Garden Street Apartments Site

WESTCHESTER COUNTY, NEW YORK

Final Engineering Report

NYSDEC Site Number: C360188

Prepared for:

G&G Garden Street LLC
and
Highgarden Tower LLC
50 Jericho Quadrangle, Suite 118
Jericho, New York 11753

Prepared by:

SESI CONSULTING ENGINEERS, D.P.C.
12A Maple Avenue
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Project No. 11538

DECEMBER 2021

CERTIFICATIONS

I, Fuad Dahan, am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Action Work Plan was implemented and that all construction activities were completed in substantial conformance with the Department-approved Remedial Action Work Plan.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the Remedial Action Work Plan and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established for the remedy.

I certify that all documents generated in support of this report have been submitted in accordance with the DER's electronic submission protocols and have been accepted by the Department.

I certify that all data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department.

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Fuad Dahan, of SESI Consulting Engineers, DPC, am certifying as Owner's Designated Site Representative for the site.

090531	12/16/2021	
NYS Professional Engineer #	Date	Signature

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LIST OF ACRONYMS

Acronym	Definition
AWQS	Ambient Water Quality Standard
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CAMP	Community Air Monitoring Plan
CPP	Citizens Participation Plan
CVOC	Chlorinated Volatile Compounds
CY	Cubic Yard
DER	Division Of Environmental Remediation
DER-10	NYSDEC Technical Guidance For Site Investigation & Remediation
DER-31	NYSDEC Green Remediation Policy
DUSR	Data Usability Summary Report
ECs	Emerging Contaminants
ECL	Environmental Conservation Law
ECs/ICs	Engineering and Institutional Controls
EDD	Electronic Data Deliverable
EE	Environmental Easement
EIMS	Environmental Information Management System
ELAP	Environmental Laboratory Accreditation Program
FER	Final Engineering Report
ft-bgs	Feet Below Ground Surface
GW	Groundwater Piezometer
HASP	Health and Safety Plan
ICs	Institutional Controls
IRM	Interim Remedial Measures
MNA	Monitored Natural Attenuation
MW	Monitoring Well
ng/L	Nanograms Per Liter
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department Of Environmental Conservation
NYSDOH	New York State Department of Health
O & M	Operation and Maintenance Plan
PAH	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls

Acronym	Definition
PCE	Tetrachloroethene
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctanesulfonic acid
PFAS	Per- And Polyfluoroalkyl Substances
PID	Photoionization Detector
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RA	Remedial Action
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation And Recovery Act
RI	Remedial Investigation
RIR	Remedial Investigation Report
RRSCO	Restricted Residential Soil Cleanup Objective
RSCO	Residential Soil Cleanup Objectives
SCO	Soil Cleanup Objectives
SEQRA	State Environmental Quality Review Act
SESI	SESI Consulting Engineers
SMP	Site Management Plan
SOE	Support Of Excavation
SOP	Contractors Site Operation Plan
S/MMP	Soil/Material Management Plan
SSDS	sub-slab depressurization system
SVI	Soil Vapor Intrusion
SVOCs	Semi-Volatile Organic Compounds
SWPPP	Storm-water Pollution Prevention Plan
TAL	Target Analyte List
TCE	Trichloroethene
TCL	Target Compound List
TOGS	Technical And Operations Guidance Series
Ug/L	Micrograms Per Liter
ug/m^3	Micrograms Per Cubic Meter
USCO	Unrestricted Use Soil Cleanup Objectives
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VI	Vapor Intrusion
VOCs	Volatile Organic Compounds

Final Engineering Report

1.0 BACKGROUND AND SITE DESCRIPTION

G&G Garden Street LLC, was accepted into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) pursuant to the execution of a Brownfield Cleanup Agreement (BCA) on September 5, 2019, to investigate and remediate a 0.902-acre property located in the City of New Rochelle, New York known as the Garden Street Apartments Site BCP Site #C360188 ("Site"). Highgarden Tower LLC was added to the BCA per the executed amendment on November 30, 2020 (together with G&G Garden Street LLC herein referred to as the "Volunteer"). A Site Location Map is presented as **Figure 1.1**. The Site was remediated to unrestricted use and will be developed with affordable housing residential units.

The Site is located at 11 Garden Street in the City of New Rochelle, Westchester County, New York. The BCP Site is an approximately 0.902-acre portion of the approximately 1.01-acre property being developed into the Highgarden Tower project located on the south side of Garden Street, east of North Avenue and north of Metro North Railroad tracks, and is identified on the Westchester County tax maps as a portion of Section 3 – Block 801 – Lot No. 11. The total Lot 11 is the 1.01 acre overall development site. For the purposes of this Final Engineering Report (FER), the 1.01-acre lot will be referred to as the "overall property," and the 0.902-acre portion of the overall property for which this FER has been prepared will be referred to as the "BCP Site" or the "Site." A Site Location Map (topographic map) is provided as **Figure 1.1**. The boundaries of the Site are fully described in **Figure 1.2** Survey Map, Metes and Bounds Map located in **Appendix A**.

Historically, between 1903 and 1911, a brick oven baking company was constructed on the south-central portions of the BCP Site. Between 1911 and 1931, the property was substantially reconfigured with the addition of a cabinet shop, automotive shop and garages as well as repurposing a dwelling to a blacksmith shop and the bakery to a wood working facility and model aircraft supply company. In addition, a structure labelled "oils" and

another circular unspecified structure were proximate to the woodworking facility in the 1931 Sanborn map depiction. By 1951, the BCP Site was cleared of all structures, with the exception of the blacksmith shop, which had been extended east and repurposed as an automotive facility. Between 1996 and 2003, the remaining structure was demolished and the BCP Site was utilized as parking lots situated between an interstate highway to the north and railroad tracks to the south as well as variable uses to the east and west. The City of New Rochelle acquired the 24 Garden Street lot in 1966 and the 11 Garden Street lot in 1998. The City operated these parcels as a paved municipal surface-level parking lot since their respective dates of acquisition until the Volunteer commenced remedial work on the Site.

2.0 SUMMARY OF SITE REMEDY

2.1 REMEDIAL ACTION OBJECTIVES

The following Remedial Action Objectives (RAOs) were identified for this Site as specified the Decision Document dated December 2020.

2.1.1 GROUNDWATER RAOS

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

2.1.2 SOIL RAOS

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

2.1.3 SOIL VAPOR RAOS

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from potential present and future soil vapor intrusion into buildings at the Site.

2.2 DESCRIPTION OF SELECTED REMEDY

The Site was remediated in accordance with the remedy selected by the NYSDEC in the Remedial Action Work Plan for the Garden Street Apartments, New Rochelle, Westchester County, New York, Site No. C360188 (RAWP), dated October 2020, prepared by SESI and the Decision Document dated December 2020. The factors considered during the selection of the remedy are those listed in 6 NYCRR 375-1.8.

The Site was remediated to conditional Track 1 unrestricted use and the soils to unrestricted cleanup objectives (USCOs). The following are the components of the remedy identified in the Decision Document:

1. Remedial Design
   - Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
   - Reducing direct and indirect greenhouse gases and other emissions;
   - Increasing energy efficiency and minimizing use of non-renewable energy;
   - Conserving and efficiently managing resources and materials;
   - Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
   - Maximizing habitat value and creating habitat when possible;
   - Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
   - Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
   - Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Excavation

   Excavation and off-Site disposal of all on-site soils which exceed unrestricted SCOs as defined by 6 NYCRR Part 375-6.8. Approximately 15,800 cubic yards of contaminated soil will be removed from the Site.

