

1159 River Avenue

Bronx, New York

Remedial Action Report

NYC VCP Project Number 20CVCP036X

E-Designation Project Number 19EHAN142X

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List of Acronyms

Acronym	Definition
CAMP	Community Air Monitoring Plan
DER	NYSDEC Division of Environmental Remediation
DER-10	DER-10 / Technical Guidance for Site Investigation and Remediation
DUSR	Data Usability Summary Report
EC	Engineering Control
HASP	Health and Safety Plan
NYC VCP	New York City Voluntary Cleanup Program
NYSDEC	New York State Department of Environmental Conservation
ORC	Oxygen Release Compound
PCBs	Polychlorinated Biphenyls
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
SOP	Standard Operating Procedures
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVOCs	Semi-volatile Organic Compounds
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

Certification Statement(s)

I, Daniel Bellucci, P.E., certify the following:

- I am currently a registered professional engineer licensed by the State of New York.
- I performed professional engineering services and had primary direct responsibility for implementation of the remedial program for the 1159 River Avenue Site, Site Numbers 19EHAN142X and 20CVCP036X.
- I have reviewed this document, to which my signature and seal are affixed.
- The vapor barrier and composite cover system (implemented as part of construction) constructed during this remedial action were designed by me or a person under my direct supervision and achieve the goals established in the Remedial Action Work Plan for this Site.
- The vapor barrier and composite cover system (implemented as part of construction) 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 November 26, 2019 and Stipulations in a letter dated October 30, 2019 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: Daniel Bellucci

PE License Number: 099470

Signature: 

Date: May 8, 2023



I, Victoria Panico, certify the following:

- I am a Qualified Environmental Professional. I had primary direct responsibility for implementation of the remedial program for the 1159 River Avenue Site, Site numbers 19EHAN142X and 20CVCP036X.
- The OER-approved Remedial Action Work Plan dated November 26, 2019 and Stipulations in a letter dated October 30, 2019 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.

Signature:



, CHMM

Date : May 8, 2023

EXECUTIVE SUMMARY

Community Access has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 1159 River Avenue in the West Concourse section of Bronx, New York. A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP). A remedial action was performed pursuant to the Office of Environmental Remediation (OER)-approved RAWP in a manner that has rendered the Site protective of public health and the environment consistent with the proposed use of the property. This RAR describes the remedial action performed under the RAWP. The remedial action described in this document provides for the protection of public health and the environment and complies with applicable environmental standards, criteria and guidance, and applicable laws and regulations.

Site Location and Background

The Site is located at 1159 River Avenue in the West Concourse section of Bronx, New York and is identified as Block 2496 and Lot 73 on the New York City Tax Map. Figure 1 shows the Site location. The Site is a 24,165 square feet (SF) parcel with 180 feet of frontage on the western side of River Avenue. The Site previously contained four, one-story commercial buildings, each containing multiple garage units, separated by paved (concrete and asphalt) parking areas. The property was first developed as early as circa 1931 for commercial purposes, including a filling station and automotive repair and private garages, which are shown on historical maps as late as 2007. The most recent activities at the property included multiple commercial uses (including automotive repair) and storage until the spring of 2019 when the Site was vacated. Former on-Site commercial buildings were demolished in July 2020. The Site Boundary Map is shown in Figure 2.

Summary of Redevelopment Plan

The development project consisted of the demolition of on-Site buildings and the construction of a new nineteen-story, mixed-use (commercial and residential) building with a partial cellar. The entire Site was excavated to bedrock to facilitate construction activities. The layout of the Site development is presented in Figure 3. The current zoning designation is R9A/R8 and C2-4, denoting it as a residential district with a commercial overlay. Site use is consistent with existing zoning for the property.

The footprint of the new building covers the entire Site (there are no open space areas). The cellar, which underlies approximately 90% of the first floor, is used for commercial storage space, mechanical rooms and a bicycle storage room. A ramp accessing the commercial loading area in the cellar is located along at the northern edge of the on-Site building. The remainder of the first floor contains a commercial space and commercial loading area (18,933 SF), and a residential lobby at the southeastern portion. The second floor contains two outdoor terraces at the eastern and western sides (including community dining, seating, and play areas, therapy trail, and several planted areas), offices, community areas (including an art studio, dining room, computer room and restrooms), and a laundry room. The remaining upper floors consist of 241 residential units (128 studios, 40 one-bedroom units, 56 two-bedroom units, and 17 three-bedroom units). The total square footage of interior space is 201,165 feet.

The maximum depth of excavation was approximately 23 feet below surface grade (bsg) within the areas of the elevator shafts (extending approximately 10 feet below the cellar slab level). Excavation for the basement was extended approximately 13 feet bsg and excavation within the slab-on-grade portion of the building was extended to approximately 4 feet bsg. The ramp at the northern border of the Site was excavated to depths ranging from 4 feet bsg (eastern portion) to 13 feet bsg (western portion). A total of approximately 21,599 tons of soil/fill material and approximately 1,690 tons of bedrock were excavated and removed from the Site to facilitate construction. The water table is present at a depth greater than 30 feet bsg at the Site; therefore, dewatering was not required during excavation.

The building footprint, cellar portion, commercial space and ramp are shown in the Site Development Plan in Figure 3.

Summary of Description of Surrounding Property

The subject property is located in an urban, mixed-use area comprised primarily of multi-family residential and retail commercial properties. The Site is adjoined by a parking lot to the north, an active construction site (across River Avenue) and an elevated MTA subway (above River Avenue) to the east, mixed-use (residential and commercial) buildings to the south and southwest, and a multi-family residential building to the northeast. The surrounding area primarily consists of commercial uses including parking to the north; mixed-use and multi-family residential uses to the east and west; and Mullaly Park and multi-family residential uses to the south. A public school at 1155 Cromwell Avenue, PS 114, is located approximately 200 feet to the west of the Site. No other sensitive receptors (e.g., schools, hospitals and day care facilities) are within a 250- to 500-foot radius of the Site, according to OER's SPEED database.

Summary of Past Site Uses and Areas of Concern

WCD Group, LLC (WCD), now GBTS, prepared two Phase I Environmental Site Assessment (ESA) reports dated November 3, 2017 and June 27, 2018. According to these Phase I ESAs, the property was undeveloped as early as 1909 and was developed as early as 1931 for commercial purposes, including a gasoline station, automotive repair and private garages.

The Areas of Concern (AOC) identified for this Site included:

1. Four suspected on-Site underground storage tanks (USTs);
2. Localized, elevated tetrachloroethylene (PCE) levels in soil vapor at the northeastern portion of Site (SV-01 and SV-08);
3. Poor quality urban fill of unknown volume across the Site; and,
4. Potential impacts from a former dry cleaner at an eastern adjoining property.

