2400 PITKIN AVENUE

BROOKLYN, NEW YORK

Remedial Action Report

NYC VCP Project Number 22CVCP042K, 21TMP0991K
E-Designation Project Number 21EHAN209K
DOB Job B00557447

Prepared For:

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OCTOBER 2023

REMEDIAL ACTION REPORT

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FIGURES

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APPENDICIES

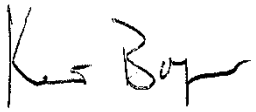
LIST OF ACRONYMS

Acronym	Definition
CAMP	Community Air Monitoring Plan
DER-10	NYS DEC Division of Environmental Remediation Technical Guidance Manual 10
NYC DOB	New York City Department of Building
DUSR	Data Usability Summary Report
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
NYS DEC	New York State Department of Environmental Conservation
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
RCA	Recycled Concrete Aggregate
SCG	Standards, Criteria and Guidance
SCO	Soil Cleanup Objective
SMMP	Soil/Materials Management Plan
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SVOCs	Semi-Volatile Organic Compounds
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

CERTIFICATION

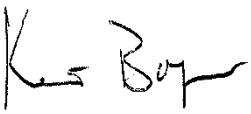
I, Kevin Boger, certify the following:

- 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 2400 Pitkin Avenue site, site numbers 22CVCP042K and 21TMP0991K.
- I have reviewed this document, to which my signature and seal are affixed.
- The vapor barrier, active SSDS, and composite cover system constructed during this remedial action were designed by me or a person under my direct supervision and achieve the goals established in the Remedial Action Work Plan for this site.
- The vapor barrier, active SSDS, and composite cover system constructed during this remedial action were professionally observed by me or by a person under my direct supervision are accurately reflected in the text and drawings for as-built design reported in this Remedial Action Report.
- The OER-approved Remedial Action Work Plan dated January 7, 2022, and Stipulations in a letter dated January 26, 2022, 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	Kevin Boger
PE License Number	096717
Signature	
Date	October 3, 2023

I, Kevin Boger, certify the following:

- I am a Qualified Environmental Professional. I had primary direct responsibility for implementation of the remedial program for the 2400 Pitkin Avenue site, site numbers 22CVCP042K and 21TMP0991K.
- The OER-approved Remedial Action Work Plan dated January 7, 2022, and Stipulations in a letter dated January 26, 2022, 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	Kevin Boger
QEP Signature	
Date	October 3, 2023

EXECUTIVE SUMMARY

Enrollee

Civic Sherman, LLC has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 2400 Pitkin Avenue (2390 Pitkin Avenue) in the East New York section of Brooklyn, 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 in the East New York section of Brooklyn, New York and is identified as Block 4017 and Lot 15 and 19 on the New York City Tax Map. As part of redevelopment, the referenced lots were merged to Lot 15. The Site Location Map is shown in Figure 2. The Site Boundary Map is shown in Figure 1. The Site is approximately 11,000-square feet, and is bounded by Pitkin Avenue to the north, residential buildings followed by Belmont Avenue to the south, a residential building followed by Elton Street to the east, and Cleveland Street to the west. Formerly, the Site was developed with one 9,600 sf one-story building spanning Lot 15 and 19. There was a partial cellar in the northwestern portion of the Site building. The Site building was vacant prior to redevelopment activities, but was most recently used for furniture warehousing and distribution.

Both Lot 15 and 19 were assigned an E-366 Designation for Hazardous Materials, Noise, and Air Quality pursuant to City Environmental Quality Review (CEQR) #15DCP102K as part of the East New York Rezoning. The Site has been assigned E-Number Project Number 21EHAN209K.

Summary of Redevelopment Plan

The Site has been redeveloped for construction and operation of a 4-story charter school with a cellar with a total area of approximately 43,500-sf. The charter school encompasses the entire lot (11,000 sf). The building cellar level consists of a gymnasium, classrooms, and mechanical spaces; the first floor consists of a warming kitchen, cafeteria, and lobby; and the second through fourth floors consists of classrooms, meeting rooms, and offices. The redevelopment for the Site included full demolition of the existing Site building for construction of the charter school. Excavation for Site development extended to about 14 feet below ground surface (bgs); excavations did not extend to the groundwater table. As part of redevelopment, the referenced lots were merged to Lot 15. The Site's zoning designation is residential use (R7A) with a commercial overlay (C2-4). The proposed use is consistent with existing zoning for the property. The charter school includes a cafeteria and a gymnasium, for which Place of Assembly certificates were filed with and granted by the NYC DOB.

The Site boundary and location are shown in Figures 1 and 2. Building development plans are shown in in Figures 3A-3F. The extent of excavation activities for development is shown in Figure 5.

Summary of Description of Surrounding Property

The Site is located in a developed urban area of Brooklyn consisting primarily of commercial and residential buildings. The Site is approximately 11,000-square feet and is bounded by Pitkin Avenue to the north, a residential building followed by Belmont Avenue to the south, a residential building followed by Elton Street to the east, and Cleveland Street to the west. P.S. 158 Warwick and Little Birds Day Care Center are located within a 500-foot radius of the Site. Figure 2 shows the surrounding land usage.

Summary of Past Site Uses and Areas of Concern

Historical records indicate that the Site was undeveloped prior to 1928. By 1928, Lot 19 was improved with a one-story structure which was occupied by an open-air moving pictures facility; and Lot 15 was improved with a one-story structure which was occupied by a mattress making facility. By 1951, the building on Lot 19 was used as a mattress

warehouse. In addition, by 1951, the buildings were connected. Between 1968 and circa 2020, the Site building was used as a furniture warehouse and distributer. The Site building has been vacant since late 2020.

Summary of the Work Performed under the Remedial Investigation

Hillmann Consulting conducted a Limited Phase II Subsurface Investigation on February 27, 2020. Four (4) soil borings and one (1) additional boring for soil vapor were installed, and four (4) soil samples and two (2) soil vapor samples were collected.

TRC, on behalf of Civic Sherman, LLC, performed the following scope of work on August 4 and 5, 2021:

1. Conducted a Site inspection to identify areas of concern (AOCs) and physical obstructions (i.e. structures, buildings, etc.);
2. Installed three (3) soil borings at the project Site, and collected six (6) soil samples and one (1) duplicate for chemical analysis from the soil borings to evaluate soil quality;
3. Installed two temporary (2) groundwater monitoring wells on the Site to establish groundwater flow and collected two (2) groundwater samples and one (1) duplicate for chemical analysis to evaluate groundwater quality; and
4. Installed two (2) soil vapor probes and collected two (2) soil vapor samples for chemical analysis.

Additionally, TRC, on behalf of Civic Sherman, LLC, performed the following Supplemental Remedial Investigation activities on February 21, 2022. The work was performed in accordance with the RIWP approved by OER on May 14, 2021. This investigation was performed with the goal of assessing conditions at the Site in areas previously inaccessible due to safety concerns (i.e., sinking foundation):

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

2. Installed three (3) soil borings at the project Site, and collected six (6) soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed one (1) temporary groundwater monitoring well to establish groundwater flow and collected one (1) groundwater sample for chemical analysis to evaluate groundwater quality; and
4. Installed three (3) soil vapor probes and collected three (3) soil vapor samples for chemical analysis.

Summary of Findings of Remedial Investigation

1. Elevation of the property is approximately 32 feet (ft) above mean sea level (amsl).
2. Groundwater was encountered at depths ranging from 26.92 to 27.35 ft below ground surface (bgs) at the Site.
3. Groundwater is expected to flow to the southeast beneath the Site.
4. The stratigraphy of the site, from the surface down, consists of historic fill consisting of brick, construction debris, concrete, and brown fine sand from 0-7 feet bgs. Native soil is present from 7 feet and below, consisting of medium dense brown sand with small amounts of silt and gravel. Bedrock was not encountered during the RI activities. The estimated depth to bedrock is approximately 400 feet bgs.
5. Soil sampling was performed during the Remedial Investigation (RI), and Supplemental Investigation (SRI) implemented by TRC in in August 2021 and February 2022, respectively.
    - No VOCs or PCBs were present in soil samples collected during either investigation at concentrations above the UUSCOs, RUSCOs, RRUSCOs, or Protection of Groundwater Use SCOs. Per- and polyfluoroalkyl substances (PFAS) were not detected in the soil samples above laboratory reporting limits.

