Chapter 9: Hazardous Materials

A. INTRODUCTION

The hazardous materials assessment considers the potential for the presence of hazardous materials in soil and/or groundwater at the projected and potential development and enlargement sites identified under the Proposed Action. This chapter presents the findings of the hazardous materials assessment and identifies potential issues of concern that could pose a hazard to workers, the community and/or the environment associated with potential construction resulting from the Proposed Action.

PRINCIPAL CONCLUSIONS

The hazardous materials assessment identified potential historical and present sources of contamination within or near the proposed Rezoning Area. These included past or present manufacturing uses, printing facilities, filling stations, a dry cleaner, and/or petroleum storage tanks both within the Rezoning Area and near it. To reduce the potential of adverse impacts associated with projected and potential new construction resulting from the Proposed Action, further environmental investigations will be required at all of the projected and potential development sites listed in **Table 9-1**. In addition, to ensure that these investigations are undertaken, (E) designations (E-288) would be placed on all projected and potential development and enlargement sites.

These (E) designations require the owner of the property to do the following: conduct a Phase I ESA in accordance with the American Society of Testing Materials (ASTM) E1527-05; prepare and implement a soil and groundwater testing protocol; and conduct remediation where appropriate, to the satisfaction of the Mayor's Office of Environmental Remediation (OER) before building permits for development involving soil disturbance or changes to more sensitive uses (e.g., from non-residential to residential) can be issued by the New York City Department of Buildings (DOB). If warranted by the findings of the subsurface investigation, site redevelopment would be conducted in accordance with an OER-approved Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP), with a closure report prepared following construction documenting compliance with the RAP/CHASP.

Following construction, if long-term monitoring (e.g., of groundwater quality) is required by OER, a Site Management Plan (SMP) would be prepared specifying the necessary and appropriate procedures for operation, maintenance, testing, and reporting that remediation efforts, if any, have been employed. With the implementation of these measures, the Proposed Action would not result in any significant adverse impacts with respect to hazardous materials.

B. ANALYSIS APPROACH

Generally, hazardous materials are defined as those substances that pose a threat to human health and/or the environment. The presence of hazardous materials threatens human health or the environment only when exposure to those materials can occur. As described in Chapter 1, "Project Description," the Proposed Action is expected to result in the development of new

residential, commercial, and community facility uses on projected and potential development sites in the proposed Rezoning Area. Such development would occur as part of new construction, or the conversion and/or enlargement of existing buildings.

An assessment of potential hazardous materials impacts was performed for the projected and potential development sites where ground disturbance could occur as part of the anticipated future development. Although enlargement sites are not expected to experience any ground disturbance and any new residences would be located significantly above ground level, these sites are included in the assessment to account for the possibility that subsurface disturbance could occur, depending on the specific alterations required. The projected and potential development and enlargement sites are shown below in **Table 9-1**.

As discussed in Chapter 1, two reasonable worst-case development scenarios (RWCDSs) have been developed to represent potential development scenarios that could result from the Proposed Action. Under RWCDS 1, it is assumed that the maximum permitted residential development would occur on each of the projected development sites. Under RWCDS 2, it is assumed that community facility uses with sleeping accommodations (i.e., dormitories), rather than residential buildings, would be developed on two of the projected development sites. For the purposes of the hazardous materials assessment, the same conclusions apply with either RWCDS 1 or RWCDS 2.

METHODOLOGY

Known or potential hazardous material conditions resulting from previous and existing uses in and near the proposed Rezoning Area were assessed through: (1) visual inspection of the Rezoning Area from public rights-of way conducted in November 2011, and (2) a review of federal, state, and local regulatory databases; New York City Fire Department (FDNY) and DOB databases; U.S. Geological Service maps; and recent and historical Sanborn fire insurance maps.

Phase I Environmental Site Assessments (Phase I ESAs) were conducted by AKRF Inc. for the Applicant's projected development sites (Sites 1 though 4) in January 2009. The Phase I ESAs included reviews of the information sources listed above, as well as inspection of the interior and exterior of on-site buildings and interviews with site owners/managers.

These Phase I ESAs were updated in November 2011 with re-inspection of the interiors and exteriors, additional interviews with site owners/managers, and a review of updated regulatory databases. The findings of the 2009 Phase I ESAs and 2011 updates are discussed below in "Existing Conditions."

Table 9-1
Projected and Potential Development and Enlargement Sites Included in the Hazardous Materials Assessment

Site	Block	Lot(s)	Status
Development 1	227	63, 69, 70, 76, 80	Applicant's projected development site
Development 2	491	3	Applicant's projected development site
Development 3	579	60, 68, 70, 74	Applicant's projected development site
Development 4	598	42, 48	Applicant's projected development site
Development 5	477	35, 42, 44, 76	Projected development site
Development 6	580	52	Projected development site
Development 7	580	19	Projected development site
Development 8	597	10	Projected development site
Development 9	597	1	Projected development site
Development 10	579	1-3, 44	Projected development site
Development 11	579	5	Projected development site (conversion and enlargement)
Development 12	579	35	Projected development site
Development 13	477	57, 64, 66	Projected development site
Development 14	580	11	Projected development site
Development 15	578	75	Projected development site
Development 16	505	14	Projected development site
Development 17	597	5	Projected development site
Development 18	491	7502	Projected development site (conversion)
Development 19	597	39	Projected development site (conversion and enlargement)
Development 20	597	46	Potential development site (conversion and enlargement)
Development 21	597	7	Potential development site (conversion and enlargement)
Development 22	477	72-75	Potential development site
Development 23	578	77-79	Potential development site
Development 24	580	60	Potential development site (conversion and enlargement)
Enlargement 1	579	47	Applicant's projected enlargement site
Enlargement 2	505	1	Projected enlargement site
Enlargement 3	597	45	Projected enlargement site
Enlargement 4	505	16	Potential enlargement site
Enlargement 5	505	26	Potential enlargement site
Enlargement 6	597	32	Potential enlargement site
Enlargement 7	597	33	Potential enlargement site
Enlargement 8	597	50	Potential enlargement site
Enlargement 9	597	52	Potential enlargement site
Enlargement 10	597	51	Potential enlargement site
Enlargement 11	491	1	Potential enlargement site
Enlargement 12	491	26	Potential enlargement site
Enlargement 13	491	27	Potential enlargement site
Enlargement 14	578	70	Potential enlargement site
Enlargement 15	597	37	Potential enlargement site

Note: See Chapter 1, "Project Description," for more information on the projected and potential development sites.