Summary of the Work Performed Under the Remedial Investigation

1. WCD conducted two Phase II investigations in April and June 2018, and installed 20 soil borings and 3 soil vapor probes;
2. As part of the March 2019 RI, conducted a Site inspection to identify AOCs and physical obstructions (i.e., structures, buildings, etc.);
3. Installed seven soil borings in January 2019 beneath the former parking areas and building slabs, and collected seven soil samples for chemical analysis to evaluate soil quality;
4. Attempted to install one groundwater monitoring well at the Site to evaluate groundwater quality in February 2019 (note: due to refusal from shallow bedrock in multiple soil borings, a well was not installed); and,
5. Installed five soil vapor probes in January 2019 and collected five vapor samples for chemical analysis.

Summary of Findings of Remedial Investigation

A remedial investigation was performed in accordance with an OER-approved Work Plan. The Remedial Investigation Report (RIR; October 2019) documented the following on-Site conditions:

1. Elevation of the property ranges from 40 to 42 feet.
2. Groundwater was not encountered in soil borings at the Site to a maximum depth of 28 feet bsg (monitoring wells could not be installed).
3. Depth to bedrock ranges from 4 to 16 feet bsg across the Site.
4. The stratigraphy of the Site generally consists of fill material from the ground surface to approximately 1 to 12 feet bsg, primarily consisting of sand with silt and gravel, commingled with varying amounts of construction debris (e.g., brick and concrete fragments). Native soils consisting of silty sands with varying percentages of gravel

and rock fragments were encountered beneath the fill layer at depths ranging from approximately 4 to 16 feet bsg. Highly weathered marble bedrock was encountered below this layer.

6. Soil/fill samples collected during the Site investigations (April and June 2018, and March 2019) were compared to New York State Department of Environmental Conservation (NYSDEC) Part 375 Table 375-6.8 Unrestricted Use (UU) Soil Cleanup Objectives (SCOs) and Restricted-Residential Use (RRU) SCOs. Soil samples showed the following (maximum values noted):

- No volatile organic compounds (VOCs) exceeded RRU or UU SCOs. PCE was detected at trace levels (0.017 ppm) in three samples.
- Semi-volatile organic compounds (SVOCs) exceeded RRU and/or UU SCOs in shallow soils (0-3 feet), including: benzo(a)pyrene (8.07 ppm); benzo(a)anthracene (6.64 ppm); benzo(b)fluoranthene (6.02 ppm); benzo(k)fluoranthene (6.24 ppm); chrysene (6.38 ppm); dibenzo(a,h)anthracene (1.53 ppm); and, indeno(1,2,3-cd)pyrene (4.94 ppm).
- Total polychlorinated biphenyls (PCBs) were detected above UU SCOs in one surficial-soil sample (0.105 ppm); PCBs were not detected in any other samples.
- No pesticides exceeded RRU or UU SCOs.
- No metals exceeded RRU SCOs. Metals above UU SCOs included: lead (248 ppm); chromium (37.8 ppm); mercury (0.366 ppm); selenium (18.9 ppm); and, zinc (215 ppm).

Laboratory data document contamination in shallow soils, including SVOCs above RRU SCOs, likely due to the presence of poor-quality urban fill.

7. Monitoring wells were not installed due to refusal on shallow bedrock. Based on local topographic conditions, groundwater flow is inferred to be westerly, toward the Harlem River.

8. Soil vapor samples and sub-slab vapor samples were compared to NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York –Decision Matrices (maximum values are noted below). PCE was detected in all soil vapor samples (244 $\mu\text{g}/\text{m}^3$) and in all sub-slab vapor samples (410 $\mu\text{g}/\text{m}^3$). Low levels of trichloroethene (TCE; 2.15 $\mu\text{g}/\text{m}^3$) and carbon tetrachloride (1.7 $\mu\text{g}/\text{m}^3$) were reported in several samples. Vinyl chloride and 1,1,1,2-tetrachloroethane were not detected in any samples. Petroleum compounds were reported at low levels.

For more detailed results, consult the RIR, provided in Appendix 1.

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 October 16, 2018.
- A Phase II ESA, Subsurface Investigation, and RI were performed from April 2018 to March 2019.
- A RI Report was prepared to evaluate data and information necessary to develop a RAWP. A Site Contact List was established.
- A draft RAWP was prepared and released with a Fact Sheet on October 17, 2019 for a 30-day public comment period.
- The RAWP dated October 26, 2019 and Stipulation List dated October 30, 2019 were approved by the New York City OER on October 31, 2019.
- Site briefings were conducted with NYSDEC on April 5, 2019.

- A Pre-Construction Meeting was held on June 22, 2020.
- A Fact Sheet providing notice of the start of the remedial action was issued on April 22, 2020.
- The remedial action began on July 13, 2020 and completed on July 20, 2022.

Appendix 2 contains the RAWP.

The remedial action consisted of the following tasks:

1. Prepared Community Protection Statement and implemented a Citizen Participation Plan.
2. Mobilized Site security and equipment (June 2020); completed utility mark outs; and marked and staked excavation areas.
3. Performed Waste Characterization Study prior to excavation activities. Twelve waste characterization soil samples were collected May 29, 2020. Waste characterization samples were collected at a frequency dictated by disposal facility(s).
4. Performed a Community Air Monitoring Program (CAMP) for particulates and volatile organic compounds, July 13, 2020 to May 6, 2021. Suppression measures were implemented as needed to control dust.
5. Selected NYSDEC Part 375 Track 2 Restricted-Residential Use SCOs.
6. Soil was excavated to the following maximum depths: 23 feet bsg for elevator pits; 13 feet bsg at the basement portion of the building (approximately 90 percent of the Site); 4 feet bsg at the slab-on-grade portions of the building; and, between 4 (eastern portion) and 13 (western portion) feet bsg at the ramp to the cellar at the northern border of the building. A total of approximately 21,599 tons of soil/fill material and approximately 1,690 tons of bedrock were excavated and removed from the Site.
7. Transported and disposed of waste material at permitted facilities in accordance with all applicable laws and regulations for handling, transporting, and disposing, and with the RAWP. The following materials were removed from the Site:

- 4,829.49 tons of regulated fill disposed at Hazleton Creek Properties, LLC facility, 282 South Church Street, Hazleton, Pennsylvania;
 - Approximately 16,770 tons of non-hazardous soil disposed at Keegan Landfill facility, 437 Bergen Avenue, Kearny, New Jersey;
 - Approximately 988 tons of clean rock disposed at Elmsford Virtual Quarry facility, 50 S. Warehouse Lane, Elmsford, New York; and,
 - Approximately 702 tons of clean rock disposed at Yannuzzi Materials Corporation facility, 327 Meadow Road, Edison, New Jersey.
8. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
 9. Conducted materials management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
 10. The entire Site was excavated to bedrock; therefore, no end-point samples were collected.
 11. Removed ten (10) USTs and two (2) hydraulic lifts in compliance with applicable laws and regulations.
 12. Remediated NYSDEC Petroleum Spill number 2005653, which was opened on September 21, 2020 during remedial excavation activities when a 2,000-gallon UST was observed to have several holes and field evidence of petroleum contaminated soil (staining, elevated PID readings and petroleum odors) was found in the tank grave. All petroleum impacted soil was removed from the Site.
 13. End-point samples collected from the base of the excavation and sidewalls of the USTs. End points results documented an absence of any significant residual contamination.
 14. As part of development, constructed an engineered Composite Cover System to prevent human exposure to residual soil/fill remaining under the Site. The cover

- system consists of a 6-inch reinforced concrete slab underlain by 6 inches of clean $\frac{3}{4}$ -inch crushed bluestone in the building area (the building footprint covers the entire Site). The contractor for the cover construction was New York Rock and Champ Construction.
15. As part of development, installed a Vapor Barrier System that consisted of a 20-mil Stego Wrap Vapor Barrier (manufactured by Stego Industries, LLC) beneath the building slab and a 56-mil MEL-ROL waterproofing membrane (manufactured by W. R. MEADOWS, INC.) up the foundation sidewalls. The contractor for the Vapor Barrier System was Joy Construction and Champ Construction.
 16. Performed all activities required for the Remedial Action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
 17. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.
 18. Imported material was used for backfill and cover in compliance with the Remedial Action Work Plan and in accordance with applicable laws and regulations. A total of 4,102.23 cubic yards of $\frac{3}{4}$ " clean bluestone was imported from Braen Stone Companies located at 217 Limecrest Road, Lafayette, New Jersey.
 19. Submitted daily reports during construction oversight activities. Daily reports were submitted from July 13, 2020 to July 20, 2022.
 20. Submitted a Sustainability Report.
 21. Submitted an RAR that describes the Remedial Action, certifies that the remedial requirements defined in the Remedial Action Work Plan have been achieved; defines the Site boundaries; and lists any changes from the RAWP.

REMEDIAL ACTION REPORT

1.0 SITE BACKGROUND

Community Access has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 1159 River Avenue in the West Concourse section of the Bronx, New York. The boundary of the property subject to this Remedial Action is shown in Figure 2 and includes, in its entirety, Borough of Bronx Block 2496 and Lot 73. The Remedial Action was performed pursuant to the Office of Environmental Remediation (OER)-approved Remedial Action Work Plan (RAWP) in a manner that has rendered the property protective of public health and the environment consistent with its intended use. This Remedial Action Report (RAR) describes the Remedial Action performed under the RAWP. The remedial action described in this document provides for the protection of public health and the environment and complies with applicable environmental standards, criteria and guidance (SCGs) and applicable laws and regulations.

1.1 Site Location and Background

The Site is located at 1159 River Avenue in the West Concourse section of Bronx, New York and is identified as Block 2496 and Lot 73 on the New York City Tax Map. Figure 1 shows the Site location. The Site is a 24,165 square feet (SF) parcel with 180 feet of frontage on the western side of River Avenue. The Site previously contained four, one-story commercial buildings, each containing multiple garage units, separated by paved (concrete and asphalt) parking areas. The property was first developed as early as circa 1931 for commercial purposes, including a filling station and automotive repair and private garages, which are shown on historical maps as late as 2007. The most recent activities at the property included multiple commercial uses (including automotive repair) and storage until the spring of 2019 when the Site was vacated. Former on-Site commercial buildings were demolished in July 2020. The Site Boundary Map is shown in Figure 2.

1.2 Redevelopment Plan

The development project consisted of the demolition of on-Site buildings and the construction of a new nineteen-story, mixed-use (commercial and residential) building with a partial cellar. The entire Site was excavated to bedrock to facilitate construction activities. The layout of the Site development is presented in Figure 3. The current zoning designation is R9A/R8 and C2-4, denoting it as a residential district with a commercial overlay. Site use is consistent with existing zoning for the property.

The footprint of the new building covers the entire Site (there are no open space areas). The cellar, which underlies approximately 90% of the first floor, is used for commercial storage space, mechanical rooms and a bicycle storage room. A ramp accessing the commercial loading area in the cellar is located along at the northern edge of the on-Site building. The remainder of the first floor contains a commercial space and commercial loading area (18,933 SF), and a residential lobby at the southeastern portion. The second floor contains two outdoor terraces at the eastern and western sides (including community dining, seating, and play areas, therapy trail, and several planted areas), offices, community areas (including an art studio, dining room, computer room and restrooms), and a laundry room. The remaining upper floors consist of 241 residential units (128 studios, 40 one-bedroom units, 56 two-bedroom units, and 17 three-bedroom units). The total square footage of interior space is 201,165 feet.

The maximum depth of excavation was approximately 23 feet below surface grade (bsg) within the areas of the elevator shafts (extending approximately 10 feet below the cellar slab level). Excavation for the basement was extended approximately 13 feet bsg and excavation within the slab-on-grade portion of the building was extended to approximately 4 feet bsg. The ramp at the northern border of the Site was excavated to depths ranging from 4 feet bsg (eastern portion) to 13 feet bsg (western portion). A total of approximately 21,599 tons of soil/fill material and approximately 1,690 tons of bedrock were excavated and removed from the Site to facilitate construction. The water table is present at a depth greater than 30 feet bsg at the Site; therefore, dewatering was not required during excavation.

The building footprint, cellar portion, commercial space and ramp are shown in the Site Development Plan in Figure 3.

1.3 Description of Surrounding Property

The subject property is located in an urban, mixed-use area comprised primarily of multi-family residential and retail commercial properties. The Site is adjoined by a parking lot to the north, an active construction site (across River Avenue) and an elevated MTA subway (above River Avenue) to the east, mixed-use (residential and commercial) buildings to the south and southwest, and a multi-family residential building to the northeast. The surrounding area primarily consists of commercial uses including parking to the north; mixed-use and multi-family residential uses to the east and west; and, Mullaly Park and multi-family residential uses to the south.