- SVOCs, metals, and pesticides were detected in shallow soil samples collected during the SRI at concentrations exceeding UUSCOs, RUSCOs, RRUSCOs, and/or PGWSCOs and are attributed to characteristics of fill material at the Site. Soil samples collected during the RI showed no SVOCs, metals, or pesticides at concentrations above the UUSCOs, RUSCOs, RRUSCOs, or Protection of Groundwater Use SCOs.

6. Groundwater samples collected during the RI and SRI showed no SVOCs, pesticides, or PCBs at concentrations above the Class GA Value. A total of three (3) VOCs were detected in the groundwater samples collected during the RI and SRI; however, no VOCs were detected at concentrations above the class GA value. Three (3) metals were detected in groundwater samples above the Class GA Value. Two (2) metals were detected at dissolved concentrations exceeding the Class GA Values in the samples collected during the RI and SRI; including iron, manganese, and sodium. These metals, frequently detected in groundwater above the NYSDEC Class GA Values, are representative of naturally-occurring and/or regional groundwater conditions.

7. A total of twelve PFAS were detected in the groundwater samples collected during the RI and SRI (including the duplicate sample). Perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) were detected in samples at maximum concentrations of 65.0 and 29.0 nanograms/Liter (ng/L). The groundwater sample results for PFAS analyses were compared to the New York State Drinking Water Council Recommended MCL for PFOS and PFOA in drinking water of 10 ng/L. The New York State Drinking Water Recommended MCL is provided as a reference only, as groundwater at the Site is not used as a source for drinking water. Low concentrations of PFAS in groundwater are ubiquitous in groundwater throughout New York City.

8. Soil vapor samples were collected and analyzed for VOCs during the RI and SRI. Total VOCs were detected at concentrations ranging from 276.3 $\mu g/m^3$ to 1342.45 $\mu g/m^3$. The soil vapor sample concentrations were compared to the New York State

Department of Health (NYSDOH) Air Guideline Values (AGVs) and to Matrices A, B, and C of the May 2017 Vapor Intrusion Decision Matrices update. No VOC compounds were detected at or above corresponding New York State Department of Health (NYSDOH) Air Guideline Values (AGVs). When compared to the Vapor Intrusion Decision Matrices, results were classified in the lowest intervals of concern. This indicated low level presence of VOCs in sub-slab air with no known source or plume. Because the Site has been developed as a charter school, a vapor barrier and Sub Slab Depressurization System (SSDS) was recommended for the Site.

For environmental investigation data, consult reports listed in Section 1.5. Copies of previous environmental reports have been uploaded to NYC OER EPIC and are provided in Appendix 1 and Appendix 2 of this RAR.

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 March 18, 2021. TRC performed a Remedial Investigation (RI) in August 2021. A RI Report was prepared to evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). A Supplemental RI (SRI) was completed in February, 2022. A Site Contact List was established. A draft RAWP was prepared and released with a Fact Sheet on January 21, 2022 for a 30-day public comment period. The RAWP and Stipulation List dated January 26, 2022 was approved by the New York City Office of Environmental Remediation (OER) on February 9, 2022. A Pre-Construction Meeting was held on February 21, 2022. The remedial action

was begun in April 2022 and completed in August 2023. A Post-Construction meeting was conducted on September 5, 2023. Appendix 2 contains the RAWP.

The remedial action consisted of the following tasks:

1. Prepared a Community Protection Statement and performed all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan.
2. Mobilized site security and equipment; completed utility mark outs; and marked and staked excavation areas.
3. Performance of additional site characterization sampling of soil, groundwater and soil vapor. The work was performed in accordance with the OER approved Remedial Investigation Work Plan (RIWP) dated May 14, 2021. The work's scope and results are detailed in the "Summary of the Work Performed under the Remedial Investigation" and "Summary of Findings of Remedial Investigation" sections above. Because the terminal excavation depth will be well into native fill material remedial investigation samples will be presented as endpoint samples. The full report is included in Appendix 1.
4. Completed a Waste Characterization Study prior to excavation activities. A total of thirty (30) waste characterization soil samples, consisting of twelve (12) composite (each consisting of five (5) discrete grab samples) and eighteen (18) grab soil samples were collected by TRC on February 18th and 21st, 2022. Waste characterization samples were collected at a frequency dictated by OER and disposal facilities. Laboratory data for the purpose of waste characterization is included as Appendix 7. Full Waste Characterization report is included in Appendix 1. End-point sample results are summarized in Section 4.3, and data tables for the purpose of end-point sampling summary are included as Tables 1 through 5.
5. Performed a Community Air Monitoring Program for particulates and volatile organic carbon compounds.

6. Track 4 Site Specific Soil Cleanup Objectives (SCOs) were selected. The following Track 4 SCOs were utilized: total SVOCs: 100 ppm; lead: 800 ppm; mercury: 1.2 ppm; and barium: 650 ppm.
7. The following excavation and soil removal was performed: The entire footprint of the building area (about 100% of the property) was excavated to a depth of approximately 14 feet below grade for development purposes. A small portion of the property was excavated to the depth of 20 feet below grade for an elevator pit, utility trenching, and foundation footings. A total of approximately 6,754 cubic yards of soil/fill was excavated and removed from the Site. During excavation activities, no petroleum contaminated soil was identified onsite or transported offsite; no hazardous characteristic soil/fill was identified onsite or transported offsite.
8. Excavated 2,642 cubic yards of non-hazardous soil/fill and transported it to Yannuzzi Group, Inc., located at 327 Meadow Rd., Edison NJ; excavated 2,006 cubic yards of non-hazardous soil/fill and transported it to Evergreen Recycling of Corona (EROC), located at 127-50 Northern Blvd., Flushing, NY; and excavated 2,106 cubic yards of clean soil and transported it to the NYCOER Clean Soil Bank (CSB) Stockpile, located at 830 Forbell St., Brooklyn, NY utilizing the NYC Clean Soil Bank.
9. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
10. 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.
11. Appropriately segregated excavated media onsite prior to disposal. 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.

12. Collected and analyzed end-point samples to determine attainment of SCOs. Track 4 Site Specific SCOs were achieved. End-point sample results are summarized in Section 4.3, and data tables summarizing the results of end-point samples are included as Tables 1 through 5.

13. No UST's or associated piping were encountered or removed during investigation or remedial/excavation activities. Buried brick and concrete foundation portions were encountered, removed, and properly disposed of.

14. No petroleum spills were encountered during investigation or remedial/excavation activities. No spills were registered or closed, and no end-point samples associated with spills were taken.

15. Constructed an engineered Composite Cover System. Cover for the 4-inch concrete sidewalk consisted of a 4-inch concrete sidewalk above a 6-inch coarse aggregate, NYDOT Type 1 Grade B and stable compacted subgrade. Composite cover for the 7-inch concrete sidewalk consists of 2-inch concrete sidewalk followed by welded wire fabric, 5-inch concrete sidewalk, 6-inch coarse aggregate, NYCDOT Type 1 Grade B, and stable compacted subgrade. Typical slab on grade consists of a 5-inch concrete slab followed by 20-mil polyethylene vapor barrier, 6-inch ASTM #57 stone layer, and undisturbed soil. The composite cover system provides full lot coverage with no landscaped areas. The composite cover system serves to prevent human exposure to residual soil/fill remaining under the Site. The contractor for composite cover construction was Capstone Contracting Corp.

16. Installed a vapor barrier system beneath the building slab and outside of sub-grade foundation sidewalls to mitigate soil vapor migration The vapor barrier consists of a 20-mil Stego Wrap polyethylene vapor barrier installed between the 6-inch ASTM #57 stone layer and the 5-inch concrete slab. Stamped as-built vapor barrier drawings are provided on Figures 9 and 11. The contractor for the vapor barrier system construction was Capstone Contracting Corp.

