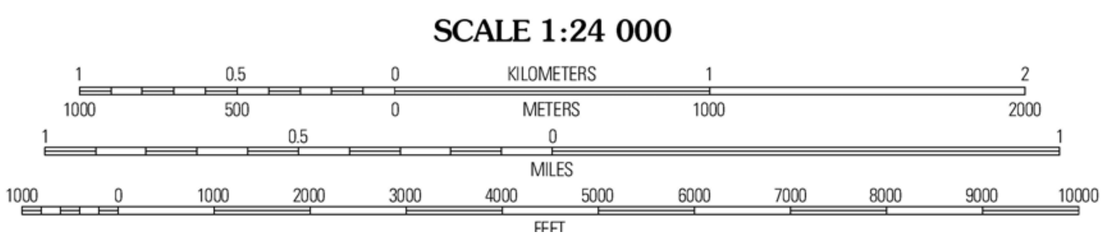
A first aid kit will be available on-site at all times for any minor on-site injuries. Emergency medical assistance or ambulance can be reached by calling 911 for more severe injuries.

All OSHA recordable injuries and illnesses will be reported using OSHA Form 301 (Attachment V).

Figures







Weehawken Quadrangle, New Jersey-New York 7.5-Minute Series USGS Topographic Map.
Obtained from United States Geological Survey topography compiled 2011

FIGURE 1: SITE LOCATION

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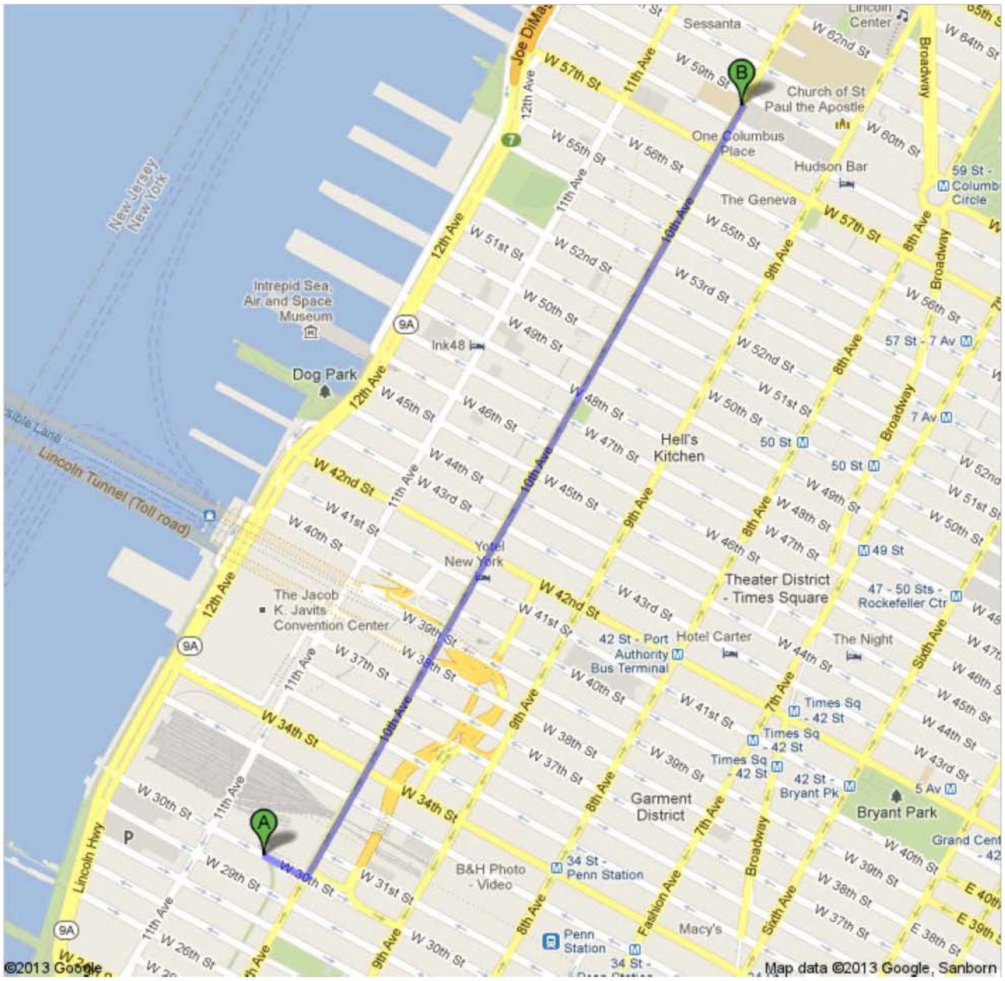
Related West 30th Street Phase II
518-526 West30th Street
New York, N.Y.

St. Luke's Roosevelt Hospital
1000 Tenth Avenue
New York, NY 10019



1. Head **southeast** on **West 30th Street** toward **10th Avenue** go 387 feet.
2. Turn left onto **10th Avenue** 1.4 miles
3. Destination will be on the right

Total time to destination, about 5 mins. (approximately 1.5 miles)

Fleming Lee Shue

FIGURE 2: ROUTE TO THE ST. LUKE'S ROOSEVELT HOSPITAL

SITE: 518-526 West 30th Street Site
CLIENT: West 30th St. Highline Holdings LLC.

Tables

TABLE 1
Project Team Organization

PERSONNEL	RESPONSIBILITIES
Mr. Arnold Fleming, P.E.	President, FLS
Mr. Kevin A. McGuinness, PG, LSRP	Senior Geologist/Project Manager
Mr. Bill Maniquez	HSO

TABLE 2
Emergency Contacts and Phone Numbers

Company	Individual Name	Title	Contact Number
West 30th Highline Holdings L.L.C.			
	Jim Harris	Project Manager	212-801-3732 (office) 917-476-8177 (cell)
FLS	Kevin McGuinness	PM/QC Officer	212-675-3225 (office)
	Bill Maniquez	HSO	212-675-3225 (office) 646-584-2319 (cell)
Police/Fire Department			911

Attachment I

CHASP

Acknowledgement

CHASP ACKNOWLEDGMENT FORM

The following personnel have read the site-specific HASP and are familiar with its provisions.

Print Name	***Signature***	***Company***	***Function***	***Date***

Attachment II

MSDS for COC

MATERIAL SAFETY DATA SHEET (MSDS)

MATERIAL SAFETY DATA SHEET

EM SCIENCE

|1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufacturer :
EM SCIENCE
A Division of EM Industries
P.O. Box 70
480 Democrat Road
Gibbstown, N.J. 08027

Preparation Date.: 10/25/96

Information Phone Number.: 856-423-6300
Hours: Mon. to Fri. 8:30-5

Chemtrec Emergency Number: 800-424-9300
Hours: 24 hrs a day

Catalog Number(s):

BX0207

Product Name:
1,2-Benzanthracene
Synonyms:
Benzo (A) Anthracene
Chemical Family:
Aromatic Hydrocarbon
Formula:
$C_{18}H_{12}$
Molecular Weight.:
228.29

2. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS #	Appr %
1,2-Benzanthracene	56-55-3	100%

|3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
SUSPECT CANCER HAZARD. MAY CAUSE CANCER.
HARMFUL IF INHALED, SWALLOWED OR ABSORBED THROUGH SKIN.
IRRITATING TO SKIN, EYES AND MUCOUS MEMBRANES.
MAY CAUSE DAMAGE TO KIDNEY, URETER, BLADDER.
WARNING: This product contains a chemical(s) known to the State of
California to cause cancer.

Appearance:
Light yellow powder

POTENTIAL HEALTH EFFECTS (ACUTE AND CHRONIC)

Symptoms of Exposure:
Harmful if inhaled, swallowed, or absorbed through the skin. Irritating on contact with skin, eyes or mucous membranes. May cause damage to kidney, ureter, bladder. Chronic exposure may cause alteration of genetic material.

Medical Cond. Aggravated by Exposure:
Urinary conditions

Routes of Entry:
Inhalation, ingestion or skin contact.

Carcinogenicity:
Suspected human carcinogenic substance. Suspect Cancer Hazard.
WARNING: This product contains a chemical(s) known to the State of
California to cause cancer.

4. FIRST AID MEASURES

Emergency First Aid:
GET MEDICAL ASSISTANCE FOR ALL CASES OF OVEREXPOSURE.
Skin: Immediately flush thoroughly with large amounts of water.
Eyes: Immediately flush thoroughly with water for at least 15
minutes.
Inhalation: Remove to fresh air; give artificial respiration if
breathing has stopped.
Ingestion: If conscious, drink water and induce vomiting
immediately as directed by medical personnel. Never give anything
by mouth to an unconscious person.
Remove contaminated clothing and wash before reuse.

5. FIRE FIGHTING MEASURES

Flash Point (F): Noncombustible
Flammable Limits LEL (%): N/A
Flammable Limits UEL (%): N/A
Extinguishing Media:
Foam, Carbon dioxide, Water spray

Fire Fighting Procedures:
Wear self-contained breathing apparatus and protective clothing.

Fire & Explosion Hazards:
Thermal decomposition produces highly toxic fumes.

6. ACCIDENTAL RELEASE MEASURES

Spill Response:
Evacuate the area of all unnecessary personnel. Wear suitable protective equipment listed under Exposure / Personal Protection. Eliminate any ignition sources until the area is determined to be free from explosion or fire hazards. Contain the release and eliminate its source, if this can be done without risk. Take up and containerize for proper disposal as described under Disposal. Comply with Federal, State, and local regulations on reporting releases. Refer to Regulatory Information for reportable quantity and other regulatory data.

7. HANDLING AND STORAGE

Handling & Storage:
Keep container tightly closed. Store in a cool, dry, well-ventilated area. Do not breathe vapor or dust. Do not get in eyes, on skin, or on clothing.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT:
Ventilation, Respiratory Protection, Protective Clothing, Eye Protection:
Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your safety equipment supplier). Engineering and/or administrative controls should be implemented to reduce exposure. Material must be handled or transferred in an approved fume hood or with equivalent ventilation. Protective gloves must be worn to prevent skin contact (Viton or equivalent) Safety glasses with side shields must be worn at all times. Impervious protective clothing should be worn to prevent skin contact.

Work/Hygenic Practices:
Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available.

EXPOSURE GUIDELINES

OSHA - PEL:

	TWA		STEL		CL		
Component	PPM	MG/M3	PPM	MG/M3	PPM	MG/M3	Skin
1,2-Benzanthracene							

ACGIH - TLV:

	TWA		STEL		CL		
Component	PPM	MG/M3	PPM	MG/M3	PPM	MG/M3	Skin
1,2-Benzanthracene							

If there are no exposure limit numbers listed in the Exposure Guidelines chart, this indicates that no OSHA or ACGIH exposure limts have been established.