A public school at 1155 Cromwell Avenue, PS 114, is located approximately 200 feet to the west of the Site. No other sensitive receptors (e.g., schools, hospitals and day care facilities) are within a 250- to 500-foot radius of the Site, according to OER's SPEED database.

1.4 Summary of Past Site Uses and Areas of Concern

WCD Group, LLC (WCD), now GBTS, prepared two Phase I Environmental Site Assessment (ESA) reports dated November 3, 2017 and June 27, 2018. According to these Phase I ESAs, the property was undeveloped as early as 1909 and was developed as early as 1931 for commercial purposes, including a gasoline station, automotive repair and private garages.

The areas of concern (AOC) identified for this Site include:

1. Four suspected on-Site underground storage tanks (USTs);
2. Localized, elevated tetrachloroethylene (PCE) levels in soil vapor at northeastern portion of Site (SV-01 and SV-08);
3. Poor quality urban fill of unknown volume across the Site; and,
4. Potential impacts from a former dry cleaner at an eastern adjoining property.

1.5 Summary of Work Performed Under the Remedial Investigation

The following activities were conducted at the Site:

1. WCD conducted two Phase II investigations in April and June 2018, and installed 20 soil borings and 3 soil vapor probes;
2. As part of the March 2019 RI, conducted a Site inspection to identify AOCs and physical obstructions (i.e., structures, buildings, etc.);
3. Installed seven soil borings in January 2019 beneath the former parking and building slabs, and collected seven soil samples for chemical analysis to evaluate soil quality;
4. Attempted to install one groundwater monitoring well at the Site to evaluate groundwater quality in February 2019 (note: due to refusal from shallow bedrock in multiple soil borings, a well was not installed); and,
5. Installed five soil vapor probes in January 2019 and collected five vapor samples for chemical analysis.

1.6 Summary of Findings of Remedial Investigation

A remedial investigation was performed in accordance with an OER-approved Work Plan. The Remedial Investigation Report (RIR; October 2019) documented the following on-Site conditions:

1. Elevation of the property ranges from 40 to 42 feet.
2. Groundwater was not encountered at the Site to a maximum depth of 28 feet bsg.
3. Groundwater flow could not be determined. Based on available information, groundwater flow is inferred to be to the northwest.
4. Depth to bedrock ranges from 4 to 16 feet bsg across the Site.
5. The stratigraphy of the Site generally consists of fill material from the ground surface to approximately 1 to 12 feet bsg, primarily consisting of sand with silt and gravel,

commingled with varying amounts of construction debris (e.g., brick and concrete fragments). Native soils consisting of silty sands with varying percentages of gravel and rock fragments were encountered beneath the fill layer at depths ranging from approximately 4 to 16 feet bsg. Highly weathered marble bedrock was encountered below this layer.

6. Soil/fill samples collected during the Site investigations (April and June 2018, and March 2019) were compared to New York State Department of Environmental Conservation (NYSDEC) Part 375 Table 375-6.8 Unrestricted Use (UU) Soil Cleanup Objectives (SCOs) and Restricted-Residential Use (RRU) SCOs. Soil samples showed the following (maximum values noted):

- No volatile organic compounds (VOCs) exceeded RRU or UU SCOs. PCE was detected at trace levels (0.017 ppm) in three samples.
- Semi-volatile organic compounds (SVOCs) exceeded RRU and/or UU SCOs in shallow soils (0-3 feet), including: benzo(a)pyrene (8.07 ppm); benzo(a)anthracene (6.64 ppm); benzo(b)fluoranthene (6.02 ppm); benzo(k)fluoranthene (6.24 ppm); chrysene (6.38 ppm); dibenzo(a,h)anthracene (1.53 ppm); and, indeno(1,2,3-cd)pyrene (4.94 ppm).
- Total polychlorinated biphenyls (PCBs) were detected above UU SCOs in one surficial-soil sample (0.105 ppm); PCBs were not detected in any other samples.
- No pesticides exceeded RRU or UU SCOs.
- No metals exceeded RRU SCOs. Metals above UU SCOs included: lead (248 ppm); chromium (37.8 ppm); mercury (0.366 ppm); selenium (18.9 ppm); and, zinc (215 ppm).

Soil samples indicated impacts to shallow soils in multiple sampling locations at concentrations above UU SCOs, likely due to the presence of poor-quality urban fill. Slightly elevated concentrations of one PCB does not suggest any significant impact from past Site operations.

7. One groundwater well was attempted to be installed; however, due to refusal at shallow bedrock, no groundwater well could be installed. Based on local topographic conditions, groundwater flow is inferred to be westerly, toward the Harlem River.
8. Soil vapor samples and sub-slab vapor samples were compared to NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York –Decision Matrices (maximum values are noted below). PCE was detected in all soil vapor samples (244 $\mu\text{g}/\text{m}^3$) and in all sub-slab vapor samples (410 $\mu\text{g}/\text{m}^3$). Low levels of trichloroethene (TCE; 2.15 $\mu\text{g}/\text{m}^3$) and carbon tetrachloride (1.7 $\mu\text{g}/\text{m}^3$) were reported in several samples. Vinyl chloride and 1,1,1,2-tetrachloroethane were not detected in any samples. Petroleum compounds were reported at low levels.

For more detailed results, consult the RIR, provided in Appendix 1.

2.0 DESCRIPTION OF REMEDIAL ACTIONS

The Remedial Action was performed in accordance with an OER-approved Remedial Action Work Plan (RAWP) 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 October 16, 2018. A Phase II ESA, Subsurface Investigation, and RI were performed from April 2018 to March 2019. A RI Report was prepared to evaluate data and information necessary to develop a RAWP. A Site Contact List was established. A draft RAWP was prepared and released with a Fact Sheet on October 17, 2019 for a 30-day public comment period. The RAWP dated October 26, 2019 and Stipulation List dated October 30, 2019 were approved by the New York City OER on October 31, 2019. Site briefings were conducted with NYSDEC on April 5, 2019. A Pre-Construction Meeting was held on June 22, 2020. A Fact Sheet providing notice of the start of the remedial action was issued on April 22, 2020. The remedial action began on July 13, 2020 and completed on July 20, 2022.

Appendix 2 contains the RAWP.

The remedial action consisted of the following tasks:

1. Prepared a Community Protection Statement and implemented a Citizen Participation Plan.
2. Mobilized site security and equipment (June 2020); completed utility mark outs; and marked and staked excavation areas.

