4 HAZARDOUS MATERIALS

4.1 Introduction

The *CEQR Technical Manual* defines hazardous materials as substances that pose a threat to human health or the environment. Substances that can be of concern include, but are not limited to, heavy metals, volatile and semi volatile organic compounds (VOCs, including petroleum constituents and chlorinated solvents, and SVOCs), methane, polychlorinated biphenyls (PCBs), and hazardous wastes (defined as substances that are chemically active, ignitable, corrosive, or toxic).

The potential for significant impacts from hazardous materials occurs when hazardous materials exist on a site and an action would increase pathways to their exposure to humans and the environment, or an action would introduce new activities or processes using hazardous materials. Potential routes of exposure to hazardous materials can include direct contact, such as contact between contaminated soil and skin (dermal contact), breathing of VOCs or chemicals associated with suspended soil particles (inhalation), or swallowing soil or water (ingestion). According to the *CEQR Technical Manual,* public health may also be threatened when soil vapors migrate through the subsurface or along preferential pathways (such as a building foundation, utility conduit, or duct) and accumulate beneath a concrete slab or inside a basement, resulting in an explosive, oxygen-deficient, or hazardous atmosphere.

4.2 Principal Conclusions

The Proposed Actions would not result in significant adverse hazardous materials impacts. The hazardous materials assessment identified various semi-volative organic compounds (SVOCs), metals, and various pesticides in exceedance of applicable standards, consistent with the presence of historic fill material. In addition, two polyfluoroalkyl substances (PFAS) analytes, perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), were detected in exceedance of applicable standards. Soil vapor sampling indicated the presence of the chlorinated solvent tetrachloroethene (PCE) at low concentrations in six of nine soil vapor samples, and the chlorinated solvent 1,1,1-trichloroethane (1,1,1-TCA) at low concentrations

in one soil vapor sample. Several petroleum-related VOCs, including benzene, toluene, ethylbenzene, xylenes, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were also detected in soil vapor samples across the site, with the highest concentrations occurring in samples collected from the northern portion of the site. Groundwater was not encountered as part of the Phase II Environmental Site Investigation (ESI).

Projected Devleopment Site 1, the Applicant's site, was accepted into the Brownfield Cleanup Program (BCP) on June 15, 2021 (DEC Site No: C243045). The BCP provides remedial oversight by the New York State Department of Environmental Conservation (DEC) through a Brownfield Cleanup Agreement (BCA) between the Applicant and DEC that was executed on July 22, 2021 (see Appendix D). The BCA will require that remedial actions performed in conjunction with the Proposed Project would be subject to approval and oversight by DEC. With the regulatory oversight provided by the BCA, no significant adverse hazardous materials impacts would occur at Projected Development Site 1.

To reduce the potential for adverse impacts associated with new construction resulting from the Proposed Actions, a hazardous materials (E)-Designation would be placed on Projected Development Sites 1 and 2. The (E)-Designation would require approval by the New York City Office of Environmental Remediation (OER) prior to the issuance of new permits from the NYC Buildings Department (DOB) that would entail soil disturbance. The requirements of the (E)-Designation must be satisfied in coordination with OER before each development sitecan be redeveloped and occupied. With Projected Development Site 1 enrolled in the BCP and proposed (E)-Designation (E-614) in place for the two development sites, the Proposed Actions would not result in significant adverse hazardous materials impacts.

4.3 Methodology

Known or potential hazardous material conditions resulting from previous and existing uses in and near the Project Area were assessed through historic Phase I Environmental Site Assessments (ESAs) and Phase II Environmental Site Investigations. The Applicant does not control Projected Development Site 2.

Phase I ESA

Phase I ESAs are performed in accordance with the American Society for Testing and Materials (ASTM) Standard Practice E-1527-13 "Standard Practice for Environmental Site Assessments." A Phase I ESA includes a review of federal, state, and local regulatory databases, New York City Fire Department (FDNY) and DOB databases, previous environmental reports, U.S. Geological Service maps, and recent and historic Sanborn fire insurance maps. This review is supplemented with a visual site inspection and discussion with site owners or managers. Onsite inspections included observations of all site lots and the surrounding area to identify odorous or visible indications of potential hazardous substances, such as the presence of aboveground storage tanks (ASTs), USTs, tank vents and fill ports; transformers (and other items that could contain PCBs); waste storage areas; hazardous materials usage, storage, and disposal areas and equipment; stained surfaces and soils, and stressed vegetation. In addition, readily-observable portions of the properties immediately adjacent to the Projected Development Site 1 were viewed from public rights-of-way to identify or determine the likelihood of any of the aforementioned potential sources of contamination being present. There were no limiting conditions with respect to the accuracy of site reconnaissance.