C. EXISTING CONDITIONS

SUBSURFACE CONDITIONS

The Rezoning Area is located approximately 10–20 feet above mean sea level. U.S. Geological Survey (USGS) maps indicate that the Rezoning Area generally slopes downward in a westerly direction toward the Hudson River, or toward a topographic depression in the southeastern corner. Based on USGS reports, bedrock is expected at a depth of more than 50 feet below grade, generally sloping down toward the west. Based on surface topography, the approximate depth to the water table is approximately 5 to 20 feet, and groundwater likely flows in a westerly direction (toward the Hudson River) north of Spring Street and west of Hudson Street, and in a southerly or southeasterly direction (toward the topographic depression) in the southeastern portion of the site. However, actual groundwater flow may be influenced by past filling activities, underground utilities, other subsurface openings or obstructions such as basements, the Holland Tunnel in the southern portion of the Special District, subway tunnels (the 1 Line under Varick Street and the A/C/E Line under Sixth Avenue), and other factors. Groundwater in Manhattan is not used as a source of drinking water.

HAZARDOUS MATERIALS ASSESSMENT

The most likely routes of human exposure are breathing of volatile and semi-volatile compounds or particulate-laden air released during soil-disturbing activities, and dermal contact. This chapter includes procedures to reduce the potential for unnecessary and unacceptable exposure to these contaminants. The classes of contaminants typically encountered in urban areas are described briefly below.

- *Volatile organic compounds (VOCs)*. These include compounds such as benzene, toluene, ethylbenzene, xylene (BTEX), which are found in petroleum products (especially gasoline), the gasoline additive methyl tertiary butyl ether (MTBE), and chlorinated compounds, such as tetrachloroethene (also known as perchloroethylene or "perc"), and tricholoroethene, which are common ingredients in solvents, degreasers, and cleansers. VOCs represent the greatest potential for contamination issues since, in addition to soil and groundwater contamination, they can generate organic vapors. Former or current dry cleaners, particularly plants where large-scale processing occurs, and gasoline stations are the most likely sources for substantial VOC contamination. Auto repair and large gasoline spills can also lead to similar concerns (although there are now established procedures for the proper storage, handling, use, and disposal of these materials).
- *Semivolatile organic compounds (SVOCs)*. The most common SVOCs encountered are polycyclic aromatic hydrocarbons (PAHs), which are constituents of partially combusted coal or petroleum-derived products, such as coal ash, and asphalt. These are common in New York City fill.
- *Polychlorinated biphenyls (PCBs)*. Commonly used as a dielectric fluid in transformers, underground high-voltage electric pipelines, and hydraulically operated machinery, PCBs are of special concern at electrical transformer locations where leakage into soil under or around the transformers may have occurred. PCBs and/or PCB-containing materials were once widely used in manufacturing and industrial applications (hydraulic lifts, transformers, and plastic manufacturing, etc.). Many buildings in the Rezoning Area were built before 1979, when PCBs were commonly used in fluorescent lighting fixtures and electrical equipment such as capacitors, switches, and voltage regulators. PCBs tend to travel only

short distances in soil, except in unusual circumstances (e.g., large spills of PCB-containing oils over many years).

- *Pesticides, herbicides, and rodenticides*. These are commonly used to control rodents and/or insects, and vegetation in vacant structures or in vegetated lots.
- *Metals (including lead, arsenic, cadmium, chromium, and mercury)*. Metals are associated with smelters, foundries, and metal works, and are found as components in paint, ink, petroleum products, and coal ash. Metals tend not to travel far in soil; therefore, they would be of greatest concern at the site where they were generated. Metals at levels above natural background levels are frequently present in fill material throughout the New York metropolitan area. Most buildings in the Rezoning Area were built before 1977, and so are likely to contain lead-based paint, which was banned for use in New York City residential buildings in 1960, and severely restricted for use in commercial buildings by the national Consumer Products Safety Commission in 1977. Demolition debris noted on vacant lots in the Rezoning Area may also contain lead-based paint.
- *Asbestos*. Asbestos is a generic name for one of a group of naturally occurring minerals which are known human carcinogens when inhaled. Before 1990, these minerals were commonly used in various building materials, such as insulation, fireproofing, roofing, plaster, and floor and ceiling tiles, due to their excellent fire resistance and insulating properties. Asbestos-containing materials (ACM) are classified as friable or non-friable. Friable ACM, such as spray-applied fireproofing and thermal system insulation, are those which can be crumbled, pulverized, or reduced to powder when dry by hand or other mechanical pressure. Friable ACM are generally associated with a higher risk of releasing asbestos fibers than non-friable ACM, such as vinyl floor tiles and some roofing materials. After 1990, use of most asbestos-containing materials, except some non-friable ACM, was banned by the federal Clean Air Act. However, most buildings in the Rezoning Area were built before 1990, and are likely to contain ACM. Demolition debris noted on vacant lots in the Rezoning Area may also contain ACM.

Historical Sanborn fire insurance maps and the regulatory database search identified various potential sources of contamination throughout and within 400 feet of the Rezoning Area, including:

- Historical manufacturers, including chemical factories and a potential electrical transformer factory at Projected Enlargement Site 2;
- Generators of hazardous waste, including solvents, metals and/or other waste (many of the listings pertained to printing facilities), including listings with violations of hazardous waste regulations as follows:
  - 75 Varick Street was listed as a generator of various waste including electroplating waste, spent non-halogenated solvents and metal waste, with three violations in 1993 and a return to regulatory compliance the same year;
  - 345 Hudson Street was listed as a generator of various waste including spent non-halogenated solvents and silver waste, with two violations in 1995 and a return to regulatory compliance in 1996;
  - A laboratory at 180 Varick Street was listed as a generator of various waste including metal waste, chloroform and spent non-halogenated solvents, with a violation in 2000 and a return to compliance in 2002;

