Proposed SNL Storage Facility

1440-1460 39th Street Site

BROOKLYN, NEW YORK

Final Engineering Report

NYSDEC Site Number: C224311

Prepared for:

SNL XXII, LLC 3333 New Hyde Park Road Lake Success, New York 11042

Prepared by:

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NOVEMBER 2024



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CERTIFICATIONS

I, Xin Yuan, 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, Xin Yuan, of Impact Environmental Engineering and Geology, PLLC, am certifying as Owner's Designated Site Representative for the site.

096444

Date

11/27/2024

NYS Professional Engineer #

Signature



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LIST OF ACRONYMS

Acronym	Definition	
AST	Aboveground Storage Tank	
AWQS	Ambient Water Quality Standard	
BCA	Brownfield Cleanup Agreement	
ВСР	Brownfield Cleanup Program	
САМР	Community Air Monitoring Plan	
СОС	Contaminant of Concern	
СРР	Citizen Participation Plan	
CSCO	Commercial Soil Cleanup Objective	
СVОС	Chlorinated Volatile Compounds	
су	Cubic yard	
DER	Division of Environmental Remediation	
DER-10	NYSDEC Technical Guidance for Site Investigation & Remediation	
DGA	Densely Graded Aggregate	
DUSR	Data Usability Summary Report	
EE	Environmental Easement	
FER	Final Engineering Report	
ft-bgs	Feet Below ground surface	
ICs	Institutional Controls	
IRM	Interim Remedial Measures	
IRMWP	Interim Remedial Measures Work Plan	
MNA	Monitored Natural Attenuation	
msl	Mean Sea Level	
MW	Monitoring Well	
NYCDOH	New York City Department of Health	
NYSDEC	New York State Department of Environmental Conservation	
NYSDOH	New York State Department of Health	
O&M	Operation and Maintenance	
РАН	Polynuclear Aromatic Hydrocarbons	
PBS	Petroleum Bulk Storage	
РСВ	Polychlorinated Biphenyls	
PFAS	Per- and polyfluoroalkyl substances	

Acronym	Definition	
РНС	Petroleum Hydrocarbon	
PID	Photoionization Detector	
PPM	parts per million	
QAPP	Quality Assurance Project Plan	
QA/QC	Quality Assurance/Quality Control	
RA	Remedial Action	
RAO	Remedial Action Objective	
RAWP	Remedial Action Work Plan	
RDD	Remedial Design Document	
RI	Remedial Investigation	
RIR	Remedial Investigation Report	
RIWP/IRM	Remedial Investigation Work Plan/Interim Remedial Measures	
RRSCO	Restricted Residential Soil Cleanup Objective	
SCO	Soil Cleanup Objectives	
SEQRA	State Environmental Quality Review Act	
SESI	SESI Consulting Engineers DPC	
S/MMP	Soil/Material Management Plan	
SMP	Site Management Plan	
SOE	Support of Excavation	
SSDS	Sub-slab Depressurization System	
SVOCs	Semi-Volatile Organic Compounds	
TAL	Target Analyte List	
TCL	Target Compound List	
TOGS	Technical and Operations Guidance Series	
ug/m3	Micrograms per cubic meter	
USCO	Unrestricted Use Soil Cleanup Objectives	
USEPA	United States Environmental Protection Agency	
UST	Underground Storage Tank	
VOCs	Volatile Organic Compounds	

FINAL ENGINEERING REPORT

1.0 BACKGROUND AND SITE DESCRIPTION

SNL XXII, LLC (herein referred to as the "Volunteer") entered into a Brownfield Cleanup Agreement (BCA) Index No. C224311-08-20 with the New York State Department of Environmental Conservation (NYSDEC) on August 25, 2020, to investigate and remediate a 0.5744-acre property located at 1440 39th St, 1446 39th, 1456-1460 39th & 40th St (collectively known as the **<u>"1440-1460 39th Street Site"</u>**) in Kings County (Brooklyn), New York (Brooklyn Block 5346, Lots 17, 26, 28, and 149) (the "Site"). Pursuant to a BCA Amendment dated March 11, 2021, the four lots that make up the Brownfield Cleanup Program (BCP) Site (Brooklyn Block 5346, Lots 17, 26, 28, and 149) have been merged into a consolidated Block 5346, Lot 17 and the addresses of the Site were changed from four addresses into one Site address now 1454 39th Street, Brooklyn, New York 11218.

The Site was remediated to Track 2 Residential Use and will be used as a commercial self-storage facility. NYSDEC Approvals can be found in **Appendix A**.

The Site is located in Kings County, New York and is identified as Block 5346 and Lot 17 on the New York City Tax Map #22c. The Site is situated on an approximately 0.5744-acre lot bounded by 39th Street, Bais Tziporah school, auto repair garages, and commercial/industrial warehouses to the north, residential properties and 40th Street to the south, commercial/retail properties and warehouses to the east, and commercial/retail properties and warehouses to the west (see **Figure 1**). The boundaries of the Site are fully described in **Appendix B**: Survey Map, Metes and Bounds.

The Site has been developed since the 1920s, and was historically occupied by automotive repair, poultry storage, and unspecified manufacturing operations. When the NYSDEC admitted it into the BCP, the Site was occupied by three (3) single story structures and two (2) two-story structures, which were demolished during Interim Remedial Measures (IRM) activities. Several environmental concerns identified during previous studies included out-of-service or abandoned underground storage tanks (USTs) which required removal, elevated concentrations of lead identified in fill soil, concentrations of polycyclic aromatic hydrocarbons (PAHs), historic fill, and off-Site/regional sources of groundwater contamination, all of which required remediation.

2.0 SUMMARY OF SITE REMEDY

2.1 REMEDIAL ACTION OBJECTIVES

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) were identified for this site.

2.1.1 Groundwater RAOs

RAOs for Public Health Protection

• Prevent ingestion of groundwater containing 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 existing, or the potential for, 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 RAWP dated August 2022.