The goal of the Phase I ESA is to identify potential areas of environmental concern, which may relate to: asbestos-containing materials (ACM) and lead-based paint (LBP); storage tank

systems (including underground storage tanks [USTs]); hazardous materials and hazardous wastes; solid wastes, wastewater, and grease traps; polychlorinated biphenyls (PCBs); radon; or heating, ventilation, and cooling (HVAC) systems. These potential areas of environmental concern were evaluated per ASTM E-1527-13 protocol to determine whether any issue would be identified as a recognized environmental condition (REC), Controlled Recognized Environmental Condition (CREC), Historical Recognized Environmental Condition (HREC), or a *de minimis* condition:

- RECs are defined in the ASTM E-1527-13 Standard as, "…the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment."
- CRECs are defined in the ASTM E-1527-13 Standard as, "…a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (e.g., as evidenced by the issuance of an NFA letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (e.g., property use restrictions, AULs, institutional controls, or engineering controls)."
- HRECs are defined in the ASTM E-1527-13 Standard as, "…a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted residential use criteria established by a regulatory authority, without subjecting the property to any required controls."
- A *de minimis* condition is defined in the ASTM E-1527-13 Standard as, "…a condition that does not represent a threat to human health or the environment; and a condition that would not be subject to enforcement action if brought to the attention of a regulatory agency."

Based on the results of a Phase I ESA, a Phase II ESA may be recommended if there is a significant potential for the existence of a past or present release of hazardous substances or petroleum products to the environment at the property.

Phase II ESA

A Phase II ESA consists of a subsurface investigation that typically includes the collection of soil, groundwater, and/or soil vapor samples. Two Phase II ESAs have been completed at Projected Development Site 1, the Applicant's site. In January 2014, a Subsurface (Phase II) Investigation included the advancement of twelve soil borings and the collection and laboratory analysis of twelve soil samples. In February 2021, a Subsurface (Phase II) Investigation included the advancement of twelve soil borings and the collection and laboratory analysis of twenty-two soil samples and the installation of nine temporary soil vapor points with the collection of a soil vapor sample from each.

Historic Environmental Reports

The following historic environmental reports pertaining to Projected Development Site 1 were reviewed:

- Phase I ESA prepared in January 2014 by Hydro Tech Environmental, Corp (Hydro Tech);

- Phase II ESA prepared in January 2014 by Hydro Tech;
- Phase I ESA prepared in August 2018 by Environmental Business Consultants (EBC);
- Limited Due Diligence Site Investigation prepared in May 2020 by Tenen Environmental, LLC (Tenen); and,
- Phase II ESA prepared in February 2021 by Tenen.

The Applicant does not control Projected Development Site 2 and does not have access to historic environmental reports completed for this site. The historic environmental reports completed for Projected Development Site 1 are available in Appendix D of this EIS.

4.4 Existing Conditions

Projected Development Site 1

Existing conditions at Projected Development Site 1 was established through a review of historic environmental reports and recent investigation of subsurface conditions.

2014 Phase I ESA

The 2014 Hydro Tech Phase I ESA identified two Recognized Environmental Conditions (RECs) at Projected Development Site 1, including the presence of unknown fill material and the suspect presence of heating oil tanks. A Phase II ESA was recommended to further investigate the RECs.

2014 Phase II ESA

Subsequent to the 2014 Hydro Tech Phase I ESA, a Phase II ESA was conducted by Hydro Tech. The 2014 Phase II ESA included:

- Performance of a ground penetrating radar (GPR) survey at accessible locations at the project site;
- Installation of twelve soil borings and collection of twelve soil samples; and,
- Analysis of all soil samples for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and target analyte list (TAL) metals.

As part of the GPR survey, no underground magnetic anomalies that may typically warrant further investigation (such as potential USTs) were detected at Projected Development Site 1. The subsurface investigation found elevated levels of various metals, including selenium, lead and mercury, in site soils in exceedance of applicable standards, consistent with the presence of historic fill material. VOCs and SVOCs were not detected in soil at concentrations exceeding applicable standards.