  - An engraving business at 333 Hudson Street was listed as a generator of corrosive and ignitable solid waste, chromium waste, electroplating-related wastewater treatment sludge and spent non-halogenated solvents, with three violations in 1991, 1994, and 1997 and returns to compliance within a year of each; and
  - A United Parcel Service (UPS) facility occupying the superblock west of Greenwich Street, between West Houston and Spring Streets, was listed in regulatory databases as a generator of hazardous waste including halogenated and non-halogenated solvents, benzene, xylene and formaldehyde, with four violations and returns to compliance in 1996 and 2010.
- A historical dry cleaner at 80 Varick Street;
- Reported releases, including the following open-status petroleum spills reported to the New York State Department of Environmental Conservation (NYSDEC):
  - A spill involving soil and groundwater contamination with fuel oil (Spill #9204307) was reported at 75 Varick Street in July 1992.
  - Two spills (Spill #1104109 and #1104069) were reported in July 2011 at 121 Varick Street. Spill #1104109 involved a leak from a buried tank resulting in soil and groundwater contamination with fuel oil. Spill #1104069 involved a leak of ink and hydraulic oil from a printing business on the building's sixth floor through the fifth-floor ceiling;
  - Spill #1102101, reported in May 2011 at 34 Watts Street, involved a tank tightness test failure; and
  - A spill reported in March 2008 at 501-503 Canal Street (Spill #0801296) involving soil and groundwater contamination with gasoline.
- Petroleum storage, including buried gasoline tanks;
- Historical filling stations at the following locations:
  - On Projected Development Sites 2 and 5;
  - At the northeastern corner of Avenue of the Americas and Grand Street;
  - At the northwestern corner of Broome and Varick Streets;
  - At the southwestern corner of Hudson and Charlton Streets; and
  - On the east side of Avenue of the Americas at Dominick Street (140-52 Avenue of the Americas), with an open-status spill (Spill #9207631) involving soil and groundwater contamination with gasoline reported in October 1992.
  - An auto sales and service station (potentially a filling station) at the northeastern corner of Broome and Hudson Streets;

Potential sources of contamination on or adjacent to the individual projected and potential development and enlargement sites are detailed below.

PROJECTED DEVELOPMENT SITE 1

At the time of the reconnaissance, Projected Development Site 1 consisted of an asphalt-paved open space with benches and planters. The following potential sources of contamination were noted:

- Site 1 was historically occupied by buildings with basements, which were later demolished. The site was then filled to grade with fill of unknown origin. Historical land use maps showed manufacturing, including a NY Laboratory Supply Co. factory, on Site 1.

- Site 1 was listed in the regulatory database with an active 4,000-gallon fuel oil aboveground storage tank (AST), two closed and removed 275-gallon underground fuel oil storage tanks (USTs), and a closed and removed 5,000-gallon fuel oil AST. An unregistered 3,000-gallon fuel oil AST was observed on Site 1 during a 1998 Phase I ESA (prior to the demolition of historical buildings). The 2009 Phase I ESA and the 2011 reconnaissance identified no evidence of storage tanks on-site. Other regulatory listings for Site 1 included a minor (approximately 5 gallons) surface fuel oil spill (Spill #0508831) in October 2005, which was cleaned up and closed, and two listings for hazardous waste generation including ignitable waste and PCB-contaminated solids. Sherman Technology Association, historically located on Site 1 at 74 Varick Street, was listed in the United States Environmental Protection Agency's (USEPA) Civil Enforcement Docket in 1987 for a violation of the reporting requirements of the Federal Insecticide, Fungicide, and Rodenticide Act. No further information was available and it is not known if this listing is associated with an actual or potential release.

PROJECTED DEVELOPMENT SITE 2

At the time of the reconnaissance, Project Development Site 2 consisted of an asphalt-paved parking lot with hydraulic car lifts. A concrete pad was noted under car lifts in the southern portion of Site 2. The following potential sources of contamination were noted:

- Site 2 was historically occupied by buildings with basements, which were later demolished. The site was then filled to grade with fill of unknown origin. Historical land use maps subsequently showed Site 2 as a filling station; two fill ports labeled "gasoline" were observed north-adjacent to Site 2 in the Dominick Street sidewalk. Based on the age of the parking lot, hydraulic fluid in car lifts may contain PCBs.

PROJECTED DEVELOPMENT SITE 3

At the time of the reconnaissance, Projected Development Site 3 was occupied by a two-story commercial loft building on Lot 60, a two-story building containing a restaurant on Lot 68, and an eight-story commercial loft building on Lot 70. Lot 74 was occupied by a parking lot and an underground boiler room for an off-site building on Lot 47. The following potential sources of contamination were noted:

- Historical Sanborn maps indicated manufacturing uses on-site, including a plate glass factory with a paint shop on Lot 68. Lot 68 was also historically occupied by a drug and chemical store and by the "United Transf. Co." (possibly "United Transformer Company"), which may have used PCB-containing fluids in transformer fabrication. The existing restaurant included a food grease trap in the basement of the building on Lot 68.
- Lot 70 was historically occupied by the Garvin Machine Co, and was identified in DOB records with a 1939 Oil Burner Application. The occupants of Lot 70 in 2009 and 2011 included graphics companies, and Lot 70 was also listed in regulatory databases as a generator of hazardous waste including ignitable solid waste and spent non-halogenated solvents, with a general violation reported in 1986 and a return to regulatory compliance the same year.
- Four apparent groundwater monitoring wells were noted adjacent to Site 3 in the Vandam and Spring Street sidewalks during the 2009 reconnaissance. Two of these wells could not be located at the time of the 2011 reconnaissance. Site representatives were not aware of the

purpose of these wells. Although the wells may have been installed for an environmental investigation, regulatory records noted no such investigation on the Site 3 block.

- Regulatory listings in the vicinity of Site 3 identified west-adjacent Projected Enlargement Site 1 as a generator of hazardous waste, including ignitable solid waste, spent non-halogenated solvents, and formaldehyde.