The factors considered during the selection of the remedy are those listed in 6 NYCRR § 375-1.8. The following are the components of the selected remedy:

- 1. <u>Support of Excavation (SOE)</u>:
 - Installation of a support of excavation (SOE) was completed along the side walls of the entire Site boundary for temporary structural stability of the excavations and to prevent impact to off-site structures. A soldier beam and lagging wall system with associated features was installed to support the excavation of the on-Site contaminated soil and historic fill source material. The support of excavation system was installed under the Revised IRMWP prepared by former engineering firm for the Volunteer SESI Engineering and submitted to NYSDEC on March 25, 2021, which was approved by the NYSDEC on April 7, 2021. The SOE installation was conducted as described in the March 2021 Revised Interim Remedial Measure Workplan (IRMWP).
- 2. Excavation:
 - Remedial excavation of contaminated fill/soil was completed to a maximum depth of 15 ft-bgs in order to meet the Track 2 Residential Use SCOs.
 - Based on a review of the Remedial Investigation data, exceedances of Track 2 RSCOs fluctuated both horizontally and vertically across the Site, from as shallow as 2-feet below grade, to as deep as 15-feet below grade.
 - Based on calculations (see Section 4.9), a total of 4,649 cubic yards (or approximately 6,043.7-tons, based on a 1.3x multiplier) of material was removed and disposed of to achieve Track 2 RSCOs, as part of remedial related excavations. The waste streams listed below were considered remedial.

- 2.27 tons (manifested as 5,000-pounds) of hazardous Lead contaminated soil was removed and transported to Cycle Chem.
- 1,627-tons of hazardous lead contaminated soil was removed and transported to Clean Earth of North Jersey.
- 10.78-tons of petroleum contaminated soil was removed and transported to Bayshore Soil Management.
- 4,403.65-tons of non-hazardous historical fill material was removed and transported to Clean Earth of Bethlehem.

NOTE: An additional 2,981.35-tons of non-hazardous historical fill material was also removed and transported to Clean Earth of Bethlehem, but was considered NON-Remedial construction related disposals.

A Track 2 - Residential cleanup was achieved by removal of the contaminated fill/soil to the required depths to achieve the Track 2 Residential SCOs. The excavation and disposal of the contaminated fill/soil, as well as the underlying native soil, was completed under the Revised IRMWP prepared by SESI and submitted to NYSDEC on March 25, 2021. The Revised IRMWP was approved by the NYSDEC on April 7, 2021.

3. Endpoint Sampling

 Endpoint confirmatory sampling was performed to assess post excavation conditions. A total of 26 confirmatory endpoint samples were collected from the terminal base of construction related excavations as part of the Remedial Action.

- Aside from one (1) endpoint sample (EP-G4), which contained elevated concentrations of pesticides (4,4'-DDE, 4,4'-DDT, and cischlordane) above Track 2 Residential Use SCOs, Track 2 Residential Use conditions were achieved following excavation. Due to the presence of SOE soldier beams and lagging, sidewall sampling was not able or required to be performed.
- Two (2) endpoint samples (EP-D2 and EP-D3) collected by SESI, prior to IEEG's involvement in the project, were not submitted for laboratory analysis. NYSDEC was made aware of this missing endpoint data via email correspondence on September 23, 2022. Mr. Steven Walsh, the NYSDEC Project Manager, indicated in an email to IEEG on September 28, 2022, that in the locations of these missing EPs, no soil was documented as exceeding Track 2 Residential Use SCOs.

4. UST Removal

- During remedial related excavations, ten (10) underground storage tanks (USTs) were encountered. The following is a summary of the USTs removed in accordance with the approved April2021 Revised IRMWP:
 - One (1) 550-gallon UST cleaned and removed on April 30, 2021.
 - One (1) 550-gallon and one (1) 1,100-gallon UST cleaned and removed on June 9, 2021.
 - Three (3) 750-gallon USTs cleaned and removed on June 21, 2021.
 - Three (3) 750-gallon USTs cleaned and removed on July 9, 2021.

- One (1) 550-gallon UST cleaned and removed on July 29, 2021.
- NYSDEC PBS Pre-Work Notifications for all tank removals were submitted prior to removal activities. All tank removals were performed in accordance with NYSDEC PBS protocols by AARCO Environmental Services Corp, of Lindenhurst, New York.

5. Backfill

- The October 2021 Decision Document states: Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace excavated soil and establish the designed grades at the Site.
 - Approximately 700 cubic yards of NYSDEC approved clean fill material, meeting Residential Use SCOs, was imported to the Site from Alloco Recycling Inc., of Brooklyn, New York.
 - 23.43-tons of NYSDEC approved 1.5" clean quarry stone was imported to the Site from Liberty Stone & Aggregates, LLC, Clinton Quarry, of Hunterdon County, NJ.
 - 251.80-tons of NYSDEC approved 3/8" clean quarry stone was imported to the Site from North Church Gravel, of Franklin, NJ.
 - 351.43-tons of washed 3/8" pea gravel was imported to the Site from Posillico Materials, of Farmingdale, NY
 - 132.12-tons of NYSDEC approved ¾" clean quarry stone was imported to the Site from Liberty Stone & Aggregates, LLC, Clinton Quarry, of Hunterdon County, NJ.
- During the remedial activities, the Volunteer documented that clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) was brought

in to complete the backfilling of the excavation and establish the designed grades at the Site.

6. Remediation of Nickel impacted soil in the endpoint samples was not technically practical to achieve the Track 1 SCOs as the Nickel is naturally occurring; however, the NYSDEC determined that the concentrations of Nickel remaining after the required soil source removal action warranted the Site be classified as a Track 2 Residential Use Site. The NYSDEC determined that an EE or SMP would not be required based on the presence of remaining naturally occurring presence of Nickel below 15 feet. As per correspondence with the Department, a Track 2 – Residential cleanup does not require long term management of residual contamination, as they pertain to future phases of construction, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) soil excavation and (4) reporting. As a result, the environmental easement that was recorded against the Site on October 19, 2021, City Recording Register Number 2021000410876 will be terminated.

