

Hazardous Materials Remedial Closure Report

For

**190-21 Dormans Road, Queens, NY
Block 10393, Lot(s) 58, 60, 158 & 160
OER Project Number: 16EH-A328Q**

**E-Designation: E-186
CEQR Number: 07DCP075Q
St. Albans - Hollis Rezoning Action**

Prepared for:

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REMEDIAL CLOSURE REPORT

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LIST OF ACRONYMS

Acronym	Definition
AST	Aboveground Storage Tank
CAMP	Community Air Monitoring Plan
C&D	Construction & Demolition
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
CO	Certificate of Occupancy
CPC	City Planning Commission
DSNY	Department of Sanitation
“E”	E-Designation
EAS	Environmental Assessment Statement
EIS	Environmental Impact Statement
ESA	Environmental Site Assessment
EC/IC	Engineering Control and Institutional Control
ELAP	Environmental Laboratory Accreditation Program
FDNY	New York City Fire Department
GPR	Ground Penetrating Radar
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations Emergency Response
IDW	Investigation Derived Waste
Notice - NNO	Notice of No Objection
Notice - NTP	Notice to Proceed
Notice - NOS	Notice of Satisfaction
Notice - FNOS	Final Notice of Satisfaction
NYC BSA	New York City Board of Standards and Appeals
NYC DCP	New York City Department of City Planning
NYC DEP	New York City Department of Environmental Protection
NYC DOB	New York City Department of Buildings
NYC DOF	New York City Department of Finance
NYC HPD	New York City Housing Preservation and Development
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 DEC PBS	New York State Department of Environmental Conservation Petroleum Bulk Storage
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
OSHA	United States Occupational Health and Safety Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PE	Professional Engineer
PID	Photo Ionization Detector
PM	Particulate Matter
QEP	Qualified Environmental Professional
RA	Register Architect
RAP	Remedial Action Plan
RCA	Recycled Concrete Aggregate
RCR	Remedial Closure Report
RD	Restrictive Declaration
RI	Remedial Investigation
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-Slab Depressurization System
SVOCs	Semi-Volatile Organic Compounds
USCS	Unified Soil Classification System
USGS	United States Geological Survey
UST	Underground Storage Tank
TAL	Target Analyte List
TCL	Target Compound List
TCO	Temporary Certificate of Occupancy
VB	Vapor Barrier
VOCs	Volatile Organic Compounds

CERTIFICATION

The original Professional Engineer, who certified the RAWP, Mr. Shaik Saad, a registered professional engineer licensed by the State of New York, performed professional engineering services and had primary direct responsibility for implementation of the remedial program for the 190-21 Dormans Road site, site number 16EH-A328Q.

Mr. Saad is no longer available to stamp this RCR. Since the field work was completed under HydroTech supervision, I, Tarek Z. Khouri, P.E. certify the following:

- I am currently a registered professional engineer licensed by the State of New York.
- I have reviewed this document, to which my signature and seal are affixed.
- The vapor barrier and composite cover system constructed during this remedial action were designed by me or a person under my direct supervision and achieve the goals established in the Remedial Action Work Plan for this site.
- The vapor barrier and composite cover system constructed during this remedial action were professionally observed by me or by a person under my direct supervision are accurately reflected in the text and drawings for as-built design reported in this Remedial Closure Report.
- The OER-approved Remedial Action Work Plan dated November 28, 2016 and Stipulations in a letter dated October 26, 2016 were implemented by HydroTech personnel and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquid or other material from the property was taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

Name: Tarek Z. Khouri, P.E.

PE License Number: 086611

Signature:



Date: June 25, 2019



EXECUTIVE SUMMARY

O&B Properties has performed this remedial action to remediate a 7,575-square foot site located at 190-21 Dormans Road in Queens, New York. A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). The remedial action described in this document fulfills the remedial objectives defined in the RAWP, complies with applicable environmental standards, criteria and guidance and conforms with applicable laws and regulations.

Site Location and Prior Usage

The Site is located at 190-21 Dormans Road in the Saint Albans section of Queens, New York and is identified as Block 10393 and Lots 58, 60, 158 & 160 on the New York City Tax Map. The Site is 7,575-square feet and is bounded by a vacant lot to the north, Dormans Road and two-story residential buildings to the south, Farmers Boulevard and two story residential and commercial buildings to the east, and a three-story residential building to the west. The site was previously vacant and developed with a two-story building with a full basement. A detached private garage was located in the southern portion and the northern portion of the Site was a vacant lot.

