1815 WEST FARMS ROAD

BRONX, NEW YORK

Remedial Action Report

NYC VCP Project Number 16CVCP029X
E-Designation Project Number 15EHAN561X

Prepared For:

West Farm Equities
1815 West Farms Road
Bronx, NY
(718) 944-4463
btyne@dpgroupgc.com

Prepared By:

Karen Tyll, P.E.
Tyll Engineering and Consulting PC
169 Commack Road, Suite 173
Commack, New York 11725
(631) 629-5373
karen@tyllengineering.com

CA Rich Consultants, Inc.
17 Dupont Street
Plainview, NY
516-576-8844
jcooper@carichinc.com

NOVEMBER 2018

REMEDIAL ACTION REPORT
TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

Appendix A: Remedial Investigation Report

Appendix B: Remedial Action Work Plan & Stipulation List

Appendix C: Community Air Monitoring Program Reports

Appendix D: Daily and Monthly Reports to OER

Appendix E: Photographs of Remedial Action

Appendix F: Disposal Facility Requests, Historic Fill Notification Forms, and Approval Letters

Appendix G: Shipping and Disposal Manifests

Appendix H: Disposal Characterization Sample Laboratory Testing Results

Appendix I: End-point sample analytical laboratory data

Appendix J: As-built drawings and documentation for Engineering Controls

Appendix K: Documentation for Vapor Barrier System

Appendix L: UST Tank closure documentation

Appendix M: Imported backfill laboratory analytical data reports

Appendix N: OER Correspondence

LIST OF ACRONYMS

Acronym	Definition
CAMP	Community Air Monitoring Plan
DER-10	NYS DEC Division of Environmental Remediation Technical Guidance Manual 10
EC	Engineering Control
HASP	Health and Safety Plan
IC	Institutional Control
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
NYC OER	New York City Office of Environmental Remediation
ORC	Oxygen Release Compound
PID	Photoionization Detector
QA/QC	Quality Assurance/Quality Control
QEP	Qualified Environmental Professional
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan
SCG	Standards, Criteria and Guidance
SCO	Soil Cleanup Objective
SMMP	Soil/Materials Management Plan
SMP	Site Management Plan
SVOCs	Semi-Volatile Organic Compounds
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

CERTIFICATION

I, Karen Tyll, P.E., certify the following:

- I am currently a registered professional engineer licensed by the State of New York.
- I performed professional engineering services and had primary direct responsibility for implementation of the remedial program for the 1815 West Farms Road (1815 West Farms Road, Bronx, NY) Site, Site number 16CVCP029X.
- I have reviewed this document, to which my signature and seal are affixed.
- Engineering Controls implemented 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 Engineering Controls constructed during this remedial action were professionally observed by me or by a person under my direct supervision and (1) are consistent with the Engineering Control design established in the Remedial action Work Plan and (2) are accurately reflected in the text and drawings for as-built design reported in this Remedial Action Report.
- The OER-approved Remedial Action Work Plan dated December 2015 and Stipulations in a letter dated December 28, 2015 were implemented 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

PE License Number

Signature

Date

PE Stamp

I, Jason Cooper, certify the following:

- I am a Qualified Environmental Professional. I had primary direct responsibility for implementation of the remedial program for the 1815 West Farms Road (1815 West Farms Road, Bronx, NY) Site, Site number 16CVCP029X .
- The OER-approved Remedial Action Work Plan dated December 2015 and Stipulations in a letter dated December 28, 2015 were implemented 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.

QEP Name

QEP Signature

Date

EXECUTIVE SUMMARY

West Farm Equities has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 1815 West Farms Road in Crotona Park East/West Farms section of Bronx, New York. A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). A remedial action was performed pursuant to the OER-approved RAWP in a manner that has rendered the Site protective of public health and the environment consistent with the proposed use of the property. This RAR describes the remedial action performed under the RAWP. The remedial action described in this document provides for the protection of public health and the environment and complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

Site Location and Background

The Site is located at 1815 West Farms Road in the Crotona Park East/West Farms section of the Bronx, New York and is identified as Block 3015 and merged Lots 62, 87 & 89 on the New York City Tax Map. The Site is 12,436-square feet and is bounded by an auto shop to the north, New York City Sanitation Department building to the south, West Farms Road to the east, and Boone Avenue to the west. The Site was formerly used for residential and commercial purposes. Commercial usage consisted of office space and miscellaneous construction equipment storage.

Summary of Redevelopment Plan

The new development consists of a new 11-story slab on grade, residential building. The building footprint covers approximately 5,120 square-feet of the 12,436 square-foot Site, with a setback that ranges from approximately 10 to 15 feet on the west side of the Site. The Site also consists of an open space of approximately 5,800 square-feet on the east side of the Site that is used for 2,800-square feet of open air parking and 3,468-square feet of landscaped areas. The current zoning designation is R7A for residential use.

The Property consists of an 81-unit community development, parking area and recreational area. The first floor is approximately 3,225 square-feet and houses the utility rooms, a compactor room, laundry room and three residential apartments. The 2nd to 9th floors are improved with residential units. The maximum depth of soil excavation for development purposes was approximately five feet below grade in the area of the building footprint for footings and foundational elements. Approximately two feet below grade was excavated in the parking lot and landscaped areas. Two hotspots identified during the Remedial Investigation were excavated to a depth of six feet below grade. The two elevator pits were chopped out of bedrock and broken up to a depth of six and a half feet and seven feet below the foundation slab. A total of 1,841.79 tons of soil were excavated and disposed of from the Site.

Summary of Surrounding Property

The Site is located in a well-developed area of the Bronx consisting of a mix of residential, commercial and industrial structures The Site is bound by West Farms Road followed by the Sheridan Expressway to the east and Boone Avenue followed by a commercial storage building to the west. A NYC Department of Sanitation Building (zoned R7A R7X for transportation and utility) borders the Site to the south, and an auto shop (zoned R7A for transportation and utility) is located to the north of the Site. No schools, hospitals, or day care facilities are located within 500 feet of the Site.

Summary of Past Site Uses of Site and Areas of Concern

The Site has been historically used for residential and commercial purposes. According to Sanborn Fire Insurance maps, there has been a dwelling located on Lot 89 since at least 1915. A garage has been depicted on Lot 89 since approximately 1950. In 1977, Lot 87 is denoted as ‘auto junk.’ From 1983-2007, the garage on lot 89 is denoted as auto repair. According to the EDR City Directory the past uses of the Site are:

- 2005 to Present – Walison Corp.
- 1983 to 2000 – Collazo (Residential)
- 1976 – Rivera Efren (Residential)

- 1971 – Mrs. Kenny Agnes (Residential)
- 1927 to 1961 – Scognamiglio (Residential)

According to a Phase I ESA conducted in November 2013 by Equity Environmental Engineering LLC, the following Areas of Concern (AOCs) were identified for the Site:

- The storage of "auto junk" on a portion of the property could cause the discharge of various fluids which could lead to the contamination of the subject property.
- The use of the property (and adjacent property) as an auto body shop could have caused contamination of the subject property.
- The subject property has multiple "E" designations, one of which is for hazardous materials which requires following the Phase I Environmental Site Assessment (ESA) and Phase II Site Investigation (SI) protocol and appropriate remediation if necessary.
- Vapor encroachment issues could not be ruled out.

Summary of the Work Performed under the Remedial Investigation (RI)

CA RICH performed the following scope of work in September 2015 and the supplemental investigation in November 2015:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);

2. Drilled 12 soil borings across the project Site, and collected 21 soil samples for chemical analysis from the soil borings to evaluate soil quality;

3. Installed three temporary groundwater monitoring wells throughout the Site to establish groundwater flow and collected three groundwater samples for chemical analysis to evaluate groundwater quality;

4. Installed five soil vapor probes around the Site perimeter and collected five samples for chemical analysis.

5. As part of DEC's remedy, collected three additional groundwater samples from existing wells for chemical analysis to evaluate groundwater quality

Summary of Findings of RI

1. Elevation of the property ranges from 20 to 40 feet.
2. Depth to shallow groundwater ranges from 11.65 to 12.60 feet at the Site.
3. Shallow groundwater flow is generally in an easterly direction beneath the Site.
4. The stratigraphy of the Site, from the surface down, consists of fine and medium-grained sand down to bedrock. Bedrock is exposed in some areas and greater than 20 feet in other areas at the Site. There is an approximately 20-foot high bedrock outcrop that splits the property into two sides, one along Boone Avenue and one along West Farms Road.
5. Twenty one soil/fill samples collected during the RI were compared to 6NYCRR Part 375-6.8 Track 1 Unrestricted Use Soil Cleanup Objectives (SCOs) and Track 2 Restricted Residential Use SCOs. The results indicated:
    - Volatile Organic Compounds (VOCs) were not detected in any sample above Unrestricted Use SCOs.
    - The presence of multiple SVOCs were detected above Restricted Residential Use SCOs including: benzo(a)anthracene (max. 6,400 ppb), benzo(a)pyrene (max. 5,700 ppb), benzo(b)fluoranthene (max. 5,000 ppb), benzo(k)fluoranthene (max. 5,200 ppb), chrysene (max. 5,400 ppb), dibenzo(a,h)anthracene (max. 1,100 ppb), and indeno(1,2,3-c,d)pyrene (max. 3,800 ppb).
    - Two pesticides, 4,4'-DDE (max. 10 ppb) and 4,4'-DDT (max. 32 ppb), were detected above Unrestricted Use SCOs.
    - No PCBs were detected above Unrestricted Use SCOs. Metals were detected above Unrestricted Use SCOs in all but five samples.
    - Several metals were detected exceeding Unrestricted Use SCOs including copper (max. 52.5 ppm), lead (max. 875 ppm), mercury (max. 6.75 ppm), silver (max. 4.08 ppm), and zinc (max. 389). Of these metals, lead and mercury also exceed Restricted Residential Use SCOs.