2018 Phase I ESA

The 2018 EBC Phase I ESA did not identify any RECs at Projected Development Site 1, but did identify one environmental concern relating to the potential for fill materials to be present (utilized to backfill the foundations and/or basements of the former structures following their demolition).

2020 Limited Due Diligency Site Investigation

Following EBC's Phase I ESA, a Limited Due Diligence Site Investigation (LDDSI) was conducted at the project site in April 2020 by Tenen Environmental (Tenen). The 2020 LDDSI included:

- Installation of eight soil borings and collection of eight soil samples;
- Installation of six temporary soil vapor points and collection of six soil vapor samples;
- Installation of one temporary groundwater monitoring well;
- Analysis of all soil samples for VOCs, SVOCs, and TAL metals;
- Analysis of all soil vapor samples for VOCs; and,
- Groundwater was not encountered in the monitoring well that was set and, therefore, no groundwater sample was collected.

The LLDSI determined that historic fill material is present across the site at thicknesses ranging from two to five feet. The subsurface investigation identified various SVOCs, specifically polyaromatic hydrocarbons (PAHs), and various metals, including arsenic, barium, lead, mercury and nickel, in site soils in exceedance of applicable standards, consistent with the presence of historic fill material. VOCs were not detected in soil at concentrations exceeding applicable standards. The results of the soil vapor sampling indicated the presence of one chlorinated solvent, tetrachloroethene (PCE) at all six soil vapor sampling locations but at generally low concentrations. Several petroleum-related VOCs, including benzene, toluene, ethylbenzene, xylenes, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and 2,2,4-trimethylpentane were also detected in soil vapor samples at generally low concentrations across the site. Groundwater was not encountered as part of the LDDSI.

2021 Phase II ESA

Following the LLDSI, Tenen conducted a Phase II ESI in January 2021 in accordance with a NYCDEP-approved work plan. The 2021 Phase II ESI included:

- Installation of twelve soil borings and collection of twenty-two soil samples;
- Installation of nine temporary soil vapor points and collection of nine soil vapor samples;
- Analysis of all soil samples for VOCs, SVOCs, TAL metals, pesticides, herbicides, and PCBs, and analysis of two soil samples for per- and PFAS; and,
- Analysis of all soil vapor samples for VOCs.

The 2021 Tenen Phase II ESI confirmed the presence of historic fill material, ranging in thickness from 3 to 15 feet, across the site. The subsurface investigation identified various SVOCs, specifically PAHs, various metals, including arsenic, copper, lead, manganese, mercury, nickel and zinc, and various pesticides in site soils in exceedance of applicable standards, consistent with the presence of historic fill material. In addition, two PFAS analytes, perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), were detected in exceedance of applicable standards in both shallow soil samples analyzed. The results of the soil vapor sampling indicated the presence of the chlorinated solvent PCE at low concentrations in six of nine soil vapor samples, and the chlorinated solvent 1,1,1-trichloroethane (1,1,1-TCA) at low concentrations in one soil vapor sample. Several petroleum-related VOCs, including benzene, toluene, ethylbenzene, xylenes, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were also detected in soil vapor samples across the site, with the highest concentrations occurring in samples collected from the northern portion of the site. Groundwater was not encountered as part of the Phase II ESI.

Brownfield Cleanup Program Enrollment

On June 15, 2021, Projected Development Site 1's Lots 82, 92, and 100 – the sites of proposed buildings 1, 2, and 3 – were accepted into the BCP (DEC Site No: C243045). The Tentative Lot 95 portion of Projected Development Site 1 was determined ineligible by the DEC based on insufficient information to indicate contamination on the patial lot exceeding the soil cleanup objectives, however, no new buildings are proposed on this tentative lot. As part of the BCP, the Applicant entered into a BCA with DEC, dated July 22, 2021. The BCA requires that remedial actions be performed subject to approval and oversight from DEC in compliance with the requirements of the BCP. The BCP acceptance letter issued by DEC is provided in Appendix D.

Projected Development Site 2

Projected Development Site 2 is not under the Applicant's control, and historic environmental reports completed for this site were not available.