3.0 INTERIM REMEDIAL MEASURES, OPERABLE UNITS AND REMEDIAL CONTRACTS

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

3.1 INTERIM REMEDIAL MEASURES

The following interim remedial measures were performed in accordance with the NYSDEC approved April 2021 Interim Remedial Measure Work Plan (IRMWP) report last revised in March 2021.

3.1.2 Support of Excavation

Installation of a support of excavation (SOE) was completed along the side walls of the entire Site boundary for temporary structural stability of the excavations and to prevent impact to off-site structures. A soldier beam and lagging wall system with associated features was installed to support the excavation of the on-Site contaminated soil and contaminated historic fill. The SOE system was installed under the Revised IRMWP prepared by SESI and submitted to NYSDEC on March 25, 2021, which was approved by the NYSDEC on April 7, 2021.

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

Remedial activities completed at the Site were conducted in accordance with the NYSDEC-approved Remedial Action Work Plan (RAWP) for the Proposed SNL Storage Facility, 1440-1460 39th Street Site (August 2022). All deviations from the RAWP are noted below.

4.1 GOVERNING DOCUMENTS

4.1.1 Site Specific Health & Safety Plan (HASP)

A HASP was included in Appendix D of the aforementioned RAWP.

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.

4.1.2 Quality Assurance Project Plan (QAPP)

The QAPP was included as Appendix E of the Remedial Action Work Plan (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.

4.1.4 Soil/Materials Management Plan (S/MMP)

The 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 5.4 of the RAWP. All soil and materials management was performed in accordance with the RAWP, IRMWP and DER-10. All invasive work, and the excavation and load-out of all excavated materials and liquid wastes, was overseen during remedial work by the following personnel:

- Justin M. Protasiewicz (SESI) – February 2021 – December 2021

- Todd Kelly (SESI) February 2021 December 2021
- John Norgard (SESI) February 2021 December 2021
- Xin Yuan P.E. (IEEG) December 2021 December 2022
- Kevin Kleaka (IEEG) December 2021 December 2022
- Marius Sidlauskas (IEEG) December 2021 December 2022

While oversight of a portion of the project was performed by SESI, and their P.E. Justin Protasiewicz, this FER, and all remedial actions performed during the project's lifetime have been fully reviewed, approved, and certified by IEEGs P.E. Mr. Xin Yuan.

4.1.5 Community Air Monitoring Plan (CAMP)

A Community Air Monitoring Plan was presented in Appendix F 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, which moved daily to monitor particulates in other areas of the Site as needed. Air monitoring data for dust control and volatile organic compounds was recorded by SESI and IEEG. Dust suppression efforts were performed if the downwind particulate levels of 100 micrograms per cubic meter (ug/m3) greater than background (upwind) for a 15-minute period or if airborne dust is observed leaving the work area.

4.1.6 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 and IRMWP. All remedial documents were submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

4.1.7 Citizens Participation Plan (CPP)

A CPP was presented in Appendix C of the RAWP.

Document repositories have been established at the following locations and contain all applicable project documents:

1. Brooklyn Public Library, Borough Park Branch

1264 43rd Street, Brooklyn, NY 11219

Lina Ding, Branch Manager

2. Brooklyn Community Board #12

5910 13th Avenue, Brooklyn, NY 11219

Barry Spitzer, District Manager

The CPP provides members of the affected and interested public with information about how 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 Contractors and Consultants

The table below provides the list of contractors and consultants who performed the remedial activities at the Site:

Contractor/Consultant	Role	Project Contact
SESI Consulting Engineers, DPC	Environmental Consultant and Engineer of Record	Fuad Dahan (EOR) for Remedial Action Work Plan certification
Impact Environmental Engineering and Geology, PLLC	Environmental Consultant and Engineer of Record	Xin Yuan (EOR) for FER Certification
SNL	Construction Management	Aaron Stevens (Project Manager)
Laboratory Data Consultants, Inc.	Data Usability Summary Reports	Pei Geng (Senior Chemist)
DDMS	Data Usability Summary Reports	Polly Newbold (Senior Environmental Chemist)
Knauf Shaw LLP	Environmental Legal Counsel	Linda R. Shaw
Alpha Analytical Laboratories	Certified Laboratory	Heather Hayden (Project Manager)
Bronzino Engineering, P.C.	Structural Engineer	Robert W. Bronzino
Aarco Environmental Services Corp.	Soil Borings and Monitoring Well Installation/Abandonment and UST Removals	Chuck Blumberg
Structural Engineering Technologies, P.C.	Geotechnical Engineer	George J. Cambourakis (P.E.)
DI Trucking LLC	Disposal Trucking	Danilo L. Carvalhoesilva
Gallas Surveying Group	Site Surveyor	Kyle Gallas (Project Manager)
Butz/Wilbern LTD	Architect	Thomas Mirabile (P.E.)
Soil Solutions Inc.	SOE and Foundation Contractor	Steve Colvin

4.2.2 Site Preparation

- Mobilization:
 - Soil Solutions Inc. mobilized an RTG RG21T Rotary Piledriving Rig, an excavator, and a CAT 950G Wheel Loader to the Site in February 2021, in order to begin installation of SOE Piles.
 - No grubbing was required as the site was vacant and empty.
 - The construction fencing was installed on August 20, 2020, and comprised of an 8-foot-high plywood fence with viewing panels, and a 24-foot sliding entrance gate and 4-foot egress swing door located along 39th Street.
 - A truck wash station, comprised of a 1.5-inch clean quarry stone base pad, was installed at the entrance of the Site on May 13, 2021.
 - Utility mark outs were performed in November 2020, by 811.

Documentation of agency approvals required by the RAWP is included in Appendix A.

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

A NYSDEC-approved project sign was erected at the project entrance and remained in place during all phases of the Remedial Action.