3. Performed Waste Characterization Study prior to excavation activities. Twelve waste characterization soil samples were collected on May 29, 2020. Waste characterization samples were collected at a frequency dictated by disposal facility(s).
4. Performed a Community Air Monitoring Program (CAMP) for particulates and volatile organic compounds, July 13, 2020 to May 6, 2021. Suppression measures were implemented as needed to control dust.
5. Selected NYSDEC Part 375 Track 2 Restricted-Residential Use Soil Cleanup Objectives (SCOs).
6. Soil was excavated to the following maximum depths: 23 feet bsg for elevator pits; 13 feet bsg at the basement portion of the building (approximately 90 percent of the Site); 4 feet bsg at the slab-on-grade portions of the building; and, between 4 (eastern portion) and 13 (western portion) feet bsg at the ramp to the cellar at the northern border of the building. A total of approximately 21,599 tons of soil/fill material and approximately 1,690 tons of bedrock were excavated and removed from the Site.
7. Transported and disposed of waste material at permitted facilities in accordance with all applicable laws and regulations for handling, transporting, and disposing, and with the RAWP. The following materials were removed from the Site:
 - 4,829.49 tons of regulated fill disposed at Hazleton Creek Properties, LLC facility, 282 South Church Street, Hazleton, Pennsylvania;
 - Approximately 16,770 tons of non-hazardous soil disposed at Keegan Landfill facility, 437 Bergen Avenue, Kearny, New Jersey;
 - Approximately 988 tons of clean rock disposed at Elmsford Virtual Quarry facility, 50 S. Warehouse Lane, Elmsford, New York; and,
 - Approximately 702 tons of clean rock disposed at Yannuzzi Materials Corporation facility, 327 Meadow Road, Edison, New Jersey.
8. Screened excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.

9. Conducted materials management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
10. The entire Site was excavated to bedrock; therefore, no end-point samples were collected.
11. Removed ten (10) USTs throughout the Site and two (2) hydraulic lifts in compliance with applicable laws and regulations.
12. Remediated NYSDEC Spill number 2005653 which was opened on September 21, 2020, during remedial excavation activities when a 2,000-gallon UST was observed to have several holes and field evidence of petroleum contaminated soil (staining, elevated PID readings and petroleum odors) was found in the tank grave. All petroleum impacted soil was removed from the Site.
13. End-point samples (T1-N, T1-E, T1-S, T1-W and T1-B) collected from the base of the excavation and sidewalls on October 15, 2020. End point sample results documented an absence of any significant residual contamination.
14. As part of development, constructed an engineered Composite Cover System to prevent human exposure to residual soil/fill remaining under the Site. The cover system consists of a 6-inch reinforced concrete slab underlain by 6 inches of clean ¾-inch crushed bluestone in the building area (the building footprint covers the entire Site). The contractor for the cover construction was New York Rock and Champ Construction.
15. As part of development, installed a Vapor Barrier System that consisted of a 20-mil Stego Wrap Vapor Barrier (manufactured by Stego Industries, LLC) beneath the building slab and a 56-mil MEL-ROL waterproofing membrane (manufactured by W. R. MEADOWS, INC.) up the foundation sidewalls. The contractor for the Vapor Barrier System was Joy Construction and Champ Construction.

16. Performed all activities required for the Remedial Action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
17. Implemented storm-water pollution prevention measures in compliance with applicable laws and regulations.
18. Imported material was used for backfill and cover in compliance with the Remedial Action Work Plan and in accordance with applicable laws and regulations. A total of 4,102.23 cubic yards of $\frac{3}{4}$ " clean bluestone was imported from Braen Stone Companies located at 217 Limecrest Road, Lafayette, New Jersey.
19. Submitted daily reports during construction oversight activities. Daily reports were submitted from July 13, 2020 to July 20, 2022.
20. Submitted a Sustainability Report.
21. Submitted an RAR that describes the Remedial Action, certifies that the remedial requirements defined in the Remedial Action Work Plan have been achieved; defines the Site boundaries; and lists any changes from the RAWP.

3.0 COMPLIANCE WITH REMEDIAL ACTION WORK PLAN

3.1 Construction Health and 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 Joshua Cupriks.

3.2 Community Air Monitoring Plan

The Community Air Monitoring Plan (CAMP) 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 July 13, 2020 to May 6, 2021 in compliance with the CAMP in the approved RAWP. No violations of CAMP were recorded during the remedial action. Momentary visible airborne dust and high peak conditions were noted at monitors due to the monitors close proximity to the trucking entrance/exit. Dust suppression techniques, including straying down truck tires before exiting and placing ½" crushed stone at the truck entrance, were implemented. These techniques prevented visible dust migration off-Site and concentrations went back to prestart levels as soon as techniques were implemented. Dust suppression measures were implemented during these activities, as needed. The results of Community Air Monitoring are shown in Appendix 3.

3.3 Soil/Materials Management Plan

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

3.4 Storm-Water Pollution Prevention

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

3.5 Deviations from the Remedial Action Work Plan

The following describes deviations in the Remedial Action from the RAWP:

- Unrestricted Use (Track 1) SCOs was proposed for the Site; however, due to required re-use of on-Site soils, Restricted-Residential (Track 2) SCOs were achieved.
- The RAWP indicated that the vapor barrier was to consist of 20-mil Raven VaporBlock Plus VBP20; however, the Vapor Barrier System consisted of a 20-mil Stego Wrap Vapor Barrier beneath the building slab and a 56-mil MEL-ROL waterproofing membrane up the foundation sidewalls.

4.0 REMEDIAL PROGRAM

4.1 Project Organization

Principal personnel who participated in the remedial action include the Professional Engineer (PE), Daniel Bellucci of Bellucci Engineering, PLLC, and the Qualified Environmental Professional (QEP), James Blaney of GBTS. Other qualified personnel have been utilized and the Community Access, Inc. reserves the right to have selected other principal personnel, subject to OER approval. The developer was Community Access, Inc. and the general contractor was Joy Construction Corporation.

4.2 Site Controls

Site Preparation

Mobilization

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

Utility Marker Layouts, Easement Layouts

The presence of utilities and easements on the Site was fully investigated prior to the performance of invasive work such as excavation or drilling under guidelines provided in the approved RAWP by using, at a minimum, the One-Call System (811). All invasive activities were performed in compliance with applicable laws and regulations to assure safety. Utility companies and other responsible authorities were contacted to locate and mark the locations, and a copy of the Markout Ticket was retained by the contractor prior to the start of drilling, excavation or other invasive subsurface operations. Electrical hazards associated

with drilling in the vicinity of overhead utilities were prevented by maintaining a safe distance between overhead power lines and drill rig masts.

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations were employed during completion of the remedial action.