9. PHYSICAL AND CHEMCIAL PROPERTIES

Boiling Point (C 760 mmHg) : 435C Sublimes
Melting Point (C) : 160C
Specific Gravity (H_20 = 1) : N/A
Vapor Pressure (mm Hg) : N/A
Percent Volatile by vol (%): N/A
Vapor Density (Air = 1) : N/A
Evaporation Rate (BuAc = 1): N/A
Solubility in Water (%) : Insoluble
Appearance :
Light yellow powder

10. STABILITY AND REACTIVITY

Stability: Yes

Hazardous Polymerization:
Does not occur

Hazardous Decomposition:
CO_x

Conditions to Avoid:
None indicated

Materials To Avoid:

```
( ) Water (X)
Acids     (X)
Bases   (   )
Corrosives
(X) Oxidizers
( ) Other:
```

11. TOXICOLOGICAL INFORMATION

Toxicity Data

`ivn-mus LDLo: 10 mg/kg`

Toxicological Findings:
Tests on laboratory animals indicate material may produce adverse mutagenic effects and cause tumors.
Cited in Registry of Toxic Effects of Chemical Substances (RTECS)

12. DISPOSAL CONSIDERATIONS

EPA Waste Numbers: U018

Treatment:
Specified Technology - Incineration to a level below TCA (Total Constituent Analyses) levels. Contact your local permitted waste disposal company (TSD) for permissible treatment site.
ALWAYS CONTACT A PERMITTED WASTE DISPOSER (TSD) TO ASSURE COMPLIANCE WITH ALL CURRENT LOCAL, STATE AND FEDERAL REGULATIONS.

13. TRANSPORT INFORMATION

DOT Proper Shipping Name:
Environmentally Hazardous Substance, Solid, n.o.s. (1,2-Benzanthracene)

DOT ID Number :
UN3077

14. REGULATORY INFORMATION

TSCA Statement:
The CAS number of this product is listed on the TSCA Inventory.

Component	SARA EHS (302)	SARA EHS TPQ (lbs)	CERCLA RQ (lbs)
1,2-Benzanthracene			10

Component	OSHA Floor List	SARA 313	DeMinimis for SARA 313 (%)
1,2-Benzanthracene	Y	Y	0.1

If there is no information listed on the regulatory information chart, this indicates that the chemical is not covered by the specific regulation listed.

15. OTHER INFORMATION

Comments:
None

NFPA Hazard Ratings:

Health : 3
Flammability : 0
Reactivity : 0
Special Hazards :

Revision History: 1/1/84 7/18/87 1/24/91 3/1/91 11/19/93 3/10/95

| = Revised Section

N/A = Not Available

N/E = None Established

The statements contained herein are offered for informational purposes only and are based upon technical data that EM Science believes to be accurate. It is intended for use only by persons having the necessary technical skill and at their own discretion and risk. Since conditions and manner of use are outside our control, we make

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006
Version 4.1 Revision Date 11.06.2010
Print Date 18.06.2010
GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product name	:	Benzo[*a*]pyrene
Product Number	:	B1760
Brand	:	Sigma
Company	:	Sigma-Aldrich (Shanghai) Trading Co.,Ltd 22A-B Century Ba-Shi Building, 398 Huai Hai Zhong Road 200020 SHANGHAI CHINA
Telephone	:	+862161415566
Fax	:	+862161415567
Emergency Phone #	:	+8615921213336
E-mail address	:	china@sial.com

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

According to Regulation (EC) No1272/2008
Carcinogenicity (Category 1B)
Germ cell mutagenicity (Category 1B)
Reproductive toxicity (Category 1B)
Skin sensitization (Category 1)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

According to European Directive 67/548/EEC as amended.
May cause cancer. May cause heritable genetic damage. May impair fertility. May cause harm to the unborn child. May cause sensitization by skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Label elements

Pictogram

Signal word	Danger
Hazard statement(s)	
H317	May cause an allergic skin reaction.
H340	May cause genetic defects.
H350	May cause cancer.
H360	May damage fertility or the unborn child.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P273	Avoid release to the environment.
P280	Wear protective gloves.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P501	Dispose of contents/container to an approved waste disposal plant.

Hazard symbol(s)

T	Toxic
N	Dangerous for the environment

R-phrase(s)

R45	May cause cancer.
R46	May cause heritable genetic damage.
R60	May impair fertility.
R61	May cause harm to the unborn child.
R43	May cause sensitization by skin contact.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s)

S53	Avoid exposure - obtain special instructions before use.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S60	This material and its container must be disposed of as hazardous waste.
S61	Avoid release to the environment. Refer to special instructions/ Safety data sheets.

Restricted to professional users.

Other hazards - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 3,4-Benzpyrene
3,4-Benzopyrene
Benzo[def]chrysene

Formula : $C_{20}H_{12}$

Molecular Weight : 252,31 g/mol

CAS-No.	EC-No.	Index-No.	Classification	Concentration
Benzo[a]pyrene				
50-32-8	200-028-5	601-032-00-3	Carc. 1B; Muta. 1B; Repr. 1B; Skin Sens. 1; Aquatic Acute 1; Aquatic Chronic 1; H317, H340, H350, H410, H360Fd T, N, Carc.Cat.2, Mut.Cat.2, Repr.Cat.2, R45 - R46 - R60 - R61 - R43 - R50/53	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid exposure - obtain special instructions before use.Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Store in cool place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	solid

Safety data

pH	no data available
Melting point	177 - 180 °C - lit.
Boiling point	495 °C - lit.
Flash point	no data available
Ignition temperature	no data available
	Lower explosion limit no data available
	Upper explosion limit no data available
Density	1,35 g/cm3
Water solubility	no data available
Partition coefficient: n-octanol/water	log Pow: 5,97

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Conditions to avoid
no data available

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity
no data available

LD50 Subcutaneous - rat - 50 mg/kg

Skin corrosion/irritation
Skin - mouse - Mild skin irritation

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
Chronic exposure may cause dermatitis.

May cause sensitization by inhalation.

Germ cell mutagenicity
May alter genetic material.
In vivo tests showed mutagenic effects

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC: 1 - Group 1: Carcinogenic to humans (Benzo[a]pyrene)

2B - Group 2B: Possibly carcinogenic to humans (Benzo[a]pyrene)

IARC: 1 - Group 1: Carcinogenic to humans (Benzo[a]pyrene)

2B - Group 2B: Possibly carcinogenic to humans (Benzo[a]pyrene)

Reproductive toxicity
May cause congenital malformation in the fetus.
Presumed human reproductive toxicant

May cause reproductive disorders.

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Signs and Symptoms of Exposure
burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting

Additional Information
RTECS: DJ3675000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to daphnia and other aquatic invertebrates.	EC50 - Daphnia magna (Water flea) - 0,25 mg/l - 48 h
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 0,02 mg/l - 72 h

Persistence and degradability
no data available

Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) 48 h Bioconcentration factor (BCF): 3.208

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

ADR/RID
UN-Number: 3077 Class: 9 Packing group: III
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Benzo[a]pyrene)

IMDG
UN-Number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Benzo[a]pyrene)
Marine pollutant: No

IATA
UN-Number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Benzo[a]pyrene)

15. REGULATORY INFORMATION This safety datasheet complies with the

requirements of Regulation (EC) No. 1907/2006.

16. OTHER INFORMATION **Text of H-code(s) and R-**

phrase(s) mentioned in Section 3

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H317	May cause an allergic skin reaction.
H340	May cause genetic defects.
H350	May cause cancer.
H360Fd	May damage fertility. Suspected of damaging the unborn child.
H410	Very toxic to aquatic life with long lasting effects.
Muta.	Germ cell mutagenicity
Repr.	Reproductive toxicity
N	Dangerous for the environment
T	Toxic
R43	May cause sensitization by skin contact.
R45	May cause cancer.
R46	May cause heritable genetic damage.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R60	May impair fertility.
R61	May cause harm to the unborn child.
Repr.Cat.2	Toxic to Reproduction Category 2

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

C/D/N ISOTOPES INC.
88 Leacock Street
Pointe-Claire, Quebec H9R 1H1 Toll-Free (Canada & USA): 1-800-565-4696 Tel.: 1-514-697-6254 • Fax: 1-514-697-6148
www.cdnisotopes.com

MATERIAL SAFETY DATA SHEET

Sheet No. 1440

SECTION 1: PRODUCT IDENTIFICATION

Catalog No.: D-2360
Product Name: Benzo[*b*]fluoranthene-d_{12}
CAS No.: 93951-98-5

SECTION 2: CHEMICAL INFORMATION (UNLABELLED)

Chemical Name: BENZO[*b*]FLUORANTHENE
CAS No.: 205-99-2
Synonyms: 3,4-Benzfluoranthene; Benz[*e*]acephenanthrylene

SECTION 3: HAZARDS IDENTIFICATION

Known Hazards: POSSIBLE CARCINOGEN, POSSIBLE MUTAGEN

SECTION 4: FIRST AID MEASURES

Skin Contact: Wash with water.
Ingestion: Medical assistance for gastric lavage.
Inhalation: Remove to fresh air, artificial respiration or oxygen if necessary.

SECTION 5: FIRE FIGHTING MEASURES

Extinguishing Media: Carbon dioxide, dry chemical powder, foam.
Special Fire Fighting Equipment: Wear a self-contained breathing apparatus and protective clothing.
Unusual Fire and Explosion Hazards: Possible carcinogen.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.
Spill Clean-up Methods: Provide adequate ventilation. Carefully scoop up and transfer to a closed container.

SECTION 7: HANDLING AND STORAGE

Usage/Handling Precautions: Strong fumehood
Storage Conditions: Store at room temperature. Adequate ventilation. Avoid all contact. Protect from light.

SECTION 8: EXPOSURE CONTROL / PERSONAL PROTECTION

Respiratory Protection: Self-contained breathing apparatus or chemical cartridge.
Hand Protection: Chemical-resistant gloves, solvent-resistant gloves.
Eye Protection: Wear safety goggles.
Other Protective Equipment: Protective clothing.
Other Protective Measures: Provide safety showers and eyewash station near workplace.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White-pale yellow solid

Melting Point (°C): 165-167
Water Solubility (%): < 0.1

Volatiles (%): Low

Flash Point (°C): Not available.
Autoignition Temperature (°C): Not available.

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.
Incompatibility (Materials to Avoid): Strong oxidizing agents.
Hazardous Decomposition Products: CO/CO_2 on combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute and Chronic Health Hazards
Dermal TDL_0: 88 mg/kg (mouse)
SCU TDL_0: 72 mg/kg (mouse)
TLV: None verified. Avoid all contact.

Effects of Overexposure: Irritation (eyes, respiratory, skin). Carcinogen. Mutagen.

SECTION 12: ECOLOGICAL INFORMATION

Data not yet available.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Procedures: Via licensed disposal company. Dispose of according to federal and local regulations.

SECTION 14: TRANSPORT INFORMATION

Non-hazardous for transport.

SECTION 15: REGULATORY INFORMATION

TLV: None verified. Avoid all contact.