4.2.3 General Site Controls

The following general Site controls were established at the BCP Site to ensure 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 a six (6)-foot chainlink fence and plywood sheeting with a gate.

- 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 all remedial excavations. Soil screening was performed regardless of when the invasive work was done. It was performed during the remedy and during the development phase, such as excavations, demolition and utility work, prior to issuance of the Certificate of Completion.
- 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.

4.2.4 Nuisance controls

The following monitoring and controls were performed on the BCP Site during the Remedial Action and construction activities:

- <u>Truck wash and egress housekeeping</u>: One truck wash station was installed at the entrance of the construction area using 1.5-inch quarry stone.
- <u>Dust and Odor Control</u>: The Site was sprayed with water, when needed, to minimize dust generation particularly during loading of material into and from trucks.
- <u>Trucking Route/Staging</u>: 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; I promote safety in access to highways; (f) create overall safety in transport; and (g) follow community input, which was sought and obtained during the SEQRA EIS process.

4.2.5 CAMP results

Two (2) CAMP stations, each consisting of one (1) dust monitor and one (1) photoionization detector (PID) were installed to capture the up-wind and down-wind conditions of the remedial and construction related activities at the Site. The locations of these CAMP stations were changed in accordance with the wind direction. No dust or VOC action levels were exceeded beyond a 15-minute time period, and that were not addressed by active on-Site nuisance mitigation measures. Water misting was applied to the ground surface for dust suppression when needed.

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

4.2.6 Reporting

Weekly and daily reports were prepared and provided to the DEC Project Manager during the course of the 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.
- 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 daily, weekly, and monthly reports are included in electronic format in **Appendix C**. The digital photo log required by the RAWP is included in electronic format in **Appendix D**.

4.3 CONTAMINATED MATERIALS REMOVAL

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

A list of the soil cleanup objectives (SCOs) for the contaminants of concern for this project is provided in Table 1.

A figure of the location of original sources and areas where excavations were performed is shown in Figure 3.

4.3.1 Underground Storage Tanks

Between April 30, 2021, and July 29, 2021, a total of ten (10) underground storage tanks (USTs) were encountered, uncovered, cleaned, and removed from the Site by AARCO Environmental Services, Inc. (AARCO). A map showing the locations of the encountered and removed tanks can be found in **Figure 8**. All work was performed in accordance with the IRM WP.

4.3.1.1 Disposal Details

On April 30, 2021, AARCO cut and cleaned one (1) 550-gallon UST (designated UST-1). Approximately 100-gallons of oil/water were pumped from the UST into a pump truck and were transported to and disposed of at Dale Transport Corporation of West Babylon, NY. Following the removal of UST-1 from the ground, SESI collected two (2) representative bottom endpoint samples (designated UST1-1 and UST1-2) to confirm the soil conditions below the former UST-1 (no sidewalls were present, thus not sampled). The two (2) samples were sent to Alpha Analytical Laboratories, and were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides, PCBs, and TAL metals. No VOCs, SVOCs, pesticides, or PCBs were detected above NYSDEC Part 375 UUSCOs. Lead was detected at a concentration above UUSCOs.

On May 19, 2021, one (1) 1,100-gallon UST (UST-2) was encountered and removed from the ground and staged on poly sheeting for further inspection and subsequent cleaning and removal. On June 9 and 10, 2021, AARCO cut and cleaned the formerly removed 1,100-gallon UST and one (1) 550-gallon UST (designated UST-2 and UST-3). On

June 9, 2021, approximately 50-gallons of oil/water were pumped from UST-2 and UST-3 into a pump truck, and approximately 100-pounds of tank bottom sludge from UST-1 were transferred into a DOT regulated steel 55-gallon drum and were transported to and disposed of at Dale Transport Corporation of West Babylon, NY. On June 10, 2021, approximately 100-pounds of tank bottoms sludge from UST-3 were transferred into a DOT regulated steel 55-gallon drum and were transported to and disposed of at Dale Transport Corporation of West Babylon, NY. Following its removal from the ground on April 19, 2021, SESI collected one (1) confirmatory bottom endpoint sample (UST-2) below the former UST-2. On June 9, 2021, SESI collected a further three (3) sidewall samples from soils on each side of the former UST-2 (UST-2-1 [east sidewall], UST-2-2 [south sidewall], and UST-2-3[north sidewall]). No sidewall was present on the west side of the excavation; thus no sample was collected from this sidewall. All four (4) endpoint/sidewall samples were sent to Alpha Analytical Laboratories, and were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides, PCBs, and TAL metals. No VOCs, pesticides, or PCBs were detected above NYSDEC Part 375 UUSCOs. The SVOCs 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 detected at concentrations exceeding the UUSCOs. Lead, barium, copper, mercury, and zinc were detected at a concentration above UUSCOs.

On June 9, 2021, SESI collected one (1) bottom endpoint sample from soils below the former UST-3 (UST-3-1), and four (4) sidewall samples (UST-3-2 [north sidewall], UST-3-3 [west sidewall], UST-3-4 [south sidewall], and UST-3-5 [east sidewall]). All five (5) endpoint/sidewall samples were sent to Alpha Analytical Laboratories, and were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides, PCBs, and TAL metals. No VOCs, pesticides, or PCBs were detected above NYSDEC Part 375 UUSCOs. The SVOCs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene, were detected at concentrations exceeding the UUSCOs. Nickel was detected at a concentration above UUSCOs.