An OER Project Notice was erected at the project entrance and was in place during all phases of the Remedial Action.

Soil Screening

Visual, olfactory and PID soil screening and assessment were performed under the supervision of a Qualified Environmental Professional. On September 21, 2020, a 2,000-gallon fuel oil UST was excavated, removed and placed on 6-mil plastic. The tank was observed to have several holes and field evidence of petroleum contaminated soil (staining, elevated PID readings [peak of 209 ppm] and petroleum odors) was found in the tank grave. The NYSDEC was notified and spill number 2005653 was assigned on September 21, 2020. Excavation and off-Site disposal of petroleum impacted soil, and collection of endpoint samples were completed. No other field evidence of contamination (elevated PID readings, odors or obvious NAPL/sheen) was observed in the vicinity of this tank; all soils in the vicinity of this tank were disposed off-Site as non-hazardous soil/fill.

Stockpile Management

Most material was live loaded; stockpiles were used only when necessary and were removed as soon as practicable. While stockpiles were in place, they were inspected daily, and before and after every storm event. Results from all inspections were recorded in a logbook and maintained at the Site and available for inspection by NYC OER. Excavated soils were stockpiled on, at minimum, double layers of 6-mil minimum sheeting, were kept covered at all times with appropriately anchored plastic tarps, and were routinely inspected. Broken or ripped tarps were promptly replaced.

All stockpile activities were compliant with applicable laws and regulations. Soil stockpile areas were appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials were located at least of 50 feet from the property boundaries, where possible.

Truck Inspection

An outbound-truck inspection station was set up close to the Site exit along Bruckner Boulevard. The Site exit was stabilized with 1½” clean bluestone approved product (this material was then removed from the property), which prevented truck tires contacting Site soils. Before exiting the NYC VCP Site, trucks were required to stop at the truck inspection station and were examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris were removed. Brooms, shovels and potable water were utilized for the removal of soil from vehicles and equipment before leaving the Site. No soil was tracked onto the street.

Site Security

Site access was controlled by gated entrances to the fenced property.

Nuisance Controls

Odor Control

An Odor Control Plan was implemented in accordance with the RAWP, which called for (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. Soil removal activities did not result in conditions requiring active odor control measures. No complaints were received.

Dust Control

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

- Spraying water on roads, excavation areas and stockpiles.

- Use of properly anchored tarps to cover stockpiles.
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

This dust control plan was capable of controlling emissions of dust. Work did not have to be halted due to nuisance dust emissions during the Remedial Action. The presence of VOCs and airborne dust was monitored using a RAE Systems MiniRAE 3000 PID (or equivalent) and a TSI 8530 DustTrak II aerosol monitor, respectively, during all intrusive activity. No nuisance complaints were received during the Remedial Action.

Other Nuisances

Noise control was exercised during the remedial program. All remedial work conformed, at a minimum, to NYC noise control standards.

Rodent control was provided during Site clearing and grubbing activities and during the remedial program, as necessary, to prevent nuisances.

Reporting

Daily reports providing a general summary of activities for each day of active remedial work were emailed to the OER Project Manager and uploaded to OER's Environmental Project Information Center (EPIC). Those 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 excursions, if any; and,
- Photograph of notable Site conditions and activities.

The frequency of the reporting period was revised in consultation with NYC OER project manager based on planned project tasks. Daily email reports were not intended to be the primary mode of communication for notification to OER of emergencies (accidents, spills), requests for changes to the RAWP or other sensitive or time critical information. However, such information was included in the daily reports. Emergency conditions and changes to the RAWP were communicated directly to the OER project manager by personal communication.

An alpha-numeric site map was used to identify locations described in reports submitted to OER.

Job-site record keeping for all remedial work was performed. These records were maintained on-Site during the project and were available for inspection by OER staff. Representative photographs were taken of the Site prior to any remedial activities and during major remedial activities to illustrate remedial program elements and contaminant source areas. Photographs were submitted at the completion of the project in this RCR in digital format (i.e. jpeg files).

All daily and monthly reports are included in Appendix 3. Digital photographs of the remedial action are included in Appendix 4.

4.3 Materials Excavation and Removal Action

Soil/Fill Excavation and Removal

The Site was excavated between July 2020 and May 2021 to allow for the installation of the basement and new building slab, utilities and foundation elements for the new nineteen-story, mixed-use (commercial and residential) building. Soil located at the northwestern corner of the Site (to a depth of at least 8 feet bas), which was required to go to the Hazleton Creek Properties, LLC facility, was excavated and removed from the property first. Once all the soil going to Hazleton Creek Properties, LLC, the Site was generally excavated from west to east. Final post-remediation excavation depths relative to sidewalk elevation were as follows: approximately 23 feet bsg within the area of the elevator pits; approximately 13 feet

bsg within the footprint of the building cellar; approximately 4 feet bsg in the slab-on-grade portions of the building (excavated to bedrock); and, between 4 (eastern portion) and 13 (western portion) feet bsg in the ramp to the cellar at the northern border of the building. A map showing approximate final post-remediation depths of excavation for the Site is shown in Figure 4.

A total of approximately 21,599 tons of soil/fill material and approximately 1,690 tons of clean rock were excavated and removed from the property during the Removal Action. Materials excavated from the northwest corner of the Site were removed from the Site as regulated fill. The Removal Action was performed under the oversight of James Blaney of GBTS (QEP).

Removal Action

Materials removed from the property under this Removal Action is generally classified as follows: regulated fill consisting of silt and gravel commingled with varying amounts of construction debris; non-hazardous soil/fill consisting of silty sands with varying percentages of gravel and rock fragments; and, clean bedrock. The Removal Action was performed under the oversight of James Blaney, QEP for the project. Trucking began on July 13, 2020 and concluded on May 6, 2021. Material was disposed of at Hazleton Creek Properties, LLC facility, 282 South Church Street, Hazleton, Pennsylvania (regulated fill, 4,829.49 tons), at Keegan Landfill facility, 437 Bergen Avenue, Kearny, New Jersey (non-hazardous soil, approximately 16,770 tons), Elmsford Virtual Quarry facility, 50 S. Warehouse Lane, Elmsford, New York (clean rock, approximately 988 tons), and Yannuzzi Materials Corporation facility, 327 Meadow Road, Edison, New Jersey (clean rock, approximately 702 tons).

Removal Action Performance Criteria

All excavation activities were performed to accommodate construction of the new building.