Summary of Proposed Redevelopment Plan

The new development consists of four 3-story residences with front and rear yards. The building covers approximately 50% of the footprint of the Site and contains a full cellar. The cellar level was excavated to 5 feet which is 12 feet below grade surface to be used as accessory space for tenants and there was 2 feet excavation outside the building footprint in the rear yard area. The front yard was not excavated. The area outside of the building will be utilized as recreation space. Approximately 1,243 tons of soil was generated and disposed of during the excavation of the Site. Dewatering was not required. The current zoning designation is R5-B. The proposed use is consistent with existing zoning for the property.

Site Description, Physical Setting and Site History

The Site is located on the northwest corner of Dormans Road and Farmers Boulevard between Farmers Boulevard to the east and Mexico Street to the west, in the borough of Queens, New York. The borough of Queens is situated in the eastern portion of New York City. The vicinity of the Site consists of commercial and residential properties. The Site is bordered by Dormans Road to the south, Farmers Boulevard to the east, a vacant lot to the north, and a three-story residential building to the west. There are no sensitive receptors (such as schools, hospitals or day-care facilities) present within a 0.125-mile radius of the Site. The current zoning designation is R5-B. The proposed use is consistent with existing zoning for the property.

Summary of Past Uses of Site and Areas of Concern

Based upon the review of radius maps and fire insurance maps, the following Site history was established. The Subject Property was developed prior to 1926 with the existing structures at the southern portion of the Site (Lot 60). The northern portion of the Site (Lot 58) has been vacant since 1926. The current structures at the Site have been shown on all of the fire insurance maps since 1926.

Areas of Concern identified for the property include:

- The presence of an underground storage tank in the southeast portion of the Site.
- The Site as a whole due to its association with an “E” designation.

Summary of Environmental Findings

1. The GPR survey identified an anomaly indicative of a UST was encountered in the vicinity of the fill port in the southern portion of the Site.
2. The elevation of the property was not established.
3. Depth to groundwater was 23.95 feet at the Site.
4. Groundwater flow was not established beneath the Site.
5. Bedrock was not encountered during the investigation.

6. The stratigraphy of the site, from the surface down, consists of coarse sand from zero to 6 feet below grade.
7. Soil/fill samples results were compared to New York State Department of Conservation (NYSDEC) Unrestricted Use Soil Cleanup Objectives and Restricted Residential Use Soil Cleanup Objectives (SCOs) as presented in 6NYCRR Part 375-6.8. Soil/fill samples collected during the RI show no PCBs or Pesticides at concentrations exceeding their respective monitoring detection limits (MDLs). The samples show no VOCs are present at concentrations exceeding Unrestricted Soil Cleanup Objectives (SCOs). The VOC acetone is present at concentrations less than its Unrestricted Use SCO. Eleven (11) Polycyclic Aromatic Hydrocarbon-range Semi-Volatile Organic Compounds (SVOCs) including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene are present in the soil samples at concentrations less than their respective Unrestricted Use SCOs. Two (2) metals, specifically, lead (maximum 124 mg/kg) and mercury (maximum 0.47 mg/kg), are present in three of the shallow samples at concentrations exceeding their respective Unrestricted Use SCO, but less than their Restricted Residential Use SCO. Overall, soil chemistry is similar to sites with historic fill in the City of New York.
8. The groundwater sample collected during the RI was compared to NYSDEC 6NYCRR Part 703.5 Groundwater Quality Standards (GQS). The groundwater sample collected during the RI shows no VOCs, SVOCs, or PCBs at concentrations exceeding Groundwater Quality Standards (GQS). Two (2) pesticides, specifically Chlordane (0.358 ug/L) and Dieldrin (0.00745 ug/L), were detected at concentrations exceeding their respective GSQs. Two (2) dissolved metals, including manganese (maximum 744 ug/L) and sodium (maximum 107,000 ug/L), are present at concentrations exceeding their respective GQS.
9. The soil vapor results collected during the RI were compared to the compounds listed in Table 3.1 Air Guideline Values Derived by the NYSDOH located in the New York State

Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion. Soil vapor samples collected during the RI show petroleum and chlorinated VOCs at generally low to moderate concentrations. The total concentration of petroleum-related VOCs (BTEX) had a maximum concentration of 1100 $\mu\text{g}/\text{m}^3$. 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene was found at a maximum concentration of 420 $\mu\text{g}/\text{m}^3$ and 130 $\mu\text{g}/\text{m}^3$ respectively. Tetrachloroethene was not detected in any of the soil vapor samples but was detected at a concentration of 0.76 $\mu\text{g}/\text{m}^3$ in the outdoor air sample. Carbon tetrachloride was detected in one indoor sample at a concentration of 0.56 $\mu\text{g}/\text{m}^3$.