PROJECTED DEVELOPMENT SITE 4

At the time of the reconnaissance, Projected Development Site 4 was occupied by a one-story parking garage on Lot 42 and a parking lot with car lifts on Lot 47. The following potential sources of contamination were noted:

- Historical land use maps and the FDNY database indicated manufacturing (including food manufacturing) and a freight depot on Site 4, as well as two 550-gallon buried gasoline tanks on Lot 42. Two suspect gasoline vent pipes were noted on the roof of the garage, and a third suspect vent pipe for a potential tank was noted on a garage wall. A potential fuel oil fill port was noted in the sidewalk west-adjacent to the garage.
- Based on the age of the garage and parking lot, hydraulic fluid in car lifts may contain PCBs. Hydraulic oil for lifts was stored in the garage in containers ranging from 5 to 55 gallons in size. Surface staining was noted in the garage near a floor drain. The 2011 reconnaissance also noted staining on a damaged Greenwich Street sidewalk west-adjacent to the parking lot. This staining, which was not noted during the 2009 reconnaissance, appeared to originate from the parking lot. Apparent former coal chutes were noted in the King Street sidewalk north-adjacent to the parking lot.
- East-adjacent 345 Hudson Street was listed in regulatory databases as a generator of hazardous waste including spent non-halogenated solvents and silver waste with two regulatory violations in 1995 and a return to regulatory compliance in 1996. A UPS facility occupying the west-adjacent superblock (between West Houston and Spring Streets) was listed in regulatory databases as a generator of hazardous waste including halogenated and non-halogenated solvents, benzene, xylene and formaldehyde, with four hazardous waste-related regulatory violations and returns to compliance in 1996 and 2010. Numerous active and closed petroleum USTs were registered at UPS. A 1991 closed tank test failure (Spill #9100225) for four 1,500-gallon gasoline tanks and a 1992 closed spill of an unspecified quantity of petroleum involving soil contamination (Spill #9205355) were reported for UPS.

PROJECTED DEVELOPMENT SITE 5

At the time of the reconnaissance, Projected Development Site 5 was occupied by a fenced, partially vegetated vacant lot. The following potential sources of contamination were noted:

- A fuel tank fill port was noted in the Watts Street sidewalk between Site 5 and east-adjacent Site 22. Site 5 was historically occupied by buildings with basements, which were later demolished. The site was then filled to grade with fill of unknown origin. Historical uses of Site 5 included a laundry (which may potentially have included dry cleaning), a filling station, and a medicine and kettle factory. The regulatory database identified Site 5 with two Air Discharge Facility listings for National Asbestos Removal, possibly due to historical asbestos abatement activities.

PROJECTED DEVELOPMENT SITE 6

At the time of the reconnaissance, Projected Development Site 6 was occupied by a two-story Verizon garage. In addition to the sources discussed above for the overall Rezoning Area, the following potential sources of contamination were noted:

- Historical land use maps and DOB records indicated that Site 6 has been used as a coal yard, a garage, and an auto repair shop, and has included fuel oil and gasoline tanks. These records included six buried 550-gallon gasoline tanks noted on historical Sanborn maps and a 1994 application to upgrade the gasoline storage tank system and install a 275-gallon waste oil tank in DOB records. The regulatory database listed a 4,000-gallon gasoline UST, a 275-gallon waste oil AST, and a 1,500-gallon fuel oil AST registered as being in service at Site 6. A petroleum storage tank vent pipe was noted on the north side of the building.
- Regulatory listings for Site 6 included a hazardous waste generator listing with no details provided and two minor (up to 10 gallons) surface spills of hydraulic oil and diesel (Spill #9614579 and #0009305), which were reported on March 1997 and November 2000 respectively, and were reportedly cleaned up and closed.
- An engraving business at east-adjacent 175 Varick Street was listed as a generator of hazardous waste (silver waste and corrosive solid waste).

PROJECTED DEVELOPMENT SITE 7

At the time of the reconnaissance, Projected Development Site 7 was occupied by a six-story office and commercial building. The following potential sources of contamination were noted:

- Historical land use maps and DOB records indicated that Site 7 was historically used for commercial and manufacturing uses, including a chemical factory. DOB records included a 1957 Oil Burner Application. The regulatory database included a registration for an active 5,000-gallon fuel oil AST at Site 7. Site 7 was also listed in the regulatory database as Scotti Graphics Inc., a hazardous waste generator of ignitable solid waste, silver waste, benzene and tetrachloroethylene, with three regulatory violations in 2010 and returns to compliance the same year.
- Historical uses in the vicinity of Site 7 included a chemical factory approximately 100 feet to the west on Site 14. Regulatory listings in the vicinity of Site 7 included a historical (closed and removed) UST at south-adjacent 157-161 Varick Street.

PROJECTED DEVELOPMENT SITE 8

At the time of the reconnaissance, Projected Development Site 8 was occupied by a six-story warehouse. The following potential sources of contamination were noted:

- Historical land use maps and DOB records for Site 8 indicated historical office and manufacturing (including food packaging production) uses. DOB records for Site 8 included a 1946 oil burner application. The regulatory database identified 92-98 Vandam Street (an address which includes Site 8 and west-adjacent Site 21) as a historical utility (Annex/Generating Station), and historical land use maps indicated a historical electrical substation on Site 21.
- Historical uses in the vicinity of Site 8 included a pipe cutting shop, a laundry and paper box manufacturing at south-adjacent Site 9; a garage with a buried gasoline tank at west-adjacent Site 17; the electrical substation, a printing shop and iron works on Site 21; and a tin can factory south-adjacent to Site 8. The UPS facility listed in regulatory databases as a

generator of hazardous waste, petroleum storage facility and spill site is located on the west-adjacent superblock.

PROJECTED DEVELOPMENT SITE 9

At the time of the reconnaissance, Projected Development Site 9 was occupied by a five-story office, storage and commercial building. The following potential sources of contamination were noted:

- Historical land use maps indicated that Site 9 was historically occupied by a pipe cutting shop, a laundry and paper box manufacturing. DOB records indicated historical printing on Site 9 and included a 1937 oil burner application and a 2011 permit pertaining to the replacement of an oil-burning boiler. The regulatory database listed an active 5,000-gallon fuel oil UST and an "administratively closed" 4,000-gallon fuel oil UST at Site 9. An apparent groundwater monitoring well was observed in the west-adjacent Greenwich Street sidewalk.
- Historical uses in the vicinity of Site 9 included: historical manufacturing (including food packaging production) on north-adjacent Site 8; a garage with a buried gasoline tank at north-adjacent Site 17; and a tin can factory east-adjacent to Site 9. The UPS facility listed in regulatory databases as a generator of hazardous waste, petroleum storage facility, and spill site is located on the west-adjacent superblock.