SECTION 16: OTHER INFORMATION

This product is not radioactive. The data given for this product are those of the corresponding unlabelled product indicated in Section 2, unless specifically indicated otherwise. Safety data for the labelled compounds are generally unavailable but the hazards and properties are assumed to be similar or identical to those of the unlabelled compounds. While the information set forth is believed to be accurate, C/D/N ISOTOPES INC. extends no warranties with respect hereto and disclaims all liabilities from reliance thereon. All judgements as to the suitability of the data presented with respect to the use of this product are the responsibility of the purchaser and intended user.

Date: February 1, 2012

C/D/N ISOTOPES INC. Vincent Guay

Vincent Guay, Ph.D.

Material Safety Data Sheet

Benzo[k]fluoranthene, 99+% (tlc)

MSDS# 54641

Section 1 - Chemical Product and Company Identification

MSDS Name:	Benzo[k]fluoranthene, 99+% (tlc)
Catalog Numbers:	AC279730000, AC279732500
Synonyms:	8,9-Benzofluoranthane.
Company Identification:	Acros Organics BVBA Janssen Pharmaceuticalaan 3a 2440 Geel, Belgium
Company Identification: (USA)	Acros Organics One Reagent Lane Fair Lawn, NJ 07410
For information in the US, call:	800-ACROS-01
For information in Europe, call:	+32 14 57 52 11
Emergency Number, Europe:	+32 14 57 52 99
Emergency Number US:	201-796-7100
CHEMTREC Phone Number, US:	800-424-9300
CHEMTREC Phone Number, Europe:	703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#:	207-08-9
Chemical Name:	Benzo[k]fluoranthene, 99+% (TLC)
%:	99%
EINECS#:	205-916-6

Hazard Symbols: T

Risk Phrases: 45

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Danger! May be fatal if swallowed. May be fatal if absorbed through the skin. Toxic. Carcinogen. May cause lung damage. Causes eye and skin irritation. Causes digestive and respiratory tract irritation. Cancer hazard. May be fatal if inhaled. Target Organs: Lungs, respiratory system.

Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes skin irritation. May be fatal if absorbed through the skin.

Ingestion: May be fatal if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea.

Inhalation: May be fatal if inhaled. Causes respiratory tract irritation.

Chronic: May cause cancer according to animal studies.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Call a poison control center. If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician:

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Autoignition Temperature: Not available

Flash Point: Not available

Explosion Limits: Lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: Not published

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Do not breathe dust, mist, or vapor. Do not get on skin or in eyes. Do not ingest or inhale.

Storage: Store in a cool, dry place. Store in a tightly closed container.

Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Benzo[k]fluoranthene, 99+% (TLC)	none listed	none listed	none listed

OSHA Vacated PELs: Benzo[k]fluoranthene, 99+% (TLC): None listed

Engineering Controls:

Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Exposure Limits

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Color: yellow
Odor: Not available
pH: Not available
Vapor Pressure: Not available
Vapor Density: Not available
Evaporation Rate: Not available
Viscosity: Not available
Boiling Point: 480 deg C @ 760.00mm Hg (896.00°F)
Freezing/Melting Point: 216 - 218 deg C
Decomposition Temperature: Not available
Solubility in water: Not available
Specific Gravity/Density:
Molecular Formula: C20H12
Molecular Weight: 252.32

Section 10 - Stability and Reactivity

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Incompatible materials, dust generation.
Incompatibilities with Other Materials	Not available
Hazardous Decomposition Products	Carbon monoxide, carbon dioxide.
Hazardous Polymerization	Has not been reported.

Section 11 - Toxicological Information

RTECS#: CAS# 207-08-9: DF6350000

LD50/LC50: RTECS: Not available.

Carcinogenicity: Benzo[k]fluoranthene, 99+% (TLC) - California: carcinogen, initial date 7/1/87 NTP: Suspect carcinogen IARC: Group 2B carcinogen

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity: Not available

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: Not regulated as a hazardous material
Hazard Class:
UN Number:
Packing Group:
Canada TDG
Shipping Name: Not available
Hazard Class:
UN Number:
Packing Group:

USA RQ: CAS# 207-08-9: 5000 lb final RQ; 2270 kg final RQ

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: T

Risk Phrases:

R 45 May cause cancer.

Safety Phrases:

S 53 Avoid exposure - obtain special instructions before use.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 207-08-9: Not available

Canada

Canadian WHMIS Classifications: Not available

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 207-08-9 is not listed on Canada's Ingredient Disclosure List.

US Federal

TSCA

CAS# 207-08-9 is not listed on the TSCA Inventory. It is for research and development use only.

Section 16 - Other Information

MSDS Creation Date: 9/02/1997

Revision #6 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantibility or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

Material Safety Data Sheet

Version 4.1
Revision Date 01/17/2012
Print Date 04/13/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Chrysene
Product Number	:	BCR269
Brand	:	Fluka
Supplier	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone # (For both supplier and manufacturer)	:	(314) 776-6555
Preparation Information	:	Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Carcinogen, Mutagen

GHS Classification
Germ cell mutagenicity (Category 2)
Carcinogenicity (Category 1B)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)

H341	Suspected of causing genetic defects.
H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P273	Avoid release to the environment.
P281	Use personal protective equipment as required.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P501	Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification

Health hazard: 0
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0

Health hazard: 0
Fire: 0
Reactivity Hazard: 0

Potential Health Effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.
Ingestion	May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : $C_{18}H_{12}$
Molecular Weight : 228.29 g/mol

Component		Concentration
Chrysene		
CAS-No.	218-01-9	-
EC-No.	205-923-4	
Index-No.	601-048-00-0	

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature: 2 - 8 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Remarks	Cancer Substances for which there is a Biological Exposure Index or Indices (see BEI® section), see BEI® for Polycyclic Aromatic Hydrocarbons (PAHs) Exposure by all routes should be carefully controlled to levels as low as possible. Confirmed animal carcinogen with unknown relevance to humans			
Chrysene	218-01-9	TWA	0.2 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.2 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	0.2 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	0.2 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	solid
Colour	no data available

Safety data

pH	no data available

Melting point/freezing point	Melting point/range: 252 - 254 °C (486 - 489 °F)
Boiling point	448 °C (838 °F)
Flash point	no data available
Ignition temperature	no data available
Autoignition temperature	no data available

Lower explosion limit no data available

Upper explosion limit no data available

Vapour pressure	no data available
Density	no data available
Water solubility	insoluble
Partition coefficient: n-octanol/water	log Pow: 5.73
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
no data available

Inhalation LC50
no data available

Dermal LD50 no
data available

Other information on acute toxicity
LD50 Intraperitoneal - mouse - > 320 mg/kg

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.
In vitro tests showed mutagenic effects

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Chrysene)
NTP:	Known to be human carcinogen (Chrysene)
	Reasonably anticipated to be a human carcinogen (Chrysene)
NTP:	Known to be human carcinogen (Chrysene)
	Reasonably anticipated to be a human carcinogen (Chrysene)

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
no data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 1.90 mg/l - 2 h

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Chrysene)
Marine pollutant: Marine pollutant

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Chrysene)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

OSHA Hazards
Carcinogen, Mutagen

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Chrysene	218-01-9	2007-03-01

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Chrysene	218-01-9	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Chrysene	218-01-9	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Chrysene	218-01-9	2007-03-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer. Chrysene	218-01-9	2007-09-28

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

MATERIAL SAFETY DATA SHEET

Date Printed: 04/13/2012
Date Updated: 05/07/2009
Version 1.4

Section 1 - Product and Company Information

Product Name	1,2:5,6-DIBENZANTHRACENE, 97% (NO BULK ORDERS ALLOWED)
Product Number	D31400
Brand	ALDRICH
Company	Sigma-Aldrich
Address	3050 Spruce Street SAINT LOUIS MO 63103 US
Technical Phone:	800-325-5832
Fax:	800-325-5052
Emergency Phone:	314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
1,2:5,6-DIBENZANTHRACENE	53-70-3	Yes

Formula C22H14
Synonyms 1,2:5,6-Benzanthracene * DB(a,h)A * 1,2,5,6-Dba *
1,2,5,6-Dibenzanthraceen (Dutch) *
1,2:5,6-Dibenzanthracene *
1,2:5,6-Dibenz(a)anthracene *
Dibenzo(a,h)anthracene *
1,2:5,6-Dibenzoanthracene * RCRA waste number U063
RTECS Number: HN2625000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Toxic. Dangerous for the environment.
May cause cancer. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Target organ(s): Lungs. Liver. Calif. Prop. 65 carcinogen.

HMIS RATING

HEALTH: 2*
FLAMMABILITY: 0
REACTIVITY: 0

NFPA RATING

HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

DERMAL EXPOSURE
In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT
N/A

AUTOIGNITION TEMP
N/A

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. Wear disposable coveralls and discard them after use.

METHODS FOR CLEANING UP
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	0.004 MG/M3
Poland		NDSCh	-
Poland		NDSP	-

Section 9 - Physical/Chemical Properties

Appearance Physical State: Solid

Property	Value	At Temperature or Pressure
Molecular Weight	278.35 AMU	
pH	N/A	
BP/BP Range	524 °C	760 mmHg
MP/MP Range	262 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: May cause eye irritation.
Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion: May be harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Lungs. Liver.

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Species: Rat
Route of Application: Intratracheal
Dose: 100 MG/KG
Result: Tumorigenic:Carcinogenic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors.

Species: Mouse
Route of Application: Oral
Dose: 4160 MG/KG
Exposure Time: 26W
Frequency: I
Result: Lungs, Thorax, or Respiration:Tumors. Tumorigenic:Carcinogenic by RTECS criteria.

Species: Mouse
Route of Application: Skin
Dose: 1200 MG/KG
Exposure Time: 50W
Frequency: I
Result: Tumorigenic:Tumors at site or application. Tumorigenic:Carcinogenic by RTECS criteria. Skin and Appendages: Other: Tumors.

Species: Mouse
Route of Application: Subcutaneous
Dose: 445 UG/KG
Result: Skin and Appendages: Other: Tumors. Tumorigenic:Carcinogenic by RTECS criteria. Tumorigenic:Tumors at site or application.

Species: Mouse
Route of Application: Intravenous
Dose: 40 MG/KG
Result: Tumorigenic:Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Liver:Tumors.

Species: Mouse
Route of Application: Implant
Dose: 80 MG/KG
Result: Kidney, Ureter, Bladder:Tumors. Tumorigenic:Carcinogenic by RTECS criteria.

Species: Mouse
Route of Application: Multiple
Dose: 40 MG/KG
Exposure Time: 12D
Frequency: I
Result: Tumorigenic:Tumors at site or application. Lungs, Thorax, or Respiration:Tumors. Tumorigenic:Equivocal tumorigenic agent by RTECS criteria.

Species: Guinea pig
Route of Application: Subcutaneous
Dose: 250 MG/KG
Exposure Time: 24D
Frequency: I
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Tumorigenic:Tumors at site or application. Lungs, Thorax, or Respiration:Tumors.

Species: Guinea pig
Route of Application: Intravenous
Dose: 30 MG/KG
Result: Tumorigenic:Tumors at site or application. Lungs, Thorax, or Respiration:Tumors. Tumorigenic:Equivocal tumorigenic agent by RTECS criteria.