On June 21, 2021, AARCO cut and cleaned three (3) 750-gallon USTs (designated UST-4, UST-5, and UST-6). Approximately 2,078-gallons of oil/water were pumped from the three (3) USTs into a pump truck and were transported to and disposed of at Dale Transport Corporation of West Babylon, NY. On June 22, 2021, following the removal of UST-4, UST-5, and UST-6, from the ground, SESI collected two (2) representative bottom

endpoint samples from beneath UST-4 (designated UST4-1 and UST4-2), one (1) bottom endpoint and four (4) sidewall samples from UST-5 (designated UST5-1 [bottom endpoint] and UST5-2 through UST5-5 [sidewall samples]), and two (2) samples from beneath UST-6 (designated UST6-1 and UST6-2) to confirm the soil conditions below and surrounding the former UST-4/5/6. Sidewall samples could not be collected from around UST 4 and UST6, due to no sidewall being present in the excavation. The nine (9) samples were sent to Alpha Analytical Laboratories, and were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides, PCBs, and TAL metals. No VOCs or PCBs were detected above NYSDEC Part 375 UUSCOs. In samples UST4-1 and UST4-2, the SVOCs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene, were detected at concentrations exceeding the UUSCOs. Copper, lead, mercury, and zinc were detected at a concentration above UUSCOs. In samples UST5-1 through UST5-5, the SVOCs 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 detected at concentrations exceeding the UUSCOs. Lead, nickel, and zinc were detected above UUSCOs. In the samples UST6-1 and UST6-2, the SVOCs 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 detected at concentrations exceeding the UUSCOs. The pesticides 4,4'-DDD and 4,4'-DDE were detected above UUSCOs. Lead, mercury, and zinc were detected at a concentration above UUSCOs.

On July 8, 2021, AARCO cut and cleaned three (3) 750-gallon USTs (designated UST-7, UST-8, and UST-9). Approximately 2,200-gallons of oil/water were pumped from the three (3) USTs into a pump truck and were transported to and disposed of at Dale Transport Corporation of West Babylon, NY. On the same day, following the removal of UST-7, UST-8, and UST-9, from the ground, SESI collected two (2) representative bottom endpoint samples from beneath UST-7 (designated UST7-1 and UST7-2), two (2) bottom samples from beneath UST-8 (designated UST8-1 and UST8-2), and two (2) bottom samples from beneath UST-9 (designated UST9-1 and UST9-2) to confirm the soil conditions below the former UST-7/8/9. Sidewall samples could not be collected from around UST7, UST8, and UST9, due to no sidewall being present in the excavation. The six (6) samples were sent to Alpha Analytical Laboratories, and were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides, PCBs, and TAL metals. No VOCs, pesticides, or PCBs

were detected above NYSDEC Part 375 UUSCOs. In samples UST7-1 and UST7-2, the SVOCs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene, were detected at concentrations exceeding the UUSCOs. Lead, mercury, and zinc were detected at a concentration above UUSCOs. In samples UST8-1 and UST8-2, the SVOCs 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 detected at concentrations exceeding the UUSCOs. Lead, mercury, and zinc were detected at a concentration above UUSCOs. In samples UST9-1 and UST9-2, the SVOCs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a)pyrene, were detected at a concentration above UUSCOs. In samples UST9-1 and UST9-2, the SVOCs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene, were detected at concentrations exceeding the UUSCOs. Lead, mercury, and zinc were detected at a concentration above UUSCOs.

On July 29, 2021, AARCO cut and cleaned one (1) 550-gallon UST (designated UST-10). Approximately 450-gallons of oil/water were pumped from the UST into a pump truck and were transported to and disposed of at Clean Water of New York, Staten Island, New York. In addition, two (2) drums of tank bottom sludge (totaling 800pounds) were removed from the tanks and transported to Dale Transport Corp. of West Babylon, NY. Following the removal of UST-10 from the ground, SESI collected one (1) representative bottom endpoint samples (designated UST10-1), and four (4) sidewall samples (designated UST10-2 through UST10-5) to confirm the soil conditions below and surrounding the former UST-10. The five (5) samples were sent to Alpha Analytical Laboratories, and were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides, and PCBs. No VOCs, pesticides, or PCBs were detected above NYSDEC Part 375 UUSCOs. The SVOCs 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 detected at concentrations exceeding the UUSCOs.

Tables 3, 3.1, 3.2, and 3.3, show the total quantities of each category of material removed from the site and the disposal locations. A summary of the samples collected to characterize the waste, and associated analytical results are summarized on Table 2.2.

Disposal Facility acceptance letters from disposal facility owners are attached in **Appendix E**.

Manifests and bills of lading are included in electronic format in Appendix E.

4.3.2 Hazardous Lead Contaminated Materials

Between June 29, 2021, and July 23, 2021, a total of 1,629.27-tons of lead contaminated hazardous waste was exported from the Site, and transported to Cycle Chem, Inc., of Elizabeth, NJ (USEPA ID #NJD002200046), and Clean Earth of North Jersey, Kearny, NJ (USEPA ID #NJD991291105). A map showing the locations of the lead contaminated soil stockpile excavated from beneath UST-3, and delineated lead contaminated soils across the Site can be found in Figure 3. All work was performed in accordance with the IRMWP.

Contour maps of estimated cut and fill thicknesses for remedial activities at the site are included in Figure .

4.3.2.1 Disposal Details

On June 29, 2021, ACV Environmental Services, Inc. (USEPA ID #NJD003812047), transferred a total of 2.27-tons (manifested as 5,000-pounds) of hazardous lead contaminated soil, that was stockpiled following the removal and over-excavation of contaminated overburden from beneath UST-3, into eight (8) DOT regulated steel 55gallon drums, which were transported to and disposed of at Cycle Chem, Inc. The material was approved for disposal at Cycle Chem, Inc, of Elizabeth, NJ (USEPA ID #NJD002200046), on June 4, 2021.