17. Installed and operated an active SSDS consisting of a horizontal network of slotted 4-inch Schedule 40 PVC piping laid within the 6-inch layer of ASTM #57 stone

underneath the building slab. The sub-slab slotted piping is aligned horizontally below the building slab and exits the slab through one 6-inch Schedule 40 PVC where the piping transitions to galvanized steel piping to the roof. The pipe is aligned vertically through the building to convent vapors above the roof of the building. An Obar Systems GBR89 Compact Radial Blower vacuum blower was installed inline on the roof level and an alarm system and manometer were installed in an accessible area in the Custodian's office to enable measurement of the vacuum pressure established by the system. Fan accessories (pressure gauge, sample tap, etc.) were installed in the SSDS piping locally at the roof, and a pressure switch was installed in the SSDS riser at slab level. The SSDS also includes four (4) monitoring points. The monitoring points are permanent 4" diameter cleanouts flush with the finished floor and will be used to monitor the performance of the SSDS. The SSDS fan will be in operation at all times. Stamped as-built SSDS drawings are provided in Figures 9, 10, and 11. The active SSDS is an Engineering Control for the remedial action. The SSDS was designed and properly installed to establish a vacuum in the gas permeable layer and a negative (decreasing outward) pressure gradient across the building slab to prevent vapor migration into the building. The contractor for the Active Sub-Slab Depressurization System construction was Headquarters Mechanical, Inc.

18. Residual soil is present beneath the cover layer and will be subject to Site Management under this Remedial Action.

19. Performed all activities required for the Remedial Action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.

20. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.

21. Imported approximately 47 cubic yards of ASTM #57 crushed stone aggregate for use beneath the Site cellar slab as gas permeable aggregate in compliance with the RAP and in accordance with applicable laws and regulations.

22. Submitted daily and weekly reports during construction oversight activities. Daily reports were submitted from April 14, 2022 to June 6, 2022. Due to work delays resulting from resulting from required geotechnical re-design activities, intrusive work was performed intermittently after June 6, 2022. Daily reports were submitted on October 25, 2022 and 26, 2022, from November 8, 2022 to December 2, 2022, and from January 20, 2023 to January 24, 2023. In between periods of daily intrusive activities, weekly reports were submitted from June 6, 2022 to August 24, 2023.
23. Submitted a Sustainability Report.
24. 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.
25. 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 July 31, 2024 (for the reporting period calendar year 2023-2024), July 31, 2025 (for the reporting period calendar year 2024-2025) and every year thereafter (for the reporting period consisting of the two prior calendar years). Inspection and Certification Reports will cover all calendar years since the prior reporting period.

REMEDIAL ACTION REPORT

1.0 SITE BACKGROUND

Civic Sherman, LLC has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 2400 Pitkin Avenue (2390 Pitkin) in the East New York section of Brooklyn, 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.

1.1 SITE LOCATION AND BACKGROUND

The Site is located in the East New York section of Brooklyn, New York and is identified as Block 4017 and Lot 15 and 19 on the New York City Tax Map. As part of redevelopment, the referenced lots were merged to Lot 15. The Site Location Map is shown in Figure 2. The Site Boundary Map is shown in Figure 1. The Site is approximately 11,000-square feet, and is bounded by Pitkin Avenue to the north, residential buildings followed by Belmont Avenue to the south, a residential building followed by Elton Street to the east, and Cleveland Street to the west. Formerly, the Site was developed with one 9,600 sf one-story building spanning Lot 15 and 19. There was a partial cellar in the northwestern portion of the Site building. The Site building was vacant prior to redevelopment activities, but was most recently used for furniture warehousing and distribution.

Both Lot 15 and 19 were assigned an E-366 Designation for Hazardous Materials, Noise, and Air Quality pursuant to City Environmental Quality Review (CEQR)

#15DCP102K as part of the East New York Rezoning. The Site has been assigned E-Number Project Number 21EHAN209K.

1.2 REDEVELOPMENT PLAN

The Site has been redeveloped for construction and operation of a 4-story charter school with a cellar with a total area of approximately 43,500-sf. The charter school encompasses the entire lot (11,000 sf). The building cellar level consists of a gymnasium, classrooms, and mechanical spaces; the first floor consists of a warming kitchen, cafeteria, and lobby; and the second through fourth floors consists of classrooms, meeting rooms, and offices. The redevelopment for the Site included full demolition of the existing Site building for construction of the charter school. Excavation for Site development extended to about 14 feet below ground surface (bgs); excavations did not extend to the groundwater table. As part of redevelopment, the referenced lots were merged to Lot 15. The Site's zoning designation is residential use (R7A) with a commercial overlay (C2-4). The proposed use is consistent with existing zoning for the property. The charter school includes a cafeteria and a gymnasium, for which Place of Assembly certificates were filed with and granted by the NYC DOB.

The Site boundary and location are shown in Figures 1 and 2. Building development plans are shown in in Figures 3A-3F. The extent of excavation activities for development is shown in Figure 5.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The Site is located in a developed urban area of Brooklyn consisting primarily of commercial and residential buildings. The Site is approximately 11,000-square feet and is bounded by Pitkin Avenue to the north, a residential building followed by Belmont Avenue to the south, a residential building followed by Elton Street to the east, and Cleveland Street to the west. P.S. 158 Warwick and Little Birds Day Care Center are located within a 500-foot radius of the Site. Figure 2 shows the surrounding land usage.

1.4 SUMMARY OF PAST SITE USES AND AREAS OF CONCERN

Historical records indicate that the Site was undeveloped prior to 1928. By 1928, Lot 19 was improved with a one-story structure which was occupied by an open-air moving pictures facility; and Lot 15 was improved with a one-story structure which was occupied by a mattress making facility. By 1951, the building on Lot 19 was used as a mattress warehouse. In addition, by 1951, the buildings were connected. Between 1968 and circa 2020, the Site building was used as a furniture warehouse and distributer. The Site building has been vacant since late 2020.

1.5 SUMMARY OF WORK PERFORMED UNDER THE REMEDIAL INVESTIGATION

Hillmann Consulting conducted a Limited Phase II Subsurface Investigation on February 27, 2020. Four (4) soil borings and one (1) additional boring for soil vapor were installed, and four (4) soil samples and two (2) soil vapor samples were collected.

TRC, on behalf of Civic Sherman, LLC, performed the following scope of work on August 4 and 5, 2021:

1. Conducted a Site inspection to identify areas of concern (AOCs) and physical obstructions (i.e. structures, buildings, etc.);
2. Installed three (3) soil borings at the project Site, and collected six (6) soil samples and one (1) duplicate for chemical analysis from the soil borings to evaluate soil quality;
3. Installed two temporary (2) groundwater monitoring wells on the Site to establish groundwater flow and collected two (2) groundwater samples and one (1) duplicate for chemical analysis to evaluate groundwater quality; and
4. Installed two (2) soil vapor probes and collected two (2) soil vapor samples for chemical analysis.

Additionally, TRC, on behalf of Civic Sherman, LLC, performed the following Supplemental Remedial Investigation activities on February 21, 2022. The work was

performed in accordance with the RIWP approved by OER on May 14, 2021. This investigation was performed with the goal of assessing conditions at the Site in areas previously inaccessible due to safety concerns (i.e., sinking foundation):

1. Conducted a Site inspection to further identify areas of concern (AOCs) and physical obstructions (i.e. structures, buildings, etc.);
2. Installed three (3) soil borings at the entire project Site, and collected six (6) soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed one (1) temporary groundwater monitoring well to establish groundwater flow and collected one (1) groundwater sample for chemical analysis to evaluate groundwater quality; and
4. Installed three (3) soil vapor probes and collected three (3) soil vapor samples for chemical analysis.