3. Backfill

   Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site.

4. Local Institutional Controls

   If no Environmental Easement (EE) or Site Management Plan (SMP) is needed to achieve soil, groundwater or soil vapor remedial action objectives, then the following local use restriction will be relied upon to prevent ingestion of groundwater: Chapter 873, article VII of the Laws of Westchester County which prohibits potable use of groundwater without prior approval.

5. Conditional Track 1

The intent of the remedy is to achieve a Track 1 unrestricted use; therefore, no environmental easement or site management plan is anticipated. If the soil vapor intrusion (SVI) evaluation is not completed prior to completion of the Final Engineering Report, then a Site Management Plan (SMP) and Environmental Easement (EE) will be required to secure the SVI evaluation and implement actions as needed, if any. If a mitigation or monitoring action is needed, a Track 1 cleanup can only be achieved if the mitigation system or other required action is no longer needed within 5 years of the date of the Certificate of Completion.

In the event that Track 1 unrestricted use is not achieved because the remedial objectives for soil vapor have not been achieved, the following contingent remedial elements will be required, and the remedy will achieve a Track 2 residential cleanup.

5a. Engineering and Institutional Controls

Imposition of an institutional control in the form of an environmental easement and a Site Management Plan, as described below, will be required. The remedy will achieve a Track 2 residential cleanup at a minimum and will include an environmental easement, and site management plan as described below.

5b. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for residential, restricted-residential, commercial, or industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH (Chapter 873, Article VII of the Laws of Westchester County); and
- require compliance with the Department approved Site Management Plan.

5c. Site Management Plan

A Site Management Plan is required, which includes the following:

i. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 5b above.

Engineering Controls: Any engineering control that may be required following the five-year conditional Track 1 evaluation period (e.g. sub-slab depressurization system).

This plan includes, but may not be limited to:

- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

ii. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- a schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

iii. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the vapor mitigation system(s), if any. The plan includes, but is not limited to:

- procedures for operating and maintaining the system(s); and
- compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.

3.0 INTERIM REMEDIAL MEASURES, OPERABLE UNITS AND REMEDIAL CONTRACTS

The remedy for this Site was performed as a single project, and no interim remedial measures, operable units or separate construction contracts were performed.

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

Remedial activities completed at the Site were conducted in accordance with the NYSDEC-approved RAWP for Garden Street Apartments Site (October 2020). All deviations from the RAWP are noted in Section 4.10.

4.1 GOVERNING DOCUMENTS

4.1.1 SITE SPECIFIC HEALTH & SAFETY PLAN

All remedial work performed under this Remedial Action was in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA. The Health and Safety Plan (HASP) was complied with for all remedial and invasive work performed at the Site. The HASP was included as Appendix A of the RAWP.

4.1.2 QUALITY ASSURANCE PROJECT PLAN

The Quality Assurance Project Plan (QAPP) was included as Appendix B of the RAWP approved by the NYSDEC. The QAPP describes the specific policies, objectives, organization, functional activities and quality assurance/ quality control activities designed to achieve the project data quality objectives.

4.1.3 SOIL/MATERIALS MANAGEMENT PLAN

The Soil Material Management Plan (S/MMP) includes detailed plans for managing all soils/materials that were disturbed at the Site, including excavation, handling, storage, transport and disposal. The S/MMP was included as Section 5.10 of the RAWP. All soil and materials management were performed in accordance with the RAWP and the NYSDEC DER Technical Guidance for Site Investigation & Remediation (DER-10). All invasive work, and the excavation and load-out of all excavated materials and liquid wastes, were overseen during remedial work by the following personnel:

- Fuad Dahan, PE (SESI) -Engineer of Record
- Steven Gustems, PG (SESI) -Project Manager
- Matthew Majorossy (SESI) -Field Representative

4.1.4 COMMUNITY AIR MONITORING PLAN

The Community Air Monitoring Program (CAMP) was provided as Appendix C of the RAWP. The CAMP was implemented during all on-Site intrusive and demolition activities in order to provide a measure of protection for the downwind community (i.e., off-Site receptors including residences and businesses) from potential airborne contaminant releases as a direct result of remedial activities. Two (2) air monitoring stations were set-up: one (1) station upwind of the Site, and one (1) station downwind of the Site. Air monitoring data for dust control and volatile organic compounds was recorded by SESI. Dust suppression efforts were performed if the downwind particulate levels of 100 micrograms per cubic meter ($\mu g/m^3$) greater than background (upwind) for a 15-minute period or if airborne dust is observed leaving the work area. A summary of CAMP exceedances is presented in Section 4.2.6. The CAMP documentation is provided in the weekly reports in **Appendix B.**

4.1.5 CONTRACTORS SITE OPERATIONS PLANS (SOPs)

The Remediation Engineer reviewed all plans and submittals for this remedial project (i.e. those listed above plus contractor and subcontractor submittals) and confirmed that they were in compliance with the RAWP. All remedial documents were submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

4.1.6 COMMUNITY PARTICIPATION PLAN

The approved Community Participation Plan (CPP) for this project was included as Appendix E of the RAWP.

A document repository has been established at the following location and contains all applicable project documents:

New Rochelle Public Library
Attn: Tom Geoffino
1 Library Plaza
New Rochelle, NY 10801
Phone: (914) 632-7878

The CPP provides members of the affected and interested public with information regarding the procedures by which the NYSDEC will inform and involve them during the investigation and remediation of the Site. To date, community participation procedures have been implemented in accordance with the attached CPP. Following submittal of this FER, an Engineering Fact Sheet shall be submitted to the public outlining the results of the remedial action, which will fulfill the requirements of the CPP.

A certification of mailing was sent to the NYSDEC project manager following the distribution of all Fact Sheets and notices that includes: (1) certification that the Fact Sheets were mailed, (2) the date they were mailed; (3) a copy of the Fact Sheet, (4) a list of recipients (contact list); and (5) a statement that the repository was inspected on (specific date) and that it contained all of the applicable project documents.

4.2 REMEDIAL PROGRAM ELEMENTS

4.2.1 GREEN REMEDIATION CONSIDERATIONS

During the course of the Remedial Action field activities, SESI considered NYSDEC DER-31 "Green Remediation" implementation objectives. The NYSDEC DER's approach to remediating sites in the context of the larger environment is a concept known as "Green Remediation". Green Remediation is defined in NYSDEC DER-31 as "the practice of considering all environmental effects of remedy implementation and incorporating options to minimize the environmental footprint of cleanup actions." The approach is intended to improve the overall sustainability of the remediation by promoting the use of more sustainable practices and technologies. Green Remediation practices and technologies are less disruptive to the environment, generate less waste, increase reuse and recycling, and emit fewer pollutants, including greenhouse gases, to the atmosphere. Green Remediation concepts and techniques considered during the remedial action included:

- Eliminated idling vehicles and equipment when possible; reducing emission of CO_2, N_2O, CH_4, and other greenhouse gases contributing to climate change:
- Operation of particulate detectors to monitor and minimize dust export of contaminants:
- Operation of VOC detectors to monitor and minimize VOC exposures:
- Use of silt fencing and screening to prevent water export of contaminants:

- Excavation of soils and underground storage tanks in coordination with the property redevelopment efforts; Integration of the remedy with the end use.
- Implementing remediation of soil and tank removal concurrently; reducing potentially multiple pre-design investigation sampling events;
- Conducting sampling events planned simultaneously to maximize level of efforts while traveling to/from the Site (economy of scale implementing multiple sampling events); and
- Incorporation of a 20 mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency and serve as a precautionary sealing layer to the extent a SSDS is required.