PROJECTED DEVELOPMENT SITE 10

At the time of the reconnaissance, Projected Development Site 10 was occupied by a four-story commercial-residential building on Lot 1, a two-story commercial-residential building on Lot 2, a parking lot/contractor's storage yard on Lot 3, and surface parking on Lot 44. The following potential sources of contamination were noted:

- DOB records included a 1935 Oil Burner Application for Lot 3.
- Historical uses in the vicinity of Site 10 included a laundry and a factory on north-adjacent Site 11.

PROJECTED DEVELOPMENT SITE 11

At the time of the reconnaissance, Projected Development Site 11 was occupied by an office and commercial building. The following potential sources of contamination were noted:

- DOB records for Site 11 included a 1936 Oil Burner Application. Historical land use maps indicated that the on-site building was historically a factory and that a laundry was historically located on Site 11.

PROJECTED DEVELOPMENT SITE 12

At the time of the reconnaissance, Projected Development Site 12 was occupied by a parking lot with multi-level car lifts. The following potential sources of contamination were noted:

- Site 12 was historically occupied by buildings with basements, which were later demolished. The site was then filled to grade with fill of unknown origin. Based on the age of the parking lot, the car lifts may utilize PCB-containing hydraulic fluid.

PROJECTED DEVELOPMENT SITE 13

At the time of the reconnaissance, Projected Development Site 13 was occupied by paved vacant land on Lot 57, a one-story building containing a restaurant on Lot 64, and a two-story office building and parking on Lot 66. The following potential sources of contamination were noted:

- Historical land use maps showed manufacturing and an auto service station with a buried 250-gallon gasoline tank on Lot 66. DOB records included a 2007 application to replace an oil-burning boiler with an electric boiler. Regulatory records for Site 13 listed an active 1,500-gallon fuel oil AST on Lot 66. Electronic FDNY records listed a 1,000-gallon fuel oil storage tank (possibly the same tank) at the same address.
- Historical uses in the vicinity of Site 13 included a commercial-manufacturing building east-adjacent to the site, and a garage with a buried gasoline tank west-adjacent to the site.

PROJECTED DEVELOPMENT SITE 14

At the time of the reconnaissance, Projected Development Site 14 was occupied by a fenced, unpaved vacant lot. The following potential sources of contamination were noted:

- Site 14 was historically occupied by buildings with basements, which were later demolished. The site was then filled to grade with fill of unknown origin. A "baited area" sign was observed on the Site 14 fence, indicating the application of pesticides.
- Historical land use maps indicated manufacturing (including a chemical factory) on Site 14. DOB records also indicated historical manufacturing use and included a 1939 FDNY permit for chemical storage, a 1989 oil burner application, a 1993 application to replace an oil burner, and a 2009 demolition permit. Regulatory listings for Site 14 included a registration for an active 5,000-gallon fuel oil AST, and electronic FDNY records reported a 5,000-gallon tank (likely the same tank) on Site 14; however, the reconnaissance noted no evidence of tanks on Site 14. The regulatory database also listed Site 14 as Premier Restoration and Interior Maintenance, a hazardous waste generator of spent halogenated solvents with a regulatory violation in 2002 and a return to compliance in 2003.
- Historical uses in the vicinity of Site 14 included a factory and a printer east-adjacent to the site. Regulatory listings in the vicinity of Site 14 included a historical (closed and removed) UST at south-adjacent 157-161 Varick Street.

PROJECTED DEVELOPMENT SITE 15

At the time of the reconnaissance, Projected Development Site 15 was occupied by a one-story, vacant church building. The following potential sources of contamination were noted:

- DOB records included two undated oil burner applications for Site 15.
- Historical land use maps indicated a filling station east-adjacent to Site 15. North-adjacent 121 Varick Street was identified as a historical commercial-manufacturing building with a hazardous waste generator listing, a UST registration, and two open-status spills (Spill #1104109 and #1104069).

PROJECTED DEVELOPMENT SITE 16

At the time of the reconnaissance, Projected Development Site 16 was occupied by a six-story office and commercial building. The following potential sources of contamination were noted:

- Site 16 was identified in the regulatory database as Fiberglass Products, an Air Discharge Facility with potential asbestos emissions; the listing had a status of "permanently closed."
- Historical land use maps identified commercial-manufacturing buildings east and west-adjacent to Site 16. Regulatory databases identified west-adjacent Projected Enlargement Site 2 as containing printing facilities with hazardous waste generation and the United Transformer Corporation, listed as a generator of various hazardous wastes including paint-solvent mixtures, spent halogenated and non-halogenated solvents, tetrachloroethene and 1,1,1-trichloroethane. United Transformer Corporation may have historically manufactured electrical transformers using PCB-containing transformer oil.

PROJECTED DEVELOPMENT SITE 17

At the time of the reconnaissance, Projected Development Site 17 was occupied by a fenced, unpaved vacant lot. In addition to the sources discussed above for the overall Rezoning Area, the following potential sources of contamination were noted:

- Site 17 was historically occupied by a building with a basement, which was later demolished. The site was then filled to grade with fill of unknown origin. DOB records indicated that Site 17 was historically occupied by a garage and a factory (including steel products manufacturing), and included a 2011 demolition permit. A 550-gallon buried gasoline tank was shown in the historical garage on historical land use maps.
- Historical uses in the vicinity of Site 17 included: historical office and manufacturing (including food packaging production) uses on east-adjacent Site 8; a pipe cutting shop, a laundry and paper box manufacturing at south-adjacent Site 9; and an electrical substation, a printing shop and iron works on north-adjacent Site 21. The UPS facility listed in regulatory databases as a generator of hazardous waste, petroleum storage facility and spill site is located on the west-adjacent superblock.