1.6 SUMMARY OF FINDINGS OF REMEDIAL INVESTIGATION

1. Elevation of the property is approximately 32 feet (ft) above mean sea level (amsl).
2. Groundwater was encountered at depths ranging from 26.92 to 27.35 ft below ground surface (bgs) at the Site.
3. Groundwater is expected to flow to the southeast beneath the Site.
4. The stratigraphy of the site, from the surface down, consists of historic fill consisting of brick, construction debris, concrete, and brown fine sand from 0-7 feet bgs. Native soil is present from 7 feet and below, consisting of medium dense brown sand with small amounts of silt and gravel. Bedrock was not encountered during the RI activities. The estimated depth to bedrock is approximately 400 feet bgs.
5. Soil sampling was performed during the Remedial Investigation (RI), and Supplemental Investigation (SRI) implemented by TRC in in August 2021 and February 2022, respectively.

- No VOCs or PCBs were present in soil samples collected during either investigation at concentrations above the UUSCOs, RUSCOs, RRUSCOs, or Protection of Groundwater Use SCOs. Per- and polyfluoroalkyl substances (PFAS) were not detected in the soil samples above laboratory reporting limits.

- SVOCs, metals, and pesticides were detected in shallow soil samples collected during the SRI at concentrations exceeding UUSCOs, RUSCOs, RRUSCOs, and/or PGWSCOs and are attributed to characteristics of fill material at the Site. Soil samples collected during the RI showed no SVOCs, metals, or pesticides at concentrations above the UUSCOs, RUSCOs, RRUSCOs, or Protection of Groundwater Use SCOs.

6. Groundwater samples collected during the RI and SRI showed no SVOCs, pesticides, or PCBs at concentrations above the Class GA Value. A total of three (3) VOCs were detected in the groundwater samples collected during the RI and SRI; however, no VOCs were detected at concentrations above the class GA value. Three (3) metals were detected in groundwater samples above the Class GA Value. Two (2) metals were detected at dissolved concentrations exceeding the Class GA Values in the samples collected during the RI and SRI; including iron, manganese, and sodium. These metals, frequently detected in groundwater above the NYSDEC Class GA Values, are representative of naturally-occurring and/or regional groundwater conditions.

7. A total of twelve PFAS were detected in the groundwater samples collected during the RI and SRI (including the duplicate sample). Perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) were detected in samples at maximum concentrations of 65.0 and 29.0 nanograms/Liter (ng/L). The groundwater sample results for PFAS analyses were compared to the New York State Drinking Water Council Recommended MCL for PFOS and PFOA in drinking water of 10 ng/L. The New York State Drinking Water Recommended MCL is provided as a reference only, as groundwater at the Site is not used as a source for drinking water.

Low concentrations of PFAS in groundwater are ubiquitous in groundwater throughout New York City.

8. Soil vapor samples were collected and analyzed for VOCs during the RI and SRI. Total VOCs were detected at concentrations ranging from 276.3 µg/m^3 to 1342.45 µg/m^3. The soil vapor sample concentrations were compared to the New York State Department of Health (NYSDOH) Air Guideline Values (AGVs) and to Matrices A, B, and C of the May 2017 Vapor Intrusion Decision Matrices update. No VOC compounds were detected at or above corresponding New York State Department of Health (NYSDOH) Air Guideline Values (AGVs). When compared to the Vapor Intrusion Decision Matrices, results were classified in the lowest intervals of concern. This indicated low level presence of VOCs in sub-slab air with no known source or plume. Because the Site has been developed as a charter school, a vapor barrier and Sub Slab Depressurization System (SSDS) was recommended for the Site.

For environmental investigation data, consult reports listed in Section 1.5. Copies of previous environmental reports have been uploaded to NYC OER EPIC and are provided in Appendix 1 and Appendix 2 of this RAR.

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 March 18, 2021. TRC performed a Remedial Investigation (RI) in August 2021. A RI Report was prepared to evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). A Supplemental RI (SRI) was completed in February, 2022. A Site Contact List was established. A draft RAWP was prepared and released with a Fact Sheet on January 21, 2022 for a 30-day public comment period. The RAWP and Stipulation List dated January 26, 2022 was approved by the New York City Office of Environmental Remediation (OER) on February 9, 2022. A Pre-Construction Meeting was held on February 21, 2022. The remedial action was begun in April 2022 and completed in August 2023. A Post-Construction meeting was held on September 5, 2023. Appendix 2 contains the RAWP.

The remedial action consisted of the following tasks:

1. Prepared a Community Protection Statement and performed all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan.

2. Mobilized site security and equipment; completed utility mark outs; and marked and staked excavation areas.

3. Performance of additional site characterization sampling of soil, groundwater and soil vapor. The work was performed in accordance with the OER approved Remedial Investigation Work Plan (RIWP) dated May 14, 2021. The work's scope and results are detailed in the "Summary of the Work Performed under the Remedial Investigation" and "Summary of Findings of Remedial Investigation" sections above. Because the terminal excavation depth will be well into native fill material remedial investigation samples will be presented as endpoint samples. The full report is included in Appendix 1.

4. Completed a Waste Characterization Study prior to excavation activities. A total of thirty (30) waste characterization soil samples, consisting of twelve (12) composite (each consisting of five (5) discrete grab samples) and eighteen (18) grab soil samples were collected by TRC on February 18th and 21st, 2022. Waste characterization samples were collected at a frequency dictated by OER and

disposal facilities. Laboratory data for the purpose of waste characterization is included as Appendix 7. Full Waste Characterization report is included in Appendix 1. End-point sample results are summarized in Section 4.3, and data tables for the purpose of end-point sampling summary are included as Tables 1 through 5.

5. Performed a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
6. Track 4 Site Specific Soil Cleanup Objectives (SCOs) were selected. The following Track 4 SCOs were utilized: total SVOCs: 100 ppm; lead: 800 ppm; mercury: 1.2 ppm; and barium: 650 ppm.
7. The following excavation and soil removal was performed: The entire footprint of the building area (about 100% of the property) was excavated to a depth of approximately 14 feet below grade for development purposes. A small portion of the property was excavated to the depth of 20 feet below grade for an elevator pit, utility trenching, and foundation footings. A total of approximately 6,752 cubic yards of soil/fill was excavated and removed from the Site. During excavation activities, no petroleum contaminated soil was identified onsite or transported offsite; No hazardous characteristic soil/fill was identified onsite or transported offsite.
8. Excavated 2,642 cubic yards of non-hazardous soil/fill and transported it to Yannuzzi Group, Inc., located at 327 Meadow Rd., Edison NJ; excavated 2,006 cubic yards of non-hazardous soil/fill and transported it to Evergreen Recycling of Corona (EROC), located at 127-50 Northern Blvd., Flushing, NY; and excavated 2,106 cubic yards of clean soil and transported it to the NYCOER Clean Soil Bank (CSB) Stockpile, located at 830 Forbell St., Brooklyn, NY utilizing the NYC Clean Soil Bank.
9. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.

10. 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.
11. Appropriately segregated excavated media onsite prior to disposal. 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.
12. Collected and analyzed end-point samples to determine attainment of SCOs. Track 4 Site Specific SCOs were achieved. End-point sample results are summarized in Section 4.3, and data tables for the purpose of end-point sampling are included as Tables 1 through 5.
13. No UST's or associated piping were encountered or removed during investigation or remedial/excavation activities. Buried brick and concrete foundation portions were encountered, removed, and properly disposed of.
14. No petroleum spills were encountered during investigation or remedial/excavation activities. No spills were registered or closed, and no end-point samples associated with spills were taken.
15. Constructed an engineered Composite Cover System. Cover for the 4-inch concrete sidewalk consisted of a 4-inch concrete sidewalk above a 6-inch coarse aggregate, NYDOT Type 1 Grade B and stable compacted subgrade. Composite cover for the 7-inch concrete sidewalk consists of 2-inch concrete sidewalk followed by welded wire fabric, 5-inch concrete sidewalk, 6-inch coarse aggregate, NYCDOT Type 1 Grade B, and stable compacted subgrade. Typical slab on grade consists of a 5-inch concrete slab followed by 20-mil polyethylene vapor barrier, 6-inch ASTM #57 stone layer, and undisturbed soil. The composite cover system provides full lot coverage with no landscaped areas. The composite cover system serves to prevent human exposure to residual soil/fill remaining under the Site. The contractor for composite cover construction was Capstone Contracting Corp.
16. Installed a vapor barrier system beneath the building slab and outside of sub-

grade foundation sidewalls to mitigate soil vapor migration The vapor barrier consists of a 20-mil Stego Wrap polyethylene vapor barrier installed between the 6-inch ASTM #57 stone layer and the 5-inch concrete slab. Stamped as-built vapor barrier drawings are provided on Figures 9 and 11. The contractor for the vapor barrier system construction was Capstone Contracting Corp.