4.2.2 CONTRACTORS AND CONSULTANTS

Table 4.1 below provides the list of contractors and consultants who performed the remedial activities on the BCP Site.

Table 4.1 List of Contractors and Consultants

Contractors/Consultants	Role	Project Contact
Alpha Analytical labs	Analytical laboratory	Michelle Callahan
ASF Construction & Excavation Corp.	Excavation Contractor	Angel Sanchez
Clean Earth	Waste Disposal	Kalia Ilyes
Innovative Recycling technologies	Waste Disposal	John Ewen
Knauf Shaw	Environmental Counsel	Linda Shaw
Laboratory Data Consultants	DUSR	Christina Rink
Luzon	Tank Contractor	Robert Halprin
SESI Consulting Engineers, DPC	Environmental Consultant and Engineer of Record	Fuad Dahan(Engineer of Record)
SESI Consulting Engineers, DPC	Environmental Consultant and Project Manager	Steven Gustems

4.2.3 SITE PREPARATION

The mobilization tasks were completed as part of the ongoing project work. They included, but were not limited to the following:

- Construction of fencing and barriers.
- Construction of decontamination and materials staging areas.
- Importation of clean fill and aggregate.
- Identification of underground utilities.
- Installation of Support of Excavation (SOE) along the northern and western portions of the Site.
- Establishment of equipment and material staging areas.

- Establishment of equipment decontamination and truck wash stations.

A pre-construction meeting was held with NYSDEC and contractors on February 4, 2021.

All City and local permits were obtained prior to start of work and are included as **Appendix C** of this report.

All SEQRA requirements and all substantive compliance requirements for attainment of applicable natural resource or other permits were achieved during this Remedial Action.

4.2.4 GENERAL SITE CONTROLS

The following general Site controls were established at the BCP Site for the safety of on-site workers, remedial personnel, nearby residents, and potential trespassers; and to minimize off-site and on-site impacts of remedial activities:

- The Site was a closed site accessible only to site contractors, owners, and authorized entrants. The BCP Site was protected with an 8-foot chain-link fence with two (2) gates on Garden Street.
- The entrances to the BCP Site were locked when construction personnel were not present.
- Visual, olfactory and photoionization detector (PID) soil screening and assessment was performed by a qualified environmental professional during ancillary activities, including support of excavation installation and remedial excavations as per the CAMP.
- Soil segregation was performed based on observed field evidence of contamination and waste classification analysis. All stockpiled soil was placed on and covered with polyethylene sheeting. In addition, silt fencing was installed around the soil piles as erosion and sediment control measures.

4.2.5 NUISANCE CONTROLS

The following monitoring and controls were performed on the BCP Site during the fill import and placement:

- Truck wash and egress housekeeping: two (2) rip-rap truck-tire wash stations were installed at the entrances to the construction areas on Garden Street.
- Dust control: Truck work was slowed and the paved areas were swept, when needed, to minimize dust generation particularly during fill off load from the trucks. See also FER sections 4.1.5 and 4.2.1.
- Prior to loading, trucks were staged off-site to avoid traffic issues. The inbound and outbound truck routes were designed to (a) limit transport through residential areas and past sensitive sites; (b) follow city mapped truck routes; (c) prohibit off-site queuing of trucks entering the facility; (d) limit total distance to major highways; (e) promote safety in access to highways; (f) create overall safety in transport; and (g) follow community input, which was sought and obtained during the CPP process.

4.2.6 CAMP RESULTS

Two dust and PID monitors were installed at locations to capture the up-wind and down-wind locations of the construction activities at the Site, which were changed in accordance with the wind direction. Readings were recorded in real time (continuous monitoring) and the data was monitored by field personnel. If exceedances occurred, field personnel took appropriate actions as describes in Table 4.2 below. A summary of CAMP exceedances are presented below on **Table 4.2.**

For the majority of the project, the remedial activities were conducted with dust and PID readings below the action levels. However, there were instances where exceedances were observed. Volatile organic compounds (VOC) action levels exceedances were attributable to system calibration issues and humidity. Particulate exceedances were observed due to excavation and support of excavation activities. Dust and VOC readings

taken post exceedances returned to background levels. A summary of CAMP exceedances are presented below on **Table 4.2.**

Table 4.2: CAMP Results Summary

Date	Location	Construction Activity	Visual Observation	Exceedence of Action level	Action Taken for Dust Control	Action Taken for VOC Exceedance
2/17/2021	Downwind	Remedial excavation	Airborne dust from trucking	Yes	slowed trucks to miniminze disturbance	NA
2/22/2021	Downwind	Remedial excavation	Airborne dust from trucking	Yes	slowed trucks to miniminze disturbance & clean CAMP assembly to prevent erroneous readings	NA
2/23/2021	Downwind	Remedial excavation	No visible dust - suspected to be caused by moisture in CAMP intake	Yes	Dried camp intake, slowed trucks	NA
2/24/2021	Upwind	Remedial excavation	Excavation occuring at Site boundary close to upwind monitor	Yes	Relocated CAMP setup, informed operator to dig more carfully to prevent unneccessary airborn soil	NA
2/25/2021	Upwind/Downwind	Remedial excavation	Airborne dust from trucking	Yes	Slowed trucks to minimize disturbance, utilized sweeper with water	NA
3/1/2021	Upwind/Downwind	SOE Installation	Airborne dust from drillering activities	Yes	Instructed drillers to take any steps possible to suppress dust, slowed trucks to minimize other disturbance	NA
3/2/2021 - 3/9/2021	Upwind/Downwind	Remedial excavation	Airborne dust from trucking	Yes	Slowed trucks/machinery to minimize disturbance.	NA
3/11/2021	Upwind	Remedial excavation	No visible dust - suspected to be caused by moisture in CAMP intake	Yes	Slowed trucks, dried camp intake, applied water to tracking pad	NA
3/12/2021 - 3/25/21	Upwind/Downwind	Remedial excavation	Airborne dust from trucking	Yes	Slowed trucks/machinery to minimize disturbance, applied water to tracking pad	NA
3/27/2021	Upwind/Downwind	Remedial excavation	Airborn dust from excavation activities	Yes	Slowed machinery to minimize disturbance	No source of exceedance identified - PID recalibrated
3/30/2021 - 4/7/2021	Downwind	Remedial excavation	Airborn dust from excavation activities	Yes	Slowed machinery to minimize disturbance	No source of exceedance identified - PID recalibrated
4/8/2021	Upwind/Downwind	Remedial excavation	Airborn dust from excavation activities	Yes	Slowed machinery to minimize disturbance	No source of exceedance identified - PID recalibrated
4/9/2021	Upwind	Remedial excavation	Airborn dust from excavation activities	Yes	Slowed machinery to minimize disturbance	NA

Copies of all field data sheets relating to the CAMP are provided in electronic format in **Appendix B** of this report.

4.2.7 REPORTING

Weekly reports were prepared and provided to the DEC Project Manager during the course of the soil remediation. These reports presented the following information:

- Activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (i.e. tons of material exported and imported, etc.);
- Description of approved activity modifications, including changes of work scope and/or schedule;
- Sampling results received following internal data review and validation, as applicable; and,
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

All weekly reports are included in electronic format in **Appendix B** of this report.