Summary of the Remedy

The Remedial Action was performed in accordance with an OER-approved Remedial Action Work Plan and achieved the Remedial Action Objectives established for the project. The Remedial Action was evaluated in an alternatives analysis and was determined to be protective of human health and the environment, compliant with standards, criteria, and guidelines (SCGs), effective in the short-term, effective in the long-term, capable of attaining appropriate levels of reduction of toxicity, mobility, or volume of contaminated material, implementable, cost effective, acceptable to the community, consistent with land uses, and sustainable.

A summary of the milestones achieved in the Remedial Action is as follows: A Pre-Application Meeting was held on June 9th, 2016. A Remedial Investigation (RI) was performed in June 2016. A RI Report was prepared to evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). The RAWP and Stipulation List dated October 26, 2016 was approved by the New York City Office of Environmental Remediation (OER) on December 28th, 2016. A Pre-Construction meeting was held on May 2, 2017. The remedial action was begun on September 11, 2017 and completed on September 7, 2018. **Appendix 2** includes the RAWP.

The remedial action achieves the remedial objectives established in the RAWP. The remedial action consisted of:

1. Performed site mobilization in March 2017 involving security setup, equipment mobilization, utility mark outs, and marking and staking excavation areas.

2. Performed Waste Characterization Study prior to excavation activities on April 6, 2017.
The entire site was designated as three (3) grids, WC-1 through WC-3. One waste characterization sample was collected per 800 cubic yards of material, as dictated by disposal facility(s).
3. Performed Community Air Monitoring Program from 09/11/2017 to 09/27/2017 during invasive activities to screen for particulates and volatile organic carbon compounds.
4. Established Site Specific Soil Cleanup Objectives (SCOs) for contaminants of concern.
The following SCOs were utilized: Lead: 650 ppm and Mercury: 1 ppm.
5. Approximately 1,243 tons of non-hazardous soil/fill material was excavated and removed from the Site and transported to P Park NJ, LLC (P Park) located at 100 Planten Ave, Prospect Park, NJ 07508.
6. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
7. Managed excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials-
8. Conducted materials management of excavated materials including temporarily stockpiling soil/fill that was not disposed of via live loading. Appropriately segregated excavated media on-Site prior to disposal to prevent co-mingling of materials.
9. Performed transportation and disposal of excavated soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal.
10. Collected and analyzed six (6) post-excavation confirmatory samples to determine the performance of the remedy with respect to the attainment of Restricted Residential Use SCOs. Based on the post-excavation sample results, the site achieved Restricted Residential Soil Cleanup Objectives (SCOs).
11. As part of development, installed a Composite Cover System consisting of a 4" reinforced concrete building slab underlain by native material. The front and rear yard

comprise of landscaped areas capped with 12 inches of clean soil. The contractor for the Composite Cover System construction was Ashish Singla, Singla Concepts, 240-60 66 Avenue, Douglaston, NY 11362.

12. As part of development, installed a Vapor Barrier System (VBS) consisting of Raven Industries 20-mil VaporBlock Plus installed beneath the building slab and behind the foundation walls. The vapor barrier was installed in accordance with manufacturer specifications throughout the area occupied by the footprint of the new building and up the foundation sidewalls. All penetrations through the slab for utility lines were sealed utilizing VaporSeal Tape and Butyl Seal Tape by Raven Industries. HydroTech has documented the installation and completion of the vapor barrier. The contractor for the Vapor Barrier System construction was Ashish Singla, Singla Concepts, 240-60 66 Avenue, Douglaston, NY 11362.
13. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.
14. Performed all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
15. Submitted seven (7) daily reports documenting air monitoring and soil/fill disposal activities from September 11, 2017 through September 7, 2018. Also submitted two (2) monthly reports on November 20, 2017 and April 26, 2018 to document construction activities.
16. Submitted an RCR that describes the Remedial Action; certifies that the remedial requirements defined in the RAWP have been achieved; defines the Site boundaries; and lists any changes from the RAWP.