Between July 12, 2021, and July 23, 2021, a total of 1,627-tons of lead contaminated hazardous soils were transported from the Site by DI Trucking LLC (USEPA ID #NJR986659282) and disposed of at Clean Earth of North New Jersey, Kearny, NJ (USEPA ID #NJD991291105). Prior to its removal, SESI performed waste characterization and delineation sampling of the hotspot location. On January 15, 2021, SESI collected four (4) delineation step-out samples from around the previous soil boring S-20, and four (4) delineation step-out samples from around the previous soil boring S-40. The eight (8) samples were analyzed for total and TCLP Lead. Based on the laboratory data, the delineation samples were confirmed to be below the TCLP standard of 5 mg/kg for lead, and therefore, considered non-hazardous. Between April 29 and 30, 2021, SESI

collected fifteen (15) delineation samples; one (1) from the previous soil boring locations B-3, B-5, and B-6; and four (4) step-out samples from around each of the previous soil boring locations B-3, B-5, and B-6. Each of the 15 samples were analyzed for total and TCLP Lead. While the TCLP concentrations were below the standard of 5 mg/kg, total lead concentrations ranged from 582 mg/kg to 1,950 mg/kg. The locations of the delineated lead impacted material can be found in Figure 3. On July 1, 2021, Clean Earth of North Jersey, Inc. (CENJ) sent an approval letter to SNL XXII, LLC for disposal of the hazardous lead material.

Tables 3, 3.1, 3.2, and 3.3 show the total quantities of each category of material removed from the Site and the disposal locations. A summary of the samples collected to characterize the waste, and associated analytical results are summarized on Table 2.1.

Disposal Facility acceptance letters from disposal facility owners are attached in **Appendix E**.

Manifests and bills of lading are included in electronic format in Appendix E.

4.3.3 Non-Hazardous Petroleum Contaminated Soil

On October 8, 2021, a total of 10.78-tons of petroleum contaminated soil was transported by DI Trucking LLC (USEPA ID #NJR986659282) to Bayshore Soil Management, of Keasbey, NJ. The material was impacted by petroleum (#2 fuel oil) during removal of the underground storage tank UST-10. The material was stockpiled and sampled for waste characterization purposes prior to removal.

Contour maps of estimated cut and fill thicknesses for remedial activities at the site are included in Figure 5.

4.3.3.1 Disposal Details

On July 9, 2021, SESI collected a representative sample from a petroleum contaminated stockpile of soil, known as UST10-Stockpile, and submitted the sample to Alpha Analytical Laboratories, of Westborough, MA. The sample was analyzed for TCL VOCs, Total Petroleum Hydrocarbons (TPH), total EPH, RCRA Characteristics, Paint Filter, and TCLP Metals. On September 15, 2021, Plymouth Industries, LLC, on behalf of SNL

XXII LLC, submitted a Generator Waste Profile and Generator Authorization Form to Bayshore Soil Management, LLC, for the proposed disposal of approximately 10-cubic yards of #2 fuel oil petroleum impacted soils. Bayshore Soil Management, LLC, approved the disposal of the material (known as UST10-Stockpile) on October 6, 2021, via email correspondence.

On October 8, 2021, a total of 10.78-tons of petroleum contaminated soil was transported by DI Trucking LLC (USEPA ID #NJR986659282) to Bayshore Soil Management, of Keasbey, NJ.

Disposal Facility acceptance letters from disposal facility owners are attached in **Appendix E**.

Manifests and bills of lading are included in electronic format in Appendix E.

4.3.4 Non-Hazardous Historical Fill Material

Between May 20, 2021, and November 1, 2022, a total of 4,403.65-tons of nonhazardous historical fill material was transported by DI Trucking LLC (USEPA ID #NJR986659282) to Clean Earth of Bethlehem (EZ2Dump), Bethlehem, PA as part of remedial excavations. The material was excavated from grade to as deep as 15-feet below grade, and at varying depths across the Site.

NOTE: An additional 2,981.35-tons of non-hazardous historical fill material was also removed and transported to Clean Earth of Bethlehem, but was considered NON-Remedial construction related disposals.

Contour maps of estimated cut and fill thicknesses for remedial activities at the site are included in Figure 5.

4.3.4.1 Disposal Details

Tables 3, 3.1, 3.2, and 3.3 show the total quantities of each category of material removed from the Site and the disposal locations. A summary of the samples collected to characterize the waste, and associated analytical results are summarized on Table 2.1.

Disposal Facility acceptance letters from disposal facility owners are attached in Appendix E.

Manifests and bills of lading are included in electronic format in Appendix E.

4.4 REMEDIAL PERFORMANCE/DOCUMENTATION SAMPLING

4.4.2 Soil Remedial End-Point Sampling

End point samples were collected in accordance with the NYSDEC Approved RAWP, and Section 5.4 of DER-10. A total of 26 endpoint samples were collected to evaluate post remediation/excavation soil conditions at the Site and were collected at a frequency of approximately one (1) sample per 900 square feet. The endpoint sampling was performed on a grid basis, with three (3) horizontal sections (1, 2, and 3), and nine (9) vertical sections (A, B, C, D, E, F, G, H, and I), resulting in 27 grids (A-1/2/3, B-1/2/3, C-1/2/3, D-1/2/3, E-1/2/3, F-1/2/3, G-1/2/3, H-1/2/3, and I-1/2/3). One additional grid (G-4) was included as this irregular triangle section of the Site extends out slightly but remains part of the overall Site parcel. A total of 28 endpoint samples were thus proposed to be collected (EP-A1, EP-A2, EP-A3, EP-B1, EP-B2, EP-B3, EP-C1, EP-C2, EP-C3, EP-D1, EP-D2, EP-D3, EP-E1, EP-E2, EP-E3, EP-F1, EP-F2, EP-F3, EP-G1, EP-G2, EP-G3, EP-G4, EP-H1, EP-H2, EP-H3, EP-I1, EP-I2, and EP-I3). The SOE piles were installed around the entirety of the Site boundary; thus, no sidewall samples were able or required to be collected. Furthermore, IEEG determined that two (2) of the proposed endpoint samples, EP-D2 and EP-D3, were collected by SESI, but never sent for analysis. Based on correspondence with Steven Walsh from the NYSDEC, RI data from these two (2) locations indicated no exceedances of RSCOs, thus the lack of data was not considered an issue.