The digital photo log and key map as required by the RAWP is included in electronic format in **Appendix D** of this report.

4.3 CONTAMINATED MATERIALS REMOVAL

Removal of all contaminated media generated during the remedial actions was implemented in accordance with the RAWP and the Decision Document. This FER includes a description and identification of the media type (soil and water), location, volume of contamination removed, date removed and the disposal facility.

A list of the SCOs for the contaminants of concern for this project is provided in Appendix D of the RAWP. A figure of the location of original sources and areas where excavations were performed is shown in Figure 3.1 of the RAWP.

4.3.1 PETROLEUM TANK/STRUCTURE

On March 2, 2021, one (1) unknown 500-gallon UST was observed near the northwestern portion of the Site during remedial excavation activities. SESI notified the New Rochelle Fire Department (NRFD) and was informed that this UST was closed in place by filling with slurry on September 29, 1995. In addition, one (1) concrete structure observed to be 8 feet long, 5 ft wide, and 2 feet thick was discovered on the western end of the Site. A small circular pit near the center of the structure, approximately 24-inches in diameter, was observed to be filled with petroleum-stained concrete debris. Based upon the location of the concrete, the structure was suspected to be associated with the former auto repair establishment.

Prior to tank/structure removal activities, a tank removal permit application was filed with the NRFD. On March 8, 2021, the UST was cut, revealing concrete inside the tank. The UST was disposed as scrap metal by Luzon Environmental Services. The concrete from within the UST was pulverized and mixed with other contaminated soil for disposal. The concrete structure was pulverized, and concrete chunks with visible staining were drummed for disposal.

Two end-point soil samples were collected beneath the UST (T-1 and T-2) and two (2) samples were collected from beneath the concrete structure (CB-1 and CB-2). The samples were submitted to Alpha Analytical for analysis of TCL/TAL+30. The tank closure report was submitted to the NRFD under separate cover.

The removal details are provided in **Table 4.3** below and **Figure 4.1**. A detailed description of tank closure activities is presented in the tank closure report included as **Appendix E**.

Table 4.3 Petroleum Tank/Concrete Structure Summary

Field Observations	**UST 1**
Date of Removal	3/2/2021
Tank Diameter	48-inches
Tank Length	72-inches
Tank Volume (Gallons)	500
Quantity of Liquid Removed (gal)	Filled with concrete
Field Observations	**Conctrete Structure**
Date of Removal	3/2/2021
Length	96-inches
Width	60-inches
Thickness	24-inches
Quantity of Liquid Removed (gal)	NA

4.3.2 CONTAMINATED LIQUIDS

Approximately 300 gallons of contaminated purged groundwater generated during RI groundwater well sampling was containerized in seven (7) 55-gallon drums and removed from the Site by Innovative recycling Technologies (IRT) and transported to Republic Environmental Systems, Hatfield, Pennsylvania. The liquid disposal manifest is provided in **Appendix F**. No groundwater for disposal was generated during the remediation activities.

4.3.3 CONTAMINATED SOIL

4.3.3.1 REMEDIAL INVESTIGATION SUMMARY

Contaminated soils, which contained the Site contaminants of concern (COCs) including volatile organic compounds (VOCs), semi-VOCs (SVOCs), metals, and pesticides above the Track 1 USCOs, where excavated for off-site disposal.

As part of the Draft Remedial Investigation Report, Garden Street Apartments Site C360188 (RIR), prepared by VHB Engineering, Surveying, Landscape Architecture and Geology, P.C. (VHB), dated November 18, 2020, VHB collected 47 soil samples from 11 soil borings, installation of three (3) permanent groundwater monitoring wells and

groundwater sampling, sample of one (1) existing groundwater monitoring well and installation and sampling of six (6) temporary soil vapor points within the proposed building footprint, and one (1) within the previously proposed playground footprint..

Results of the RIR identified that the Site soils have been impacted with SVOC and metals impacts within the fill material at concentrations that exceed the Restricted Residential Soil Cleanup Objectives (RRSCOs). Additionally, VOCs, SVOCs, metals, PCBs and the pesticide 4,4'-DDT were reported in the fill material at depths ranging from 1.5 to 16 ft-bgs. VOCs exceeding the USCO were identified in soil at depths of 1 to 16 ft-bgs primarily on the western portion of the Site. SVOC impacts exceeding the USCOs were identified in shallow soils 2 to 5 ft-bgs. Metals contaminated soils exceeding the USCOs extends down to depths of 12 to 16 ft-bgs in isolated areas on the northern and southern portions of the Site. Pesticides impacted exceeding the USCOs were identified in shallow soils from 3 to 5 ft-bgs in one area near the western portion of the Site and there is one deep exceedance down to 16 feet bgs.

4.3.3.2 SUPPLEMENTAL REMEDIAL INVESTIGATION SUMMARY

As specified in the RAWP prepared by SESI, dated October 2020, in order to fully delineate soil quality and for waste disposal purposes for areas of the Site not investigated during the RI, supplemental remedial investigation (SRI) was be conducted prior to starting the mass excavation activities. Ten (10) additional RI soil borings and 37 soil samples were collected as shown on Figure 3.2 of the RAWP. In addition, 11 waste classification soil borings and 46 waste classification soil samples were advanced for soil disposal classification purposed.

As shown on **Table 4.4** below results of the SRI identified USCO, RSCO, and RRSCO exceedances of metals Site-wide that ranges from 1 to 14 ft-bgs. SVOCs including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene were identified in three (3) borings at depth ranging from 1 to 7 ft-bgs at concentrations exceeding the applicable USCOs. Metals including arsenic, barium, cadmium, total chromium, hexavalent

chromium, copper, lead, mercury, nickel, and zinc were identified in fourteen (14) borings at depth ranging from 1 to 14 ft-bgs, at concentrations exceeding the applicable USCOs. The VOC acetone was identified in one (1) boring at a depth of 1 ft-bgs at a concentration exceeding its applicable USCO.