Species: Pigeon
Route of Application: Intramuscular
Dose: 6 MG/KG
Result: Tumorigenic:Carcinogenic by RTECS criteria. Liver:Tumors. Tumorigenic:Tumors at site or application.

Species: Frog
Route of Application: Intrarenal
Dose: 12 MG/KG
Result: Kidney, Ureter, Bladder:Kidney tumors. Lungs, Thorax, or Respiration:Tumors. Tumorigenic:Neoplastic by RTECS criteria.

Species: Mouse
Route of Application: Implant
Dose: 14 MG/KG
Result: Tumorigenic:Neoplastic by RTECS criteria. Tumorigenic:Tumors at site or application.

Species: Mouse
Route of Application: Subcutaneous
Dose: 78 UG/KG
Result: Tumorigenic:Neoplastic by RTECS criteria. Tumorigenic:Tumors at site or application.

Species: Mouse

Route of Application: Oral
Dose: 4520 MG/KG
Exposure Time: 36W
Frequency: C
Result: Tumorigenic:Carcinogenic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Gastrointestinal:Tumors.

Species: Mouse
Route of Application: Implant
Dose: 200 MG/KG
Result: Tumorigenic:Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration:Bronchiogenic carcinoma. Tumorigenic:Tumors at site or application.

Species: Mouse
Route of Application: Skin
Dose: 6 UG/KG
Result: Tumorigenic:Neoplastic by RTECS criteria. Skin and Appendages: Other: Tumors.

Species: Mouse
Route of Application: Subcutaneous
Dose: 6 MG/KG
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Tumorigenic:Tumors at site or application.

Species: Mouse
Route of Application: Skin
Dose: 400 MG/KG
Exposure Time: 40W
Frequency: I
Result: Tumorigenic:Neoplastic by RTECS criteria. Skin and Appendages: Other: Tumors.

Species: Mouse
Route of Application: Implant
Dose: 100 MG/KG
Result: Tumorigenic:Carcinogenic by RTECS criteria. Kidney, Ureter, Bladder:Tumors. Tumorigenic:Tumors at site or application.

Species: Rat
Route of Application: Subcutaneous
Dose: 135 MG/KG
Exposure Time: 9W
Frequency: I
Result: Tumorigenic:Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Tumorigenic:Tumors at site or application.

Species: Mouse
Route of Application: Subcutaneous
Dose: 400 MG/KG
Exposure Time: 10W
Frequency: I
Result: Tumorigenic:Neoplastic by RTECS criteria. Tumorigenic:Tumors at site or application.

IARC CARCINOGEN LIST Rating: Group 2A NTP CARCINOGEN LIST

Rating: Anticipated to be a carcinogen.

CHRONIC EXPOSURE - MUTAGEN

Result: Laboratory experiments have shown mutagenic effects.

Species: Human
Dose: 360 NMOL/L
Cell Type: Embryo
Mutation test: DNA

Species: Human
Dose: 100 UMOL/L
Cell Type: fibroblast
Mutation test: Unscheduled DNA synthesis

Species: Human
Dose: 10 MG/L
Cell Type: Other cell types
Mutation test: Unscheduled DNA synthesis

Species: Human
Dose: 100 NMOL/L
Cell Type: HeLa cell
Mutation test: Unscheduled DNA synthesis

Species: Human
Dose: 54 UG/L
Cell Type: lymphocyte
Mutation test: Mutation in mammalian somatic cells.

Species: Rat
Route: Intratracheal
Dose: 25500 UG/KG
Exposure Time: 16H
Mutation test: Micronucleus test

Species: Rat
Route: Oral
Dose: 200 MG/KG
Mutation test: Morphological transformation.

Species: Rat
Dose: 100 UG/L
Cell Type: Embryo
Mutation test: Morphological transformation.

Species: Rat
Route: Intratracheal
Dose: 25560 UG/KG
Mutation test: DNA

Species: Rat
Route: Intratracheal
Dose: 51150 UG/KG
Mutation test: Sister chromatid exchange

Species: Mouse
Route: Intraperitoneal
Dose: 500 MG/KG
Mutation test: Micronucleus test

Species: Mouse
Dose: 4250 UG/L (+S9)
Cell Type: lymphocyte
Mutation test: Mutation in microorganisms

Species: Mouse Dose:
500 UG/L Cell Type:
fibroblast
Mutation test: Morphological transformation.

Species: Mouse
Dose: 100 UG/L
Cell Type: Embryo
Mutation test: Morphological transformation.

Species: Mouse
Dose: 6 UMOL/L
Cell Type: liver
Mutation test: DNA

Species: Mouse
Route: Skin
Dose: 40 UMOL/KG
Mutation test: DNA

Species: Mouse
Dose: 1 MG/L
Cell Type: Other cell types
Mutation test: DNA

Species: Mouse
Dose: 1 MG/L
Cell Type: Other cell types
Mutation test: Other mutation test systems

Species: Mouse
Dose: 510 NMOL/L
Cell Type: Embryo
Mutation test: DNA

Species: Mouse
Dose: 510 NMOL/L
Cell Type: Embryo
Mutation test: Other mutation test systems

Species: Hamster
Dose: 56400 NMOL/L (+S9)
Cell Type: lung
Mutation test: Mutation in microorganisms

Species: Hamster
Dose: 2500 UG/L
Cell Type: Embryo
Mutation test: Morphological transformation.

Species: Hamster
Dose: 25 UG/L
Cell Type: kidney
Mutation test: Morphological transformation.

Species: Hamster
Dose: 5 MG/L

Exposure Time: 24H
Cell Type: fibroblast
Mutation test: DNA damage

Species: Hamster
Dose: 360 NMOL/L
Cell Type: Embryo
Mutation test: DNA

Species: Hamster
Dose: 5 MG/L
Cell Type: kidney
Mutation test: DNA damage

Species: Hamster
Dose: 1 MG/L
Cell Type: lung
Mutation test: DNA

Species: Hamster
Dose: 1 MG/L
Cell Type: lung
Mutation test: Other mutation test systems

Species: Hamster
Dose: 1 MMOL/L
Cell Type: fibroblast
Mutation test: Cytogenetic analysis

Species: Hamster
Route: Intraperitoneal
Dose: 900 MG/KG
Exposure Time: 24H
Mutation test: Sister chromatid exchange

Species: Hamster
Dose: 500 UG/L
Cell Type: lung
Mutation test: Mutation in mammalian somatic cells.

Species: Mammal
Dose: 2 NMOL/L
Cell Type: lymphocyte
Mutation test: DNA damage

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations. (DN)Requires special label: "Contains a substance which is regulated by Dannish work environmental law due to the risk of carcinogenic properties."

Section 14 - Transport Information

DOT

Proper Shipping Name: Environmentally hazardous

substances, solid, n.o.s.
UN#: 3077

Class: 9
Packing Group: Packing Group III
Hazard Label: Class 9
PIH: Not PIH

IATA
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s
IATA UN Number: 3077
Hazard Class: 9
Packing Group: III

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION
Symbol of Danger: T-N
Indication of Danger: Toxic. Dangerous for the environment.
R: 45-50/53
Risk Statements: May cause cancer. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S: 53-45-60-61
Safety Statements: Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Toxic. Dangerous for the environment.
Risk Statements: May cause cancer. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Statements: Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wear suitable protective clothing, gloves, and eye/face protection. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.
US Statements: Target organ(s): Lungs. Liver. Calif. Prop. 65 carcinogen.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: Yes
NOTES: This product is subject to SARA section 313 reporting requirements.
TSCA INVENTORY ITEM: Yes

UNITED STATES - STATE REGULATORY INFORMATION

CALIFORNIA PROP - 65
California Prop - 65: This product is or contains chemical(s) known to the state of California to cause cancer. This product is or contains chemical(s) known to the state of California to cause cancer.

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: Yes

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Material Safety Data Sheet

ULTRA Scientific · 250 Smith Street · North Kingstown, RI, USA 02852 · 401-294-9400

Product #: P-730 **Last Update: 4/27/2009**

Section I Product Identification

Name: Indeno[1,2,3-cd]pyrene Solution

Solvent : methylene chloride (dichloromethane)

Section II Composition / Information on Ingredients

Component	CAS#	% by Wt.	LD50	OSHA PEL	ACGIH TLV	RTECS #	Codes
methylene chloride (dichloromethane)	000075-09-2	99.99246	2136 mg/kg oral rat	25 ppm	50 ppm	PA8050000	DFGH
indeno[1,2,3-cd]pyrene	000193-39-5	0.00754	N/A	N/A	N/A	NK9300000	DFH

Codes: A-OSHA regulated carcinogen; B-IARC Group 1 carcinogen; C-IARC Group 2A carcinogen; D-IARC Group 2B carcinogen; E-NTP Group 1 carcinogen; F-NTP Group 2 carcinogen; G-SARA Title III compound; H-California Proposition 65 compound.

Section III Hazards Identification

Contains carcinogen(s) or cancer suspect agent(s)

Irritant

All chemicals should be considered hazardous - direct physical contact should be avoided.

Section IV First Aid Measures

Inhalation: If inhaled, remove to fresh air. Give oxygen, if necessary. Contact a physician.

Skin Contact: In case of skin contact, flush with copious amounts of water. Remove contaminated clothing. Contact a physician.

Eye Contact: In case of eye contact, flush with copious amounts of water, lifting eyelids occasionally. Contact a physician.

Ingestion: If ingested, contact poison center immediately for recommended procedure. Contact a physician.

Section V Fire Fighting Measures

Fire and Explosion Hazard Data for Solvent

Fire Hazard: non-combustible

Extinguishing Media: Carbon dioxide, dry chemical powder, or water spray.

Section VI Accidental Release Measures

Ventilate area of the leak or spill. Wear appropriate personal protective equipment as specified in Section VIII. A leaking bottle, vial, or ampule may be placed in a plastic bag, and normal disposal procedures followed. Take up spilled material with sand or other non-combustible absorbant material, and place in an appropriate container for later disposal. Flush spill area with water.

Section VII Handling and Storage

Store at Room Temperature (18-25°C)

Keep in a tightly closed container, and store in a corrosion proof area.

This product should only be used by persons trained in the safe handling of hazardous chemicals.

Section VIII Exposure Controls / Personal Protection

Ensure that there is adequate ventilation to prevent airborne levels from exceeding recommended exposure limits (see Section II). Use appropriate MSHA/NIOSH approved safety equipment. Wear chemical goggles, face shield, gloves, and chemical resistant clothing, such as a laboratory coat and/or a rubber apron, to prevent contact with eyes, skin, and clothing.

Section IX Physical and Chemical Properties

Physical Data for Solvent

Melting Pt.: -96.7°C	Boiling Pt.: 39.8°C	Density: 1.326
Vapor Pressure: 350 mmHg @ 20°C	Vapor Density: 2.9	Water Solubility: insoluble
Appearance: colorless liquid	Odor: chloroform-like odor	Flash Point: none
Auto-Ignition Temperature: 1139°F	LEL: 15.5	UEL: 66.4

Section X Stability and Reactivity

Reactivity Data for Solvent

Stability: stable	Incompatibilities:	strong oxidizers caustics active metal powder

Hazardous Decomposition Products: phosgene, HCl, CO

Hazardous Effects of Polymerization: none

Section XI Toxicological Information

See Section II for specific toxicological information for the ingredients of this product.