6. Groundwater sample results from the RI were compared to New York State 6NYCRR Part 703.5 Class GA groundwater quality standards (GQS). Groundwater results showed two VOCs that exceeded GQS including methylene chloride (max. 11 ppb) and tetrachloroethene (max. 18 ppb). Methylene chloride was also detected in both the Field Blank and Trip Blank. SVOCs, pesticides, and PCBs were not detected in any groundwater samples. Several metals were identified but only lead (max. 0.306 ppm), manganese (max. 0.357 ppm), and sodium (max. 58.2 ppm) exceeded their respective GQSs. Lead in groundwater is a concern.
7. Five soil vapor samples collected during the RI were compared to the compounds listed in Matrices 1 and 2 in the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion. No VOCs were found in soil vapor at concentrations greater than the guidance values. Chlorinated VOCs were detected in the soil vapor at the Site at relatively low concentrations. Trichloroethene was detected at a maximum concentration of 29.3 ug/m^3, tetrachloroethene at 7.59 ug/m^3, and 111 TCA at 1.27 ug/m^3, while carbon tetrachloride was not detected in any samples. Petroleum-related VOCs were detected at moderate concentrations in soil vapor throughout the Site.

Summary of the Remedial Action

The Remedial Action achieved protection of public health and the environment for the intended use of the property. The Remedial Action achieved all of the Remedial Action Objectives established for the project; addressed applicable standards, criteria, and guidance; reduced mobility, toxicity and volume of contaminants; was cost effective and implementable; and used standard methods that are well established in the industry. The remedial action is effective in the short-term and long-term.

A summary of the milestones achieved in the Remedial Action is as follows:

- A Pre-Application Meeting was held on August 18, 2015.

- A RI was performed in September 2015. Supplemental RI investigation was performed in November 2015.
- A RI Report was prepared to evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). A Site Contact List was established.
- A draft RAWP was prepared and released with a Fact Sheet on January 4, 2016 for a 30-day public comment period.
- The RAWP and Stipulation List dated December 28, 2015 was approved by the New York City Office of Environmental Remediation (OER) on May 19, 2016.
- OER briefed New York State Department of Environmental Conservation (NYSDEC) and NYC DOH in September and November 2015.
- A Pre-Construction Meeting was held on March 6, 2017.
- A Fact Sheet providing notice of the start of the remedial action was issued in January 2016.
- The remedial action began in April 2017 and completed in July 2018.

Appendix B contains the approved RAWP.

The remedial action consisted of the following tasks:

1. Prepared a Community Protection Statement and implemented a Citizen Participation Plan.
2. Mobilized Site security and equipment April 2017; completed utility mark outs; and marked and staked excavation areas.
3. Performed Waste Characterization Study prior to excavation activities. Waste characterization soil samples were collected on February 28, 2017. Waste characterization samples were collected at a frequency dictated by waste disposal facility requirements.
4. Performed a Community Air Monitoring Program from February 2017 to July 2018 for particulates and volatile organic carbon compounds. Dust exceedances were detected at a maximum of 0.670 on 4/11/2017.

5. Established Track 4 Site Specific Soil Cleanup Objectives (SCOs). The following Track 4 SCOs were utilized: Total SVOCs: 250 ppm; lead: 400 ppm; Mercury: 0.81 ppm; and Zinc: 1000 ppm.
6. The following excavations were performed: The development included excavation to a depth of approximately five feet below grade in the area of the building footprint and approximately two feet below grade in open areas. The two elevator pits were chopped out of bedrock and broken up to a depth of six and a half feet and seven feet below the foundation slab. Two hotspots EP-1 and EP-2 were identified during the RI and were excavated to a depth of 6 feet below grade. On April 3, 2017 during excavation activities for hotspot EP-1, four side-by-side 550-gallon USTs were discovered. The tanks were located in the eastern portion of the hotspot, therefore, the tank excavation and hotspot excavation were combined. The collection of nine post-excavation samples (EP-1A through EP-1I) confirmed the removal of any possible contamination from the four side-by-side 550-gallon USTs. Five of these samples (EP-1A, EP-1B, EP-1C, EP-1D and EP-1E) were also used to serve as post excavation endpoint samples for the site. Five other samples (EP-2A through EP-2E) were collected to confirm the removal of hotspot EP-2; three of these samples (EP-2A, EP-2B and EP-2C) were also used to serve as post excavation endpoint samples. A total of 1,841.79 tons of soil/fill was excavated and removed from the property.
7. Transported and disposed all soil/fill material at permitted facilities in accordance with all applicable laws and regulations for handling, transporting, and disposing, and the RAWP. The total of 1,841.79 tons of excavated soils were removed as:
    - 117.72 tons of non-hazardous soil/fill was transported to the Prospect Park facility, 100 Planten Avenue, Prospect Park, New Jersey;
    - 1,724.07 tons of petroleum contaminated soil/fill was transported to Clean Earth of Carteret facility, 24 Middlesex Avenue, Carteret, New Jersey.
    - 2,200 gallons of a gasoline and water mixture was removed from the tanks and transported to Tradebe Treatment and Recycling, LLC of Meriden, Connecticut.

8. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
9. Conducted materials management of 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. Appropriately segregated excavated media onsite prior to disposal.
10. Collected and analyzed eight post-excavation samples to determine attainment of SCOs. EP-1A, EP-1B, EP-1C, EP-1D, EP-1E, EP-2A, EP-2B and EP-2C were used to serve as post excavation endpoint samples. Track 4 Site-Specific SCOs were achieved. The collection of nine post-excavation samples (EP-1A through EP-1I) confirmed the removal of any possible contamination from the four side-by-side 550-gallon USTs. Five of these samples (EP-1A, EP-1B, EP-1C, EP-1D and EP-1E) were also used to serve as post excavation endpoint samples for the site. Five other samples (EP-2A through EP-2E) were collected to confirm the removal of hotspot EP-2; three of these samples (EP-2A, EP-2B and EP-2C) were also used to serve as post excavation endpoint samples. Due to concentrations of lead and mercury found in EP-2D at 753 and 2.18 mg/kg respectively, and in an attempt to achieve Track 1 SCOs, samples EP-1F, EP-1G, EP-1H, EP-2D, and EP-2E were recollected on November 9, 2017 and called EP-1FA, EP-1GA, EP-1HA, EP-1IA, EP-2DA, and EP-2EA. Results from the recollection indicate that concentrations for lead and mercury in sample EP-2DA were found to be 217 and 0.212 mg/kg respectively which fall under the Track 4 SCOs. Although results indicate that Track 1 was not achieved, the rest of the recollected samples and all endpoint samples fall under the established Track 4 SCOs for the Site.
11. Removed four side-by-side 550-gallon underground storage tanks on June 9, 2017 and associated piping in compliance with applicable laws and regulations. A total of 2,200 gallons of a gasoline and water mixture was removed from the tanks. The liquid was transported under non-hazardous waste manifest to Tradebe Treatment and Recycling, LLC of Meriden, Connecticut. An FDNY

tank and piping removal affidavit was issued on June 26, 2017. In addition, the tanks were registered with the NYSDEC and PBS# 2-612723 was assigned.

12. After tank removal, end-point samples (EP-1A through EP-1I) were collected from each of the four tank fields including four side-walls and five bottom samples. The endpoint samples did not indicate the presence of a spill or release and that no further action is warranted. These end point samples were collected in addition to site wide post-excavation confirmation samples.
13. Constructed an engineered Composite Cover System consisting of a four-inch thick structural concrete slab for the building underlain by an eight-inch layer of compacted sand and gravel. The areaway onsite and along West Farms Road consists of a four-inch concrete slab and is underlain by six-inches of ¾-inch bluestone. An open air parking lot on the southeast side of the Site is four-inches thick and consists of two-inches of asphalt and two-inches of asphalt binder, which is underlain by four-inches of Item #4 stone, and six-inches of ¾-inch blue stone for the bottom layer. Two feet of clean fill underlain by a demarcation boundary layer was used for the landscaped areas. The contractors for the cover construction were Matempa Contracting and Blanco Drilling, Inc.
14. Installed a Vapor Barrier System that consisted of Raven Industries' VaporBlock® Plus™ 20-mil and Stego® 20-mil Vapor Barrier. The vapor barrier was installed for the below grade floor slabs, foundation sidewalls and elevator pit. The installation was conducted in accordance with manufacturer specifications. The contractor for the Vapor Barrier System construction was DP Group.
15. Residual soil is present beneath the cover layer and will be subject to Site Management under this Remedial Action. Residual soil was demarcated using geosynthetic material placed beneath the cover layer and will be subject to Site Management under this Remedial Action. A demarcation layer was placed in the landscaped areas under the two-foot buffer zone of clean fill to signify the boundary between the imported clean fill and the native fill.