Table 4.4: Summary of Post RI Exceedances in Soil

LOCATION					SB-3 (1-2)		SB-3 (8-9)		SB-5 (3-4)		SB-6 (2-3)		SB-7 (1-2)		SB-8 (4-5)		SB-10 (2-3)	
SAMPLING DATE					12/7/2020		12/7/2020		12/8/2020		12/8/2020		12/8/2020		12/8/2020		12/8/2020	
LAB SAMPLE ID					L2054511-09		L2054511-10		L2054776-18		L2054776-14		L2054776-10		L2054776-07		L2054776-04	
SAMPLE TYPE					SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)					1-2		8-9		3-4		2-3		1-2		4-5		2-3	
	USCO	RSCO	RRSCO	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Semivolatile Organics by GC/MS																		
Benzo(a)anthracene	1	1	1	mg/kg	**1.4**		0.11	U	**0.082**	J	0.12	U	**0.63**		**0.75**		**0.082**	J
Benzo(a)pyrene	1	1	1	mg/kg	**1.6**		0.14	U	**0.073**	J	0.17	U	**0.69**		**1.1**		**0.078**	J
Benzo(b)fluoranthene	1	1	1	mg/kg	**1.8**		0.11	U	0.08	J	0.12	U	**0.77**		**1.6**		**0.095**	J
Chrysene	1	1	3.9	mg/kg	**1.4**		0.11	U	**0.08**	J	0.12	U	**0.72**		**1.4**		**0.083**	J
Indeno(1,2,3-cd)pyrene	0.5	0.5	0.5	mg/kg	**1**		0.14	U	**0.039**	J	0.17	U	**0.44**		**0.75**		**0.051**	J
Total Metals																		
Arsenic, Total	13	16	16	mg/kg	**7.03**		**2.65**		**12.7**		**6.87**		**3.99**		**95.6**		**4.32**	
Barium, Total	350	350	400	mg/kg	**686**		**42.4**		**1410**		**442**		**554**		**740**		**86.7**	
Cadmium, Total	2.5	2.5	4.3	mg/kg	**2.77**		**0.791**	J	**3.14**		**0.71**	J	1.3		**4.79**		**0.6**	J
Chromium, Total	30	36	180	mg/kg	**25.9**		**117**		**14.9**		**20.2**		**16.1**		**17.9**		**19.6**	
Copper, Total	50	270	270	mg/kg	**110**		**76.8**		**13.7**		**21.9**		**41.3**		**49**		**33.6**	
Lead, Total	63	400	400	mg/kg	**7040**		**8.99**		**13200**		**344**		**1620**		**10000**		**133**	
Mercury, Total	0.18	0.81	0.81	mg/kg	**0.418**		0.069	U	**0.786**		**0.888**		**3**		**0.555**		**0.126**	
Nickel, Total	30	140	310	mg/kg	**11**		**167**		**9.21**		**12.9**		**11.7**		**37.2**		**14.2**	
Zinc, Total	109	2200	10000	mg/kg	**1210**		**42.3**		**2970**		**332**		**588**		**1170**		**89**	

LOCATION					D2VOC (1')		WCA1 (0-7)		WCA3 (0-7)		WCB3 (0-7)		WCC1 (0-7)		WCD1 (7-14)		WCD2 (0-7)		WCE1 (0-7)	
SAMPLING DATE					12/4/2020		12/7/2020		12/4/2020		12/4/2020		12/4/2020		12/4/2020		12/4/2020		12/4/2020	
LAB SAMPLE ID					L2054337-21		L2054495-01		L2054337-01		L2054337-07		L2054337-31		L2054337-24		L2054337-19		L2054337-27	
SAMPLE TYPE					SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
SAMPLE DEPTH (ft.)					1		0-7		0-7		0-7		0-7		0-7		0-7		0-7	
	USCO	RSCO	RRSCO	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Chromium, Hexavalent	1	22	110	mg/kg	-	-	0.918	U	**1.02**		0.927	U	**1.16**		**0.455**	J	0.939	U	0.884	U
Semivolatile Organics by GC/MS																				
Benzo(a)anthracene	1	1	1	mg/kg	-	-	**0.41**		0.11	U	**3.3**		0.11	U	**0.098**	J	**0.36**		**0.091**	J
Benzo(a)pyrene	1	1	1	mg/kg	-	-	**0.48**		0.15	U	**3.4**		0.14	U	**0.096**	J	**0.36**		**0.11**	J
Benzo(b)fluoranthene	1	1	1	mg/kg	-	-	**0.6**		0.11	U	**4.6**		0.11	U	**0.1**	J	**0.43**		**0.14**	
Benzo(k)fluoranthene	0.8	1	3.9	mg/kg	-	-	**0.21**		0.11	U	**1.2**		0.11	U	**0.042**	J	**0.16**		**0.043**	J
Chrysene	1	1	3.9	mg/kg	-	-	**0.44**		0.11	U	**3.7**		0.11	U	**0.1**	J	**0.35**		**0.1**	J
Dibenzo(a,h)anthracene	0.33	0.33	0.33	mg/kg	-	-	**0.068**	J	0.11	U	**0.56**		0.11	U	0.11	U	**0.052**	J	0.11	U
Indeno(1,2,3-cd)pyrene	0.5	0.5	0.5	mg/kg	-	-	**0.33**		0.15	U	**2.5**		0.14	U	**0.058**	J	**0.21**		**0.071**	J
Total Metals																				
Arsenic, Total	13	16	16	mg/kg	-	-	**3.96**		**4.29**		**11.8**		**3.18**		**5.15**		**219**		**6.04**	
Copper, Total	50	270	270	mg/kg	-	-	**40.6**		**14.5**		**50.9**		**9.79**		**313**		**123**		**25.7**	
Lead, Total	63	400	400	mg/kg	-	-	**219**		**64.6**		**154**		**27.6**		**662**		**2400**		**216**	
Mercury, Total	0.18	0.81	0.81	mg/kg	-	-	**0.111**		**0.283**		**0.079**	J	**0.097**		**0.251**		**1.28**		**0.183**	
Zinc, Total	109	2200	10000	mg/kg	-	-	**408**		**45.4**		**122**		**29.7**		**179**		**486**		**118**	
Volatile Organics by EPA 5035																				
Acetone	0.05	100	100	mg/kg	**0.063**		-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

1. Results are shown in milligrams per kilogram (mg/kg)
2. Yellow shading denotes exceedances of NYSDEC USCO
3. Orange shading denotes exceedances of NYSDEC RSCO
4. Red shading denotes exceedances of NYDEC RRSCO.
5. Bold = Compound Detected
6. Q = Qualifier
7. U = Compound Not Detected
8. J = concentration estimated

Based upon the results of this data, an updated excavation plan (Figure 3.2B) was provided to DEC via email correspondence and approved by Project Manager Michael Kilmer on January 19, 2021. In addition, the waste characterization and RIR data were sent to Clean Earth of Carteret for disposal facility pre-approvals prior to shipping. The revised Excavation Remediation Plan Figure 3.2B and the post RIR laboratory reports are presented in **Appendix G**. The post RIR laboratory data summary is in **Table 4.5 below.**

4.3.3.3 CONTAMINATED SOIL REMOVAL SUMMARY

The contaminated soil was removed from the entire Site down to depths ranging from 3.5 ft-bgs to 18.5 ft-bgs as shown on survey **Figure 4.2**. The Site was subdivided in 30 x 30-foot grids for post excavation sampling based on 1 bottom post excavation sample per 900 square feet (SF) in accordance with DER-10. The excavation continued in each grid/cell until the end-point confirmatory sample complied with the USCOs. No confirmatory samples were collected from the side walls along portions of the northern and western property border because of the presence of SOE sidewalls. Sidewall samples were also not collected from the southern and northeastern Site boundaries since cut back side slopes were used for excavation stabilization. SOE was not required in these areas.

In total, 20,861.21 tons of contaminated soil was removed from the Site as presented in **Table 4.6** below and described in Section 4.3.4. The soil remediation including excavation and off-site disposal was completed on April 12, 2021.

Maps of the sample locations and elevations, and of the pre-existing grade condition are included in **Figures 4.2 and 4.3**.

4.3.4 DISPOSAL DETAILS

Prior to the soil disposal activities, waste characterization samples were collected for disposal purposes as presented in in Section 4.3.1.2 of this report. During the period from February 15, 2020 to April 12, 2021 a total of 20,861.21 tons of non-hazardous contaminated soil was excavated and removed from the Site for off-site disposal at Clean

Earth of Carteret, Kearney, New Jersey (CEC). Eight (8) drums of lead hazardous oil stained concrete, derived from the concrete block structure, was removed from the Site and transported to CEC. In addition, seven (7) drums of purged groundwater and fourteen (14) drums of soil cuttigs generated during the RI was transported to Republic Environmental Systems, Hatfield, Pennsylvania.One (1) UST was removed from the Site by Luzon for recycling. The soil remediation was completed on April 12, 2021. **Table 4.6** below shows the total quantities of each category of material removed from the Site and the disposal locations.