The 26 endpoint samples were collected by both SESI (between September 27, 2021, and December 17, 2021) and IEEG (between January 25, 2022, and February 3, 2022) at the terminal depth of construction related excavations, approximately 24-25-feet below grade, in accordance with the written language of the NYSDEC Approved RAWP.

Endpoint samples were submitted to Alpha Analytical Laboratories of Westborough, MA, and analyzed for TCL VOCs, TCL SVOCs, TAL Metals, PCBs, and Pesticides.

Collection of quality assurance/quality control (QA/QC) samples to evaluate potential cross-contamination from sampling equipment and during shipment of samples and repeatability of laboratory analytical practices were in accordance with the QAPP included as Appendix E of the RAWP. Field blanks, trip blanks and duplicate samples associated with daily sampling activities were collected as a part of the QA/QC practices.

In general, no VOCs, SVOCs, Metals, PCBs, or Pesticides were detected above Track 1 Unrestricted Use SCOs in the vast majority of the 26 samples, aside from the following:

- The Pesticide 4,4'-DDT was detected above UU SCOs, but below RSCOs in sample EP-A1 (collected at 24-feet below grade).
- The pesticides 4,4'-DDE, 4,4'-DDT, and cis-Chlordane were detected above RRSCOs but below CSCOs in one sample, EP-G4 (collected at 24-feet below grade).
- Nickel was detected in 25 of the 26 samples collected, at concentrations exceeding the UUSCOs. Only one sample, EP-E3 (24-feet below grade), contained levels of Nickel above the Track 2 Residential SCOs.

A table and figure summarizing all end-point sampling is included in Table 4 and Figure 7, respectively, and all exceedances of SCOs are highlighted.

Data Usability Summary Reports (DUSRs) were prepared for all data generated in this remedial performance evaluation program. These DUSRs are included in **Appendix H**, and associated raw analytical data is provided electronically in **Appendix G**.

Electronic data deliverables (EDDs) for data packages L2169693, L2204138, and L2205935, referencing the set of endpoint data collected by IEEG, were submitted to NYSDEC on December 20, 2022, and were accepted by the Department on December

22, 2022. EDDs for data packages L2152369, L2153457, L2155737, and L2160940, referencing the set of endpoint data collected by SESI, were submitted to the Department on December 27, 2022, and were accepted on December 29, 2022. See **Appendix B** for confirmation of DEC acceptance of said EDDs.

Following discussions with NYSDEC Project Manager Steven Walsh, following completion of the endpoint sampling events, IEEG was informed that endpoint samples should have been collected at the base of "Remedial Excavations" only, to determine the depths at which Track 2 Residential Use SCOs were achieved. This was in conflict with the written endpoint sampling plan within the RAWP. Based on a review of the Remedial Investigation data, exceedances of Track 2 RSCOs fluctuated across the Site, from as shallow as 2-feet below grade, to as deep as 15-feet below grade. The collection of endpoint samples at the terminal depth of construction related excavations, and not the depth of remedial excavations, is considered a deviation by NYSDEC. A description of this deviation can be found in Section 4.9.

4.5 IMPORTED BACKFILL

Between January 14, 2022, and February 28, 2022, a total of 251.80-tons of 3/8" certified clean virgin gravel was imported to the Site by AAJM Transport Corp. (Permit #NJ-1141), of Newark, NJ, from North Church Gravel (General Permit No. NJG0161632), of Franklin, NJ. An NYSDEC "Request to Import /Reuse Fill or Soil" form was completed by IEEG on January 13, 2022, and submitted to the department for review. The NYSDEC subsequently approved the use of this material as structural fill material across the entire Site.

On May 12, 2021, a total of 23.43-tons of certified clean virgin 1.5" quarry stone was imported to the Site by AAJM Transport Corp. (Permit #NJ-1141), of Newark, NJ, from Liberty Stone & Aggregates, LLC, Clinton Quarry (General Permit No. NJG004856), of Hunterdon, NJ. SESI did not complete an NYSDEC "Request to Import /Reuse Fill or Soil" form for this material, and did not receive NYSDEC approval for this import. This material was used as a gravel truck wash pad at the entrance of the Site along 39th Street. However, this material was certified as clean virgin 1.5" quarry stone imported to the Site by AAJM Transport Corp.

Between September 29, 2021, and October 31, 2022, a total of 132.12-tons $\frac{3}{3}/4$ " certified clean virgin stone was imported to the Site by AAJM Transport Corp. (Permit #NJ-1141), of Newark, NJ, from Liberty Stone & Aggregates, LLC, Clinton Quarry (General Permit No. NJG004856), of Hunterdon, NJ. An NYSDEC "Request to Import /Reuse Fill or Soil" form was completed by IEEG on October 6, 2022, and submitted to the Department for review. The stone imported on September 29, 2021, was not approved by NYSDEC during SESI's tenure as the environmental consultant. However, this material was certified $\frac{3}{4}/4$ " certified clean virgin stone imported to the Site by AAJM Transport Corp.

Between October 5, 2021, and March 1, 2022, a total of 351.43-tons of 3/8" washed pea gravel was imported to the Site by Soil Safe, of East Meadow, NY, from Posillico Materials of Farmingdale, NY. The material imported was not approved by NYSDEC during SESI's tenure as the environmental consultant. However, this material was certified as 3/8" washed pea gravel imported to the Site by Soil Safe.

Between June 24, 2022, and September 28, 2022, a total of 700-cubic yards of certified clean fill material was imported to the Site by AAJM Transport Corp. (Permit

#NJ-1141), of Newark, NJ, from ALLOCCO Recycling Corp. (Permit No. 24WA3), of Brooklyn, NY. An NYSDEC "Request to Import /Reuse Fill or Soil" form was completed by IEEG on May 25, 2022, and submitted to the Department for review. Grab and composite samples were collected from a segregated stockpile at the facility, and were analyzed for VOCs, SVOCs, metals, pesticides, herbicides, and PCBs, as per the NYSDEC Part 375 compound list. The material was found to meet the Track 2 Residential Use SCOs. This data was provided to the Department as part of the approval package. The NYSDEC subsequently approved the use of this material in email correspondence, on May 26, 2022, as fill material behind the foundation walls of the proposed building.