REMEDIAL CLOSURE REPORT

1.0 SITE BACKGROUND

This Remedial Closure Report (RCR) has been developed for 190-21 Dormans Road located at 190-21 Dormans Road in the Saint Albans section of Queens, New York (the Site). This project has been assigned project number 16EH-A328Q by OER. This RCR describes the remediation and/or mitigation activities implemented at the Site in coordination with the New York City Office of Environmental Remediation (OER) for the purposes of satisfying the requirements of the Hazardous Materials E-Designation Program and obtaining a Notice of Satisfaction. An E-Designation for Hazardous Materials (E-186) was placed on the Site by the New York City Department of City Planning (DCP) as part of the October 26, 2007 St. Albans – Hollis Rezoning action (CEQR number 07DCP075Q).

1.1 Site Location and Prior Usage

The Site is located at 190-21 Dormans Road in the Saint Albans section of Queens, New York and is identified as Block 10393 and Lots 58, 60, 158 & 160 on the New York City Tax Map. **Figure 1** shows the Site location. The Site is 7,575-square feet and is bounded by a vacant lot to the north, Dormans Road and two-story residential buildings to the south, Farmers Boulevard and two story residential and commercial buildings to the east, and a three-story residential building to the west. A map of the site boundary is shown in **Figure 2**. The site was previously vacant and developed with a two-story building with a full basement. A detached private garage was located in the southern portion and the northern portion of the Site was a vacant lot.

1.2 Redevelopment Plan

The new development consists of four 3-story residences with front and rear yards. The building covers approximately 50% of the footprint of the Site and contains a full cellar. The cellar level was excavated to 5 feet which is 12 feet below grade surface to be used as accessory space for tenants and there was 2 feet excavation outside the building footprint in the rear yard area. The front yard was not excavated. The area outside of the building will be utilized as recreation space. Approximately 1,243 tons of soil was generated and disposed of during the excavation of the Site. Dewatering was not observed. The layout of the site development plan is

presented in **Figure 3**. The current zoning designation is R5-B. The proposed use is consistent with existing zoning for the property.

ENVIRONMENTAL INVESTIGATIONS

HydroTech performed the following scope of work at the Site during June 2016:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Conducted a Geophysical Investigation consisting of a Ground Penetrating Radar.
3. Installed seven soil borings across the entire project Site, and collected fourteen soil samples for chemical analysis from the soil borings to evaluate soil quality;
4. Installed one groundwater monitoring well at the Site and collected one groundwater sample for chemical analysis to evaluate groundwater quality;
5. Installed four soil vapor probes around Site perimeter and collected four samples for chemical analysis

Summary of Environmental Findings

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2. The elevation of the property was not established.
3. Depth to groundwater was 23.95 feet at the Site.
4. Groundwater flow was not established beneath the Site.
5. Bedrock was not encountered during the investigation.
6. The stratigraphy of the site, from the surface down, consists of coarse sand from zero to 6 feet below grade.
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respective monitoring detection limits (MDLs). The samples show no VOCs are present at concentrations exceeding Unrestricted Soil Cleanup Objectives (SCOs). The VOC acetone is present at concentrations less than its Unrestricted Use SCO. Eleven (11) Polycyclic Aromatic Hydrocarbon-range Semi-Volatile Organic Compounds (SVOCs) including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene are present in the soil samples at concentrations less than their respective.

Unrestricted Use SCOs. Two (2) metals, specifically, lead (maximum 124 mg/kg) and mercury (maximum 0.47 mg/kg), are present in three of the shallow samples at concentrations exceeding their respective Unrestricted Use SCO, but less than their Restricted Residential Use SCO. Overall, soil chemistry is similar to sites with historic fill in the City of New York.

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Appendix 1 includes the Remedial Investigation Report.

2.0 DESCRIPTION OF REMEDIAL ACTIONS

The Remedial Action was performed in accordance with an OER-approved Remedial Action Work Plan and achieved the Remedial Action Objectives established for the project. The Remedial Action was evaluated in an alternatives analysis and was determined to be protective of human health and the environment, compliant with standards, criteria, and guidelines (SCGs), effective in the short-term, effective in the long-term, capable of attaining appropriate levels of reduction of toxicity, mobility, or volume of contaminated material, implementable, cost effective, acceptable to the community, consistent with land uses, and sustainable.

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3. Performed Community Air Monitoring Program from 09/11/2017 to 09/27/2017 during invasive activities to screen for particulates and volatile organic carbon compounds.
4. Established Site Specific Soil Cleanup Objectives (SCOs) for contaminants of concern. The following SCOs were utilized: Lead: 650 ppm and Mercury: 1 ppm.