16. Performed all activities required for the Remedial Action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
17. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.
18. Imported soil to be used for backfill and cover in compliance with the RAWP and in accordance with applicable laws and regulations. Backfill materials were imported for the following purposes:
    - Two feet of clean fill buffer in landscaped areas
    - 90 cubic yards of ¾ inch bluestone underneath the concrete walkway, parking lot, and trucking pad
    - 60 cubic yards of Item#4 stone underneath the parking lot
19. Submitted daily reports during construction oversight activities. Daily reports were submitted from February 28, 2017 to August 10, 2017.
20. Submitted a Sustainability Report.
21. Submitted an RAR that describes the Remedial Action, certifies that the remedial requirements defined in the Remedial Action Work Plan have been achieved; defines the Site boundaries; describes all Engineering and Institutional Controls applicable to the Site; and describes any changes from the RAWP.
22. Submitted a Site Management Plan (SMP) for long-term management of residual soil, including plans for operation, maintenance, inspection and certification of the performance of Engineering Controls and Institutional Controls. Inspections will be performed annually. Inspection and Certification reports will be submitted by December 30, 2019 (for the reporting period calendar year 2018-2019), December 30, 2020 (for the reporting period calendar years 2019-2020) and annually (each year) thereafter (for the reporting period consisting of the prior calendar year). Inspection and Certification Reports will cover all calendar years since the prior reporting period.
23. The property will continue to be registered with an E-Designation by the NYC Department of Buildings. Engineering Controls and Institutional Controls will be managed in compliance with the SMP. Institutional Controls will include

prohibition of the following: (1) prohibition of vegetable gardening and farming in residual soil; (2) prohibition of the use of groundwater beneath the Site without treatment rendering it safe for the intended use; (3) prohibition of disturbance of residual soil material unless it is conducted in accordance with the SMP; and (4) prohibition of higher levels of land usage than the residential uses addressed by this remedial action without prior notification and approval by OER.

REMEDIAL ACTION REPORT

1.0 SITE BACKGROUND

West Farm Equities has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 1815 West Farms Road in Crotona Park East/West Farms section of Bronx, New York. The boundary of the property subject to this Remedial Action is shown in Figure 1 and includes, in its entirety, Bronx Block 3015 and merged Lots 62, 87 and 89. The Remedial Action was performed pursuant to the OER-approved RAWP in a manner that has rendered the property protective of public health and the environment consistent with its intended use. This RAR describes the Remedial Action performed under the RAWP. The remedial action described in this document provides for the protection of public health and the environment and complies with applicable environmental standards, criteria and guidance (SCGs) and applicable laws and regulations.

1.1 SITE LOCATION AND BACKGROUND

The Site is located at 1815 West Farms Road in the Crotona Park East/West Farms section of the Bronx, New York and is identified as Block 3015 and merged Lots 62, 87 & 89 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 12,436-square feet and is bounded by an auto shop to the north, New York City Sanitation Department building to the south, West Farms Road to the east, and Boone Avenue to the west. A map of the Site boundary is shown in Figure 2.

1.2 REDEVELOPMENT PLAN

The Site is currently under construction and when completed is anticipated to consist of a new 11-story slab on grade, residential building. Building development covers approximately 5,120 square-feet of the 12,436 square-foot Site, with a setback that ranges from 10 feet to approximately 15 feet on the west side of the Site. The Site also consists of an open space of approximately 5,800 square-feet on the east side of the Site that is used for 2,800-square feet of open air parking and 3,468-square feet of landscaped areas. The current zoning designation is R7A for residential use. The current use is

consistent with existing zoning for the Property.

The building will consist of an 81-unit community development, parking area and recreational area. There are two elevators centrally located in the building that extend into the shallow bedrock. The first floor is approximately 3,225 square-feet and houses the utility rooms, a compactor room, laundry room and three residential apartments. The 2nd to 9th floors will be improved with residential units. The maximum depth of soil excavation for development purposes was approximately five feet below grade in the area of the building footprint for footings and foundational elements. Approximately two feet below grade was excavated in the parking lot and landscaped areas. Two hotspots identified during the Remedial Investigation were excavated to a depth of six feet below grade. The two elevator pits were chopped out of bedrock and broken up to a depth of six and a half feet and seven feet below the foundation slab. A total of 1,841.79 tons of soil were excavated from the Site. Layout of the Site development is presented in Figure 3.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The Site is located in the in a well-developed area of the Bronx consisting of a mix of residential, commercial and industrial structures The Site is bound by West Farms Road followed by the Sheridan Expressway to the east and Boone Avenue followed by a commercial storage building to the west. A NYC Department of Sanitation Building (zoned R7A R7X for transportation and utility) borders the Site to the south, and an auto shop (zoned R7A for transportation and utility) is located to the north of the Site. No schools, hospitals, or day care facilities are located within 500 feet of the Site.

1.4 SUMMARY OF PAST SITE USES AND AREAS OF CONCERN

The Site has been historically used for residential and commercial purposes. According to Sanborn Fire Insurance maps, there has been a dwelling located on Lot 89 since at least 1915. A garage has been depicted on Lot 89 since approximately 1950. In 1977, Lot 87 is denoted as ‘auto junk.’ From 1983-2007, the garage on lot 89 is denoted as auto repair. According to the EDR City Directory the past uses of the Site are:

- 2005 to Present - Walison Corp.

- 1983 to 2000 – Collazo (Residential)
- 1976 – Rivera Efren (Residential)
- 1971 Mrs. Kenny Agnes (Residential)
- 1927- 1961 – Scognamiglio (Residential)

According to a Phase I ESA conducted in November 2013 by Equity Environmental Engineering LLC, the following Areas of Concern (AOCs) were identified for the Site:

- The storage of "auto junk" on a portion of the property could cause the discharge of various fluids which could lead to the contamination of the subject property.
- The use of the property (and adjacent property) as an auto body shop could have caused contamination of the subject property.
- The subject property has multiple "E" designations, one of which is for hazardous materials which requires following the Phase I Environmental Site Assessment (ESA) and Phase II Site Investigation (SI) protocol and appropriate remediation if necessary.
- Vapor encroachment issues could not be ruled out.

1.5 SUMMARY OF WORK PERFORMED UNDER THE REMEDIAL INVESTIGATION

CA RICH performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);

2. Drilled 12 soil borings across the project Site, and collected 21 soil samples for chemical analysis from the soil borings to evaluate soil quality;

3. Installed three temporary groundwater monitoring wells throughout the Site to establish groundwater flow and collected three groundwater samples for chemical analysis to evaluate groundwater quality;

4. Installed five soil vapor probes around the Site perimeter and collected five samples for chemical analysis.

1.6 SUMMARY OF FINDINGS OF REMEDIAL INVESTIGATION

Appendix A includes the RIR.

1. Elevation of the property ranges from 20 to 40 feet.
2. Depth to shallow groundwater ranges from 11.65 to 12.60 feet at the Site.
3. Shallow groundwater flow is generally in an easterly direction beneath the Site.
4. The stratigraphy of the Site, from the surface down, consists of fine and medium-grained sand down to bedrock. Bedrock is exposed in some areas and greater than 20 feet in other areas at the Site. There is an approximately 20-foot high bedrock outcrop that splits the property into two from east to west, with, one portion along Boone Avenue and the other along West Farms Road.
5. Twenty one soil/fill samples collected during the Remedial Investigation were compared to 6NYCRR Part 375-6.8 Track 1 Unrestricted Use Soil Cleanup Objectives (SCOs) and Track 2 Restricted Residential Use SCOs. No Volatile Organic Compounds (VOCs) were detected in any sample above Unrestricted Use SCOs. The presence of multiple SVOCs were detected above Restricted Residential Use SCOs including: benzo(a)anthracene (max. 6,400 ppb), benzo(a)pyrene (max. 5,700 ppb), benzo(b)fluoranthene (max. 5,000 ppb), benzo(k)fluoranthene (max. 5,200 ppb), chrysene (max. 5,400 ppb), dibenzo(a,h)anthracene (max. 1,100 ppb), and indeno(1,2,3-c,d)pyrene (max. 3,800 ppb). Two pesticides, 4,4'-DDE (max. 10 ppb) and 4,4'-DDT (max. 32 ppb), were detected above Unrestricted Use SCOs. No PCBs were detected above Unrestricted Use SCOs. Metals were detected above Unrestricted Use SCOs in all but five samples. Several metals were detected exceeding Unrestricted Use SCOs including copper (max. 52.5 ppm), lead (max. 875 ppm), mercury (max. 6.75 ppm), silver (max. 4.08 ppm), and zinc (max. 389). Of these metals, lead and mercury also exceed Restricted Residential Use SCOs.

6. Groundwater sample results from the RI were compared to New York State 6NYCRR Part 703.5 Class GA groundwater quality standards (GQS). Groundwater results showed two VOCs that exceeded GQS including methylene chloride (max. 11 ppb) and tetrachloroethene (max. 18 ppb). Methylene chloride was also detected in both the Field Blank and Trip Blank. SVOCs, pesticides, and PCBs were not detected in any groundwater samples. Several metals were identified but only lead (max. 0.306 ppm), manganese (max. 0.357 ppm), and sodium (max. 58.2 ppm) exceeded their respective GQSs.
7. Five soil vapor samples collected during the RI were compared to the compounds listed in Matrices 1 and 2 in the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion. No VOCs were found in soil vapor at concentrations greater than the Matrix values. Chlorinated VOCs were detected in the soil vapor at the Site at relatively low concentrations. Trichloroethene was detected at a maximum concentration of 29.3 ug/m3, tetrachloroethene at 7.59 ug/m3, and 111 TCA at 1.27 ug/m3, while carbon tetrachloride was not detected in any samples. Petroleum-related VOCs were detected at moderate concentrations in soil vapor throughout the Site.

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.

A summary of the milestones achieved in the Remedial Action is as follows:

- A Pre-Application Meeting was held on August 18, 2015.
- A RI was performed in September 2015. Supplemental RI investigation was performed in November 2015.
- A RI Report was prepared to evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). A Site Contact List was established.
- A draft RAWP was prepared and released with a Fact Sheet on January 4, 2016 for a 30-day public comment period.
- The RAWP and Stipulation List dated December 28, 2015 was approved by the New York City Office of Environmental Remediation (OER) on May 19, 2016.
- OER briefed New York State Department of Environmental Conservation (NYSDEC) and NYC DOH in September and November 2015.
- A Pre-Construction Meeting was held on March 6, 2017.
- A Fact Sheet providing notice of the start of the remedial action was issued in January 2016.
- The remedial action began in April 2017 and completed in July 2018.

