

**A. INTRODUCTION**

This chapter assesses the potential for the presence of hazardous materials at the project site, the potential for exposure to hazardous materials during and following construction, and the specific measures that would be employed to protect public health, worker safety, and the environment. A “hazardous material” is generally defined as any substance that poses a threat to human health or the environment. It is often used interchangeably with “contaminated material,” but should not be confused with the term “hazardous waste,” which is a regulatory term<sup>1</sup>.

The project site has a long history of commercial and residential uses. Based on the site history, contaminants on the project site would be expected to include asbestos and lead-based paint (LBP) in the bridges, elevated roadways, and buildings that might be disturbed, as well as subsurface contamination (in fill, soil, and/or groundwater). Migration of subsurface contamination from off-site sources onto the project site is also possible.

The Proposed Action involves the construction of pavilions under the Franklin D. Roosevelt (FDR) Drive; minor construction and plantings along the waterfront; construction of a uniform sidewalk and bikeway along South Street; construction of a pedestrian plaza in front of the Battery Maritime Building, and improvements to Piers 15, 35, 36, and 42, as well as the New Market Building and pier. Construction of the Proposed Action would require the demolition or disturbance of existing structures, and excavation, disturbance, and removal of some of the existing fill and soil. Dewatering of groundwater also may be required.

**B. PRINCIPAL CONCLUSIONS**

Although hazardous materials are potentially present both in the subsurface (related primarily to localized current or former gas stations, releases, dump sites, and historic fill either on the site or on neighboring properties to the west) and inside buildings or on bridges/overpasses (primarily related to asbestos and lead-based paint), with the implementation of a variety of measures prior to and during construction (including both testing and health and safety procedures), no significant adverse impacts related to hazardous materials would be expected to occur as a result of construction of the Proposed Action. Although some hazardous materials would likely still remain in the subsurface following construction of the Proposed Action, the project would have reduced the long-term risks associated with contaminated materials by removing some prior contaminated materials and isolating the remainder. Following construction of the Proposed Action, there would be no additional potential for exposure.

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<sup>1</sup> “Hazardous waste” is defined in both the Environmental Protection Agency (EPA) regulations (40 CFR Part 261) and New York State regulations (6 NYCRR Part 371) and refers to a subset of solid wastes that are either specific wastes listed in the regulations (listed wastes) or solid wastes possessing the characteristic of ignitability, reactivity, corrosivity, or toxicity (characteristic wastes).

## **C. METHODOLOGY**

A Phase I Environmental Site Assessment (ESA) was conducted for the entire project site and a larger study area consisting of 500 feet from the project site to assess the potential for contaminated materials in buildings, structures or the subsurface from past or present uses. The ESA included, per American Society for Testing and Materials (ASTM) Standard E1527-00:

- A visual inspection of the property and on-site facilities to identify current uses and assess existing conditions;
- A visual inspection, from public rights-of-way, of adjacent properties;
- An evaluation of land use history using available historical maps—Sanborn maps from 1894, 1905 (only north of Market Slip), 1922/1923, 1951, 1977, 1985, 1994, and 2004;
- A review of federal and state databases regarding hazardous materials for sites within the project site and for the surrounding area; and
- A review of available geologic, hydrologic, hydrogeologic, and topographic information from existing data sources.

ASTM Standard E1527-00 requires a review of regulatory databases around the project site with certain specified radii. However, due to the large size and irregular shape of the project site, the regulatory radii were restricted to the area within 500 feet of the study site. It is very uncommon in an urban setting for sites to affect property more than 500 feet away.

## **POTENTIAL CONTAMINANTS OF CONCERN**

Soil and groundwater can become contaminated as a result of past or current activities on the project site or on adjacent areas. Many industrial activities use, store, or generate contaminated materials that can be spilled, dumped, or buried nearby. Other activities common in mixed-use neighborhoods—such as gas stations and auto repair shops—can also result in contamination due to improper management of raw product and/or waste materials, or inadvertent spills.

Subsurface soil and groundwater contamination may remain undetected for many years, without posing a threat to nearby workers, residents, passersby, or other receptors. Excavation, earthmoving, dewatering, and other construction activities can, however, expose the contaminants, provide a pathway of exposure and, if such contaminants are not properly managed, introduce potential risk to construction workers and others nearby.