A table of all sources of imported backfill with quantities for each source is shown in Table 6. Tables summarizing chemical analytical results for backfill, in comparison to allowable levels, are provided in **Appendix J**. A figure showing the site locations where backfill was used at the Site is shown in Figure 6.

4.6 CONTAMINATION REMAINING AT THE SITE

Based on the results of the post excavation endpoint sampling, the following contaminants were detected at concentrations exceeding the NYSDEC Part 375 Unrestricted Use SCOs:

- The Pesticide 4,4'-DDT was detected above UU SCOs, but below RSCOs in sample EP-A1.
- The pesticides 4,4'-DDE, 4,4'-DDT, and cis-Chlordane were detected above RRSCOs but below CSCOs in one sample, EP-G4.
- Nickel was detected in 25 of the 26 collected samples, at concentrations exceeding the UUSCOs. Only one sample, EP-E3, contained levels of Nickel above the RSCOs.

Based on the results of the previously conducted Remedial Investigation, no significant impacts were noted in groundwater or soil vapor.

A waterproofing membrane was installed at the terminal depth of excavation, and acts as a demarcation layer for the material below that exceeds the UUSCOs. The depth of the demarcation layer is approximately 25-feet below grade across the entire Site.

Table 7 and Figure 7 summarize the results of all soil samples remaining at the Site after completion of Remedial Action that exceed the Track 1 UUSCOs.

Figure 7 summarizes the results of all soil samples remaining at the Site after completion of the remedial action that meet the Track 1 UUSCOs.

Since the vast majority of the contaminated soil remaining beneath the Site after completion of the Remedial Action meets the Track 2 Residential Use SCOs, Institutional and Engineering Controls are not required to protect human health and the environment. However, as part of construction, engineering controls (ECs) were implemented, and are described in the following sections. Long-term management of these ECs and residual contamination, and an associated SMP, are not required. As a result, the environmental easement filed last year will be terminated after the Certificate of Completion is issued.

4.7 COVER SYSTEM

As the Site met the Track 2 Residential Use SCOs, no cover system was required as part of the remedy.

4.8 INSTITUTIONAL CONTROLS

Due to the project meeting the Track 2 RSCOs based on endpoint sampling, and excavation beyond 15-feet below grade (to a terminal depth of 25-feet below grade), no Institutional Controls are required and the existing environmental easement will be terminated.

4.9 SOIL VAPOR INTRUSION EVALUATION

IEEG evaluated numerous factors to determine if soil vapor intrusion would require additional Remedial Action Objectives. Based on the results of the Remedial Investigation data (and lack of soil vapor impacts at terminal excavation depths), subsequent removal of 25-vertical feet of material from the vadose zone for construction purposes (approximately 15-feet of which was remedial removal of source

material, as per Section 2.1.2 above), and installation of a waterproofing vapor retardant membrane for construction purposes, it was determined that soil vapor intrusion was not a concern, and that no specific soil vapor RAOs were required as part of the remedy.

4.10 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN

Following discussions with NYSDEC Case Manager Steven Walsh, following completion of the endpoint sampling events, IEEG was informed that endpoint samples should have been collected at the base of "Remedial Excavations" only, to determine the depths at which Track 2 Residential Use SCOs were achieved. This was in conflict with the written endpoint sampling plan within the RAWP. Based on a review of the Remedial Investigation data, exceedances of Track 2 RSCOs fluctuated both horizontally and vertically across the Site, from as shallow as 2-feet below grade, to as deep as 15feet below grade. The collection of endpoint samples at the terminal depth of construction related excavations, and not the depth of remedial excavations, is considered a deviation by NYSDEC.

Based on the depth of known contamination exceeding Track 2 RSCOs, as indicated by previously validated RI data (see RI DUSRs in **Appendix H**), Figure 5.1 from the July 2022 Remedial action Work Plan (RAWP) by SESI, was utilized to determine the remedial depths and volumes of material allowable to be excavated and disposed of as part of the Remedial Action. However, as some of these remedial excavation depths were based off the observed presence of historical fill, rather than quantifiable and validated sample data, and these grids were discounted, unless other sample data was available. **Figure 5** of this FER depicts the final remedial depths and quantities, as determined by Ms. Janet Brown of the NYSDEC, in an October 14, 2023 "Appeal Determination" letter (see **Appendix L**). The depths (and approximate volume) of remedial excavations from each Grid required to achieve Track 2 RSCOs are as follows:

Grid #	Final Excavation Depth	Disposal Quantity (cu/yds)
1A	10-feet	333
1B	0-feet	0
1C	6-feet	200
1D	11-feet	367
1E	15-feet	500
1F	15-feet	500
1G	0-feet	0

Grid #	Final Excavation Depth	Disposal Quantity (cu/yds)
1H	0-feet	0
11	2-feet	55
2A	9-feet	300
2B	14-feet	467
2C	6-feet	200
2D	0-feet	0
2E	5-feet	167
2F	5-feet	167
2G	4.5-feet	150
2H	0-feet	0
21	4.5-feet	103
3A	9-feet	300
3B	14-feet	467
3C	0-feet	0
3D	0-feet	0
3E	2-feet	67
3F	0-feet	0
3G	3-feet	100
3H	3.5-feet	117
31	3-feet	68
4G	3-feet	21

A table showing the grid numbers, associated previous soil borings, evidence of contamination above RSCOs, and final remedial excavation depths and quantities, can be found in **Table 8**.

Based on these calculations, an approximate total of 4,649 cubic yards (or approximately 6,043.7-tons, based on a 1.3x multiplier) of material was determined to have been removed and disposed of to achieve Track 2 RSCOs, as part of remedial related excavations. A map showing the depths and volumes of materials removed as part of these determined remedial excavations can be found in **Figure 5**.