Table 4.6 Summary of Contaminated Material Removed from the Site

Date	Area	Description	Facility	Quantity
10/21/2020	Site-w ide	Purged Grounw ater	Republic Environmental Sytems, Hatfield, PA	2 drums
11/20/2020	Site-w ide	Purged Grounw ater	Republic Environmental Sytems, Hatfield, PA	5 drums
11/20/2020	Site-w ide	Soil Cuttings	Republic Environmental Sytems, Hatfield, PA	14 drums
2/15/2021 to 4/12/2021	Site-w ide	Excavated Soil	Clean Earth Carteret, NJ	20861.21 Tons
3/8/2021	Western portion of site.	500-gallon UST (UST 1)	Luzon Environmental	1 Tanks
4/8/2021	Western portion of site	Oil Stained Concrete Structure	Clean Earth Carteret, NJ	8 drums

A figure showing waste classification samples and a summary of the samples collected to characterize the waste, and associated analytical results are provided in **Appendix G** of this report. Letters from Applicants to disposal facility owners and acceptance letters from disposal facility owners are attached in **Appendix H** of this report. Soil disposal manifests, Part 364 permits of the trucks, and bills of lading are included in electronic format in **Appendix I** of this report.

4.4 REMEDIAL PERFORMANCE/DOCUMENTATION SAMPLING

4.4.1 SOIL REMEDIAL END-POINT SAMPLING

End point soil samples were collected in accordance with Section 5.4 of DER-10. Base samples were collected at a frequency of 1 per 900 square feet of base area. In total, 53 end-point bottom samples and 29 end-points sidewall samples were collected as shown on **Figure 4.2**. No confirmatory samples were collected from the side walls along portions of the northern and western property border because of the presence of SOE sidewalls.

Sidewall samples were also not collected from the southern and northeastern Site boundaries because SOE was not required in these areas for development purposes and the walls were sloped for safety.

Post-excavation samples were analyzed for target compound list (TCL) VOC, SVOCs, pesticides, and target analyte list (TAL) metals in accordance with EPA Methods 8260, 8270, 8081, and 6010/7471 respectively. The samples were submitted to Alpha Analytical (Alpha), a NYSDOH Environmental Laboratory Accreditation Program (ELAP) -certified laboratory, and the results were reported in accordance with NYSDEC requirements for Category B data deliverables. Field blanks, trip blanks and duplicate samples associated with sampling activities were collected as a part of the accordance with the QAPP included as Appendix B of the RAWP.

In certain locations along the southern and northeastern portions of the Site end-point samples were collected from test pits prior to excavation of the grid to confirm compliance with the USCOs. The remedial excavation to target depths was immediately followed with the backfill. SESI sent an email to the NYSDEC on February 24, 2021 to present the pre-excavation sampling and target depths. The same soil remediation and backfill method was used on the northeastern corner of Site along Garden Street where no SOE was installed.

Initially, exceedances of the USCOs were detected in samples RA-31, RA-33, RA-33B, RA-34B, and T-2. Further excavation and resampling in these grids resulted in no exceedances of the USCOs.

The post excavation end-point sample data is summarized on **Table 4.7**. The post excavation end-point sample laboratory data is provided in **Appendix J** of this report. Data Usability Summary Reports (DUSRs) were prepared for all data generated in this remedial performance evaluation program. DUSRs are included in **Appendix K** of this report.

Based on the end-point sample results reported on **Table 4.7** and final elevations as reported in **Figure 4.2**, the soil remedy has achieved a Track 1 unrestricted clean-up because all soils exceeding the USCO have been excavated for off-site disposal.

4.4.2 GROUNDWATER SAMPLING AND RESULTS

One (1) round of groundwater samples was collected by VHB on July 1, 2020 from monitoring wells B201-G, B206-G, B207-G, and GW-2, as reported in the approved RIR prepared by VHB, dated September 24, 2020. VHB reported that numerous metals were reported at concentrations exceeding the AWQS. However, the total metals exceedances were attributable to turbidity and the Site groundwater quality was evealuated from the dissolved metals concentrations. As shown on **Table 4.8** below and **Figure 4.4** the Site's groundwater is impacted with dissolved metals including, iron, magnesium, manganese, sodium at concentrations above NYSDEC Technical Operational Guidance Series (TOGS) 1.1.1 GA Ambient Water Quality Standards (AQWS) groundwater.

Table 4.8: Summary of Dissolved Metals Exceedances in Groundwater

Analyte	NYSDEC AWQS (µg/L)	Concentration (ug/L)	Groundwater ID
Iron, Dissolved	300	**1,210**	B201-G Duplicate*
Magnesium, Dissolved	35,000	**36,600**	B201-G
		52,500	B206-G
Manganese, Dissolved	300	**652.6**	B201-G
Sodium, Dissolved	20,000	**144,000**	GW-2
		490,000	B201-G
		401,000	B206-G
		77,600	B207-G

As shown on **Table 4.9** below and **Figure 4.4**, PFOA and PFOS was reported in monitoring wells B201-G, B206-G, B207-G, and GW-2 at concentrations which slightly exceeds the screening criteria of 0.01 µg/L (or 10 ppt).

Table 4.9: Summary of PFAS Exceedances in Groundwater

Analyte	NYSDEC Screening Level (ug/L)	Concentration (ug/L)	Groundwater Sample ID
PFOA	0.01	0.0162	B201 G
		0.055	B206 G
		0.0125	B207 G
PFOS	0.01	0.0232	GW 2

Conclusions – Groundwater Results

- The metals detected are secondary in nature and naturally occurring.
- PFOA and PFOS do not exceed the NYSDEC Screening Level for total PFAS of 500 ng/L in any sample collected, and no on-Site source of these emerging contaminants has been identified as shown in the soil results.

Based on the above groundwater data, which does not require remediation, no further monitoring is warranted for the Site groundwater.

4.4.3 SOIL VAPOR SAMPLING AND RESULTS

One (1) round of soil vapor sampling was conducted by VHB on June 22, 2020 as reported in the approved RIR prepared by VHB, dated September 24, 2020. The State of New York does not have standards for evaluating soil vapor contamination. However, for discussion purposes SESI has used the NYSDOH Matrices lower threshold levels to evaluate the Matrix A, B, and C listed compounds. The New York State Department of Health Decision Matrices are not applicable to soil vapor sampling results alone. The matrices can be used to help inform decision-making and to give a point-of-reference, but they are not to be used in recommending actions for comparison to soil vapor sampling results alone.

As shown on **Figure 4.5** the chlorinated VOC trichloroethene (TCE) was detected in soil vapor sample B203-V at a concentration of 12.7 µg/m^3, exceeding the New York State Department of Health (NYSDOH) Decision Matrix A Lower Threshold Value of 6 µg/m^3.

There were no VOC sources detected on Site in the soils or groundwater. Therefore, the source of the TCE in this sample is most likely an off-Site source.