17. Installed and operated an active SSDS consisting of a horizontal network of slotted 4-inch Schedule 40 PVC piping laid within the 6-inch layer of ASTM #57 stone underneath the building slab. The sub-slab slotted piping is aligned horizontally below the building slab and exits the slab through one 6-inch Schedule 40 PVC pipe aligned vertically through the building to convent vapors above the roof of the building. An Obar Systems GBR89 Compact Radial Blower vacuum blower was installed inline on the roof level and an alarm system and manometer were installed in an accessible area in the Custodian's office to enable measurement of the vacuum pressure established by the system. Fan accessories (pressure gauge, sample tap, etc.) were installed in the SSDS piping locally at the roof, and a pressure switch was installed in the SSDS riser at slab level. The SSDS also includes monitoring points. The monitoring points are permanent 4" diameter cleanouts flush with the finished floor and will be used to monitor the performance of the SSDS. The SSDS fan will be in operation at all times. Stamped as-built SSDS drawings are provided on Figures 9, 10, and 11. The active SSDS is an Engineering Control for the remedial action. The SSDS was designed and properly installed to establish a vacuum in the gas permeable layer and a negative (decreasing outward) pressure gradient across the building slab to prevent vapor migration into the building. The contractor for the Active Sub-Slab Depressurization System construction was Headquarters Mechanical, Inc.

18. Residual soil is present beneath the cover layer and will be subject to Site Management under this Remedial Action.

19. Performed all activities required for the Remedial Action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.

20. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.

21. Imported approximately 47 cubic yards of ASTM #57 crushed stone aggregate for use beneath the Site cellar slab as gas permeable aggregate in compliance with the RAP and in accordance with applicable laws and regulations.

22. Submitted daily and weekly reports during construction oversight activities. Daily reports were submitted from April 14, 2022 to June 6, 2022. Due to work delays resulting from required geotechnical re-designing, intrusive work was performed intermittently after June 6, 2022. Daily reports were submitted on October 25, 2022 and 26, 2022, from November 8, 2022 to December 2, 2022, and from January 20, 2023 to January 24, 2023. In between periods of daily intrusive activities, weekly reports were submitted from June 6, 2022 to August 24, 2023.

23. Submitted a Sustainability Report.

24. 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.

25. 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 July 31, 2024 (for the reporting period calendar year 2023-2024), July 31, 2025 (for the reporting period calendar year 2024-2025) and every 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.

26. 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 restricted 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 Ezra Stobbe.

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 April 14, 2022 to June 9, 2022 as well as intermittently between July 27, 2022 and January 24, 2023, in compliance with the Community Air Monitoring Plan in the approved RAWP. The results of Community Air Monitoring are shown in Appendix 4 and Appendix 3 field reports. Describe CAMP exceedances and corrective actions implemented

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

Due to delays in construction resulting from required geotechnical re-designing in the northeastern section of the Site, intrusive activities were halted in early June 2022 and were performed intermittently between October 2022 and January 2023. TRC was on-Site to perform CAMP and oversee all excavation, excavated media segregation and stockpiling, backfilling, and soil loading activities.

Proposed in the RAP was the installation of a 60 mil Liquid Boot vapor/moisture barrier system below the slab throughout the full building area and outside all sub-grade foundation sidewalls to grade. A 20-mil polyethylene vapor barrier was installed during construction activities. Due to the installation of an active SSDS and minimal contamination noted in end-point samples, it was concluded that a 20-mil vapor barrier was sufficient. OER was not notified and did not review or approve the vapor barrier deviation from RAP. The certifying Engineer notes that the installed vapor barrier in conjunction with an active SSDS is protective of building occupants by preventing sub-slab vapors from entering the building.

Six *in situ* grab end-point samples were collected at the Site during the Remedial Investigation. Soil samples were collected at a depth of 14-16 feet bgs representing the Site development depth. Because native soils were observed from approximately 7 feet bgs to the proposed terminal depth of the excavation it was determined by the Engineer that these samples are indicative of material at the terminal excavation depth. Therefore no endpoint samples were collected during excavation activities.

ASTM #57 stone was used as gas permeable aggregate. While the material installed contained significant particle size fractions less than that in the approved RAWP, the material exhibits sufficient void space to propagate vacuum throughout the sub-slab of the building. The certifying Engineer verifies that this material is suitable for its intended use as gas permeable aggregate. 95% of the material passed the ¾” sieve, 38.9% of material passed the ½” and 12.1% of material passed the 3/8” sieve.

4.0 REMEDIAL PROGRAM

4.1 PROJECT ORGANIZATION

Principal personnel who participated in the remedial action include Kevin Boger, P.E., of TRC Engineers, Inc., who is the Qualified Environmental Professional and the Professional Engineer (PE) for this project (P.E. # 096717). The developer for which remedial action was performed for was Civic Sherman, LLC. The general contractor was Noble Construction Company, the contractor for remedial excavation, vapor barrier installation, and composite cover installation at the Site was Capstone Contracting Corp, and the contractor for SSDS installation was Headquarter Mechanical, Inc.

4.2 SITE CONTROLS

Site Preparation

Prior to initiating excavation activities performed as part of the remedial action, the following site preparation activities were performed:

- Equipment mobilization;
- Installation of 8 feet tall plywood, privacy and security fencing around the Site;
- Erosion and sedimentation controls;
- Utility marker layout;
- Acquisition of agency approvals.

An OER Project Notice and City of New York Department of Buildings permitting were erected at the project entrances and were in place during all phases of the Remedial Action.

Soil Screening

Visual, olfactory and PID soil screening and assessment were performed under the supervision of a Qualified Environmental Professional. Soil screening was performed by TRC during invasive work performed during the remedy and development phases prior to issuance of the Notice of Satisfaction. No indications of petroleum contaminated soil or any other contamination were identified during remedial excavation activities, soil loading, or investigation of imported stone backfill.

Stockpile Management

The primary material types excavated from the Site were historic fill from 0-7 feet below ground surface (bgs), and medium dense sand with small amounts of silt and gravel from 7-14 feet bgs. Any excavated material stockpiles were present at least 50 feet from the nearest property boundary in order to limit runoff of excavated material from the Site. The majority of material offloaded from the Site was direct loaded for disposal. Because historic and natural fill were the only excavated material type at the Site, no additional methods of segregation or stockpile protection were implemented.

Truck Inspection

During the extent of loading of excavated material into tri-axle dump trucks for offsite disposal, trucks were loaded on the asphalt covered area of Cleveland Street, or the northeastern site entrance on Pitkin Avenue. The loading area on Cleveland Street was segregated from traffic and pedestrians via flaggers and heavy-duty jersey barriers during loading activities. Once loaded, each truck was inspected and cleaned, if necessary, to ensure no soil would be tracked through the surrounding community.

Site Security

The Site was completely surrounded with 8 feet tall, plywood fencing. Entrances were monitored during the performance of work and locked at the completion of each workday. Onsite security staff was present to monitor the Site from 3:30pm-7am on each working day and 24 hours on days of no work (i.e., weekends, holidays).

Nuisance Controls

Dust and odors produced onsite were monitored by the CAMP implementation. No

complaints were received during the remediation activities at the Site. The Remedial Action was achieved nuisance-free.