  Appendix B includes the RAWP.

The remedial action consisted of the following tasks:

1. Prepared a Community Protection Statement and implemented a Citizen Participation Plan.
2. Mobilized Site security and equipment in April 2017; completed utility mark outs; and marked and staked excavation areas.
3. Performed Waste Characterization Study prior to excavation activities. Waste characterization soil samples were collected on February 28, 2017. Waste characterization samples were collected at a frequency dictated by waste disposal facility requirements.
4. Performed a Community Air Monitoring Program (CAMP) for particulates and volatile organic carbon compounds. CAMP was performed from February 28, 2017 to July 24, 2018. The results indicated dust exceedances (4/11/2017). Appropriate actions were taken to control this.
5. Established Track 4 Site Specific Soil Cleanup Objectives (SCOs). The following Track 4 SCOs were utilized: Total SVOCs: 250 ppm; lead: 400 ppm; Mercury: 0.81 ppm; and Zinc: 1000 ppm.
6. The following excavations were performed: The development included excavation to a depth of approximately five feet below grade in the area of the building footprint and approximately two feet below grade in open areas. The two elevator pits were chopped out of bedrock and broken up to a depth of six and a half feet and seven feet below the foundation slab. Two hotspots named EP-1 and EP-2 were identified during the Remedial Investigation and were removed from the Site. Each hotspot was excavated to a depth of six feet below grade. On April 3, 2017 during excavation activities for hotspot EP-1, four side-by-side 550-gallon USTs were discovered. The tanks were located in the eastern portion of the hotspot, therefore, the tank excavation and hotspot excavation were combined. The collection of nine post-excavation samples (EP-1A through EP-1I) confirmed the removal of any possible contamination from the four side-by-side 550-gallon USTs. Five of these samples (EP-1A, EP-1B, EP-1C, EP-1D and EP-1E) were also used to serve as post excavation endpoint samples for the site. Five other samples (EP-2A through EP-2E) were collected to confirm the

removal of hotspot EP-2; three of these samples (EP-2A, EP-2B and EP-2C) were also used to serve as post excavation endpoint samples. After confirmation of the removal of both hotspots , they were backfilled with soil from within each hotspots respective grid. Hotspot EP-1 was backfilled with soil within Grid 3 (Prospect Park Disposal) and hotspot EP-2 was backfilled with soil within Grid 4 (Carteret Disposal). Soils were never mixed or comingled and remained within each respective grid. A total of 1,841.79 tons of soil/fill was excavated and removed from the property.

7. Transported and disposed off-Site 1,841.79 tons of soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and the RAWP. Soil/fill were removed as:
   - excavated 117.72 tons of non-hazardous soil/fill and disposed at Prospect Park facility, 100 Planten Avenue, Prospect Park, New Jersey; and
   - excavated 1,724.07 tons of petroleum contaminated soil/fill and transported to Clean Earth of Carteret facility, 24 Middlesex Avenue, Carteret, New Jersey.
   - A total of 2,200 gallons of a gasoline and water mixture was removed from the tanks and transported to Tradebe Treatment and Recycling, LLC of Meriden, Connecticut
8. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
9. Conducted materials management of 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.
10. Collected and analyzed end-point samples to determine attainment of SCOs. EP-1A, EP-1B, EP-1C, EP-1D, EP-1E, EP-2A, EP-2B and EP-2C were used to serve as post excavation endpoint samples. Track 4 Site-Specific SCOs were achieved. The collection of nine post-excavation samples (EP-1A through EP-1I) confirmed the removal of any possible contamination from the four side-by-side 550-gallon USTs. Five of these samples (EP-1A, EP-1B, EP-1C, EP-1D and EP-

1E) were also used to serve as post excavation endpoint samples for the site. Five other samples (EP-2A through EP-2E) were collected to confirm the removal of hotspot EP-2; three of these samples (EP-2A, EP-2B and EP-2C) were also used to serve as post excavation endpoint samples. Due to concentrations of lead and mercury found in EP-2D at 753 and 2.18 mg/kg respectively, and in an attempt to achieve Track 1 SCOs, samples EP-1F, EP-1G, EP-1H, EP-2D, and EP-2E were recollected on November 9, 2017 and called EP-1FA, EP-1GA, EP-1HA, EP-1IA, EP-2DA, and EP-2EA. Results from the recollection indicate that concentrations for lead and mercury in sample EP-2DA were found to be 217 and 0.212 mg/kg respectively which fall under the Track 4 SCOs. Although results indicate that Track 1 was not achieved, the rest of the recollected samples and all endpoint samples fall under the established Track 4 SCOs for the Site

11. Removed four side-by-side 550-gallon underground storage tanks on June 9, 2017 and associated piping in compliance with applicable laws and regulations. A total of 2,200 gallons of a gasoline and water mixture was removed from the tanks. The liquid was transported under non-hazardous waste manifest to Tradebe Treatment and Recycling, LLC of Meriden, Connecticut. An FDNY tank and piping removal affidavit was issued on June 26, 2017. In addition, the tanks were registered with the NYSDEC and PBS# 2-612723 was assigned. This information can be found in Appendix L.
12. After tank removal, end-point samples (EP-1A through EP-1I) were collected from each of the four tank fields including four side-walls and five bottom samples. The endpoint samples did not indicate the presence of a spill or release and that no further action is warranted. These end point samples were collected in addition to site wide post-excavation confirmation samples.
13. Constructed an engineered Composite Cover System consisting of a four-inch thick structural concrete slab for the building underlain by a vapor barrier and bedrock. The areaway onsite and along West Farms Road consists of a four-inch concrete slab and is underlain by six-inches of ¾-inch bluestone. An open air parking lot on the southeast side of the Site is four-inches thick in total and

consists of two-inches of asphalt and two-inches of asphalt binder, which is underlain by four-inches of Item #4 stone, and six-inches of ¾-inch blue stone for the bottom layer. Two feet of clean fill underlain by a demarcation boundary layer was used for the landscaped areas. The contractors for the cover construction were Matempa Contracting and Blanco Drilling, Inc.

14. Installed a Vapor Barrier System that consisted of Raven Industries' VaporBlock® Plus™ 20-mil and Stego® 20-mil Vapor Barrier. The vapor barrier was installed under the below grade floor slabs, up the foundation sidewalls and in the elevator pits. The installation was conducted in accordance with the manufacturer's specifications. The contractor for the Vapor Barrier System construction was DP Group.
15. Residual soil is present beneath the cover layer and will be subject to Site Management under this Remedial Action. Residual soil was demarcated using geosynthetic material placed beneath the cover layer and will be subject to Site Management under this Remedial Action. A demarcation layer was placed in the landscaped areas under the two-foot buffer zone of clean fill to signify the boundary between the imported clean fill and the native fill.
16. Performed all activities required for the Remedial Action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
17. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.
18. Imported soil to be used for backfill and cover in compliance with the Remedial Action Work Plan and in accordance with applicable laws and regulations. Backfill materials were imported for the following purposes:
    - Two feet of clean fill buffer in landscaped areas (268 tons)
    - 90 cubic yards of ¾ inch bluestone underneath the concrete walkway, parking lot, and trucking pad
    - 60 cubic yards of Item#4 stone underneath the parking lot
19. Submitted daily reports during construction oversight activities. Daily reports were submitted from February 28, 2017 to August 10, 2017. Weekly reports were

submitted from April 24, 2017 to February 2, 2018. Monthly reports were submitted from February 2018 to July 2018.

20. Submitted a Sustainability Report.
21. Submitted a Remedial Action Report (RAR) that describes the Remedial Action, certifies that the remedial requirements defined in the Remedial Action Work Plan have been achieved; defines the Site boundaries; describes all Engineering and Institutional Controls applicable to the Site; and describes any changes from the RAWP.
22. Submitted a Site Management Plan (SMP) for long-term management of residual soil, including plans for operation, maintenance, inspection and certification of the performance of Engineering Controls and Institutional Controls. Inspections will be performed annually. Inspection and Certification reports will be submitted by December 30, 2019 (for the reporting period calendar year 2018-2019), December 30, 2020 (for the reporting period calendar years 2019-2020) and annually (each year) thereafter (for the reporting period consisting of the prior calendar year). Inspection and Certification Reports will cover all calendar years since the prior reporting period.
23. The property will continue to be registered with an E-Designation by the NYC Department of Buildings. Engineering Controls and Institutional Controls will be managed in compliance with the SMP. Institutional Controls will include prohibition of the following: (1) prohibition of vegetable gardening and farming in residual soil; (2) prohibition of the use of groundwater beneath the Site without treatment rendering it safe for the intended use; (3) prohibition of disturbance of residual soil material unless it is conducted in accordance with the SMP; and (4) prohibition of higher levels of land usage than the residential uses addressed by this remedial action without prior notification and approval by OER.

3.0 COMPLIANCE WITH REMEDIAL ACTION WORK PLAN

3.1 CONSTRUCTION HEALTH & SAFETY PLAN

The remedial construction activities performed under this program were in compliance with the Construction Health and Safety Plan and applicable laws and regulations. The Site Safety Coordinator was David Klein of CA RICH.

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 from February 28, 2017 to July 24, 2018 in compliance with the Community Air Monitoring Plan in the approved RAWP. The results of Community Air Monitoring are shown in Appendix C. Dust exceedances were detected at a maximum of 0.670 on 4/11/2017. Causes of these dust exceedances were due to the breaking up of concrete; this was mitigated by stopping work temporarily and wetting down the site with water to suppress dust.