The potential for vapor intrusion into the future building will not be a concern at the Site for the following reasons:

- All contaminated soils have been excavated to Track-1 standards and soils contamination did not contain any VOCs. Therefore, there is no volatile organic compound source in the Site soils. Groundwater sampling did not result in VOC exceedances either.
- Pre-remedial soil vapor sampling identified low concentrations of chlorinated VOCs (CVOCs) in soil vapor at the northern and central portion of the property border ((PCE-15.7 ug/m3 (Max) TCE-12.7- ug/m3 Max.)). These CVOC concentrations are below the New York State Department of Health (NYSDOH) Matrix A and B "Mitigation" Threshold Values for trichloroethene (TCE) and tetrachloroethene (PCE).
- The northern portion of the building is constructed with a cellar that comprised of a 36-inch to 48-inch concrete Mat slab underlain by a waterproofing membrane and a 4-inch mud slab as shown the attached Foundation (Cellar) General Arrangement Plan (Figures FO-109, FO-300, and FO-301) prepared by Stephen B. Jacobs Group. In addition, passive venting pipes and sealing water proofing barrier were installed below the building's Mat foundation slab foundation as an additional pre-cautionary measure as shown on SESI vapor intrusion Mitigation Plan V-1 (**Appendix L**). The Southern portion of the building has no cellar and is composed of a 12-inch thick slab-on-grade concrete pad.

The above findings were communicated in SESI's Vapor Intrusion Evaluation (VIE) letter, dated October 15, 2021 (**Appendix L)** to the NYSDEC and NYSDOH. The NYSDEC responded with a letter dated November 1, 2021, concurring with SESI's assessment and additional monitoring or mitigation for soil vapor at the Site will not be required (**Appendix M**).

4.4.4 DATA USABILITY REPORTS (DUSR)

DUSRs were prepared for all data generated in this remedial performance evaluation program to ensure that the field sampling and laboratory analytical practices were acceptable. The data associated with all the samples were validated by a third party, Lab Data Consultants (LDC), in accordance with requirements of DER-10. These DUSRs are included in **Appendix K** and associated raw data is provided electronically in **Appendix J** (post excavation data). All data collected during this FER has been submitted in the NYSDEC approved Electronic Data Deliverable (EDD) format using the DEC's Environmental Information Management System (EIMS) database software application EQuIS™. The EDD submitall and acceptance emails are presented in **Appendix K**.

The DUSR includes data sets from the remedial action. The DUSR was carried out as specified in DER-10 to evaluate the quality control measures that were implemented during the field and laboratory analytical programs, with the objective of determining whether the reported analytical data are representative and usable for decision making. The DUSR evaluated whether the data are technically defensible (i.e. were all analytical data requirements met and documented). The data usability analysis provides an evaluation of the Site data to determine whether they are adequate to draw conclusions regarding the nature and extent of contamination.

The items that were reviewed as part of the DUSR include the following:

- Completeness (number of samples collected and analyzed compared to plans)
- Chains of custody are complete and accurate
- Holding times
- Instrument calibration
- Relative percent difference between field duplicates
- Reasonableness of data (e.g. relationships between total and soluble analytes)
- Blank contamination

The DUSR for the soil samples analyzed by Alpha showed that the overall performances of the analyses are acceptable and did fulfill the requirements of the analytical methods.

The samples were analyzed within the USEPA SW-846 holding times. None of the analytical data changed based on the DUSR. Some issues were identified resulting in minor data qualifiers due to laboratory quality control outliners. Some notable issues for the contaminants of concern are described below.

Lab ID# L2107249

The barium result associated with samples RA-40, RA-43, RA-44, RA-44A, and RA-45 was estimated due to serial dilution percent difference exceedances. The bias cannot be determined. The result can be used for project objectives as non-detects with estimated quantitation limits (UJ) which may have a minor impact on the data usability.

Lab ID# L2108343

The barium result associated with samples RA-35 and RA-37 was estimated due to serial dilution percent difference exceedances. The bias cannot be determined. The result can be used for project objectives as non-detects with estimated quantitation limits (UJ) which may have a minor impact on the data usability.

Lab ID# L2108655

Chromium, lead and zinc were detected below the reporting limits in the laboratory blank samples associated with samples RA-27 and RA-28. These results can be used for project objectives as non-detect (U) which may have a minor impact on the data usability.

MS percent recoveries (%R) outside of control limits in the metals analyses of mercury associated with samples RA-27 and RA-28. The mercury result may be biased high due to high MS percent recovery. The result can be used for project objectives as an estimated value (J) may have a minor impact on the data usability.

The mercury results were estimated due to laboratory duplicate relative percent difference exceedances Associated with sample RA-27DUP. The bias cannot be determined. The

results can be used for project objectives as estimated values (J) or nondetects with estimated quantitation limits (UJ) which may have a minor impact on the data usability.

The barium result associated with samples RA-27 and RA-28 was estimated due serial dilution percent difference exceedances. The bias cannot be determined. The result can be used for project objectives as non-detects with estimated quantitation limits (UJ) which may have a minor impact on the data usability.

Lab ID# L2109313

Chromium and arsenic were detected below the reporting limits in the laboratory blank samples associated with samples RA-25, RA-25A, and RA-25B. These results can be used for project objectives as non-detect (U) which may have a minor impact on the data usability.

Lab ID# L2109701

Arsenic was detected below the reporting limits in the laboratory blank samples associated with samples RA-33, RA-33A, RA-33B, RA-34, RA-34A, and RA-34B. These results can be used for project objectives as non-detect (U) which may have a minor impact on the data usability.

Lab ID# L2110227

Chromium was detected below the reporting limits in the laboratory blank samples associated with samples RA-31 and RA-32. These results can be used for project objectives as non-detect (U) which may have a minor impact on the data usability.

Lab ID# L2110228

Barium results associated with sample T-1 and T-2 were estimated due to serial dilution percent difference exceedances. The bias cannot be determined. The results can be used for project objectives as estimated values (J) which may have a minor impact on the data usability.

Lab ID# L2110555

The chromium result associated with samples RA-23, RA-24, RA-38, RA-38A, RA-39, RA-39A, and RA-39B were estimated due to laboratory duplicate relative percent difference exceedance. The bias cannot be determined. The result can be used for project objectives as an estimated value (J) which may have a minor impact on the data usability.

The barium results associated with samples RA-23, RA-24, RA-38, RA-38A, RA-39, RA-39A, and RA-39B were estimated due to serial dilution percent difference exceedances. The bias cannot be determined. The results can be used for project objectives as estimated values (J) which may have a minor impact on the data usability.

Lab ID# L2111558

The copper result associated with sample RA-11 was estimated due to serial dilution percent difference exceedance. The bias cannot be determined. The result can be used for project objectives as an estimated value (J) which may have a minor impact on the data usability.

Lab ID# L2111925

The barium results associated with samples RA-2, RA-21, RA-3, RA-4, RA-8, RA-8A, RA-14, RA-14A, RA-15, RA-16, RA-20, and RA-20B were estimated due to serial dilution percent difference exceedances. The bias cannot be determined. The results can be used for project objectives as estimated values (J) which may have a minor impact on the data usability.

Lab ID# L2112151

Arsenic was detected below the reporting limits in the laboratory blank samples associated with samples RA-6, RA-7, RA-7A, RA-18, RA-18A, RA-19, and RA-19B. These results can be used for project objectives as nondetect (U) which may have a minor impact on the data usability. These results can be used for project objectives as nondetect (U) which may have a minor impact on the data usability.