PROJECTED DEVELOPMENT SITE 18

At the time of the reconnaissance, Projected Development Site 18 was occupied by an eight-story commercial and live-work building. In addition to the sources discussed above for the overall Rezoning Area, the following potential sources of contamination were noted:

- Site 18 was historically occupied by a paper and bag mill and unspecified manufacturing. Regulatory databases identified Site 18 as a hazardous waste generator producing silver waste in 2001.Electronic FDNY records listed a 1,500-gallon No. 4 fuel oil tank at Site 18, and DOB records for this site included three oil burner applications (two undated, and one dated 1987).
- Historical uses in the vicinity of Site 17 included: manufacturing and iron works north-adjacent to the site. The north-adjacent building was listed in regulatory databases with two No. 2 fuel oil USTs and a closed-status tank tightness test failure.

PROJECTED DEVELOPMENT SITE 19

At the time of the reconnaissance, Projected Development Site 19 was occupied by a six-story vacant building. In addition to the sources discussed above for the overall Rezoning Area, the following potential sources of contamination were noted:

- A fuel tank vent pipe and fill port were noted in front of the Site 19 building on Greenwich Street. DOB records for Site 19 included three oil burner applications (two dated 1941 and

one dated 1966). A 1,500-gallon fuel oil AST was identified at Site 19 in the regulatory database. A 1,500-gallon fuel oil tank listing in electronic FDNY records likely referred to the same tank. DOB records indicated that Site 19 was historically used as a factory, and historical land use maps indicated cocoa manufacturing on this site.

- Historical uses in the vicinity of Site 19 included a factory and a printer north-adjacent to the site and a garage with a buried gasoline tank south-adjacent to the site. The UPS facility listed in regulatory databases as a generator of hazardous waste, petroleum storage facility and spill site is located on the west-adjacent superblock.

POTENTIAL DEVELOPMENT SITE 20

At the time of the reconnaissance, Projected Development Site 20 was occupied by a six-story office and warehouse building. The following potential sources of contamination were noted:

- A potential fuel tank fill port was noted in the Charlton Street sidewalk north-adjacent to Site 20.
- Historical uses in the vicinity of Site 20 included a west-adjacent factory. The UPS facility listed in regulatory databases as a generator of hazardous waste, petroleum storage facility and spill site is located on the west-adjacent superblock.

POTENTIAL DEVELOPMENT SITE 21

At the time of the reconnaissance, Projected Development Site 21 was occupied by a six-story office building. The following potential sources of contamination were noted:

- Historical land use maps indicated an electrical substation, a printing shop and iron works on Site 21. Site 21 was identified twice in the regulatory database as a historical utility. The first listing identified 92-98 Vandam Street (an address which includes Site 21 and east-adjacent Site 8) as an Annex/Generating Station. The second listing noted a Consolidated Edison facility at the intersection of Vandam and Greenwich Streets. DOB records for Site 21 identified two undated oil burner applications and noted historical use of this site as a factory.
- Historical uses in the vicinity of Site 21 included manufacturing (including food packaging production) on east-adjacent Site 8, and a garage with a buried gasoline tank at south-adjacent Site 17. The UPS facility listed in regulatory databases as a generator of hazardous waste, petroleum storage facility and spill site is located on the west-adjacent superblock.

POTENTIAL DEVELOPMENT SITE 22

At the time of the reconnaissance, Projected Development Site 22 was occupied by four three-story residential buildings. The following potential sources of contamination were noted:

- A fuel tank fill port was noted in the Watts Street sidewalk between Site 22 and west-adjacent Site 5. A fuel tank vent pipe and fill port were also observed in front of Lot 73. Historical land use maps indicated a chemical lab on Lot 72. DOB records indicated a historical computer assembly and repair business on Lot 72.
- Historical uses in the vicinity of Site 22 included a laundry, medicine and kettle factory, and filling station on Site 5.

POTENTIAL DEVELOPMENT SITE 23

At the time of the reconnaissance, Projected Development Site 23 was occupied by three four-story residential buildings. The following potential sources of contamination were noted:

- A fuel tank fill port was noted in the Broome Street sidewalk south-adjacent to Lot 77, and DOB records for this lot included two oil burner applications dated 1959 and 1972. DOB records for Lot 78 included three oil burner applications (two dated 1954 and one dated 1962) and a Certificate of Occupancy indicating a historical laboratory and manufacturing on this lot. Two 1954 oil burner applications were identified in DOB records for Lot 79.
- The north-adjacent 38 Dominick Street was listed with a closed-status spill (Spill #9612894) reported in January 1997. The spill listing indicated that a fuel oil tank ruptured in this building's basement, resulting in fumes and a leak into a former coal cellar. The spill was reportedly cleaned up and closed.

POTENTIAL DEVELOPMENT SITE 24

At the time of the reconnaissance, Projected Development Site 24 was occupied by a six-story office and commercial building. The following potential sources of contamination were noted:

- Historical land use maps and DOB records identified Site 24 as a commercial-manufacturing building. The regulatory database listed an active 5,000-gallon fuel oil AST on Site 24; electronic FDNY records also identified a 5,000-gallon fuel oil tank (likely the same tank) at this site. DOB records included two oil burner applications dated 1961 and 1972. Site 24 was also identified in the regulatory database as Royal Offset Co. (a printing facility) with potential air emissions of VOCs; the listing was noted to be in regulatory compliance.
- A closed-status spill (Spill #0104982) was reported in an electrical transformer vault adjacent Site 24. This spill involved the release of approximately 360 gallons of PCB-containing transformer oil into the vault and potentially into a sewer or storm drain.
- West-adjacent Site 6 was identified on historical land use maps and/or in regulatory databases as a historical coal yard, garage and auto repair shop with buried gasoline tanks, a waste oil AST and a fuel oil AST. Electronic FDNY records identified a fuel oil tank at south-adjacent 179 Varick Street, but did not specify the type of the tank.

PROJECTED ENLARGEMENT SITE 1

At the time of the reconnaissance, Projected Enlargement Site 1 was occupied by an eight-story office and commercial building. The following potential sources of contamination were noted:

- Historical land use maps identified Projected Enlargement Site 1 as a manufacturing facility. Regulatory listings identified Projected Enlargement Site 1 as a generator of hazardous waste, including ignitable solid waste, spent non-halogenated solvents, and formaldehyde.
- East-adjacent Projected Development Site 3 was identified on historical land use maps as a manufacturing facility, including potential PCB-containing transformer manufacturing. Lot 70 on Site 3 was also listed in the regulatory databases as a generator of hazardous waste including ignitable solid waste and spent non-halogenated solvents, with a general violation reported in 1986 and a return to regulatory compliance the same year.