Section XII Ecological Information

No information is available.

Section XIII Disposal Considerations

Recycle, if possible. Any material which cannot be saved for recovery or recycling should be disposed of at an appropriate and approved waste disposal facility. Processing, use, and/or contamination of this product may change waste management requirements. Observe all applicable federal, state, and local environmental regulations concerning disposal.

Section XIV Transport Information

Shipment Type: Toxic, liquids, organic, n.o.s. (dichloromethane)

UN Number: UN2810	Shipping Class: 6.1	Packing Group: III

Section XV Regulatory Information

Warning: This product contains chemicals known to the state of California to cause cancer.

EU Directives Classification

R : 40

Risk Statements: Limited evidence of a carcinogenic effect.

S : 23-24/25-36/37

Safety Statements: Do not breathe gas/fumes/vapour/spray. Avoid contact with skin and eyes. Wear suitable protective clothing and gloves.

Section XVI Other Information

The above information is believed to be correct, but does not purport to be all-inclusive. This data should be used only as a guide in handling this material. ULTRA Scientific, Inc., shall not be held liable for any damage resulting from handling or from contact with the above product.

Material Safety Data Sheet

PAH Contaminated Soil

ACC# 17974

Seetion emicaliPpdlict and Company Identification

MSDS Name: PAH Contaminated Soil
Catalog Numbers: SRS103100
Synonyms: API separator sludge
Company Identification:
Fisher Scientific 1
Reagent Lane Fair
Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

		606	EINECS/ELINCS·
Not available	Soil	78-99	unlisted
120-12-7	Anthracene	0-2	204-371-1
129-00-0	Pyrene	0-2	204-927-3
132-64-9	Dibenzofuran	0-2	205-071-3
205-99-2	Benzo(b)fluoranthene	0-2	205-911-9
206-44-0	Fluoranthene	0-2	205-912-4
208-96-8	Acenaphthylene	0-2	205-917-1
218-01-9	1,2-benzphenanthrene	0-2	205-923-4
50-32-8	Benzo(a)pyrene	0-2 -	200-028-5
56-55-3	1,2-Benzanthracene	0-2	200-280-6
83-32-9	Acenaphthene	0-2	201-469-6
85-01-8	Phenanthrene	0-2	201-581-5
86-73-7	Fluorene	0-2	201-695-5
87-86-5	Pentachlorophenol	0-2	201-778-6
91-20-3	Naphthalene	0-2	202-049-5
91-57-6	2-methylnaphthalene	0-2	202-078-3

Section Identification

EMERGENCY OVERVIEW

Appearance: not available solid.

Warning! May cause allergic skin reaction. Causes eye and skin irritation. May cause cancer based on animal studies.

Target Organs: Eyes, skin.

Potential Health Effects

Eye: May cause eye irritation.

Skin: May cause skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Naphthalene can cause cataracts, optical neuritis, and cornea injuries. Ingestion of large quantities may cause severe hemolytic anemia and

Inhalation: Causes respiratory tract irritation. May cause effects similar to those described for ingestion.

Chronic: May cause cancer according to animal studies. Prolonged exposure to respirable crystalline quartz may cause delayed lung injury/fibrosis (silicosis).

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower:Not available.

Upper: Not available,

NFPA Rating: Not published.

Section 6 Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions.

Section 7 - Handling and Storage

Handling: Wash hands before eating. Use with adequate ventilation. Avoid contact with skin and eyes. Keep container tightly closed, Avoid ingestion and inhalation.
Storage: Store in a cool, dry place.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate ventilation to keep airborne concentrations low.
Exposure Limits

CheMieal Name .	G 114.	MOSH	SRA· - Tina PEL s , .
Soil	none listed	none listed	none listed
Anthracene	0.2 mglm3 TWA (as benzene soluble aerosol) (listed under Coal tar pitches).	0.1 mg/m3 TWA (cyclohexane-extractable fraction) (listed under Coal tar pitches).80 mg/m3 IDLH (listed under Coal tar pitches).	0.2 mg/m3 TWA (as benzene soluble fraction) (listed under Coal tar pitches).
Pyrene	0.2 mglm3 TWA (as benzene soluble aerosol) (listed under Coal tar pitches).	0.1 mg/m3 TWA (cyclohexane-extractable fraction) (listed under Coal tar pitches).80 mg/m3 IDLH (listed under Coal tar pitches).	0.2 mg/m3 TWA (as benzene soluble fraction) (listed under Coal tar pitches).
Dibenzofuran	none listed	none listed	- none listed
Benzo(b)fluoranthene	none listed	none listed	none listed
Fluoranthene	none listed	none listed	none listed
Acenaphthylene	none listed	none listed	none listed
1,2-benzphenanthrene	0.2 mg/m3 TWA (as benzene soluble aerosol) (listed under Coal tar pitches).	0.1 mg/m3 TWA (cyclohexane-extractable fraction) (listed under Coal tar pitches).80 mg/m3 IDLH (listed under Coal tar pitches).	0.2 mg/m3 TWA (as benzene soluble fraction) (listed under Coal tar pitches).

Benzo(a)pyrene	0.2 mg/m3 TWA (as benzene soluble aerosol) (listed under Coal tar pitches).	0.1 mg/m3 TWA (cyclohexane-extractable fraction) (listed under Coal tar pitches).80 mg/m3 IDLH (listed under Coal tar pitches).	0.2 mg/m3 TWA (as benzene solubje fraction) (listed under Coal tar pitches).
1,2-Benzanthracene	none listed	none listed	none listed
Acenaphthene	none listed	none listed	none listed
Phenanthrene	0.2 mg/m3 TWA (as benzene soluble aerosol) (listed under Coal tar pitches).	0.1 mg/m3 TWA (cyclohexane-extractable fraction) (listed under Coal tar pitches).80 mg/m3 IDLH (listed under Coal tar pitches).	0.2 mg/m3 TWA (as benzene soluble fraction) (listed under Coal tar pitches).
Fluorene	none listed	none listed	none listed
Pentachlorophenol	0.5 mg/m3 TWA; Skin - potential significant contribution to overall exposure by the cutaneous r oute	0.5 mg/m3 TWA 2.5 mg/m3 IDLE	0.5 mg/m3 TWA
Naphthalene	10 ppm TWA; 15 ppm STEL; Skin - potential significant contribution to overall exposure by the cutaneous r oute	10 ppm TWA; 50 mg/m3 TWA 250 ppm IDLE	10 ppm TWA; 50 mg/m3 TWA
2-methylnaphthalene	none listed	none listed	none listed

OSHA Vacated PELs: Soil: No OSHA Vacated PELs are listed for this chemical. Anthracene: No OSHA Vacated PELs are listed for this chemical. Pyrene: No OSHA Vacated PELs are listed for this chemical, Dibenzofuran: No OSHA Vacated PELs are listed for this chemical. Benzo(b)fluoranthene: No OSHA Vacated PELs are listed for this chemical. Fluoranthene: No OSHA Vacated PELs are listed for this chemical. Acenaphthylene: No OSHA Vacated PELs are listed for this chemical. 1,2-benzphenanthrene: No OSHA Vacated PELs are listed for this chemical. Benzo(a)pyrene: No OSHA Vacated PELs are listed for this chemical. 1,2-Benzanthracene: No OSHA Vacated PELs are listed for this chemical. Acenaphthene: No OSHA Vacated PELs are listed for this chemical. Phenanthrene: No OSHA Vacated PELs are listed for this chemical. Fluorene: No OSHA Vacated PELs are listed for this chemical. Pentachlorophenol: 0.5 mg/m3 TWA Naphthalene: 10 ppm TWA; 50 mg/m3 TWA 2-methylnaphthalene: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate gloves to prevent skin exposure,

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance: not available
Odor: none reported
pH: Not available.
Vapor Pressure: Not applicable.
Vapor Density: Not available.
Evaporation Rate:Not applicable.
Viscosity: Not applicable.
Boiling Point: Not available.
Freezing / Melting Point:Not available.
Decomposition Temperature:Not available.
Solubility: Insoluble in water.
Specific Gravity / Density:Not available,
Molecular Formula:Mixture
Molecular Weight:Not available.

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: High temperatures.
Incompatibilities with Other Materials: None reported.
Hazardous Decomposition Products: No data available.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 120-12-7: CA9350000
CAS# 129-00-0: UR2450000; UR2450100
CAS# 132-64-9: HP4430000 **CAS#** 205-99-2: CU1400000 **CAS#** 206-44-0: LL4025000 **CAS#** 208-96-8: AB1254000; A51254200
CAS# 218-01-9: GC0700000 **CAS#** 50-32-8: W3675000 **CAS#** 56-55-3: CV9275000 **CAS#** 83-32-9: AB1000000 **CAS#** 85-01-8: SF7175000 **CAS#** 86-73-7: LL5670000 **CAS#** 87-86-5: SM6300000; SM6314000; 5M6321000
CAS# 91-20-3: Q30525000
CAS# 91-57-6: Q39635000
LD50 / L.C50:
CAS# 120-12-7:

Oral, mouse: LD50 = 4900 mg/kg;

CAS# 129-00-0:
Draize test, rabbit, skin: 500 mg/24H Mild;
Inhalation, rat: LC50 = 170 mg/m3;
Inhalation, rat: LC50 = 170 mg/m3;
Oral, mouse: LD50 = 800 mg/kg;
Oral, rat: LD50 = 2700 mg/kg;

CAS# 132-64-9:

CAS# 205-99-2:

CAS# 206-44-0:
Oral, rat: LD50 = 2 gm/kg;
Skin, rabbit: LD50 = 3180 mg/kg;

CAS# 208-96-8:
Oral, mouse: LD50 = 1760 mg/kg;

CAS# 218-01-9:

CAS# 50-32-8:

CAS# 56-55-3:

CAS# 83-32-9:

CAS# 85-01-8:
Oral, mouse: LD50 = 700 mg/kg;
Oral, rat: LD50 = 1.8 gm/kg;

CAS# 86-73-7:

CAS# 87-86-5:
Draize test, rabbit, eye: 100 uL/24H Mild;
Inhalation, mouse: LC50 = 225 mg/m3;
Inhalation, mouse: LC50 = 225 mg/m3;
Inhalation, rat: LC50 = 355 mg/m3;
Inhalation, rat: LC50 = 200 mg/m3;
Inhalation, rat: LC50 = 335 mg/m3;
Oral, mouse: LD50 = 36 mg/kg;
Oral, mouse: LD50 = 117 mg/kg;
Oral, mouse: LD50 = 30 mg/kg;
Oral, rabbit: LD50 = 200 mg/kg;
Oral, rat: LD50 = 27 mg/kg;
Oral, rat: LD50 = 27 mg/kg;
Oral, rat: LD50 = 50 mg/kg;
Skin, rat: LD50 = 96

CAS# 91-20-3:
Draize test, rabbit, eye: 100 mg Mild;
Inhalation, rat: LC50 = >340 mg/m3/1H;
Oral, mouse: LD50 = 316 mg/kg;
Oral, rat: LD50 = 490 mg/kg;
Skin, rabbit: LD50 = >20 gm/kg;
Skin, rat: LD50 = >2500 mg/kg;

CAS# 91-57-6:
Oral, rat: 11)50 = 1630 mg/kg;

Carcinogenicity:
CAS# 120-12-7:

- **ACGIH:** Al - Confirmed Human Carcinogen (as benzene soluble aerosol) (listed as 'Coal tar pitches!).
- **California:** Not listed.
- **NTP:** Known carcinogen (listed as Coal tar pitches).
- **IARC:** Group 1 carcinogen (listed as Coal tar pitches).