5. Approximately 1,243 tons of non-hazardous soil/fill material was excavated and removed from the Site and transported to P Park NJ, LLC (P Park) located at 100 Planten Ave, Prospect Park, NJ 07508.
6. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
7. Managed excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials-
8. Conducted materials management of excavated materials including temporarily stockpiling soil/fill that was not disposed of via live loading. Appropriately segregated excavated media on-Site prior to disposal to prevent co-mingling of materials.
9. Performed transportation and disposal of excavated soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal.
10. Collected and analyzed six (6) post-excavation confirmatory samples to determine the performance of the remedy with respect to the attainment of Restricted Residential Use SCOs. Based on the post-excavation sample results, the site achieved Restricted Residential Soil Cleanup Objectives (SCOs).
11. As part of development, installed a Composite Cover System consisting of a 4” reinforced concrete building slab underlain by native material. The front and rear yard comprise of landscaped areas capped with 12 inches of clean soil. The contractor for the Composite Cover System construction was Ashish Singla, Singla Concepts, 240-60 66 Avenue, Douglaston, NY 11362.
12. As part of development, installed a Vapor Barrier System (VBS) consisting of Raven Industries 20-mil VaporBlock Plus installed beneath the building slab and behind the foundation walls. The vapor barrier was installed in accordance with manufacturer specifications throughout the area occupied by the footprint of the new building and up the foundation sidewalls. All penetrations through the slab for utility lines were sealed utilizing VaporSeal Tape and Butyl Seal Tape by Raven Industries. HydroTech has

documented the installation and completion of the vapor barrier. The contractor for the Vapor Barrier System construction was Ashish Singla, Singla Concepts, 240-60 66 Avenue, Douglaston, NY 11362.

13. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.
14. Performed all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
15. Submitted seven (7) daily reports documenting air monitoring and soil/fill disposal activities from September 11, 2017 through September 7, 2018. Also submitted two (2) monthly reports on November 20, 2017 and April 26, 2018 to document construction activities.
16. Submitted an RCR that describes the Remedial Action; certifies that the remedial requirements defined in the RAWP have been achieved; defines the Site boundaries; and lists any changes from the RAWP.

3.0 COMPLIANCE WITH REMEDIAL ACTION PLAN

3.1 Construction Health and Safety Plan

The remedial construction activities performed under this program were in compliance with the site-specific CHASP and applicable laws and regulations. The Site Safety Coordinator was Carlos Quinonez.

3.2 Community Air Monitoring Plan

The Community Air Monitoring Plan provided for the collection and analysis of air samples during remedial construction activities to ensure proper protections were employed to protect workers and the neighboring community. Monitoring was performed in compliance with the Community Air Monitoring Plan in the approved RAWP. The results of Community Air monitoring are shown in **Appendix 3**.

3.3 Soil/materials management plan

The Soil/Materials Management Plan in the RAWP provided detailed plans for managing all soils/materials that were disturbed at the Site, including excavation, handling, storage, transport and disposal. It also included a series of controls to assure effective, nuisance free remedial activity in compliance with applicable laws and regulations. Remedial construction activities performed under this program were in compliance with the SMMP in the approved RAWP.

3.4 Storm-water pollution prevention

Storm water pollution prevention included physical methods and processes to control and/or divert surface water flows and to limit the potential for erosion and migration of Site soils, via wind or water. Remedial construction activities performed under this program were in compliance with applicable storm-water pollution prevention laws and regulations and the RAP.

3.5 Deviations from the Remedial Action Work Plan

1. As per RAWP, original excavation was limited to 5 feet below grade in cellar area (i.e total 12 feet excavation below grade surface) for the new buildings as per the site redevelopment plan. However, rear yard was excavated to 2 feet below grade during site redevelopment with no excavation in the front yard as seen in waste characterization

report included in **Appendix 11**. This was also confirmed from the daily reports included in **Appendix 5**.