3.3 SOIL/MATERIALS MANAGEMENT PLAN

The Soil/Materials Management Plan provided detailed plans for managing all soil/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 full compliance with methods and processes defined in the RAWP for storm water prevention and applicable laws and regulations.

3.5 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN

The RAWP indicated that the Raven Industries' VaporBlock® Plus™ 20 mil, or equivalent would be used on-Site. The actual vapor barrier used on-Site was a mix of Raven Industries' VaporBlock® Plus™ 20 mil and the Stego® 20-mil Vapor Barrier. This Stego® 20- mil vapor barrier is equivalent to the proposed Raven Industries' VaporBlock® Plus™ 20 mil vapor barrier. This change was caused by the lack of availability of the Raven Industries VaporBlock® Plus™ 20 mil vapor barrier at the time of construction. The two vapor barrier products were installed under separate concrete pours and not joined; the Stego® 20- mil vapor barrier was taped and sealed to the existing adjacent concrete slab and sidewalls. Although a change in the selection of vapor barrier brand occurred, the current vapor barrier is protective of public health and the environment.

The RAWP indicated that a five-inch concrete slab would be constructed underneath all building areas. Instead, a four-inch concrete slab was constructed underneath all building areas. Although a change in the thickness of the concrete slab beneath all building areas occurred, the current concrete slab overlain by the installed Vapor Barrier system is protective of public health and the environment.

The RAWP indicated that the installed structural concrete slab would be underlain by a vapor barrier system and then an eight-inch layer of compacted sand and gravel. Due to encountering bedrock at a higher elevation than anticipated the installed structural concrete slab is underlain by a vapor barrier system which sits on top of bedrock. Although a change in the underlying material occurred, the current composite cover system is protective of public health and the environment.

4.0 REMEDIAL PROGRAM

4.1 PROJECT ORGANIZATION

Principal personnel who participated in the remedial action include Site Safety Coordinator, David Klein and Project Manager, Jessica Proscia. The Professional Engineer (PE) for this project is Karen Tyll and the Qualified Environmental Professional (QEP) for this project is Jason Cooper. The General Contractor who oversaw all phases of the Site remedial excavation and construction was DP Group The developer was 1815 West Farms Associates L.P.

4.2 SITE CONTROLS

Site Preparation

Mobilization was conducted for each phase of work at the Site on February 28, 2017. 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 attended an orientation meeting on April 3, 2017 to become familiar with the general operation of the Site, health and safety requirements, and field procedures. An OER Project Notice was erected at the project entrance and was in place during all phases of the Remedial Action.

Utility Marker Layouts, Easement Layouts

The presence of utilities and easements on the Site were 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) and consulting with property owner regarding the location of the utilities. All invasive activities were performed in compliance with applicable laws and regulations to assure safety. Utility companies and other responsible authorities were contacted to locate and mark the locations, and a copy of the Markout Ticket was retained by the contractor prior to the start of excavation or other invasive subsurface operations.

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations were employed during invasive and other work contemplated under this RAWP. The integrity and safety of on-Site and off-Site structures was maintained during all invasive, excavation or other remedial activity performed under the RAWP. An OER Project Notice was erected at the project entrance and was in place during all phases of the Remedial Action.

Soil Screening

Visual, olfactory and PID soil screening and assessment were performed by a Qualified Environmental Professional (QEP) or his/her designee during all remedial excavations into known or potentially contaminated material. Soil screening was performed regardless of when the invasive work was done and included all excavation and invasive work performed during the remedy and during the development phase, such as excavations for foundations and utility work.

Stockpile Management

The majority of the excavation activities were conducted by directly loading the material into trucks for off-Site disposal. However, a few days required the stockpiling of excavated soils that were left overnight. These stockpiled soils were placed on poly sheeting and completely covered with tarps until they were removed.

Truck Inspection

An outbound-truck inspection station was set up close to the Site exit on West Farms Road. A gravel pad was installed near the Site entrance and a truck inspection cleaning station was operated on-Site. Before exiting the NYC VCP Site, trucks were required to stop at the truck inspection station to be examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris were then removed. Brooms, shovels and potable water were utilized for the removal of soil from vehicles and equipment, as necessary. Cleaning of the adjacent streets was performed as needed to limit the amount of Site derived soils onto the City streets.

Site Security

Site access was controlled by a locked gate and the perimeter of the Property was entirely fenced-in. During non-working hours, a security guard was on-Site to ensure non-authorized personnel did not enter the Site.

Nuisance Controls

Dust control was achieved by conducting dust monitoring at the perimeter of the Site during invasive on-Site work. Although there were no elevated dust readings observed during the excavation activities, dust suppression was achieved through the use of a dedicated on-Site hose connected to a fire hydrant. The hose was equipped with a nozzle capable of spraying water directly onto off-road areas including excavations and stockpiles to prevent a dust situation from on-Site excavation and trucking equipment. Dust exceedances were detected at a maximum of 0.670 on 4/11/2017. There were no dust complaints received during the performance of the remedial activities.

Reporting

Daily reports were submitted on February 28, 2017 and from April 3, 2017 to November 9, 2017 during periods of invasive or other remedial work (tank removal). No work took place onsite from March 1, 2017 to April 2, 2017 so no daily reports were completed. Due to intermittent remedial work weekly reports were used from April 17, 2017 to February 2, 2018 while daily reports were used to document remedial work. Monthly reports were utilized from March 2018 through August 2018, daily reports were not used for remedial work during this timeframe. Email correspondence with NYCOER found in Appendix N, shows that the monthly reports were accepted and for that future remedial work to be documented with daily reports. No future remedial work took place after the July monthly report so no additional daily reports were needed. All daily, weekly and monthly reports with photographs are included in Appendix D. Digital photographs of the Remedial Action are included in Appendix E.

4.3 MATERIALS EXCAVATION AND REMOVAL ACTION

Soil/Fill Excavation and Removal

No contaminated media other than soil were encountered or removed from the Site. Four USTs were encountered during excavation activities. No material was reused onsite.

Soils were excavated to a depth of approximately five feet below grade in the area of the building footprint for footings and foundational elements and approximately two feet below grade in open areas. Two hotspots EP-1 and EP-2 were identified during the RI and were excavated to a depth of six feet below grade. After confirmation of the removal of both hotspots, they were backfilled with soil from within each hotspots respective grid. Hotspot EP-1 was backfilled with soil within Grid 3 (Prospect Park Disposal) and hotspot EP-2 was backfilled with soil within Grid 4 (Carteret Disposal). Soils were never mixed or comingled and remained within each respective grid. The four USTs were found while excavating hotspot EP-1 and this area was excavated to a depth of six feet below grade. The two elevator pits were chopped out of bedrock and broken up to a depth of six and a half feet and seven feet below the foundation slab. A total of 1,841.79 tons of soil/fill were excavated and removed from the property during the Removal Action. This included, 117.72 tons of non-hazardous soil/fill that were transported to the Prospect Park facility in New Jersey, and 1,724.07 tons of petroleum contaminated soil/fill that were excavated and transported to the Clean Earth of Carteret facility in New Jersey. The Removal Action was performed under the oversight of William Fitchett.

Two hotspots EP-1 and EP-2 were identified during the RI and were removed from the Site. On April 3, 2017 during excavation activities for hotspot EP-1, four side-by-side 550-gallon USTs were discovered. The tanks were located in the eastern portion of the hotspot, therefore, the tank excavation and hotspot excavation were combined. A map showing the approximate location of the hotspots and USTs removed in this Removal Action is shown in Figure 5. Each hotspot was excavated to a depth of six feet below grade. The collection of nine post-excavation samples (EP-1A through EP-1I) on April 5, 2017 confirmed the removal of any possible contamination from the four side-

by-side 550-gallon USTs. These samples were analyzed for VOCs, SVOCs, RCRA Metals and Zinc; five of these samples (EP-1A, EP-1B, EP-1C, EP-1D and EP-1E) were also used to serve as post excavation endpoint samples for the site. Five other samples EP-2A, EP-2B, EP-2C, EP-2D, and EP-2E were collected on April 5, 2017 to confirm the removal of hotspot EP-2. These samples were analyzed for SVOCs, Lead, Mercury, and Zinc; three of these samples (EP-2A, EP-2B and EP-2C) were also used to serve as post excavation endpoint samples. The eight post excavation endpoint samples EP-1A, EP-1B, EP-1C, EP-1D, EP-1E, EP-2A, EP-2B and EP-2C indicate that Track 4 SCOs were achieved.

Due to concentrations of lead and mercury found in EP-2D at 753 and 2.18 mg/kg respectively, and in an attempt to achieve Track 1 SCOs, samples EP-1F, EP-1G, EP-1H, EP-2D, and EP-2E were recollected on November 9, 2017 and called EP-1FA, EP-1GA, EP-1HA, EP-1IA, EP-2DA, and EP-2EA. Results from the recollection indicate that concentrations for lead and mercury in sample EP-2DA were found to be 217 and 0.212 mg/kg respectively which fall under the Track 4 SCOs. Although results indicate that Track 1 was not achieved, the rest of the recollected samples and all endpoint samples fall under the established Track 4 SCOs for the Site. Results of all collected samples can be found in Table 1. A map showing the approximate locations where excavations were performed, along with the former tank locations and hotspots are shown in Figure 4.