4.5 No-Action Condition

Absent the Proposed Actions, a new mixed-use commercial and residential building would be constructed at Projected Development Site 1 pursuant to a BCA with DEC. The new building would disturb an approximately 13,000 square-foot area of the northern portion of the site up to a depth of approximately 30 feet. In the No-Action Condition, no (E)-Designation would exist for hazardous materials on either development site, and no oversight would be provided by OER. ~~Therefore, potential existing contamination on Projected Development Site 1, such as buried material and historic fill, would be disturbed, potentially leading to increased pathways for potential exposure.~~

4.6 With-Action Condition

The Proposed Actions would lead to the development of four new buildings across the two development sites, and would result in ground disturbance during construction. Like the No-Action Condition, Projected Development Site 1 would have remedial oversight from DEC through the BCA. The regulatory oversight provided through the BCA would preclude the potential for significant adverse hazardous materials impacts at Projected Development Site 1.

In the With-Action Condition, an (E)-Designation for hazardous materials would be mapped at the development sites to preclude the potential for significant adverse hazardous materials impacts. This (E)-Designation would provide regulatory oversight by OER.

(E)-Designation

(E)-Designations for hazardous materials provide notice of the presence of an environmental requirement pertaining to potential hazardous materials contamination on a particular tax lot. They are established in connection with a discretionary land use action that would allow incremental floor area, new uses, or additional groud disturbance to occur on property. For new developments, enlargements of existing buildings, or changes in use, DOB cannot issue a building permit for grading, excavation, foundation, alteration, building, or any other permit for the site which permits soil disruption until a Notice to Proceed is issued by OER, indicating the requirements of the (E)-Designation have been satisfied.

For hazardous materials (E)-Designations, a testing and sampling protocol must be conducted, and a remediation plan – developed to the satisfaction of OER – must be developed and implemented where appropriate. Per the City rules regulating (E)-Designations, related to these activities, Phase I Environmental Site Assessments, Remedial Investigation Work Plans (aka, Phase II Work Plans), Remedial Investigation Reports, mandatory health and safety plans (HASPs) Remedial Action Plans (RAPs), and Remedial Closure Reports consistent with the applicable standards of the American Society for Testing and Materials (ASTM) must be approved by OER, and then implemented to OER's satisfaction.

E-614 would be mapped at the development sites. The (E)-Designation text would be as follows:

Projected Development Sites 1 (Block 13, Lots 82, 92, 100) and 2 (Block 13, Lots 68, 71, and 73)

Task 1 – Sampling Protocol

The applicant submits to OER, for review and approval, a Phase I of the site along with a soil, groundwater and soil vapor testing protocol, including a description of methods and a site map with all sampling locations clearly and precisely represented. If site sampling is necessary, no sampling should begin until written approval of a protocol is received from OER. The number and location of samples should be selected to adequately characterize the site, specific sources of suspected contamination (i.e., petroleum based contamination and non-petroleum-based contamination), and the remainder of the site's condition. The characterization should be complete enough to determine what remediation strategy (if any) is necessary after review of sampling data. Guidelines and criteria for selecting sampling locations and collecting samples are provided by OER upon request.

Task 2 – Remediation Determination and Protocol

A written report with findings and a summary of the data must he submitted to OER after completion of the testing phase and laboratory analysis for review and approval. After receiving such results, a determination is made by OER if the results indicate that remediation is necessary. If OER determines that no remediation is necessary, written notice shall be given by OER. If remediation is indicated from test results, a proposed remediation plan must be submitted to OER for review and approval. The applicant must complete such remediation as determined necessary by OER. The applicant should then provide proper documentation that the work has been satisfactorily completed. A construction-related health and safety plan should be submitted to OER and would be implemented during excavation and construction activities to protect workers and the community from potentially significant adverse impacts associated with contaminated soil, groundwater and/or soil vapor. This plan would be submitted to OER prior to implementation.

With a BCA in place for Projected Development Site 1 and the an (E)-Designation in place across both development sites, significant adverse hazardous materials impacts would be precluded because new development on the development sites would be required to fulfill the remedial measures outlined in the BCA and (E)-Designation. The remedial measures would be undertaken with oversight from DEC or OER. Over the No-Action Condition, the With-Action Condition would decrease potential pathways of exposure to hazardous materials because no ~~(E)-Designation would be mapped~~ regulatory oversight for hazardous materials would be provided for Projected Development Site 2 in the No-Action Condition. Accordingly, the Proposed Actions would not result in a significant adverse hazardous materials impact, and no further analysis is required.