Reporting

Daily reports providing a general summary of activities for each day of active remedial work were uploaded to the OER website on a daily basis.

Daily reports included:

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

All daily, weekly and monthly reports and photographs of the Remedial Action are included in Appendix 3. Digital photographs of the Remedial Action are included in Appendix 5.

4.3 MATERIALS EXCAVATION AND REMOVAL ACTION

Soil/Fill Excavation and Removal

Soil was removed to a depth of 14 feet bgs across the entire Site. In accordance with the Site development plans, the locations of future building footings, utility trenches, and an elevator shaft were excavated to depths ranging from 14-20 feet bgs. A map showing the approximate locations where excavations were performed and approximate thickness of excavated material is shown in Figure 5. A total of 6,752 cubic yards of soil/fill were excavated and removed from the Site. Material removed from the property under this Removal Action is generally classified as follows: historic fill, 2,642 cubic yards; non-

hazardous soil, 2,006 cubic yards; clean native soil, 2,106 cubic yards. The quantity of soil recycled using the NYC Clean Soil Bank is 2,106 cubic yards. The Removal Action was performed under the oversight of Kevin Boger P.E.

A map showing the approximate locations where excavation was completed and approximate depths of excavations is shown in Figure 5. The disposal facility waste profiles and requests, the Historic Fill Notification Forms, and facility approval letters are provided in Appendix 6. Shipping and disposal manifests are provided in Appendix 8.

Removal Action

Following completion of demolition activities, as detailed in "Demolition" section below, excavation activities began. Excavated soil/fill was direct loaded into tri-axle dump trucks for offsite disposal. Approximately 6,752 cubic yards of soil/fill were removed from the Site and properly disposed of. For waste classification purposes, the excavation area was divided into four grid boxes (A, B, C, and D) and classified in 3 depth intervals (0-7 feet bgs, 7-12 feet bgs, and 12-17 feet bgs). Material from each grid and interval was properly disposed of off-Site at approved facilities in accordance with waste characterization sample data taken from each interval. No indications of petroleum contaminated soil or any other contamination were identified during excavation activities, so no hotspot removal was performed.

Removal Action Performance Criteria

Excavation depths across the Site were determined based on the installation depths of footings, sub-grade beams, or an elevator pit for the Site development. A map showing the approximate excavation area is presented as Figure 5. No hotspot removal or additional excavation to reach acceptable end-point locations was performed.

Material Type

Material encountered during the removal action is as follows: 0-7 feet below grade: historic fill consisting of medium dense brown sand with brick, construction debris, concrete, 7-20 feet below grade: native soil consisting of medium dense brown sand.

Onsite Reuse

Upon completion of excavation activities, it was proposed to reuse soil from onsite to backfill behind the northern and western foundation walls. The soil was a result of excavation for footing installation and utility trenching at 14-20 feet below grade. TRC prepared and submitted a Soil Reuse Memo, dated November 11, 2022 to detail the grid location of the soil proposed to be reused onsite and summarize waste characterization results for the grid. The waste characterization results achieved Track 4 SCOs, in accordance with the RAWP. The full Soil Reuse Memo is included in appendix 1. OER acceptance was given on 11/30/22.

Approximately 75 cubic yards of material resulting from footing installations in the northeast corner of the Site, known as Grid B, at a depth of 14-17 feet below the ground surface (bgs) was reused to backfill behind foundation walls onsite. The reused material consisted of medium density brown sand. The material is represented by pre-construction waste characterization soil sample TRC-COMP-GRIDB (12-17) and associated grab samples collected for volatile organic compounds (VOCs) in Grid B. results of the waste characterization samples from Grid B confirm the reused soil meets the Site-Specific SCOs as defined in the RAWP as well as Restricted Residential RUSCOs. A map showing the approximate excavation area and locations of end-point soil samples is presented as Figure 4. End-point analytical results are presented in Tables 1 through 5. The table below presents quantities and locations of soil reused as backfill.

Material Source	**Description of Material**	**Location of Reuse as Backfill**	**Approximate Material Quantity**
Grid B, 14-17 feet bgs	Medium density brown sand	Northern edge of site, between SOE and foundation	50 Cubic Yards
Grid B, 14-17 feet bgs	Medium density brown sand	Western edge of site, between SOE and foundation	25 Cubic Yards

UST Removal

No UST removal was associated with this site.

NYSDEC Petroleum Spills

No NYSDEC Petroleum Spills are associated with the Site.

Dewatering

Groundwater was not encountered during Remedial Activities. No dewatering was performed during the Site work.

Demolition

Prior to redevelopment, the Site was developed with one 9,600 sf one-story building spanning Lot 15 and 19. There was a partial cellar in the northwestern portion of the Site building. Demolition activities were performed from September 2021 to March 2022. Demolition work performed below grade included removal of the building slab, portions of the existing concrete and brick foundation, and partial cellar. Demolition activities were performed using hand-held tools and mechanical assistance (i.e. excavator equipped with concrete breaker attachment). No hotspots removal or other excavation was completed as part of the below grade demolition activities. Site demolition and construction activities were performed in accordance with New York City Department of Buildings permits No. 322090660-01-DM and 322090660-01-EQ OT.

Soil Cleanup Objectives

The soil cleanup objectives for this Remedial Action are Site Specific (Track 4) SCOs. The following Track 4 Site-Specific SCOs were utilized for this project:

Contaminant	**Site-Specific SCO's**
Total SVOCs	100 ppm
Lead	800 ppm
Mercury	1.2 ppm
Barium	650 ppm

End Point Sample Results

The selected Track 4 SCOs for this Site were achieved for all analytical objectives. Samples at the terminal depth of the excavation were collected during remedial activities. All Site soils at the terminal depth were characterized as native soils. A discussion of sampling and results can be found below.

Number of End Point Samples

Six *in situ* grab end-point samples were collected at the Site during the Remedial Investigation. Soil samples were collected at a depth of 14-16 feet bgs, representing the Site development depth. Soil sample analysis data from end-point samples collected beneath the Site building did not exceed Track 4 SCOs; therefore, no additional soil removal past the bottom of excavation was necessary. The post-excavation samples proposed in the RAWP were not completed, see Section 3.5.

Sampling Depths

All six grab end-point soil samples were collected at a depth of 14-16 feet below the adjacent street grade at the 2400 Pitkin Site during the Remedial Investigation.

Sample Location

The six grab end-point soil samples were collected at the approximate sampling locations proposed in the RAWP and Stipulation List. The sample locations were selected to provide spatial coverage of the Site and confirm soil sample results from previous investigation soil sampling. Soil samples were collected directly into laboratory supplied sampling containers.

End Point Analytical Methods

End point samples were analyzed for VOCs, SVOCs, metals, polychlorinated biphenyls, herbicides, and pesticides. The samples were properly labeled and transported via courier to Eurofins of Springfield, MA for analysis. Eurofins is a NYSDOH Environmental Laboratory Approval Program (ELAP) certified analytical laboratory. The original lab data report is included in Appendix 10.

End Point Sample Comparison to SCOs

End point sample results were compared to Track 4 Site Specific SCOs established in the RAWP. The following Track 4 Site-Specific SCOs were utilized for this project:

Contaminant	Site-Specific SCO's
Total SVOCs	100 ppm
Lead	800 ppm
Mercury	1.2 ppm
Barium	650 ppm

A map of end-point samples is shown as Figure 4. Tabulated end-point analytical results data compared to SCOs is presented in Table 1 through Table 5. Full laboratory analytical data reports are included in Appendix 10. As summarized in the data tables, no end-point sample exceeded the standards set forth in the Site-specific Track 4 SCOs. Therefore, all Track 4 SCOs were achieved.

The data was validated in accordance with USEPA Region II Data Review Standard Procedures (SOPs) by a qualified independent validator. The Data Usability Summary Reports (DUSRs) are presented in Appendix 10.