On April 4 and 5, 2017, ABC Tank Removal mobilized a vacuum truck to the Site to remove the contents of the four 550-gallon USTs. A total of 2,200 gallons of a gasoline and water mixture was removed from the tanks. The liquid was transported under non-hazardous waste manifest to Tradebe Treatment and Recycling, LLC of Meriden, Connecticut. Manifests for the 2,200 gallons of the gasoline and water mixture can be found in Appendix K.

Once all of the liquid was removed from the tanks, the tanks were exhumed from their grave and placed on poly sheeting. CA RICH proceeded to visually inspect the USTs. Upon visual inspection, the tanks appeared to be intact with no evidence of cracks or leaks. The tanks were then cut and cleaned and remained on poly sheeting until they were disposed of on June 9, 2017.

Additionally, no signs of gasoline-related impacts were observed within the

soil. The soil was screened with a field PID capable of measuring total airborne gasoline-related compounds. No elevated PID readings were identified. Selected photographs from the tank removal and cleaning are included in Appendix E. A copy of the liquid disposal manifest, NYSDEC Petroleum Bulk Storage registration form, as well as the Tank Closure Affidavit is attached in Appendix L. All tanks were registered with NYS DEC PBS unit.

To confirm the removal of hotspot EP-1 and that no soil contamination was associated with the underground storage tanks, endpoint soil samples were collected from the shared tank grave and hotspot EP-1. Four sidewall samples and five bottom samples were collected on April 5, 2017 from the combined excavation. The following endpoint samples were collected: EP-1A (6 feet western bottom), EP-1B (6 feet southern bottom), EP-1C (2.5 feet north of EP-1B), EP-1D (3 feet north of EP-1C), EP-1E (3 feet north of EP-1D), EP-1F (3 feet northern sidewall) EP-1G (3 feet eastern sidewall), EP-1H (4 feet southern sidewall), and EP-1I (3 feet western sidewall). Samples EP-1A, EP-1B, EP-1C, EP-1D and EP-1E were also used to serve as post excavation endpoint samples for the site. A field blank sample was collected for QA/QC purposes.

To confirm the removal of hotspot EP-2, endpoint samples were collected on April 5, 2017. One bottom sample and four sidewall samples were collected from the investigation. The following endpoint samples were collected: EP-2A (6 feet bottom), EP-2B (3 feet northern sidewall), EP-2C (3 feet eastern sidewall), EP- 2D (3 feet southern sidewall), and EP- 2E (3 feet western sidewall). Samples EP-2A, EP-2B and EP-2C were also used to serve as post excavation endpoint samples. A duplicate sample of EP- 2A identified as EP- X was collected for QA/QC purposes.

The soil samples were visually inspected and screened with a PID. No elevated PID readings were identified in any of the samples. All samples were collected using nitrile gloves which were replaced between the collection of each sample. The samples were then placed into laboratory-issued containers, stored in a cooler with ice and transported to American Analytical Laboratories (NY State-certified laboratory) of Farmingdale, NY under chain-of-custody documentation. The location of the end-point sample locations are illustrated on Figure 6.

The soil samples for the tank grave and hotspot EP-1 were analyzed for Volatile Organic Compounds (VOCs), Semi Volatile Organic Compounds (SVOCs), RCRA Metals and zinc. The results for EP-1A through EP-1I are summarized below:

- No VOCs were detected in samples EP-1A through EP-1I in excess of the Track 4 Soil Cleanup Objectives (SCOs). The results are summarized on Table 1.1.
- No SVOCs were detected in samples EP-1A through EP-1I in excess of Track 4 SCOs. The results are summarized on Table 1.2.
- No metals were detected in samples EP-1A through EP-1I in excess of the Track 4 SCOs. The results are summarized in Table 1.3.

The endpoint soil samples for hotspot EP-2 were analyzed for SVOCs, and Metals (lead, mercury, and zinc). The results for EP-2A through EP-2E are summarized below:

- No SVOCs were detected in endpoint samples EP-2A through EP-2E in excess of the Track 4 SCOs. The results are summarized on Table 1.4.
- No levels of lead, mercury, and zinc were detected in endpoint samples EP-2A through EP-2C and EP-2E in excess of Track 4 SCOs. However, sidewall endpoint samples EP-2D did display detections of lead and mercury in excess of Track 4 SCOs at 753 and 2.18 mg/kg respectively. On November 9, 2017 EP-2D was recollected and called EP-2DA, results from this recollection show lead and mercury concentrations to be at 217 and 0.212 mg/kg respectively which fall under Track 4 SCOs. The results are summarized on Table 1.4.

A complete copy of the original laboratory analytical report is included as Appendix I.

Soil Cleanup Objectives

The Site achieved the established Track 4 Site Specific SCOs, a list of Track 4 Site Specific SCOs can be found in Table 2. The track 4 SCOs for the Site are listed below:

Contaminant	Track 4 SCOs
Total SVOCs	250 PPM
Lead	400 PPM
Mercury	0.81 PPM
Zinc	1000 PPM

A map of end-point sample locations is shown in Figure 6. A tabular summary of end-point sampling results compared to SCOs is included in Table 1. Full laboratory reports are included in Appendix I.

4.4 MATERIALS DISPOSAL

The soil disposal activities were conducted between April 3, 2017 and July 24, 2018. The Site-wide excavation included the off-Site disposal of a total of 117.72 tons of non-hazardous soil destined for recycling and 1,724.07 tons of urban fill/petroleum contaminated soils. All transport of materials was performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers were appropriately licensed and trucks properly placarded. Loaded vehicles leaving the Site were appropriately tarped, securely covered, and manifested in accordance with appropriate local, State, Federal and New York State Department of Transportation requirements (and all other applicable transportation requirements), and were subcontracted by Clean Earth, Inc.

Prior to shipping any soils off-Site to either the Clean Earth of Carteret facility in Carteret, New Jersey, or the Prospect Park facility in Prospect Park, New Jersey, the facility was provided with information indicating that the material was being generated as part of new development through VCP Program. The facilities were also provided with complete copies of waste characterization test results, a summary of the soil profiling methodologies and historical environmental reports. A copy of the waste classification report is included in Appendix H.

Upon review of the soil profile and analytical data approval letters were received from the facilities, acknowledging their acceptance of the material.

Applications from CA RICH on behalf of West Farm Equities to the disposal facility providing materials type, source and data; and acceptance letters from disposal facility stating it is approved to accept these materials are attached in Appendix F. Manifests are included in Appendix G. A Waste Characterization report is presented in Appendix H. A table of individual truck transport and material disposal quantities is included in Table 3.

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

Disposal Location/Address	Type of Material	Quantity
Prospect Park/100 Planten Avenue, Prospect Park, New Jersey	Non-Hazardous Soil	117.72 tons
Clean Earth of Carteret/24 Middlesex Avenue, Carteret, New Jersey	Petroleum Contaminated Soil	1,724.07 tons
Tradebe Treatment and Recycling, LLC of Meriden, Connecticut.	Petroleum mixed with water	2,200 gallons
Zevel Transfer and A.J. Recycling Inc.	Construction and demolition waste	1,600 tons

4.5 BACKFILL IMPORT

The Site was backfilled for a two foot buffer zone in landscaped areas as part of the Site-wide composite cover system. Backfill was placed at the rear of the building along Boone Avenue, and in the northeast and southeast side of the Site in landscaped areas. Approximately 268 tons of NYC OER approved loam (clean fill) was imported from Long Island Compost Corp. This material was sampled and the results were

reviewed by the OER case manager and approved via e-mail by Shaminder Chawla on May 7, 2018 This approval e-mail is included in Appendix N.

Approximately 90 cubic yards of ¾ inch stone was imported on site from Tilcon Corp in West Nyack, NY, and was placed underneath the concrete walkway, parking lot and for the trucking pad. Approximately 60 cubic yards of Item#4 was imported on site from Tilcon Corp in West Nyack, NY, and was placed underneath the stone underneath the parking lot.

All soil imported to the property achieved the lower of 6NYCRR Part 375-6.8 Groundwater Protection Standards and Restricted applicable use type, i.e. Residential SCOs. A table of all sources of backfill with quantities for each source is shown on Table 4. Tables summarizing chemical analytical results for backfill are included in Table 5. The full laboratory report is included in Appendix M. A map showing backfill placement locations at the Site is shown in Figure 7.

4.6 DEMARACTION

A demarcation layer was placed in the landscaped areas under the two foot buffer zone of clean fill to signify the boundary between the imported clean fill and the native fill. A map showing areas with a demarcation layer is shown in Figure 7. Soil below the final cover is residual soil that will be addressed by Site Management under this Remedial Action.

5.0 ENGINEERING CONTROLS

Engineering Controls were employed in the Remedial Action to address residual material remaining at the Site. The Site has two primary Engineering Control Systems. 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. Building development covers approximately 5,120 square-feet of the 12,436 square-foot Site, with a setback that ranges from 10 feet to approximately 15 feet on the west side of the Site. The Site also consists of an open space of approximately 5,800 square-feet on the east side of the Site that will be used for open air parking and landscaped areas. The construction of the engineered Composite Cover System consisting of a four-inch thick structural concrete slab for the building underlain by a vapor barrier and bedrock. The areaway onsite and along West Farms Road consists of a four-inch concrete slab and is underlain by six-inches of ¾-inch bluestone. An open air parking lot on the southeast side of the Site is four inches thick in total and consists of two-inches of asphalt and two-inches of asphalt binder, which is underlain by four-inches of Item #4 stone, and six-inches of ¾-inch stone for the bottom layer. Two feet of clean fill underlain by a demarcation boundary layer was used for the landscaped areas. The contractors for the Composite Cover System construction were Matempa Contracting and Blanco Drilling, Inc.

Figure 7 and Appendix J show the location of each cover type built at the Site show the as-built design for cover types used on this Site. Photographs of construction of the Composite Cover System are included in Appendix E.