CAS# 129-00-0:

- **ACGIH:** Al - Confirmed Human Carcinogen (as benzene soluble aerosol) (listed as 'Coal tar pitches').
- **California:** Not listed.
- **NTP:** Known carcinogen (listed as Coal tar pitches).
- **IARC:** Group 1 carcinogen (listed as Coal tar pitches).

CAS# 132-64-9: Not listed by ACGIH IARC, NTP, or CA Prop 65.
CAS# 205-99-2:

- **ACGIH:** A2 - Suspected Human Carcinogen
- **California:** carcinogen, initial date 7/1/87
- **NTP:** Suspect carcinogen
- **IARC:** Group 2B carcinogen

CAS# 206-44-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 208-96-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 218-01-9:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** carcinogen, initial date 1/1/90
- **NTP:** Known carcinogen (listed as Coal tar pitches).
- **IARC:** Group 1 carcinogen (listed as Coal tar pitches).

CAS# 50-32-8:

- **ACGIH:** A2 - Suspected Human Carcinogen
- **California:** carcinogen, initial date 7/1/87
- **NTP:** Suspect carcinogen
- **IARC:** Group 1 carcinogen (listed as Coal tar pitches).

CAS# 56-55-3:

- **ACGIH:** A2 - Suspected Human Carcinogen
- **California:** carcinogen, initial date 7/1/87
- **NTP:** Suspect carcinogen
- **IARC:** Group 2A carcinogen

CAS# 83-32-9: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 85-01-8:

- **ACGIH: Al -** Confirmed Human Carcinogen (as benzene soluble aerosol) (listed as 'Coal tar pitches').

- California: Not listed.
- NTP: Known carcinogen (listed as Coal tar pitches).
- IARC: Group 1 carcinogen (listed as Coal tar pitches).

CAS# 86-73-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 87-86-5:

- ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** carcinogen, initial date 1/1/90
- NTP: Not listed.
- **IARC:** Not listed.

CAS# 91-20-3:

- **ACGIH:** Not listed.
- **California:** carcinogen, initial date 4/19/02
- **NTP:** Suspect carcinogen
- **IARC:** Group 2B carcinogen

CAS# 91-57-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Mutagenicity: No information available.
Neurotoxicity: No information available.
Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardouS waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series:
CAS# 206-44-0: waste number U120.
CAS# 218-01-9: waste number 0050.
CAS# 50-32-8: waste number U022.
CAS# 56-55-3: waste number U018.
CAS# 91-20-3: waste -

Section 14 – Transpott InformatiOn

US D_ '414-4das/11).

Shipping Name:	Not regulated as a hazardous material	No information available.
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA

Soil is not listed on the TSCA inventory. It is for research and development use only. CAS# 120-12-7 is listed on the TSCA inventory. CAS# 129-00-0 is listed on the TSCA inventory. CAS# 132-64-9 is listed on the TSCA inventory. CAS# 205-99-2 is not listed on the TSCA inventory. It is for research and development use only.

CAS# 206-44-0 is listed on the TSCA inventory.
CAS# 208-96-8 is listed on the TSCA inventory.
CAS# 218-01-9 is listed on the TSCA inventory.
CAS# 50-32-8 is listed on the TSCA inventory.
CAS# 56-55-3 is listed on the TSCA inventory.
CAS# 83-32-9 is listed on the TSCA inventory.
CAS# 85-01-8 is listed on the TSCA inventory.
CAS# 86-73-7 is listed on the TSCA inventory.
CAS# 87-86-5 is listed on the TSCA inventory.
CAS# 91-20-3 is listed on the TSCA inventory.
CAS# 91-57-6 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 129-00-0: Effective 6/1/87, Sunset 6/1/97 CAS# 91-20-3: Effective 6/1/87, Sunset 6/1/97

Chemical Test Rules

CAS# 91-20-3: Testing required by manufacturers, processors

Section 12b

CAS# 91-20-3: Section 4

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 120-12-7: 5000 lb final RQ; 2270 kg final RQ CAS# 129-00-0: 5000 lb final RQ; 2270 kg final RQ CAS# 132-64-9: 100 lb final RQ; 45.4 kg final RQ CAS# 205-99-2: 1 lb final RQ; 0,454 kg final RQ CAS# 206-44-0: 100 lb final RQ; 45.4 kg final RQ CAS# 208-96-8: 5000 lb final RQ; 2270 kg final RQ CAS# 218-01-9: 100 lb final RQ; 45.4 kg final RQ CAS# 50-32-8: 1 lb. final RQ; 0.454 kg final RQ CAS# 56-55-3: 10 lb final RQ; 4.54 kg final RQ CAS# 83-32-9: 100 lb final RQ; 45.4 kg final RQ CAS# 85-01-8: 5000 lb final RQ; 2270 kg final RQ CAS# 86-73-7: 5000 lb final RQ; 2270 kg final RQ CAS# 87-86-5: -10 lb final RQ; 4.54 kg final RQ CAS# 91-20-3: 100 lb final RQ; 45.4 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 129-00-0: 1000 lb TPQ (lower threshold); 10000 lb TPQ (upper threshold)

SARA Codes

CAS # 120-12-7: acute.
CAS # 129-00-0: acute, chronic.
CAS # 206-44-0: acute.

CAS # 50-32-8: acute, chronic.
CAS # 56-55-3: chronic.
CAS # 83-32-9: acute.
CAS # 85-01-8: acute.
CAS # 91-20-3: acute, chronic, flammable.
CAS # 91-57-6: acute.

Section 313

This material contains Anthracene (CAS# 120-12-7, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

This material contains Dibenzofuran (CAS# 132-64-9, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

This material contains Benzo(b)fluoranthene (CAS# 205-99-2, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

This material contains Fluoranthene (CAS# 206-44-0, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

This material contains 1,2-benzphenanthrene (CAS# 218-01-9, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

This material contains Benzo(a)pyrene (CAS# 50-32-8, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

This material contains 1,2-Benzanthracene (CAS# 56-55-3, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

This material contains Phenanthrene (CAS# 85-01-8, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

This material contains Pentachlorophenol (CAS# 87-86-5, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

This material contains Naphthalene (CAS# 91-20-3, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 132-64-9 is listed as a hazardous air pollutant (HAP).

CAS# 87-86-5 is listed as a hazardous air pollutant (HAP).
CAS# 91-20-3 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 87-86-5 is listed as a Hazardous Substance under the CWA. CAS# 91-20-3 is listed as a Hazardous Substance under the CWA. CAS# 120-12-7 is listed as a Priority Pollutant under the Clean Water Act. CAS# 129-00-0 is listed as a Priority Pollutant under the Clean Water Act. CAS# 205-99-2 is Fisted as a Priority Pollutant under the Clean Water Act. CAS# 206-44-0 is listed as a Priority Pollutant under the Clean Water Act. CAS# 208-96-8 is listed as a Priority Pollutant under the Clean Water Act. CAS# 218-01-9 is listed as a Priority Pollutant under the Clean Water Act. CAS# 50-32-8 is listed as a Priority Pollutant under the Clean Water Act. CAS# 56-55-3 is listed as a Priority Pollutant under the Clean Water Act. CAS# 83-32-9 is listed as a Priority Pollutant under the Clean Water Act. CAS# 85-01-8 is listed as a Priority Pollutant under the Clean Water Act. CAS# 86-73-7 is listed as a Priority Pollutant under the Clean Water Act. CAS# 87-86-5 is listed as a Priority Pollutant under the Clean Water Act. CAS# 91-20-3 is listed as a Priority Pollutant under the Clean Water Act. CAS# 206-44-0 is listed as a Toxic Pollutant under the Clean Water Act. CAS# 83-32-9 is listed as a Toxic Pollutant under the Clean Water Act. CAS# 87-86-5 is listed as a Toxic Pollutant under the Clean Water Act. CAS# 91-20-3 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 120-12-7 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Coal tar pitches), Massachusetts.

CAS# 129-00-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Coal tar pitches), Massachusetts.

CAS# 132-64-9 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

CAS# 205-99-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 206-44-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

CAS# 208-96-8 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

CAS# 218-01-9 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 50-32-8 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 56-55-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 83-32-9 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

CAS# 85-01-8 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Coal tar pitches), Massachusetts.

CAS# 86-73-7 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

CAS# 87-86-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 91-20-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 91-57-6 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

WARNING: This product contains Benzo(b)fluoranthene, a chemical known to the state of California to cause cancer. WARNING: This product contains 1,2-benzphenanthrene, a chemical known to the state of California to cause cancer. WARNING: This product contains Benzo(a)pyrene, a chemical known to the state of California to cause cancer. WARNING: This product contains 1,2-Benzanthracene, a chemical known to the state of California to cause cancer. WARNING: This product contains Pentachlorophenol, a chemical known to the state of California to cause cancer. WARNING: This product contains Naphthalene, a chemical known to the state of California to cause cancer.

California No Significant Risk Level: CAS# 205-99-2: 0.096 g/day NSRL (oral) CAS# 218-01-9: 0.35 g/day NSRL (oral) CAS# 50-32-8: 0.06 ,giclay NSRL CAS# 56-55-3: 0.033 .g/day NSRL (oral) CAS# 87-86-5: 40 .g/day NSRL

European / International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

Not available.

Risk Phrases:

Safety Phrases:

WGK (Water Danger/Protection)
CAS# 120-12-7: 2
CAS# 129-00-0: No information available.
CAS# 132-64-9: No information available.
CAS# 205-99-2: No information available.
CAS# 206-44-0: No information available.
CAS# 208-96-8: No information available.
CAS# 218-01-9: No information available.
CAS# 50-32-8: No information available.
CAS# 56-55-3: No information available.
CAS# 83-32-9: No information available.
CAS# 85-01-8: No information available.
CAS# 86-73-7: No information available.
CAS# 87-86-5: 3
CAS# 91-20-3: 2
CAS# 91-57-6: No information available.