2. As per RAWP, soil reuse was not planned on this project but was performed. From waste characterization results performed April 2017, the analytical results show that the 12 feet soil excavated from below grade did not contain substances at hazardous levels and the concentrations were below Unrestricted Use Soil Cleanup Objectives (UUSCOs). This clean soil from the excavated area was reused on the site and thus, front and rear yards were backfilled with 12" of this clean soil. OER correspondence for this deviation was not saved of file and the related documents are included in **Appendix 11**.
3. Liquid Bituthene was not used during vapor barrier installation as proposed in RAWP. VaporSeal Tape and Butyl Seal Tape were used instead for VaporBlock Plus overlap and patching all holes or penetrations through the membrane. OER correspondence for this deviation was not saved of file and the related documents are included in **Appendix 12**.
4. Six (6) end point samples were collected from the bottom of excavation on September 13, 2017. However, sampling depths were not noted.
5. Multiple stockpiles were maintained over the course of the project as seen from Daily Reports in **Appendix 5** and photographs in **Appendix 6**. These multiple stockpiles were not underlain on 6-mil poly-sheeting and were not covered all times with anchored plastic tarps.

The deviations implemented as part of the remedial action are protective of public health and the environment. **Appendix 4** provides other related correspondences with OER.

4.0 REMEDIAL PROGRAM

4.1 Project Organization

The principal personnel who participated in the remedial action include Adam Nasiatka, Project Manager (PM). The original Professional Engineer (PE) for this project was Shaik Saad and Mr. Saad is no longer available to stamp the RCR. The current Professional Engineer (PE) is Tarek Z. Khouri and the Qualified Environmental Professional (QEP) is Mark E. Robbins. HydroTech Environmental Engineering and Geology, DPC was responsible for the oversight of VBS and composite cover installation. Remedial activities at the Site were overseen by NYC OER under the E-Designation program in accordance with the November 2016 RAWP addressing the HAZMAT E-designation (E-186; CEQR: 07DCP075Q) (NYC E-Designation Project Number 16EH-A328Q).

4.2 Site controls

Site Preparation

Prior to, and throughout, the different phases of remedial activities, all necessary construction permits were acquired and maintained on-site as per the New York City Department of Buildings (NYCDOB) rules and regulations. No site clearing and site grubbing of organic matter (wood, roots, stumps, etc.) or other solid waste were required prior to all remedial work. A pre-construction meeting was held at the site on May 2, 2017. Site mobilization, including utility mark outs, site security setup, and marking and staking excavation areas was performed in March of 2017.

Mobilization

Mobilization was conducted as necessary prior to the start of construction at the Site. Mobilization included 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 attended an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures.

Soil Screening

All excavated soil was examined for visual/olfactory evidence of petroleum contamination and for organic vapors utilizing a Photoionization Detector (PID). No organic vapors (<0.1 ppm) or visual/olfactory evidence of contamination were identified in the soil that was excavated and removed from the Site.

Stockpile Management

Excavated material, which was not live-loaded onto trucks for disposal, was stockpiled and this task was completed in accordance with the soil material management plan in the RAWP.

Truck Inspection

Truck inspection and cleaning was performed for all loaded trucks prior to leaving the site. Trucks were staged for loading contaminated soil/fill material along the Dormans Road sidewalk and were then inspected prior to leaving the Site for any debris adhering to their surface. Trucks also went through thorough cleaning on a stone pad (truck wash station). However, there are no pictures saved on file for visual evidence. Cleaning included brushing and rinsing their tires with water, when necessary, in order to prevent any tracking of soil/fill into surrounding community. Hauling trucks were also covered in order to control the generation of fugitive dust and leakage of contaminated material during transport.

Site Security

Site security was maintained with a locked fence in accordance with the NYCDOB code.

Nuisance Controls

All necessary means were employed to prevent dust, odor and vapor nuisances during the remedial excavation and disposal of soil/fill material. Such measures included shrouding stockpiled material with plastic tarp. The nuisance control measures also included using water from the nearest fire hydrant to apply sprinkled water over dry surfaces to reduce dust generation. Other provisions for mist applications of odor chemical solutions to suppress potential odor and vapors were also considered but did not need to be utilized. No odors, dust or vapors were generated or identified during remedial work.

Reporting

Daily reports providing a general summary of invasive and other remedial activities were provided to the OER Project Manager for each day of active remedial work. A total of seven (7) daily reports were submitted from September 11, 2017 through September 7, 2018 and excluded periods of no invasive or remedial activity during the reporting period. Also submitted two (2) monthly reports on November 20, 2017 and April 26, 2018 to document construction activities. All daily and monthly reports are included in **Appendix 5**. Digital photographs of the Remedial Action are included in **Appendix 6**.

4.3 Materials Excavation and Removal Action

Soil/Fill Excavation and Removal

The cellar level was excavated to 5 feet which is 12 feet below grade surface to be used as accessory space for tenants and there was 2 feet excavation outside the building footprint in the rear yard area. Approximately, 1,243 tons of soil was excavated and removed from this Site and transported to P Park NJ, LLC located at 100 Planten Ave, Prospect Park, NJ 07508. The Removal Action was performed under the oversight of HydroTech.