PROJECTED ENLARGEMENT SITE 2

At the time of the reconnaissance, Projected Enlargement Site 2 was occupied by a ten-story office and commercial building. The following potential sources of contamination were noted:

- Historical land use maps identified a laundry (which may have potentially included dry cleaning), a paint shop, an auto repair shop and unspecified manufacturing on Projected Enlargement Site 2. Regulatory listings identified Projected Enlargement Site 2 as containing printing facilities with hazardous waste generation and the United Transformer Corporation, listed as a generator of various hazardous wastes including paint-solvent mixtures, spent halogenated and non-halogenated solvents, tetrachloroethene and 1,1,1-trichloroethane. United Transformer Corporation may have historically manufactured electrical transformers using PCB-containing transformer oil. Regulatory databases also identified two petroleum storage tanks on Projected Enlargement Site 2: a 10,000-gallon No. 6 fuel oil AST was registered as closed in place, and a 4,000-gallon diesel AST was registered as in service.

PROJECTED ENLARGEMENT SITE 3

At the time of the reconnaissance, Projected Enlargement Site 3 was occupied by a six-story residential and commercial building. The following potential sources of contamination were noted:

- Historical land use maps identified a factory and a printing facility on Projected Enlargement Site 3.

POTENTIAL ENLARGEMENT SITE 4

At the time of the reconnaissance, Potential Enlargement Site 4 was occupied by a five-story residential building. The following potential sources of contamination were noted:

- DOB records for Potential Enlargement Site 4 included two oil burner applications dated 1949 and 1988.
- Historical land use maps and regulatory listings identified a factory and printing facilities with hazardous waste generation, including acetone and spent non-halogenated solvents, east-adjacent to Potential Enlargement Site 4.

POTENTIAL ENLARGEMENT SITE 5

At the time of the reconnaissance, Potential Enlargement Site 5 was occupied by a six-story residential building. The following potential sources of contamination were noted:

- Historical land use maps identified printing pattern plate manufacturing and unspecified manufacturing south-adjacent to Potential Enlargement Site 5.

POTENTIAL ENLARGEMENT SITE 6

At the time of the reconnaissance, Potential Enlargement Site 6 was occupied by a five-story residential and commercial building. The following potential sources of contamination were noted:

- DOB records for Potential Enlargement Site 6 included a 1937 oil burner application.
- Historical land use maps identified a chocolate factory and unspecified manufacturing east-adjacent to Potential Enlargement Site 6.

POTENTIAL ENLARGEMENT SITE 7

At the time of the reconnaissance, Potential Enlargement Site 7 was occupied by a five-story residential and commercial building. The following potential sources of contamination were noted:

- DOB records for Potential Enlargement Site 7 included two oil burner applications dated 1937 and 1960.
- Historical land use maps noted a tin can factory, a pipe cutting facility and a paper box factory west-adjacent to Potential Enlargement Site 7 and a chocolate factory and unspecified manufacturing north-adjacent to Potential Enlargement Site 7. The west-adjacent building was listed in regulatory databases with one active and one closed fuel oil UST.

POTENTIAL ENLARGEMENT SITE 8

At the time of the reconnaissance, Potential Enlargement Site 8 was occupied by a four-story residential building. The following potential sources of contamination were noted:

- Historical land use maps identified a factory south-adjacent to Potential Enlargement Site 8. A closed-status spill of approximately 1,300 gallons of No. 2 fuel oil with impact to soil was reported at the east-adjacent Potential Enlargement Site 10 in November 2010.

POTENTIAL ENLARGEMENT SITE 9

At the time of the reconnaissance, Potential Enlargement Site 9 was occupied by a six-story residential building. The following potential sources of contamination were noted:

- Historical land use maps identified a filling station and a factory east-adjacent to Potential Enlargement Site 9. Regulatory listings for the east-adjacent building identified printing facilities with hazardous waste generation (including electroplating waste and spent non-halogenated solvents) and three associated violations between 1991 and 1997, with returns to compliance within a year. A closed-status spill of approximately 1,300 gallons of No. 2 fuel oil with impact to soil was reported at the west-adjacent Potential Enlargement Site 10 in November 2010.

POTENTIAL ENLARGEMENT SITE 10

At the time of the reconnaissance, Potential Enlargement Site 10 was occupied by a four-story residential building. The following potential sources of contamination were noted:

- Regulatory listings identified an active 1,500-gallon No. 2 fuel oil AST on Potential Enlargement Site 10. A closed-status spill was reported at this site in November 2010 and involved a release of approximately 1,300 gallons of No. 2 fuel oil with impact to soil due to a tank leak. The listing indicated that the tank was removed in 2010.

POTENTIAL ENLARGEMENT SITE 11

At the time of the reconnaissance, Potential Enlargement Site 11 was occupied by a six-story residential and commercial building. The following potential sources of contamination were noted:

- DOB records for Potential Enlargement Site 11 identified a 1946 oil burner application. A 1,500-gallon No. 2 fuel oil AST was registered at this site in the regulatory database.

- Historical land use maps identified an engine parts shop east-adjacent to Potential Development Site 11 and a filling station nort-adjacent to this site at Projected Development Site 2.

POTENTIAL ENLARGEMENT SITE 12

At the time of the reconnaissance, Potential Enlargement Site 12 was occupied by a five-story residential building. The following potential sources of contamination were noted:

- Historical land use maps identified a filling station northwest of Potential Development Site 12 on the same block, at Projected Development Site 2.

POTENTIAL ENLARGEMENT SITE 13

At the time of the reconnaissance, Potential Enlargement Site 13 was occupied by a five-story residential building. The following potential sources of contamination were noted:

- Historical land use maps identified a marine engine parts shop west-adjacent to Potential Enlargement Site 13 and a filling station northwest-adjacent to this site at Projected Development Site 2.