Canada - DSL/NDSL
CAS# 120-12-7 is listed on Canada's DSL List.
CAS# 129-00-0 is listed on Canada's DSL List.
CAS# 132-64-9 is listed on Canada's DSL List.
CAS# 218-01-9 is listed on Canada's DSL List.
CAS# 50-32-8 is listed on Canada's DSL List.
CAS# 83-32-9 is listed on Canada's DSL List.
CAS# 85-01-8 is listed on Canada's DSL List.
CAS# 86-73-7 is listed on Canada's DSL List.
CAS# 87-86-5 is listed on Canada's DSL List.
CAS# 91-20-3 is listed on Canada's DSL List.
CAS# 91-57-6 is listed on Canada's DSL List.
CAS# 206-44-0 is listed on Canada's NDSL List.
CAS# 208-96-8 is listed on Canada's NDSL List.
CAS# 56-55-3 is listed on Canada's NDSL List.

Canada - WHMIS
This product has a WHMIS classification of D2A.

Canadian Ingredient Disclosure List
CAS# 120-12-7 is listed on the Canadian Ingredient Disclosure List.
CAS# 129-00-0 is listed on the Canadian Ingredient Disclosure List.
CAS# 205-99-2 is listed on the Canadian Ingredient Disclosure List.
CAS# 206-44-0 is listed on the Canadian Ingredient Disclosure List.
CAS# 208-96-8 is not listed on the Canadian Ingredient Disclosure List.
CAS# 218-01-9 is listed on the Canadian Ingredient Disclosure List.
CAS# 50-32-8 is listed on the Canadian Ingredient Disclosure List.
CAS# 56-55-3 is listed on the Canadian Ingredient Disclosure List.
CAS# 83-32-9 is listed on the Canadian Ingredient Disclosure List.
CAS# 85-01-8 is listed on the Canadian Ingredient Disclosure List.
CAS# 86-73-7 is not listed on the Canadian Ingredient Disclosure List.
CAS# 87-86-5 is not listed on the Canadian Ingredient Disclosure List.
CAS# 91-20-3 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 9/02/1997
Revision #3 Date: 3/18/2003

ATTACHMENT III

Heat Stress/Cold Stress and Related Illnesses

Attachment III – Heat Stress / Cold Stress

1.0 HEAT STRESS

Excessive exposure to a hot environment can bring about a variety of heat-induced disorders. The four main types of heat stress related illnesses: heat rash, heat cramps, heat exhaustion, and heat stroke, are discussed below.

1.1 Heat Rash

Heat rash also know as prickly heat, is likely to occur in hot, humid environments where sweat is not readily removed from the surface of the skin by evaporation and the skin remains wet most of the time. The sweat ducts become plugged, and a skin rash soon appears. When the rash is extensive or when it is complicated by an infection, prickly heat can be very uncomfortable and may reduce a worker's performance. The worker can prevent this condition by resting in a cool place part of each day and by regularly bathing and drying the skin.

1.2 Heat Cramps

Heat cramps are painful spasms of the muscles that occur among those who sweat profusely in heat, drink large quantities of water, but do not adequately replace the body's salt loss. Drinking large quantities of water tends to dilute the body's fluids, while the body continues to lose salt. Shortly thereafter, the low salt level in the muscles causes painful cramps. The affected muscles may be part of the arms, legs or abdomen, but tired muscles (those used to perform the work) are usually the ones most susceptible to cramps. Cramps may occur during or after work hours and may be relieved by taking salted liquids by mouth, such as the variety of sports drinks on the market.

Caution Should Be Exercised By People With Heart Problems Or Those On Low Sodium Diets Who Work In Hot Environments. These People Should Consult A Physician About What To Do Under These Conditions.

1.3 Heat Exhaustion

Heat exhaustion includes several clinical disorders having symptoms that may resemble the early symptoms of heat stroke. Heat exhaustion is caused by the loss of large amounts of fluid by sweating, sometimes with excessive loss of salt. A worker suffering from this condition still sweats but experiences extreme weakness or fatigue, giddiness, nausea, or headache. In more serious cases, the victim may vomit or lose consciousness. The skin is clammy and moist, the complexion is pale or flushed, and the body temperature is normal or only slightly elevated.

A summary of the key symptoms of heat exhaustion is as follows:

- Clammy skin
- Confusion
- Dizziness
- Fainting
- Fatigue
- Heat Rash
- Light-headedness
- Nausea
- Profuse sweating
- Slurred Speech
- Weak Pulse

In most cases, treatment involves having the victim rest in a cool place and drink plenty of fluids. Victims with mild cases of heat exhaustion usually recover spontaneously with this treatment. Those with severe cases may require extended care for several days. There are no known permanent effects.

As With Heat Cramps, Certain Persons Should Consult With Their Physician About What To Do Under These Conditions.

1.4 Heat Stroke

This is the most serious of health problems associated with working in hot environments. It occurs when the body's temperature regulatory system fails and sweating becomes inadequate.

The body's only effective means of removing excess heat is compromised with little warning to the victim that a crisis stage has been reached.

A heat stroke victim's skin is hot, usually dry, red or spotted. Body temperature is usually 105^{o}F or higher, and the victim is mentally confused, delirious, perhaps in convulsions, or unconscious. Unless the victim receives quick and appropriate treatment, death can occur.

A summary of the key symptoms of heatstroke is as follows:

- Confusion
- Convulsions
- Incoherent Speech
- Staggering Gait
- Unconsciousness
- Sweating stops
- Hot skin, high temperature (yet extremities may feel chilled)

Any person with signs or symptoms of heat stroke requires immediate hospitalization. However, first aid should be immediately administered. This includes moving the victim to a cool area, thoroughly soaking the clothing with water, and vigorously fanning the body to increase cooling. Further treatment at a medical facility should include continuation of the cooling process and the monitoring of complications that often accompany the heat stroke. Early recognition and treatment of heat stroke are the only means of preventing permanent brain damage or death.

1.5 Preparing for the Heat

Humans, to a large extent, are capable of adjusting to heat. This acclimation to heat, under normal circumstances, usually takes about 5 to 7 days, during which time the body will undergo a series of changes that will make continued exposure to heat more tolerable.

On the first day of exposure, body temperature, pulse rate, and general discomfort will be higher. With each succeeding day of exposure, all of these responses will gradually decrease, while the sweat rate will increase. When the body does become acclimated to the heat, the worker will find it possible to perform work with less strain and distress.

A gradual exposure to heat gives the body time to become accustomed to higher temperatures, such as those encountered in chemical protective clothing.

1.6 Protecting Against Heat Stress

There are several methods that can be used to reduce heat stress:

- Limit duration of work periods
- Use protective clothing with cooling devices
- Enforce the use of the "Buddy System"
- Consume electrolyte solutions prior to suiting up
- Monitor workers for pulse recovery rates, body fluid loss, body weight loss, and excess fatigue
- Screen for heat stress susceptible candidates in your medical surveillance program
- Have all personnel know the signs and symptoms of heat stress

2.0 COLD STRESS

Persons working outdoors in temperatures at or below freezing may be frostbitten. Extreme cold for a short time may cause severe injury to the surface of the body, or result in profound generalized cooling, causing death. Areas of the body that have high surface-area-to-volume ratio such as fingers, toes, and ears, are the most susceptible. Two factors influence the development of a cold injury, ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. For instance, 10 degrees Fahrenheit with a wind of 15 miles per hour (mph) is equivalent in chilling effect to still air at minus 18 degrees Fahrenheit.

As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked.

2.1 Frostbite

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:

- Frost Nip or Initial Frostbite: characterized by suddenly blanching or whitening of skin.
- Superficial Frostbite: skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
- Deep Frostbite: tissues are cold, pale, and solid; extremely serious injury.

2.2 Hypothermia

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperature. Its symptoms are usually exhibited in five stages:

- Shivering
- Apathy, listlessness, sleepiness, and (sometimes rapid cooling of the body to less than 95°F)
- Unconsciousness, glassy stage, slow pulse, and slow respiratory rate
- Freezing of the extremities
- Death

Thermal socks, long cotton or thermal underwear, hard hat liners and other cold weather gear can aid in the prevention of hypothermia. Blankets and warm drinks (other than caffeinated coffee) are also recommended.

Measures shall be taken to keep workers from getting wet, such as issuance of rain gear. Workers whose cloths become wet shall be given the opportunity to dry off and change clothes.

Attachment IV - Construction Equipment Safety Rules

1.0 ELECTRICAL

1. Live electrical parts shall be guarded against accidental contact by cabinets, enclosure, location, or guarding. Cabinet covers will be replaced.

2. Working and clear space around electric equipment and distribution boxes will be kept clear and assessable.

3. Circuit breakers, switch boxes, etc. will be legibly marked to indicate their purpose.

4. All 120-volt, single-phase 15- and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure and which are in use by employees, shall have approved ground-fault circuit interrupters for personnel protection. If the prime contractor has not provided this protection with GFCI receptacles at the temporary service drop, employees will ensure portable GFCI protection is provided. (Employers may wish to use assured equipment grounding conductor program in lieu of this GFCI protection.) This requirement is in addition to any other electrical equipment grounding requirement or double insulated protection.

5. All extension cords will be three-wire (grounded) type and designed for hard or extra hard usage (Type S, ST, SO, STO, or SJ, SJO, SJT, SJTO).

6. Ground prongs will not be removed.

7. Cords and strain relief devices/clamps will be in good condition.

8. All lamps for general illumination will have the bulbs protected against breakage.

9. Electrical cords will not suspend temporary lights unless cords and lights are designed for such suspension. Flexible cords used for temporary and portable lights will be designed for hard or extra hard usage.

10. Employees will not work in such close (able to contact) proximity to any part of an electric power circuit unless the circuit is de-energized, grounded, or guarded by insulation.

11. Equipment or circuits that are de-energized will be locked out and tagged out. The tags will plainly identify the equipment or circuits being worked on.

2.0 COMPRESSED GAS CYLINDERS

1. All gas cylinders will have their contents clearly marked on the outside of each cylinder.

2. Cylinders must be transported, stored, and secured in an upright position. They will never be left laying on the ground or floor, nor used as rollers or supports.

3. Cylinder valves must be protected with caps and closed when not in use.

4. All leaking or defective cylinders must be removed from service promptly, tagged as inoperable and placed in an open space removed from the work area.

5. Oxygen cylinders and fittings will be kept away from oil or grease.

6. When cylinders are hoisted, they will be secured in a cradle, sling-board, or pallet. Valve protection caps will not be used for lifting cylinders from one vertical level to another.

3.0 LADDERS

1. A competent person to identify any unsafe conditions will periodically inspect ladders.

2. Those ladders with structural defects will be removed from service, and repaired or replaced.

3. Straight ladders used on other than stable, level, and dry surfaces must be tied off, held, or secured for stability.

4. Portable ladder side rails will extend at least three feet above the upper landing to which the ladder is used to gain access.

5. The top or top step of a stepladder will not be used as a step.

4.0 AERIAL LIFTS

1. Aerial lifts include cherry pickers, extensible boom platforms, aerial ladders, articulating boom platforms, vertical towers, and any combinations of the above.