4.4 MATERIALS DISPOSAL

Soil removed from the Site was disposed of at Evergreen Recycling of Corona (EROC) located in Flushing, NY and Yannuzzi Group, Inc. (Yannuzzi), located in Edison, NJ. A portion of the soil removed from the site was recycled at the NYC OER Clean Soil Bank (CSB), located in Brooklyn NY.

Request Letters to Soil Disposal Facilities and Waste Characterization Data

Prior to disposal of excavated soil, a waste profile was completed in order to receive pre-disposal approval of excavated soil. Additionally, results of waste characterization soil sampling and the OER Historical Fill Notification Form were sent to each facility. The profile and pre-disposal correspondence for EROC, Yannuzzi, and OER CSB facilities are included in Appendix 6. The pre-disposal waste characterization data is provided in Appendix 7 and full Waste Characterization Report is provided in Appendix 1.

Approval Letters from Soil Disposal Facilities

The soil disposal approval letters from EROC, Yannuzzi, and OER CSB stating that they are licensed or permitted to receive the onsite material are provided in Appendix 6.

Waste Disposal and Trucking

A summary of the soil/fill types, disposal quantities and disposal facility names and addresses are presented in the table below. Letters from Civic Sherman, LLC to disposal facility providing materials type, source and data, and acceptance letters from disposal facility stating it is approved to accept above materials are attached in Appendix 6. Manifests are included in Appendix 8. Waste characterization report is presented in Appendix 1. A table of individual truck transport and material disposal quantities is included in Table 6.

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

Disposal Location/Address	Type of Material	Approximate Quantity
Yannuzzi Group Inc. 327 Meadow Rd., Edison NJ NJDEP Facility No. 132324	Non-Hazardous Soil/Fill	2,642 Cubic Yards
Evergreen Recycling of Corona 127-50 Northern Blvd, Flushing NY NYSDEC Permit No. 41W93	Non-Hazardous Soil/Fill	2,006 Cubic Yards

NYC OER Clean Soil Bank Stockpile 830 Forbell St, Brooklyn NY OER Site No. #22CCSB067	Clean Soil	2,106 Cubic Yards

4.5 BACKFILL IMPORT

Soil backfill was not imported to the site during this Remedial Action or development. Approximately 47 cubic yards of clean virgin crushed stone aggregate was imported to the Site for use beneath the Site cellar slab as gas permeable aggregate. The stone was imported from Tilcon New York Inc.'s Mt. Hope Quarry, located at 625 Mt. Hope Rd., Wharton NJ. Stone backfill receipts, clean virgin fill certifications, and sieve analysis for imported material is provided in Appendix 9. The certifying Engineer verifies that this material is suitable for its intended use as gas permeable aggregate. 95% of the material passed the ¾" sieve, 38.9% of material passed the ½" and 12.1% of material passed the 3/8" sieve. While the material installed contained significant particle size fractions less than that in the approved RAWP, the material exhibits sufficient void space to propagate vacuum throughout the sub-slab of the building.

4.6 DEMARACTION

Soil below the engineered composite cover is residual soil that will be addressed by Site Management Plan 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 three primary Engineering Control Systems. These are:

(1) Composite Cover System;

(2) Vapor Barrier System;

(3) Active Sub-Slab Depressurization System.

Composite Cover System

Exposure to residual soil/fill is prevented by an engineered Composite Cover System that has been built on the Site. Cover for the 4-inch concrete sidewalk consisted of a 4-inch concrete sidewalk above a 6-inch coarse aggregate, NYDOT Type 1 Grade B and stable compacted subgrade. Composite cover for the 7-inch concrete sidewalk consists of 2-inch concrete sidewalk followed by welded wire fabric, 5-inch concrete sidewalk, 6-inch coarse aggregate, NYCDOT Type 1 Grade B, and stable compacted subgrade. Typical slab on grade consists of a 5-inch concrete slab followed by 20-mil polyethylene vapor barrier, 6-inch ASTM #57 stone layer, and undisturbed soil. The composite cover system serves to prevent human exposure to residual soil/fill remaining under the Site. The Contractor for the cover construction was Capstone Contracting Corp.

Figure 8 shows the as-built design for each cover type used in the Composite Cover System on this Site. Figures 7A and 7B show a map of the location of each Composite Cover System type built at the Site. Photographs of the constructed Composite Cover System are included in Appendix 3 daily reports and in Appendix 5 Photos.

Vapor Barrier System

Exposure to soil vapor is prevented by a vapor barrier system that has been integrated into the school construction. The vapor barrier system for the Site building consists of a 20-mil Stego Wrap polyethylene vapor barrier installed between the 6-inch ASTM #57 stone layer and the 5-inch concrete slab including foundation walls to grade.

The professional engineer for the vapor barrier system was Kevin Boger. The contractor for the vapor barrier system was Capstone Contracting Corp.

Figures 9, 10, and 11 show as-built engineering diagrams for the Vapor Barrier and SSDS at the Site. Photographs of installation of the Vapor Barrier are included in daily reports provided in Appendix 3 and in Appendix 5 Photos.

Active Sub-Slab Depressurization System

Exposure to soil vapor is prevented by a Sub-Slab Depressurization System (SSDS) that has been built on the Site. This SSDS consists of a horizontal network of slotted 4-inch Schedule 40 PVC piping laid within the 6-inch layer of ASTM #57 stone underneath the building slab (see Section 3.5). The sub-slab slotted piping is aligned horizontally below the building slab and exits the slab through one 6-inch Schedule 40 PVC pipe which transitions to galvanized steel piping aligned vertically through the building to convent vapors above the roof of the building. An Obar Systems GBR89 Compact Radial Blower vacuum blower was installed inline on the roof level and an alarm system and manometer were installed in an accessible area in the Data/Telecom Room to enable measurement of the vacuum pressure established by the system. Fan accessories (pressure gauge, sample tap, etc.) were installed in the SSDS piping locally at the roof, and a pressure switch was installed in the SSDS riser at slab level. The SSDS fan will be in operation at all times. The SSDS was designed and properly installed to establish a vacuum in the gas permeable layer and a negative (decreasing outward) pressure gradient across the building slab to prevent vapor migration into the building. The design engineer for the active SSDS is Kevin Boger. The contractor for construction of the active SSDS was Headquarters Mechanical, Inc. The PE for the Remedial Action has inspected the system and confirmed that the effluent discharge point is a minimum of 10 feet from any operable window or air intake for any building. The SSDS has been connected to the Building Management System (BMS). Upon startup, vacuum gauge readings were noted and proper functioning of alarm lights were noted.

As-Built Engineering Drawings/Diagrams

As-built engineering diagrams and drawings for the composite cover systems, SSDS and vapor barrier are provided as Figure 9 through Figure 11. The identity and position of all SSDS and vapor barrier elements are included in the diagrams and drawings.

Pressure Gauges and Alarms

Pressure gauge and alarm system are located between the blower and the SSDS piping. The pressure gauge and alarm indication station are present in the mechanical rooms of the school building. The Model AIS - Kele Alarm Indication Station is utilized for the one (1) blower. The system uses a Wika pressure gauge Model 612.20, industrial series. Manufacturer documentation is presented in Appendix 11.

Blower

The blower utilized as part of the SSDS system is located on the roof of the Site building. The blower is an Obar Systems GBR89 Compact Radial Blower vacuum blower. Manufacturer documentation is presented in Appendix 11.

Photographs

Photographs of the as-built SSDS system, including the piping alignment prior to pouring of the slab and the blower, piping, piping labeling, pressure gauge, discharge points, and alarm systems and pressure test process and results are included in Appendix 3, as part of OER daily inspection reports prepared for the Site and in Appendix 5 Photos. The discharge points of effluent from the Active SSDS are greater than 10 feet from an operable window or air intake for the building.

Sub-Slab Vacuum Pressure Testing and Sampling Ports

Four (4) SSDS sampling ports are installed in the Site building. The sampling ports are permanent 4” diameter cleanouts flush with the finished floor and will be used to monitor the performance of the SSDS. Pressure testing was performed following the installation of Active SSDS system. Measurable vacuum influence was observed at all four (4) SSDS sampling ports. Vacuum pressure readings ranged from -0.626 inches H_2O to

-3.34 inches H_2O. The vacuum pressure testing results are presented in Table 7 and the SSDS monitoring point locations are shown on Figure 10.