Vapor Barrier System

Exposure to soil vapor is prevented by a Vapor Barrier System that has been built on the Site. This Vapor Barrier System consists of a Raven Industries' VaporBlock® Plus™ 20-mil and Stego® 20-mil Vapor Barrier which is located below the slab of the building and up the foundation sidewalls, respectively. The Raven Industries VaporBlock® Plus™ 20-mil was installed throughout the foundation slab, elevator pits, and sidewalls, the Stego® 20-mil Vapor Barrier was only used in a small section in the northeast corner of the foundation slab. This change was caused by the lack of availability of the Raven Industries VaporBlock® Plus™ 20 mil vapor barrier at the time of construction. The two elevator pits were lined with the Raven Industries VaporBlock® Plus™ 20 mil vapor barrier. Figure 7 indicates a small section where the Stego was used; please explain why]. All penetrations through the slab for utility lines were sealed utilizing Link Seal and Mel-Rol LM. The professional engineer for the Vapor Barrier System was Karen Tyll, P.E. The contractor for the Vapor Barrier System construction was DP Group.

Figure 7 shows the design for the As-Built design detail for the Site Wide Composite Cover System and Vapor Barrier System used on this Site. Photographs of installation of the Vapor Barrier System are included in Appendix E, and Daily Reports are included in Appendix D. A copy of the certificate of warranties for both the Raven Industries' VaporBlock® Plus™ 20-mil and Stego® 20-mil Vapor Barrier are included in Appendix K.

6.0 INSTITUTIONAL CONTROLS

A series of Institutional Controls are required under this Remedial Action to assure permanent protection of public health by elimination of exposure to residual materials. These ICs define the program to operate, maintain, inspect and certify the performance of Engineering Controls and Institutional Controls on this property. These Institutional Controls will be implemented in accordance with the Site Management Plan included in this RAR.

Institutional Controls for this property are:

(1) The property will continue to be registered with an E-Designation by the NYC Department of Buildings. Property owner and property owner's successors and assigns are required to comply with the approved SMP;

(2) Compliance with an OER-approved Site Management Plan including procedures for appropriate operation, maintenance, inspection, and certification of performance of ECs and ICs. The property owner and property owner's successors and assigns will inspect ECs and ICs and submit to OER a written certification that evaluates their performance in a manner and at a frequency to be determined by OER;

(3) Engineering Controls will not be discontinued without prior OER approval;

(4) OER has the right to enter the Site upon notice for the purpose of evaluating the performance of ECs and ICs;

(5) Vegetable gardens and farming in residual soil/fill on the Site are prohibited;

(6) Use of groundwater underlying the Site without treatment rendering it safe for its intended use is prohibited;

(7) All future activities on the Site that will disturb residual soil/fill must be conducted pursuant to the Soil/Materials Management provisions of the SMP, or otherwise approved by OER;

(8) The Site is intended to be used for residential use and will not be used for a higher level of use without prior approval by OER.

7.0 SITE MANAGEMENT PLAN

Site Management is the last phase of the remedial process and begins after the approval of the Remedial Action Report (RAR) and issuance of the Notice of Completion (NOC) by OER. It is the responsibility of the property owner to ensure that all Site Management responsibilities are performed. The penalty for failure to implement the SMP includes revocation of the Notice of Completion and all associated certifications and liability protections providing notice of the revocation to the NYC DOB.

Engineering Controls and Institutional Controls have been incorporated into this Remedial Action to ensure that the Site remains protective of public health and the environment. Generally, ECs provide physical protective measures and ICs provide restrictions on Site usage and establish remedial operation, maintenance, inspection and certification measures. This Site Management Plan has been established to govern long-term performance of ECs and ICs for this property.

The SMP provides a detailed description of procedures required to manage residual material at the Site following the completion of remedial construction in accordance with the NYC Voluntary Cleanup Agreement with OER. This includes: (1) operation and maintenance of Engineering Controls; (2) inspection of ECs and ICs; and (3) certification of performance of ECs and ICs.

ENGINEERING CONTROLS

Engineering Controls were employed in the remedial action to address residual materials remaining at the Site. The Site has two Engineering Control Systems. Engineering Controls for this property are:

1. Composite Cover System; and,
2. Vapor Barrier System.

Operation and Maintenance of Composite Cover System

Chapter 5 describes the Composite Cover System utilized in this Remedial Action and provides as-built design details and the location of each cover type. The Composite

Cover System is a permanent Engineering Control for the Site. The system will be inspected and its performance certified at specified intervals defined in this SMP. A Soil/Materials Management Plan is included in this Site Management Plan and outlines the procedures to be followed in the event that the composite cover system and underlying residual soil/material must be disturbed after the Remedial Action is complete.

The Composite Cover System does not require any special operation or maintenance activities. If the system is breached during future construction activities or normal wear and tear, the system will be rebuilt by reconstructing the system according to the original design and tying newly constructed cover layers into existing cover layers to form a continuous layer(s).

Operation and Maintenance of Vapor Barrier System

Chapter 5 describes the Vapor Barrier System utilized in this Remedial Action and provides as-built design details and the system location. The Vapor Barrier System is a permanent Engineering Control for the Site. The system will be inspected and its performance certified at specified intervals defined in this SMP.

The Vapor Barrier System does not require any special operation or maintenance activities. If the system is breached during future construction activities, the system will be rebuilt by reconstructing the vapor barrier layers and sealing the newly constructed materials with existing barrier materials in accordance with manufacturer specifications.

INSTITUTIONAL CONTROLS

A series of Institutional Controls are required under this Remedial Action to assure permanent protection of public health by elimination of exposure to residual materials. These ICs define the program to operate, maintain, inspect and certify the performance of Engineering Controls and Institutional Controls on this property. These Institutional Controls will be implemented in accordance with the Site Management Plan included in this RAR.

Institutional Controls are also designed to prevent future exposure to residual soil/materials by controlling disturbances in the subsurface, restricting higher uses of the property than those addressed by the Remedial Action and establishing restrictions on activities and Site usage. Institutional Controls for this property are:

(1) The property will continue to be registered with an E-Designation by the NYC Department of Buildings. Property owner and property owner's successors and assigns are required to comply with the approved SMP;

(2) Compliance with an OER-approved Site Management Plan including procedures for appropriate operation, maintenance, inspection, and certification of performance of ECs and ICs. The property owner and property owner's successors and assigns will inspect ECs and ICs and submit to OER a written certification that evaluates their performance in a manner and at a frequency to be determined by OER;
(3) Engineering Controls will not be discontinued without prior OER approval;
(4) OER has the right to enter the Site upon notice for the purpose of evaluating the performance of ECs and ICs;
(5) Vegetable gardens and farming in residual soil/fill on the Site are prohibited;
(6) Use of groundwater underlying the Site without treatment rendering it safe for its intended use is prohibited;
(7) All future activities on the Site that will disturb residual soil/fill must be conducted pursuant to the Soil/Materials Management provisions of the SMP, or otherwise approved by OER; The Site is intended to be used for residential use and will not be used for a higher level of use without prior approval by OER

INSPECTIONS

Engineering Controls and Institutional Controls will be inspected on a periodic basis at a frequency established in this plan. The inspections will evaluate the following:

- If Engineering Controls or Institutional Controls employed at the Site continue to perform as designed and continue to be protective of human health and the environment;
- If anything has occurred that impairs the ability of the Engineering Controls or Institutional Controls to protect public health and the environment;
- If changes are needed to the remedial systems or controls;
- If compliance with this SMP has been maintained;
- If Site records are complete and up to date; and
- General Site conditions at the time of inspection.

In addition, if an emergency occurs, such as a natural disaster, or if an unforeseen failure of any of the Engineering Controls occurs, an inspection of the Site will be performed within 30 days to evaluate the Engineering Controls, and a letter report of findings will be submitted to OER.

Inspection of Composite Cover System

Inspection of the composite cover will consist of a visual inspection of concrete slab and concrete foundation walls, and will include all accessible locations including the Site perimeter and all internal access points on the ground floor. The inspector will document any faulty or defective conditions observed during the inspection, broken or damaged concrete, or any failure in the integrity of the floor that would compromise the ability of the composite cover to perform as an engineering control. Evidence of active invasive activity through the cover system, or past invasive activity, such as patches and repairs will be evaluated. Photographs will be taken and presented in the Annual Inspection and Certification Letter Reports to document findings.

Inspection of Vapor Barrier System

The vapor barrier system will be inspected by a qualified environmental professional to assure that it is functioning properly. The vapor barrier system is not visible and cannot be directly inspected. However, it can be inspected simultaneously with inspection of the building slab. If the inspector observes a failure in the slab that

exposes the vapor barrier, then the underlying vapor barrier will be inspected for any damage, including tears or perforations, which would prevent the vapor barrier from performing its intended purpose. Cracks, holes, perforations or slab disturbances shall be recorded and remediated as appropriate. Photographs will be taken and presented in the Annual Inspection and Certification Letter Reports to document findings.

Site Use Prohibitions

Inspections to evaluate the status of Site use prohibitions will include an evaluation of all of the ICs listed above, including:

- whether there is vegetable gardening or farming in residual soil/fill;
- whether groundwater underlying the Site has been used without treatment rendering it safe for its intended use;
- whether activities that have disturbed Site soil/fill have been conducted pursuant to the Soil/Material Management provisions of the SMP, or otherwise approved by OER; and
- whether the Site has been used for a higher level of use other than residential use addressed by the Remedial Action.