2. Only authorized and trained persons will operate aerial lifts.

3. Lift controls will be tested each day before use.

4. Safety harness will be worn when elevated in the aerial lift.

5. Lanyards will be attached to the boom or basket.

6. Employees will not belt off to adjacent poles, structures, or equipment while working from an aerial lift.

7. Employees will always stand firmly on the floor of the basket, and will not sit or climb on the edge of the basket.

8. Planks, ladders, or other devices will not be used for work position or additional working height.

9. Brakes will be set and outriggers will be used.

10. The aerial lift truck will not be moved with the boom elevated and employees in the `basket, unless the equipment is specifically designed for such.

5.0 CRANES

1. A competent person prior to each use/during use to make sure it is in safe operating condition will inspect all cranes. Also, a certification record of monthly inspections to include date, inspector signature, and crane identifier will be maintained.

2. A thorough annual inspection of hoisting machinery will be made by a competent person, or by a government or private agency, and records maintained.

3. Loads will never be swung over the heads of workers in the area.

4. Employees will never ride hooks, concrete buckets, or other material loads being suspended or moved by cranes.

5. Hand signals to crane operators will be those prescribed by the applicable ANSI standard to the type of crane in use.

6. Tag lines must be used to control loads and keep workers away.

7. Loads, booms, and rigging will be kept at least 10 feet from energized electrical lines rated 50 KV or lower unless the lines are de-energized. For lines rated greater that 50 KV follow OSHA Rules and Regulations, 1926.550(a)(15).

8. Cranes will always be operated on firm, level surfaces, or use mats/pads, particularly for near-capacity lifts.

9. Accessible areas within the swing radius of the rear of the rotating superstructure of the crane, either permanently or temporarily mounted, will be barricaded in such a manner as to prevent employees from being struck or crushed by the crane.

10. If suspended personnel platforms are to be lifted with a crane, reference 1926.550(g) for general and specific requirements.

11. Rigging equipment (chains, slings, wire rope, hooks, other attachments, etc.) will be inspected prior to use on each shift to ensure it is safe. Defective rigging and equipment will be removed from service.

12. Job or shop hooks or other makeshift fasteners using bolts, wire, etc. will not be used.

13. Wire rope shall be taken out of service when one of the following conditions exist:

- In running ropes, 6 random distributed broken wires in one lay or 3 broken wires in one strand or one lay.

- Wear of one-third the original diameter of outside individual wires.

- Kinking, crushing, bird caging, heat damage, or any other damage resulting in distortion of the rope structure.

- In standing ropes, more than two broken wires in one lay in sections beyond end connections, or more than one broken wire at an end connection.

6.0 WELDING and BRAZING

1. Combustible material will be cleared from the area around cutting or welding operations.

2. Welding helmets and goggles will be worn for eye protection and to prevent flash burns.

3. Eye protection to guard against slag while chipping, grinding and dressing of welds will be worn.

4. Only electrode holders specifically designed for arc welding will be used.

5. All parts subject to electrical current will be fully insulated against the maximum voltage encountered to ground.

6. A ground return cable shall have a safe current carrying capacity equal to, or exceeding, the specified maximum output capacity of the arc-welding unit that it services.

7. Cables, leads, hoses, and connections will be placed so that there are no fire or tripping hazards.

7.0 TOOLS

1. Take special precautions when using power tools.

2. Defective tools will be removed form service.

3. Electric power tools will be the grounded-type or double insulated.

4. Power tools will be turned off and motion stopped before setting tool down.

5. Tools will be disconnected from power source before changing drills, blades or bits, or attempting repair or adjustment. Never leave a running tool unattended.

6. Power saws, table saws, and radial arm saws will have operational blade guards installed and used.

7. Unsafe/defective hand tools will not be used. These include sprung jaws on wrenches, mushroomed head of chisels/punches, and cracked/broken handles of any tool.

8. Portable abrasive grinders will have guards installed covering the upper and back portions of the abrasive wheel. Wheel speed ratings will never be less than the grinder RPM speed.

9. Compressed air will not be used for cleaning purposes except when pressure is reduced to less than 30 psi by regulating or use of a safety nozzle, and then only with effective chip guarding and proper personal protective equipment.

10. Abrasive blasting nozzles will have a valve that must be held open manually.

11. Only trained employees will operate powder-actuated tools.

12. Any employee furnished tools of any nature must meet all OSHA and ANSI requirements.

8.0 SAFETY RAILINGS AND OTHER FALL PROTECTION

1. All open sided floors and platforms six feet or more above adjacent floor/ground level will be guarded by a standard railing (top and mid rail, toeboard if required).

2. A stairway or ladder will be provided at any point of access where there is a break in elevation of 19 inches or more.

3. All stairways of four or more risers or greater than 30 inches high will be guarded by a handrail or stair rails

4. When a floor hole or opening (greater than two inches in its least dimension) is created during a work activity, through which a worker can fall, step into, or material can fall through, a cover or a safety guardrail must be installed immediately.

5. Safety nets will be provided when workplaces are more than 25 feet above the ground, water, or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines, or safety belts, is impractical.

6. Safety harnesses, lanyards, lines, and lifelines may be used in lieu of other fall protection systems to provide the required fall protection.

7. Adjustment of lanyards must provide for not more than a six-foot fall, and all tie off points must be at least waist high.

8.1 Scaffolds

1. Scaffolds will be erected, moved, dismantled, or altered only under the supervision of a competent person qualified in scaffold erection, moving, dismantling, or alteration.

2. Standard guardrails (consisting of top-rail and mid-rail) will be installed on all open sides and ends of scaffold platforms and/or work levels more than ten feet above the ground, floor, or lower level.

3. Scaffolds four to ten feet in height with a minimum horizontal dimension in any direction less than 45 inches will have standard railings installed on all open sides/ends.

4. Platforms at all working levels will be fully planked. Planking will be laid tight with no more than one inch space between them, overlap at least 12 inches, and extend over end supports 6 - 12 inches.

5. The front edge of all platforms will be no more than 14 inches from the face of the work, except plastering/lathing may be 18 inches.

6. Mobile scaffolds will be erected no more than a maximum height of four times their minimum base dimension.

7. Scaffolds will not be overloaded beyond their design loadings.

8. Scaffold components should not be used as tie-off/anchor points for fall protection devices.

9. Portable ladders, hook-on ladders, attachable ladders, integral prefabricated scaffold frames, walkways, or direct access from another scaffold or structure will be used for access when platforms are more than two feet above or below a point of access.

10. Cross braces will not be used as a mean of access to scaffolds.

11. Scaffolds will not be erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might come closer to exposed and energized power lines than the following:

    - Three feet from insulated lines of less than 300 volts;

    - Ten feet plus for any other insulated or un-insulated lines.

8.2 Excavations and Trenches

1. Any excavation or trench five feet or more in depth will be provided cave-in protection through shoring, sloping, benching, or the use of hydraulic shoring, trench shields, or trench boxes.

2. Trenches less than five feet in depth and showing potential of cave-in will also be provided cave-in protection. Specific requirements of each system are dependent upon the soil classification as determined by a competent person.

3. A competent person will inspect each excavation/trench daily prior to start of work, after every rainstorm or other hazard-increasing occurrence, and as needed throughout the shift.

4. Means of egress will be provided in trenches four feet or more in depth so as to require no more than 25 feet of lateral travel for each employee in the trench.

5. Spoil piles and other equipment will be kept at least two feet from the edge of the trench or excavation.

9.0 MOTOR VEHICLES AND MECHANIZED EQUIPMENT

1. All vehicles and equipment will be checked at the beginning of each shift, and during use, to make sure it is in safe operating condition.

2. All equipment left unattended at night adjacent to highways in normal use shall have lights or reflectors, or barricades with lights or reflectors, to identify the location of the equipment.

3. When equipment is stopped or parked, parking brakes shall be set. Equipment on inclines shall have wheels chocked as well as having parking brakes set.

4. Operators shall not use earth-moving or compaction equipment having an obstructed rear view unless vehicle has an audible reverse signal alarm, or is backed only when observer says it is safe to do so.

5. All vehicles shall have in operable condition:

- Horn (bi-directional equipment)
- Seats, firmly secured, for the number of persons carried. Passengers must ride in seats.
- Seat belts properly installed.
- Service, parking and emergency brake system.
- All vehicles with cabs will be equipped with windshields with safety glass.
- All material handling equipment will equipped with rollover protective structures.

10.0 MISCELLANEOUS

1. All protruding reinforcing steel, onto and into which employees could fall, shall be guarded to eliminate the impalement hazard.

2. Enclosed chutes will be used when material, trash, and debris are dropped more than 20 feet outside the exterior walls of a building. A substantial gate will be provided near the discharge end of the chute, and guardrails at the chute openings into which workers drop material.

3. Only trained employees will service large truck wheels. A cage or other restraining device plus an airline assembly consisting of a clip-on chuck, gauge, and length of hose will be used to inflate any large truck tires.

4. Only trained employees will operate forklifts and other industrial trucks.

OSHA's Form 301
Injury and Illness Incident Report

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

This *Injury and Illness Incident Report* is one of the first forms you must fill out when a recordable work-related injury or illness has occurred. Together with the *Log of Work-Related Injuries and Illnesses* and the accompanying *Summary*, these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's recordkeeping rule, you must keep this form on file for 5 years following the year to which it pertains.

If you need additional copies of this form, you may photocopy and use as many as you need.

Completed by ______________________________

Title ______________________________

Phone (_______)________--___________ **Date** ____/ ____/ ____

Information about the employee

1) **Full name** ______________________________

2) **Street** ______________________________

City ____________________ **State** ________ **ZIP** __________

3) **Date of birth** _____ / _____ / _____

4) **Date hired** _____ / _____ / _____

5) ☐ **Male**
☐ **Female**

Information about the physician or other health care professional

6) **Name of physician or other health care professional** ______________________________

7) **If treatment was given away from the worksite, where was it given?**

Facility ______________________________

Street ______________________________

City ____________________ **State** ________ **ZIP** __________

8) **Was employee treated in an emergency room?**
☐ **Yes**
☐ **No**

9) **Was employee hospitalized overnight as an in-patient?**
☐ **Yes**
☐ **No**

Information about the case

10) **Case number from the *Log*** __________________ *(Transfer the case number from the Log after you record the case.)*

11) **Date of injury or illness** _____ / _____ / _____

12) **Time employee began work** __________________ **AM / PM**

13) **Time of event** __________________ **AM / PM** ☐ **Check if time cannot be determined**

14) ***What was the employee doing just before the incident occurred?* Describe the activity, as well as the tools, equipment, or material the employee was using. Be specific. *Examples:* "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."**

15) ***What happened?* Tell us how the injury occurred. *Examples:* "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."**

16) ***What was the injury or illness?* Tell us the part of the body that was affected and how it was affected; be more specific than "hurt," "pain," or sore." *Examples:* "strained back"; "chemical burn, hand"; "carpal tunnel syndrome."**

17) ***What object or substance directly harmed the employee?* *Examples:* "concrete floor"; "chlorine"; "radial arm saw." *If this question does not apply to the incident, leave it blank.***

18) ***If the employee died, when did death occur?*** Date of death _____ / _____ / _____