A map showing the approximate locations where excavations were performed, and approximate depths of excavation is shown in **Figure 4**.

Onsite Reuse

As per the RAWP, no soil reuse was planned at this site. However, based on soil disposal quantities in cellar area and rear yard, the quantity of soil disposed to the corresponding disposal facility was less than actual quantity of soil that could have been generated from excavation. Also, as per waste characterization results from April 2017, the analytical results show that the 12 feet soil excavated from below grade in the cellar area did not contain substances at hazardous levels and the concentrations were below Unrestricted Use Soil Cleanup Objectives (UUSCOs). This clean soil from the cellar area was reused on the site as per the Soil/Materials Management Plan. This was confirmed through six (6) post-excavation confirmation samples that was collected from the bottom of the excavation. No VOCs, SVOCs, PCBs and Pesticides occurred in any soil samples at concentrations exceeding their respective Restricted Residential SCOs. The metals Lead (97.9 mg/kg) and Mercury (0.19 mg/kg) were detected in EP-1 (front yard) at

concentrations exceeding their Unrestricted Use SCOs but are below the established Restricted Residential SCOs. Based on these results from the waste characterization and post-excavation confirmation sampling, the soil was reused as 12” clean fill in the front and rear yard landscaped areas. Estimated quantity of soil reused was 643 Cu yds.

UST Removal

During Remedial Investigation (RI), the GPR survey identified an anomaly indicative of a UST encountered in the vicinity of the fill port in the southern portion of the Site. Upon further investigation of the fill port, the tank was observed to be full of concrete and no concrete ceiling or concrete walls indicative of a tank encasement were identified. Thus, the abandoned UST was not removed from the site.

NYSDEC Petroleum Spills

No existing spills were found associated with the Subject Property. No spills were reported during the Site excavation.

Dewatering

Dewatering was not performed at this Site.

Soil Cleanup Objectives

The SCOs for this Remedial Action are Restricted Residential SCOs. If these SCOs were not achieved, the following Site-Specific SCO’s were to be achieved:

Contaminant	Site-Specific SCO’s
Lead	650 ppm
Mercury	1.0 ppm

Post Excavation Confirmation Sample Results

Six (6) post-excavation confirmation samples were collected from the bottom of the excavation and were analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, Target Analyte List metals and Pesticides/PCBs by EPA Method 8081/8082. Analytical results for all these samples were compared to the 6NYCRR Part 375, Table 6.8(b) Restricted Residential Use SCOs.

No VOCs, SVOCs, PCBs and Pesticides occurred in any soil samples at concentrations exceeding their respective Restricted Residential SCOs. The metals Lead (97.9 mg/kg) and Mercury (0.19 mg/kg) were detected in EP-1 at concentrations exceeding their Unrestricted Use SCOs but are below the established Restricted Residential SCOs. Based on the results of the post-excavation confirmation sampling, the site achieved the established Restricted Residential SCOs.

Soil sampling results from the RI show no PCBs or Pesticides at concentrations exceeding their respective monitoring detection limits (MDLs). The samples show no VOCs are present at concentrations exceeding Unrestricted Soil Cleanup Objectives (SCOs). The VOC acetone is present at concentrations less than its Unrestricted Use SCO. Eleven (11) Polycyclic Aromatic Hydrocarbon-range Semi-Volatile Organic Compounds (SVOCs) including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene are present in the soil samples at concentrations less than their respective Unrestricted Use SCOs. Two (2) metals, specifically, lead (maximum 124 mg/kg) and mercury (maximum 0.47 mg/kg), are present in three of the shallow samples at concentrations exceeding their respective Unrestricted Use SCO, but less than their Restricted Residential Use SCO. Overall, soil chemistry is similar to sites with historic fill in the City of New York. Based on these findings, the analytical results from the deep RI samples support the conclusion that the site achieved the Restricted Residential SCOs.

A map of the post-excavation confirmation sample locations is provided in **Figure 5**. Locations of soil borings during the RI are also provided in this figure for reference. A tabular summary of post-excavation confirmation sampling results compared to SCO's is included in **Table 2**. A tabular summary of the RI analytical data is provided in **Table 1** for reference. The full laboratory report for post-excavation confirmation samples is provided in **Appendix 7**.