INSPECTION AND CERTIFICATION LETTER REPORT

Results of inspections performed during a reporting period and certification of performance of all Engineering Controls and Institutional Controls will be included in an Inspection and Certification Letter Report. Inspections will be performed in 2019, 2020 and every ten years thereafter. Inspection and Certification Letter Reports will be submitted by October 30, 2019 (for the reporting period calendar years 2018-2019), October 30, 2020 (for the reporting period calendar years 2020-2021) and annually (each year) thereafter (for the reporting period consisting of the prior calendar year). Inspection and Certification Reports will cover all calendar years since the prior reporting period. Inspection and Certification Letter Reports will be submitted to OER in digital format.

The letter report will utilize a form established by OER. This form includes, at a minimum:

- Date of inspections;
- Personnel conducting inspections;
- Description of the inspection activities performed;
- Observations, conclusions, or recommendations;
- Copy of any monthly inspection forms;
- Photographs; and
- Certification of the performance of Engineering Controls and Institutional Controls executed by the P.E. or QEP responsible for this Inspection and Certification Letter Report, as discussed below.

The certification of the performance of ECs and ICs will establish:

- If Engineering Controls and Institutional Controls employed at the Site continue to be in place, perform as designed and continue to be protective of human health and the environment;
- If anything has occurred that impairs the ability of Engineering Controls or Institutional Controls to protect public health and the environment;
- If changes are needed to the remedial systems or controls;
- If compliance with this Site Management Plan has been maintained;
- If vegetable gardening and farming in residual soils has been prevented;
- If groundwater underlying the Site is being utilized without treatment rendering it safe for the intended purpose has been prevented;
- If activities on the Site that have disturbed residual soil/fill material have been in accordance with the Soil/Materials Management Plan in this SMP;
- If the Site has been used for a higher level of use other than residential use addressed by the Remedial Action;
- If Site records are complete and up to date;
- If the Site continues to be registered as an E-Designated property by the NYC Department of Buildings;

OER may enter the Site upon notice for the purpose of evaluating the performance of ECs and ICs.

NOTIFICATIONS

Notifications will be submitted by the property owner to OER as described below:

- 60-day advance notice of any proposed changes in Site use, such as an upgrade from existing use to residential use that was not contemplated is the Remedial Action.
- Notice within 30 days of any emergency, such as a fire, flood, or earthquake that has the potential to reduce the effectiveness of Engineering Controls in place at the Site.

SOIL/MATERIALS MANAGEMENT PLAN

Any future intrusive work that will disturb residual soil/fill beneath the property, including modifications or repairs to the existing composite cover system, will be performed in compliance with this Soil/Materials Management Plan (SMMP). Intrusive work will also be conducted in accordance with the procedures defined in the Community Air Monitoring Plan (CAMP) included in this chapter and a Construction Health and Safety Plan (HASP). The HASP is the responsibility of the property owner and should be in compliance with NYSDEC DER-10 Technical Guide and 29 CFR 1910 and 1926, and all other applicable Federal, State and City regulations. Intrusive construction work should be compliant with this SMMP and described in the next Inspection and Certification Letter Report.

Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional (QEP). Soil screening will be performed during any future intrusive work.

Stockpile Methods

If stockpiles are used to isolate excavated soil they will be removed as soon as practicable. While stockpiles are in place, they will be inspected daily, and before and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. Excavated soils will be stockpiled on, at minimum, double layers of 6-mil minimum sheeting, will be kept covered at all times with appropriately anchored plastic tarps, and will be routinely inspected. Broken or ripped tarps will be promptly replaced.

All stockpile activities will be compliant with applicable laws and regulations. Soil stockpile areas will be appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials shall be located at least of 50 feet from the property boundaries, where possible. Hay bales or equivalent will surround soil stockpiles except for areas where access by equipment is required. Silt fencing and hay bales will be used as needed near catch basins, surface waters, and other discharge points.

Characterization of Excavated Materials

Soil/fill or other excavated media that is transported off-Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Excavated soil will only be reused on-Site with prior approval by OER.

Materials Excavation, Load-Out and Departure

The PE/QEP overseeing the remedial action will:

- Oversee intrusive work and the excavation and load-out of excavated material;
- Ensure that there is a party responsible for the safe execution of invasive and other work performed under this management plan;

- Ensure that Site maintenance activities and maintenance-related grading cuts will not interfere with, or otherwise impair or compromise the remedial measures established during the remediation construction phase;

- Ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate permits or authorized notifications.;;

- Ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site; and

- Ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site intrusive work.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

Off-Site Materials Transport

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on-Site, when possible, in order to minimize off Site disturbance.

Outbound truck transport routes are shown on Figure 8. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive Sites; (b) use of mapped truck routes; (c) minimizing off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

Materials Disposal Off-Site

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with applicable laws and regulations: (1) an OER Historical Fill Notification Form and letter from the PE/QEP or property owner to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York City under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Enrollee. The letter will include, as an attachment, a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility stating it is in receipt of the correspondence (1, above) and is approved to accept the material.

Documentation associated with disposal of all material will include records and approvals for receipt of the material. All impacted soil/fill or other waste excavated and removed from the Site will be managed as regulated material and will be disposed in accordance with applicable laws and regulations. Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with its applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be retained and included in the following Inspection and Certification Report. A manifest system for off-Site transportation of exported materials will be employed. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

Materials Reuse On-Site

All of the non-hazardous soil excavated during any future repair or construction

purposes will be placed in the same excavation it was derived from or will be disposed of off-Site unless otherwise approved by OER beforehand.

Repair of Remedial Systems

After completion of invasive work, any damage to the engineering controls (composite cover system, vapor barrier, etc.) will be restored to the original condition established during initial construction.

Import of Backfill Soil from Off-Site Sources

In the event that soil importation is needed for the backfilling purposes, this Section presents the requirements for imported fill materials. All imported soils will meet OER-approved backfill and cover soil quality objectives for this Site. The backfill and cover soil quality objectives include NYSDEC Part 375 Track 2 Residential SCOs and groundwater protections standards. A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial Sites, spill Sites, environmental remediation Sites or other potentially contaminated Sites will not be imported to the Site.

The following potential sources may be used pending attainment of backfill and cover soil quality objectives:

- Clean soil from construction projects at non-industrial Sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYS DEC; and

- Virgin quarried material or other materials with an approved Beneficial Use Determination (BUD) from NYSDEC for reuse as clean fill.

- [Asphalt Millings from approved Park Department facilities?]

All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this SMP. The Inspection and Certification Letter Report will report the source of the fill, evidence that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed.

Source Screening and Testing

Inspection of imported fill material will include visual, olfactory, and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:

- Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;

- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and

- Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite samples of imported material from the identified clean soil sources will be taken at a minimum frequency of one sample for every 500 cubic yards of material. One composite sample will be collected form each source of virgin quarried material or other material with an NYSDEC approved BUD, unless otherwise approved by OER. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements, is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) without fines may be imported from facilities

permitted or registered by NYSDEC. A PE/QEP is responsible to ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA will not be used as cover material. [Clarify use of Asphalt Millings]

Fluids Management

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported, and disposed in accordance with applicable laws and regulations. Liquids discharged into the New York City sewer system will receive prior approval by New York City Department of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. If discharge to the City sewer system is not feasible, the dewatering fluids will be managed by transportation and disposal at an off-Site treatment facility or some other means compliant with applicable laws and regulations. Discharge of water generated during remedial construction to surface waters (i.e. a stream or river) is prohibited without a SPDES permit issued by NYSDEC.

Storm-water Pollution Prevention

Applicable laws and regulations pertaining to storm-water pollution prevention will be addressed during the remedial program. All existing storm-water systems will be inspected to ensure proper operation.

Odor Control

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) use of foams to cover exposed odorous soils. If odors develop and cannot be controlled by these means,

additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems.

The odor control plan must be capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted, and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. OER will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the PE/QEP.

Dust Control

Dust management during invasive on-Site work will include, at a minimum:

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles;
- Use of properly anchored tarps to cover soil/fill stockpiles;
- Exercise extra care during dry and high-wind periods; and
- Use of asphalt millings, gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

If nuisance dust emissions are identified, work will be halted and the source of dust will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. OER will be notified of all dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the PE/QEPs.

Noise

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

COMMUNITY AIR MONITORING PLAN

Real-time air monitoring for volatile organic compounds (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. Exceedences of action levels observed during performance of the Community Air Monitoring Plan (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 parts per million (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 shut down.

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, Response Levels, 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 ($\mu g/m^3$) 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 $\mu g/m^3$ 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 $\mu g/m^3$ 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 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

All readings will be recorded and available for OER personnel to review.

CONTINGENCY PLAN

This contingency plan is developed for the remedial construction or repair work to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to OER's Project Manager. Petroleum spills will be reported to the NYS DEC Spill Hotline. If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to OER. Chemical analytical testing will be performed for TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

Emergency Telephone Numbers

In the event of any emergency condition pertaining to these remedial systems, the Owner's representative(s) should contact the appropriate parties from the contact list below. Prompt contact should also be made to CA RICH Consultants, Inc. These emergency contact lists must be maintained in an easily accessible location at the Site.

Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center: 3 day notice required for utility mark-out	(800) 272-4480
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Contact Numbers

David Klein- CA RICH Consultants, Inc.	(516) 576-8844
Office of Environmental Remediation	(212) 788-8841; 311

8.0 SUSTAINABILITY REPORT

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

Conversion to Clean Fuels. The 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 contamination from off-Site.

The area of the Site that utilizes recontamination controls under this plan is 12,436 square feet.

Paperless Brownfield Cleanup Program. West Farm Equities participated in OER's paperless Voluntary 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 100 pounds.

Low-Energy Project Management Program. West Farm Equities 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 400 miles.

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. The number of trees planted as part of this redevelopment is eight.