P.E. Inspection

Following completion of the SSDS installation, inspection of the Active SSDS, including the piping system layout, was performed by a representative of the P.E. on 7/28/2023 and 8/24/2023. Based on the inspection findings, it was determined that the system is operating properly and the building is fit for occupancy. Summaries of the system inspections are provided in the July 28, 2023 and August 24, 2023 OER daily reports, located in Appendix 3.

Training

On 8/24/2023, a training session was held with the representative of the remedial PE and the building superintendent staff who is responsible for performing the monthly SSDS inspections. The meeting was attended by Robert Bowden of TRC as well as Jason Giattino of Ashtin Group, Inc. (Ashtin), the building's property management company. Inspection checklists to be executed by building superintendent staff are presented in Appendix 11. These checklists are maintained on site in a file that is available for inspection by OER.

Post-Construction Meetings

A Post-Construction Meeting with the OER project team (Zach Schreiber and Kestana Anokye) was held on September 5, 2023, to discuss the remedial actions performed, engineering controls implemented, the training of building superintendent staff, and the performance of monthly inspections and inspection certifications by building superintendent staff. The meeting was also attended by representatives of Civic Builders, Ashtin Group, and TRC.

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. Adherence to these Institutional Controls is required by the Declaration of Covenants and Restrictions recorded with the deed for this property and will be implemented in accordance with the Site Management Plan included in this RAR.

Institutional Controls for this property are:

(1) Recorded an OER-approved Declaration of Covenant and Restrictions (DCR) with the deed with the Brooklyn County Clerk. The recorded DCR is included in Appendix 12. The DCR includes a description of all ECs and ICs, summarizes the requirements of the Site Management Plan, and notes that the 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 on an annual basis;

(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 restricted residential use as a charter school 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 three Engineering Control Systems. Engineering Controls for this property are:

1. Composite Cover System;
2. Vapor Barrier System;
3. Active Sub-Slab Depressurization System.

Operation and Maintenance of Composite Cover System

Section 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

Section 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.

Operation and Maintenance of Active Sub-Slab Depressurization System

Section 5 describes the Active Sub-Slab Depressurization System utilized in this Remedial Action and provides as-built design details and the system location. The SSDS

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 Active SSDS will be operated and maintained as prescribed below.

The SSDS will be regularly inspected and maintained to ensure that it is functioning as designed. It is the responsibility of the school Custodial staff to inspect the SSDS on a monthly basis and after a severe condition (e.g., major storm event, power outage, etc.), as well as to notify the Professional Engineer of any problems with the system. The Custodial staff is responsible for routine and preventative maintenance of the SSDS to ensure that the system operates properly. Monthly and annual inspection checklists will be implemented as part of the Site Management Plan. In addition, the facility's Professional Engineer will conduct detailed annual inspection of the SSDS, inspections after severe weather events or emergencies, and for annual training. The facility's independent Professional Engineer will be responsible for presenting a report of annual inspection findings to OER. Routine and preventative maintenance, monthly or severe condition, and annual inspection forms are included in the Engineering Controls Operation and Maintenance Plan located in Appendix 11. SSDS inspection activities will include the following tasks:

- Inspect the roof top piping, suction fan, and roof top accessories for evidence of damage. In the event of a change from previous conditions, log the information in the logbook and monthly inspection form and immediately request an inspection from the Professional Engineer.
- In the event that a fan component fails, the component will be replaced. A spare fan will be available on-site for immediate replacement in case of fan failure.
- Identify any maintenance or repair activity that could affect the lowest level slabs, SSDS piping, or rooftop components.
- Log the information in the logbook and monthly inspection forms.

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. Adherence to these Institutional Controls is required under the Site Management Plan established for this Remedial Action and the Declaration of Covenants and Restrictions recorded with the deed for this property and 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. A deed restriction will be placed on the property to document the installation, and continued operation, of an active SSDS. The deed restriction can be removed if OER determines that the active SSDS has achieved its goals and is no longer warranted;
3. 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 a written statement that certifies that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by OER; and (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. OER retains the right to enter the Site to evaluate the continued maintenance of any controls. This certification shall be submitted at a frequency to be determine by OER in the SMP and will comply with RCNY §43-1407(l)(3) a written statement that certifies that: (1) controls employed at the Site are unchanged from the previous

certification or that any changes to the controls were approved by OER; and (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. OER retains the right to enter the Site to evaluate the continued maintenance of any controls. This certification shall be submitted at a frequency to be determine by OER in the SMP and will comply with RCNY §43-1407(l)(3);

4. Engineering Controls will not be discontinued without prior OER approval;
5. OER has the right to enter the Site upon notice for the purpose of evaluating the performance of ECs and ICs;
6. Vegetable gardens and farming in residual soil/fill on the Site are prohibited;
7. Use of groundwater underlying the Site without treatment rendering it safe for its intended use is prohibited;
8. 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;
9. The Site is intended to be used for restricted commercial use as a charter school 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

- Inspections will include visual evaluation of all accessible system components. Evidence of active invasive activity through the cover system, or past invasive activity, such as patches and repairs, will be evaluated and photographs will be taken to document findings.

Inspection of Vapor Barrier System

- Inspections will include visual evaluation of all accessible system components. Photographs will be taken to document findings.

Inspection of Active Sub-Slab Depressurization System

- Inspection of the SSDS blower fan will include inspection of butterfly valves, confirmation that maximum vacuum is not being exceeded, disconnection, lock out, and tag of fan electrical power source, inspection of fan enclosure, inspection of inlet filter, inspection of inlet and outlet ductwork flex joints, inspection of fan stack guy wires, and inspection of fan mounting and vibration isolators.
- Inspection of the floor slab of the lowest level of the building to check for cracks, visible openings, or any construction activities affecting the building floor.
- Inspection of the roof for any rust or other debris in or on the SSDS exhaust stacks.

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 the restricted 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 annually. Inspection and Certification Letter Reports will be submitted by July 31, 2024 (for the reporting period calendar year 2024, July 31, 2025 (for the reporting period calendar year 2025) and every year thereafter. Inspection and Certification Reports will cover the calendar year 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 the restricted residential use addressed by the Remedial Action;
- If site records are complete and up to date; and
- If the Site continues to have an OER-approved Declaration of Covenants and Restrictions recorded with the property deed by the Brooklyn County Clerk.

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.

Truck routing took 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.

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.

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 (NYCDEP). The NYCDEP 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. Exceedances 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 µg/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 µg/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 µg/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 SVOCs, 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 Kevin Boger, who is the Qualified Environmental Professional. 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
Kevin Boger, PE Qualified Environmental Professional	(212) 221-7822
Office of Environmental Remediation	(212) 788-8841; 311
Ashtin Group Building Manager	JGiattino@ashtingroup.com
Achievement First Property Owner	LeilaColbert@achievementfirst.org

8.0 SUSTAINABILITY REPORT

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

Reduced Energy Consumption and Promotion of Greater Energy Efficiency. Reduced energy consumption lowers greenhouse gas emissions, improves local air quality, lessens in-city power generation requirements, and can lower traffic congestion and provide substantial cost savings. The following means were used to reduce energy consumption in this project: No backfill sand was imported to the Site as part of the redevelopment plan. Locally derived stone and aggregate materials were used to minimize truck transportation necessary.

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. Future contamination of soil and groundwater from spills on the property is prevented by a site-wide Composite Cover System. A Vapor Barrier System and Sub-Slab Depressurization System also prevent migration of off-site vapors into the occupied structure. The area of the Site that utilizes recontamination controls under this plan is 100%.

Paperless Brownfield Cleanup Program. Civic Sherman, LLC 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 25 pounds.

Low-Energy Project Management Program. Civic Sherman, LLC 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 250 miles.