Lab ID# L2112606

The barium results associated with samples RA-5, RA-5A, RA-17, RA-17A, RA-17B, and DUP20210312 were estimated due to serial dilution percent difference exceedances. The bias cannot be determined. The results can be used for project objectives as estimated values (J) which may have a minor impact on the data usability.

Lab ID# L2113237

Arsenic was detected below the reporting limits in the laboratory blank samples associated with samples RA-11 and RA-12. These results can be used for project objectives as nondetect (U) which may have a minor impact on the data usability.

Lab ID# L2054511

Chromium was detected below the reporting limits in the laboratory blank samples associated with samples SB-1 (3-4), SB-1 (6-7), SB-1 (12-13), SB-1 (16-17), SB-2 (2-3), SB-2 (7-8), SB-2, 13-14), SB-2, (17-18), SB-3 (1-2), SB-3 (8-9), SB-3 (14-15), SB-3 (18-19), SB-4 (2-3), SB-4 (5-6), SB-4 (11-12), and SB-4 (17-18). These results can be used for project objectives as nondetect (U) which may have a minor impact on the data usability.

Lab ID# L2054776

Arsenic, chromium, copper, nickel, and zinc were detected below the reporting limits in the laboratory blank samples associated with samples SB-5 (3-4), SB-5 (8-9), SB-5 (13-14), SB-5 (18-19), SB-6 (2-3), SB-6 (7-8), SB-6 (12-13), SB-6 (17-18), SB-7 (1-2), SB-7 (6-7), SB-7 (11-12), SB-7 (16-17), SB-8 (4-5), SB-8 (8-9), SB-8 (14-15), SB-9 (3-4), SB-9 (7-8), SB-9 (13-14), and SB-10 (2-3), SB-10 (6-7), and SB-10 (12-13). These results can be used for project objectives as nondetect (U) which may have a minor impact on the data usability.

The chromium results associated with samples SB-5 (18-19), DUP-1 (12/8), and DUP-2 (12/8) were estimated due to laboratory duplicate relative percent difference exceedances.

The bias cannot be determined. The results can be used for project objectives as estimated values (J) which may have a minor impact on the data usability.

The barium results associated with samples SB-5 (3-4), SB-5 (8-9), SB-5 (13-14), SB-5 (18-19), SB-6 (2-3), SB-6 (7-8), SB-6 (12-13), SB-6 (17-18), SB-7 (1-2), SB-7 (6-7), SB-7 (11-12), SB-7 (16-17), SB-8 (4-5), SB-8 (8-9), SB-8 (14-15), SB-9 (3-4), SB-9 (7-8), SB-9 (13-14), and SB-10 (2-3), SB-10 (6-7), and SB-10 (12-13) were estimated due to serial dilution percent difference exceedances. The bias cannot be determined. The results can be used for project objectives as estimated values (J) which may have a minor impact on the data usability.

4.5 IMPORTED BACKFILL

A table of all sources of imported backfill with quantities for each source is shown in **Table 4.10** below. The materials imported to the Site were quarry stone and Item 4 from quarries that do not require testing, and crushed processed rock from Central Park Avenue in Yonkers, New York that was tested and approved by NYSDEC. Materials imported to the Site are listed below in **Table 4.10**. This clean imported backfill material was used for the SOE, backfilling the deeper excavations, in the construction tracking pad area and for other miscellaneous backfilling and grading. The approved Soil Reuse/Import forms and weight tickets are included in **Appendix N**. The reported quantities imported to the Site are less than the total quantities requested for approval because the some of the material is still being imported or the forms assumed higher quantities than actually needed.

Table 4.10 Summary of Imported Backfill

Description	Source Facility	Quantity
2-4-inch stone	Thalle Industries	148.75 (tons)
3/4-inch Stone	Thalle Industries	730.68 (tons)
Item 4	Thalle Industries	86.04 (tons)
Processed Rock	Central Park Ave Yonkers	270 (Yards)

4.6 ON-SITE MATERIALS REUSE

On-Site soil was reused as part of the Site development as follows:

- Approximately 1,200 cubic yards of soil from the southwestern portion of the Site in waste classification grid C-2 was excavated from at a depth of 5 ft-bgs to 15 ft-bgs, where post remedial end-points samples were below the USCOs. This soil was placed in grids A-1 and A-2 upon completion of remedial excavations and confirmation of end-point sampling meeting the USCOs.
- Approximately 1,500 cubic yards of soil from the northwestern portion of the Site in waste classification grids D-1 and D-2 was excavated from at a depth of 10 ft-bgs to 20 ft-bgs, where post remedial end-points samples were below the USCOs. This soil was placed in grids A-1 and A-2 upon completion of remedial excavations and confirmation of end-point sampling meeting the USCOs.

The approved Soil Reuse/Import forms are included in **Appendix N**.

4.7 CONTAMINATION REMAINING AT THE SITE

The Site remedy has achieved Track 1 unrestricted use for soil. All the soil exceedances of the USCOs have been excavated and removed from the Site; therefore, there are no remaining exceedances in soil.

Minor groundwater exceedances are present but not at levels that make any active remediation or monitoring necessary.

As presented in SESI's Vapor Intrusion Evaluation (VIE) letter, dated September 24, 2021 (Appendix L) the northern portion of the building is constructed with a cellar that composed of a 36-inch to 48-inch concrete Mat slab underlain by a waterproofing membrane and a 4-inch mud slab as shown the attached Foundation (Cellar) General Arrangement Plan (Figures FO-109, FO-300, and FO-301) prepared by Stephen B. Jacobs Group. In addition, passive venting pipes and sealing water proofing barrier were installed below the buildings Mat foundation slab foundation as an additional pre-cautionary measure as shown on SESI vapor intrusion Mitigation Plan V-1. The Southern portion of the building has no cellar and is composed of a 12-inch thick slab-on-grade concrete pad.

Therefore, vapor intrusion will not constitute a risk on the Site and no further monitoring is warranted. As per the NYSDEC letter dated November 1, 2021, the NYSDEC will not require additional monitoring or mitigation for soil vapor at the Site (**Appendix M**).

4.8 ENGINEERING CONTROLS

The remedy for the Site did not require the construction of any engineering control systems.

4.9 INSTITUTIONAL CONTROLS

The remedy for the Site did not require any institutional control systems.

4.10 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN

All deviations from the RAWP are noted below.

- Results of the SRI identified USCO, RSCO, and RRSCO exceedances of metals Site-wide at depths ranging from 1 to 14 ft-bgs. Based upon the results of this data, an updated excavation plan Figure 3.2B was provided to DEC via email correspondence and approved by project manager Michael Kilmer on January 19, 2021.

- No confirmatory samples were collected from the side walls along portions of the northern and western property border because of the presence of SOE sidewalls. Sidewall samples were also not collected from the southern and northeastern Site boundaries because SOE was not required in these areas for development purposed and the walls were sloped for safety to prevent collapse of the walls. Test pits were advanced at remedial end-point samples locations adjacent to the railroad tracks to the depths proposed in the NYSDEC approved revised Excavation Remediation Plan Figure 3.2B. This plan was implemented for safety reasons as no SOE was planned for southern property boundary. Upon confirmation that no exceedances

of the USCOs were identified at each grid, excavations were performed in smaller linear trenched to avoid unsafe excavations.

- One (1) unknown 500-gallon UST discovered near the northwestern portion of the Site was removed.

- One (1) concrete structure observed is suspected to be associated with the former auto repair establishment was removed.