POTENTIAL ENLARGEMENT SITE 14

At the time of the reconnaissance, Potential Enlargement Site 14 was occupied by a five-story residential building. The following potential sources of contamination were noted:

- Historical land use maps identified a filling station south-adjacent to Potential Enlargement Site 14. North-adjacent 121 Varick Street was identified as a historical commercial-manufacturing building with a hazardous waste generator listing, a UST registration, and two open-status spills (Spill #1104109 and #1104069).

POTENTIAL ENLARGEMENT SITE 15

At the time of the reconnaissance, Potential Enlargement Site 15 was occupied by a seven-story residential building. The following potential sources of contamination were noted:

- Historical land use maps identified Potential Enlargement Site 15 as a coffee factory and noted a garage with a buried gasoline tank north-adjacent to this site.

D. THE FUTURE WITHOUT THE PROPOSED ACTION

This analysis assumes that in the Future Without the Proposed Action (the No-Action condition), properties within the proposed Rezoning Area would either continue in their current uses, which do not currently present a hazard to people or the environment, or be developed with uses complying with the current zoning. The anticipated uses on the projected and potential development and enlargement sites in the No-Action condition are as follows (see also Chapter 1, "Project Description"):

- No change in the uses of Projected and Potential Development Sites 6 through 16, 20 through 24, and all Projected and Potential Enlargement Sites;
- Redevelopment of Projected Development Sites 1, 3, 5, and 17 with hotel and commercial uses;

- Enlargement of Projected Development Site 18 with commercial uses;[1]
- Redevelopment of Projected Development Sites 2 and 4 with commercial uses; and
- Re-tenanting of Projected Development Site 19 (currently vacant) for storage or commercial use.

Compared with the development anticipated on the projected and potential development sites as a result of the Proposed Action, the No-Action condition would result in less construction and fewer conversions from non-residential to residential uses. However, any construction involving soil disturbance in portions of the Rezoning Area with identified potential for contamination could potentially increase pathways for human exposure to any subsurface hazardous materials present in those areas. Since no (E) designations—which require the owner of a property to assess potential hazardous material impacts prior to construction—currently exist on the proposed and projected development and enlargement sites, such soil disturbance would not necessarily be conducted in accordance with the procedures described in the following section (e.g., conducting testing before commencing excavation and implementation of health and safety plans during construction). However, legal requirements pertaining to petroleum tank maintenance, spill reporting (if spills are identified), off-site disposal of soil/fill, and disturbance and handling of suspect lead-based paint, ACM and PCB-containing equipment and/or lighting fixtures, would need to be followed. Thus, in the No Action condition, the amount of soil disturbance would be reduced, but the controls on its performance would not be as stringent as under the Proposed Action, as described below.

E. THE FUTURE WITH THE PROPOSED ACTION

Under the Proposed Action, construction and an increase in residential uses are expected to occur on projected and potential development and enlargement sites (the With-Action condition). The anticipated uses for the projected and potential development and enlargement sites are as follows:

- New construction for residential and commercial uses, as well as some office and community facility uses, on Projected and Potential Development Sites 1 through 10, 12 through 17, 22 and 23;
- Residential conversion and enlargement on Projected and Potential Development Sites 11, 19 through 21, and 24 (potentially involving subsurface disturbance).
- Conversion of commercial space on Projected Development Site 18 to live-work uses, with no subsurface disturbance anticipated (note that live-work units already exist in the building on Site 18; the remaining eight commercial units would be converted to live-work in the With-Action condition);
- Enlargement of Projected Enlargement Site 1 with new floors with commercial uses (potentially involving subsurface disturbance)
- Enlargement of Projected Enlargement Site 2 with residential uses (the building is currently occupied by commercial and office uses), potentially involving subsurface disturbance; and

[1] The enlargement on Projected Development Site 18 was completed shortly before certification of the Draft EIS. Between the Draft and Final EIS, the analyses in this document will be updated to reflect the enlargement as an existing condition. This change would not affect the conclusions of the analyses presented in this EIS.

- Enlargement of Projected Enlargement Site 3 and Potential Enlargement Sites 4 through 15 with residential uses (the buildings currently include residential uses), with no subsurface disturbance anticipated.

The Proposed Action would result in greater soil disturbance and a greater increase in residential uses as compared to the No-Action condition. Thus, the potential for adverse impacts associated with demolition and excavation for construction and with changes in land use would increase with the Proposed Action. Potential hazardous materials concerns were identified on or near all projected and potential development and enlargement sites included in the assessment. Although the Proposed Action could increase pathways for human exposure, the potential for significant adverse impacts would be avoided by the measures identified below.

As with the No-Action condition, all demolition or renovation would be conducted in accordance with applicable requirements for disturbance, handling, and disposal of suspect lead-based paint, ACM and PCB-containing equipment and/or lighting fixtures, and legal requirements regarding maintenance and/or closure of petroleum storage tanks, spill reporting if spills are identified, and off-site disposal of soil/fill (e.g., associated with utility work or tank removal).

In addition, since potential sources of contamination were identified for all projected and potential development and enlargement sites listed in **Table 9-1**, prior to construction involving soil disturbance or changes to more sensitive uses (e.g, from non-residential to residential) at each of these sites, the (E) designations that would be placed on each site would generally require that further investigation be performed to determine the presence and nature of contaminants of concern and the proper remedial and/or health and safety measures that would be employed during construction. (E) designations would ensure that these measures occur, and would be assigned to the projected and potential development and enlargement sites.

The (E) designations (E-288) would require the following:

- Prior to construction or renovation involving subsurface disturbance or conversion from non-residential to residential use, the property owner would conduct a Phase I ESA in accordance with ASTM E1527-05.
- If required by OER and based on the findings of the Phase I ESA, a soil and groundwater testing protocol approved by the OER would be prepared and implemented before development-related building permits can be issued by the DOB. If warranted by the findings of the subsurface investigation, site redevelopment would be conducted in accordance with an OER-approved RAP and CHASP, with a closure report prepared following construction documenting compliance with the RAP/CHASP. Following construction, if long-term monitoring (e.g., of groundwater quality) is required by OER, a Site Management Plan (SMP) would be prepared specifying the necessary and appropriate procedures for operation, maintenance, testing and reporting that remediation efforts, if any, have been employed.

With the implementation of these measures, the Proposed Action would not result in any significant adverse impacts with respect to hazardous materials. ✷