Material Type

The RIR showed urban fill primarily consisting of sand with silt and gravel commingled with varying amounts of construction debris (e.g., brick and concrete fragments) at depths ranging from approximately 1 to 12 feet bsg. Native soil consisting of silty sands with varying percentages of gravel and rock fragments were encountered beneath the fill layer at depths ranging from approximately 4 to 16 feet bsg. Highly weathered marble bedrock was encountered at depths ranging from approximately 4 to 16 feet bsg. During construction excavations, urban fill was encountered during excavation of the basement and the ramp to depths of at least 12 feet bsg.

Soils excavated from the northwest corner of the Site to bedrock were removed from the Site as regulated fill. All other soils removed from the property were disposed of as non-hazardous soil. Bedrock was encountered throughout excavation activities, and was removed from the Site as clean rock.

On-Site Reuse

A total of three (3) soil samples were collected in order to determine whether on-Site reuse of these soils is appropriate: Backfill1 was collected on December 14, 2020 at the bottom of the ramp at approximately 10 feet bsg; Backfill2 was collected on December 15, 2020 near the top of the ramp at approximately 3 feet bsg; and, Backfill3 was collected on January 20, 2021 near the eastern Site boundary at approximately 2 feet bsg. GBTS submitted a Memo for Reusing On-Site Soils to OER on January 21, 2021 and February 4, 2021. Memo for Reusing On-Site Soils are provided in Appendix 3.

OER approved these requests on January 22, 2021 and February 5, 2021, and stated that due to the reuse of on-Site soils, the Site will achieve Track 2 Restricted-Residential Use SCOs. A total of 675 cubic yards of soil was reused on-site.

A map showing the approximate source location of reused soil and the location of placement of reused soil is shown in Figure 6. A summary of analytic data for the reused soil is included as Table 4.

UST Removal

Ten (10) USTs and two (2) hydraulic lifts were encountered throughout the Site during excavation activities.

On August 25, 2020, four manholes were observed at the southeastern portion of the Site. The manholes were opened and piping was observed. Personnel from BORO Waste Oil, LLC (BORO) inspected the USTs and determined that they were full with gasoline. On September 21, 2020, the four 550-gallon gasoline USTs were excavated, removed and placed on 6-mil plastic. The tanks had been encased in concrete and appeared to be sound and were noted to be free of signs of corrosion, staining or leakage. No field evidence of contamination was observed in soils in the immediate vicinity of the tanks. On September 21, 2020, personnel from ABC Fuel Oil Tank Cleaners Inc. removed the tanks from the property as scrap metal. GBTS collected six (6) confirmatory end-point samples from the tank grave (T4-N, T4-E1, T4-E2, T4-S, T4-W1 and T4-W2); the bottom of the tank grave was not sampled due to bedrock.

On September 8, 2020, a 2,000-gallon fuel oil UST was encountered at the western-central portion of the Site at approximately 13 feet bsg. The tank was excavated and removed from the ground on September 21, 2020. The tank was observed to have several holes and field evidence of petroleum contaminated soil (staining, elevated PID readings [peak 209 ppm] and petroleum odors) was found in the tank grave. The NYSDEC was notified and spill number 2005653 was assigned. The UST was cleaned out, cut up and removed from the by BORO. On October 15, 2020, GBTS collected five (5) confirmatory end-point samples from the tank grave (T1-N, T1-E, T1-S, T1-W and T1-B).

On November 10, 2020, a 100-gallon UST and a 30-gallon UST, both likely containing hydraulic fluid, and a hydraulic lift were encountered at the eastern-central portion of the Site. On October 11, 2020, personnel from BORO pumped hydraulic fluid from the USTs, and cleaned out the tanks. The hydraulic lift could not be opened to be pumped out. The two USTs and the hydraulic lift were removed from the ground and placed on 6-mil plastic. On October 12, 2020, personnel from BORO disassembled the hydraulic lift and removed the two USTs as scrap metal. Encountered product in the hydraulic lift was pumped out and disposed of

appropriately. GBTS collected two (2) confirmatory end-point samples from the area of the hydraulic lift (Lift1) and the 30-gallon UST (T2).

On October 23, 2020, a hydraulic lift was encountered at the western-central portion of the Site. The lift was excavated, removed and placed on 6-mil plastic. GBTS collected one (1) confirmatory end-point sample from the area of the hydraulic lift (Lift2).

On January 13, 2021, a 550-gallon motor oil UST was encountered at the southeastern portion of the Site. On January 14, 2021, personnel from BORO pumped a water and motor oil mixture from the UST. On January 19, 2021, personnel from BORO cleaned out, cut up and removed the two USTs from the Site as scrap metal. GBTS collected four (4) confirmatory end-point samples from the tank grave (T3-N, T3-E, T3-W and T3-B); the southern wall of the tank grave was not sampled due to the soil being removed during tank removal.

On February 8, 2021, two, 550-gallon fuel-oil USTs were encountered at the southeastern portion of the Site. Personnel from BORO pumped the water and hydraulic fluid mixture from the USTs, cleaned out, cut up and removed the two USTs from the Site as scrap metal. GBTS collected five (5) confirmatory end-point samples from the tank grave (T5-N, T5-S, T5-E, T5-W, T5-B).

A map showing the location of all UST and hydraulic lifts, and location of tank end-point samples, is shown in Figure 5. Tank removal documentation and full laboratory reports for tank end-point samples are provided in Appendix 9. A tabular summary of tank end-point sampling results is included in Table 1.

All USTs have been registered and closed with the NYSDEC PBS Program.

NYSDEC Petroleum Spills

Spill number 2005653 was reported for the Site on September 21, 2020 after several holes and field evidence of petroleum contaminated soil (staining, elevated PID readings [peak 209 ppm] and petroleum odors) was found in the tank grave after the removal of a 2,000-gallon fuel oil UST. Contaminated soil was excavated and laboratory analysis of five (5) end point samples (T1-N, T1-Eg, T1-Sg, T1-Wg and T1-Bg) documented an absence of any significant

residual petroleum contamination. All petroleum storage tanks have been removed from the Site during the remedial action.

The NYSDEC Petroleum Spill number 2005653 remains open pending NYSDEC review of this final Remedial Action Report.

Dewatering

Dewatering was not required during excavation activities.

Soil Cleanup Objectives

The SCOs for this Remedial Action are Track 2 Restricted-Residential Use SCOs.

End Point Sample Results

The entire Site was excavated to bedrock; therefore, no end-point samples were collected.