4.4 Materials Disposal

The type, quantity and disposal location of each material removed and disposed off-Site is presented below:

Destination	Type of Material	Quantity
P Park NJ, LLC	Non-Hazardous Soil/Fill Material	1,243 tons

Letters from O&B Properties to P Park NJ, LLC providing materials type, source and data; and acceptance letters from disposal facility stating it is approved to accept these materials are attached in **Appendix 8**. The OER Historic Fill Notification Form is provided in **Appendix 9**. Manifests are included in **Appendix 10**. Waste characterization data for the approved material is provided in **Appendix 11**. A table of individual truck transport and material disposal quantities is provided in **Table 3**.

4.5 Backfill Import

No soils or gravel were imported to be used for backfill at this site.

5.0 ENGINEERING CONTROLS

A Restricted Residential Remedial Action was achieved and Engineering Controls are not required. However, as part of construction, several protective systems were installed. These are:

- (1) Composite Cover System; and
- (2) Vapor Barrier System

Composite Cover System

Exposure to residual soil/fill is prevented by an engineered, composite cover system that has been built on the Site. This composite cover system is comprised of a 4" cellar slab underlain by native material. The soil generated from the proposed excavation was used as the clean fill layer. The front and rear yard comprise of landscaped areas capped with 12 inches of clean fill.

Figure 6 shows the typical design for each remedial cover type and the location of each cover type built at the Site. The contractor for the cover construction is Ashish Singla, Singla Concepts, 240-60 66 Avenue, Douglaston, NY 11362.

Vapor Barrier System

Exposure to soil vapor is prevented by a vapor barrier system (VBS) that has been installed at the Site. The VBS consists of Raven Industries 20-mil Vapor Block Plus was installed beneath the building slab and outside of sub-grade foundation sidewalls. All welds, seams and penetrations were properly sealed to prevent preferential pathways for vapor migration. The professional engineer for the Vapor Barrier System installation oversight was Tarek Z. Khouri. The contractor for the vapor barrier is Ashish Singla, Singla Concepts, 240-60 66 Avenue, Douglaston, NY 11362.

Figure 7 shows the vapor barrier design and cross section details respectively for the vapor barrier system used on this site. Photographs of installation of the vapor barrier system are included in **Appendix 6**. A copy of manufacturer's specifications for the vapor barrier system is included in **Appendix 12**

6.0 INSTITUTIONAL CONTROLS

A Restricted Residential Remedial Action was achieved, and Engineering Controls and Institutional Controls are not required.

7.0 SITE MANAGEMENT PLAN

A Restricted Residential Remedial Action was achieved, and Site Management is not required.

8.0 SUSTAINABILITY REPORT

This Remedial Action provides for sustainable remediation and redevelopment through a variety of means that are defined in this Sustainability Report.

Reuse of Clean, Recyclable Materials and Conservation of Natural Resources.

Reuse of clean, recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction since these materials can be locally derived. To this end, all pre-construction and construction documents related to this project were printed on 30% post-consumer paper.

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.

The following means were used to reduce energy consumption in this project: Efficient loading times of trucks to prevent extensive idling times and consolidating the number of days that soil was shipped from the Site to reduce truck traffic in the neighborhood.

Conversion to Clean Fuels.

Use of clean fuel improves NYC's air quality by reducing harmful emissions. Natural gas is utilized as the principal fuel in the new building.

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 that could impede future redevelopment. Recontamination can arise from future releases that occur within the property or by influx of existing contamination from off-Site.

The methods used to provide recontamination controls in the development included the prevention of transport of contamination to the site from off-site by ensuring that no unapproved materials were brought to the Site, a composite cover system and a vapor barrier were installed at the Site to provide protection from residual contaminants and if recontamination from off-site were to occur, and the use of natural gas to ensure no fuel oil will be leaked into the environment.

100% of the area of the Site, or 7,575 square feet, utilizes recontamination controls under this plan.

Paperless Brownfield Cleanup Program.

The O&B Properties participated in OER's Paperless Brownfield Cleanup Program. Under this program, submission of electronic documents replaced submission of hard copies for the review of project documents, communications and milestone reports. A best estimate of the mass (pounds) of paper saved under this plan is 20 pounds.

Low-Energy Project Management Program

The O&B Properties participated in OER's low-energy project management program. Under this program, whenever possible, meetings were held using remote communication technologies, such as videoconferencing and teleconferencing to reduce energy consumption and traffic congestion associated with personal transportation. A gross estimate of the number of miles of personal transportation that was conserved in this process is 200 miles.