4.4 Materials Disposal

All soil/fill material was disposed of at the Hazleton Creek Properties, LLC facility located at 282 South Church Street, Hazleton, Pennsylvania and at Keegan Landfill facility located at 437 Bergen Avenue, Kearny, New Jersey. Clean rock was disposed of at the Elmsford Virtual Quarry facility located at 50 S. Warehouse Lane, Elmsford, New York and at Yannuzzi Materials Corporation facility located at 327 Meadow Road, Edison, New Jersey. Correspondence with repositories and approval documentation is included in Appendix 5 and disposal documentation is provided in Appendix 6. A total of approximately 21,599 tons of soil/fill material and approximately 1,690 tons of clean rock were excavated and removed from the Site.

All transport of materials was performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers were appropriately licensed and trucks properly placarded. Loaded vehicles leaving the Site were appropriately

tarped, securely covered, and manifested in accordance with appropriate local, State, Federal and New York State Department of Transportation requirements (and all other applicable transportation requirements).

Waste Characterization sampling was performed as required by the disposal facilities. Waste Characterization sample results and a summary of waste characterization data are attached in Appendix 7.

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

Disposal Location/Address	Type of Material	Quantity
Hazleton Creek Properties, LLC 282 South Church Street, Hazleton, Pennsylvania	Regulated fill	4,829.49 tons
Keegan Landfill 437 Bergen Avenue, Kearny, New Jersey	Non-hazardous soil	Approx. 16,770 tons
Elmsford Virtual Quarry 50 S. Warehouse Lane, Elmsford, New York	Clean rock	Approx. 988 tons
Yannuzzi Materials Corporation 327 Meadow Road, Edison, New Jersey	Clean rock	Approx. 702 tons

Soils excavated from the northwest corner of the Site to bedrock were removed from the Site as regulated fill. All other soils removed from the property were disposed of as non-hazardous soil. Bedrock was encountered throughout excavation activities, and was removed from the Site as clean rock.

Letters from Soil Managers (on behalf of Enrollee, Community Access) 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 5. Manifests are included in Appendix 6. Waste characterization report is presented in Appendix 7. A table of individual truck transport and material disposal quantities is included in Table 3.

4.5 Backfill Import

Clean $\frac{3}{4}$ " crushed blue stone was imported to the Site for use as clean sub-base material beneath the entire building footprint. All sub-base material imported to the Site was virgin material from a NYSDEC approved source and pass a sieve test (less than 10% through a #80) sieve. A total of 1,000.7 tons of $\frac{3}{4}$ " clean bluestone were imported from Braen Stone Sparta Quarry located 217 Limecrest Road, Lafayette, New Jersey.

A map showing backfill placement locations at the Site is shown in Figure 6. A table of individual truck transport and material import quantities is included in Table 6. Full laboratory reports, sieve analysis and truck tickets are included in Appendix 10.

5.0 ENGINEERING CONTROLS

A Track 2 Restricted-Residential Remedial Action was achieved and Engineering Controls are not required. However, as part of construction, several protective systems were installed. These are:

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

Composite Cover System

As part of development, an engineered Composite cover System has been built at the Site. This Composite Cover System is comprised of 6 inches of a reinforced concrete slab underlain by six inches of clean $\frac{3}{4}$ -inch crushed bluestone in the building area (the building footprint covers the entire Site). The contractor for the cover construction was New York Rock and Champ Construction.

Figure 8 shows the as-built design for each cover type used in the Composite Cover System on this Site. Figure 7 shows a map of the location of each Composite Cover System type built at the Site. Photographs of construction of the Composite Cover System are included in Appendix 4.

Vapor Barrier System

As part of development, a Vapor Barrier System has been built at the Site. This Vapor Barrier System consists of a 20-mil Stego Wrap Vapor Barrier (manufactured by Stego Industries, LLC) beneath the building slab and a 56-mil MEL-ROL waterproofing membrane (manufactured by W. R. MEADOWS, INC.) up the foundation sidewalls.

Stego Wrap Vapor Barrier is a 20-mil thick, multi-layer plastic extrusion manufactured with only high grade prime, virgin, polyolefin resins. Stego Wrap red polyethylene tape was used to seal all seams and penetrations during installation. All seams were overlapped at a minimum of 6 inches. MEL-ROL is a 56-mil thick layer of polymeric waterproofing membrane

on a heavy duty, 4-mil thick, cross-laminated polyethylene carrier film. The two components are laminated together under strict quality-controlled production procedures.

The contractor for the Vapor Barrier System construction was Joy Construction and Champ Construction. The professional engineer for the Vapor Barrier System was Daniel Bellucci.

Figure 10 shows the as-built engineering diagram for the Vapor Barrier System used on this Site. Figure 9 shows the location of the Vapor Barrier System at the Site. Photographs of installation of the Vapor Barrier System are included in Appendix 4. A copy of manufacturer's specifications for the Vapor Barrier System is included in Appendix 8.

6.0 INSTITUTIONAL CONTROLS

A Track 2 Restricted-Residential Remedial Action was achieved and Engineering Controls and Institutional Controls are not required.

7.0 SITE MANAGEMENT PLAN

A Track 2 Restricted-Residential Remedial Action was achieved and Site Management is not required.

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.

Reuse of Clean, Recyclable Materials and Conservation of Natural Resources

Reuse of clean, recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction since these materials can be locally-derived.

Conservation of non-renewable resources was achieved by reusing on-Site soil generated during construction excavations as subgrade fill.

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: natural gas is utilized as the principal fuel in the new building.

Conversion to Clean Fuels

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

Recontamination Control

Recontamination after cleanup and redevelopment is completed undermines the value of work performed, may result in a property that is less protective of public health or the environment, and may necessitate additional cleanup work later that could impede future redevelopment. Recontamination can arise from future releases that occur within the property or by influx of contamination from off-Site.

Measures to prevent recontamination included proper handling of contaminated soil during transport and disposal, installation of a cover system throughout the Site and installation of

a vapor barrier system to mitigate potential migration of soil vapor. The area of the Site that utilizes recontamination controls under this plan is 24,165 square feet.

Storm-water Retention

Storm-water retention improves water quality by lowering the rate of combined storm-water and sewer discharges to NYC's sewage treatment plants during periods of precipitation, and reduces the volume of untreated influent to local surface waters.

An estimate of area of the property for which enhanced storm-water retention capability has been established for the redevelopment project is 24,165 square feet.

Paperless Brownfield Cleanup Program

Community Access, Inc. 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 50 pounds.

Low-Energy Project Management Program

Community Access, Inc. 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 1,000 miles.

Trees and Plantings

Trees and other plantings provide habitat and add to NYC's environmental quality in a wide variety of ways. Native plant species and native habitat provide optimal support to local fauna, promote local biodiversity, and require less maintenance. The number of trees planted as part of this redevelopment is 8.