Demolition or disturbance of existing structures that have asbestos-containing materials, LBP, or electrical equipment containing polychlorinated biphenyls (PCBs) also has the potential to release contaminants, if these materials are not properly managed.

Based on the types of contaminants that are typically found in New York City, some of the potential contaminants of concern are described below. The list provides a summary of potential categories of contaminants and is not a comprehensive list of all contaminants that may be encountered:

- **Volatile organic compounds (VOCs):** These include aromatic compounds—such as benzene, toluene, ethylbenzene, xylene (BTEX), and methyl tertiary butyl ether (MTBE), which are found in petroleum products (especially gasoline)—and chlorinated compounds, such as tetrachloroethene (also known as perchloroethylene or “perc”) and trichloroethene, which are common ingredients in solvents, degreasers, and cleansers. VOCs represent the

greatest potential for contamination since, in addition to soil and groundwater contamination, they can generate organic vapors.

- **Semivolatile organic compounds (SVOCs):** The most common SVOCs in urban areas are polycyclic aromatic hydrocarbons (PAHs), which are constituents of partially combusted coal- or petroleum-derived products, such as coal ash and fuel oil. PAHs are commonly found in New York City urban fill material, which likely underlies much of the project site. Petroleum-related SVOCs could be present and would be associated with buried tanks currently or formerly located on the project site. SVOCs can also be present in creosote treated timber (e.g., piles).
- **Polychlorinated biphenyls (PCBs):** Commonly used as a dielectric fluid in transformers, some underground, high-voltage electric pipelines, and hydraulically operated machinery, PCBs are of special concern near electrical transformers where leakage into soil may have occurred. PCBs and/or PCB-containing materials were once widely used in manufacturing and industrial applications (e.g., hydraulic lifts, transformers, and plastics manufacturing). 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 often used in smelters, foundries, and metal works and are found as components in paint, ink, petroleum products, and coal ash, and were used in the past (copper, chrome and arsenic) as wood preservatives (e.g., on piles). These metals tend not to migrate 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.
- **Fuel oil and gasoline from storage tanks:** Numerous residences and businesses in the project site and surrounding neighborhood currently have, or once had, both known and undocumented above-ground storage tanks (ASTs) and/or underground storage tanks (USTs) for fuels, including heating oil and gasoline. Some of these tanks may have been removed, and others, although no longer in use, may remain buried in place. Some of the tanks are known to have leaked, and others have possibly leaked despite no record of a spill to date. Some of the spills have been cleaned up in accordance with state regulations, but others have not because they have not yet been discovered or because cleanup, which can take several years, is ongoing.
- **Fill materials of unknown origin:** In the past, waste materials, including coal and incinerator ash, demolition debris, and industrial wastes, were commonly used as fill in urban areas. Even fill material consisting primarily of soil may exhibit elevated levels of PAHs, metals, PCBs, and other contaminants. Such materials are potentially present throughout the project site.
- **Asbestos:** Asbestos is a common component of building materials, especially insulation, fireproofing, tile flooring, plaster, sheetrock, ceiling tiles, mastic, and roofing materials. In addition to materials within existing structures, subsurface utility lines may be coated with asbestos or encased in “transite,” an asbestos-containing material (ACM). Asbestos was

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widely used before 1980. Because of the age of many of the buildings and bridges on the project site, ACMs are almost certainly present.

- **Lead-based paint (LBP):** The use of LBP in New York City residential buildings was banned in 1960. Its use in other buildings and outdoors was severely restricted by the Consumer Products Safety Commission in 1977. LBP that is released as dust (or as a fume if heated) is potentially hazardous, especially to children. Older buildings on the project site are likely to contain LBP.

## **D. EXISTING CONDITIONS**

### **TOPOGRAPHY, GEOLOGY AND GROUNDWATER**

The topography of the project site is generally level and approximately five to ten feet above mean sea level. Immediately adjacent to the project site, the land slopes sharply down toward the East River, generally in the form of a man-made bulkhead. The land typically slopes gently upward inland of the project site, with the steepest slope on Gouverneur Street. The intersection of Gouverneur and Cherry Streets sits approximately 25 feet above sea level.

A comparison of current maps with historical maps of Lower Manhattan shows that all of the land in the study area was formerly under water. The coastline has moved from its original Pearl Street location, successively to Water Street, Front Street, Cherry Street, and South Street. Manhattan's coastline moved once more with the construction of the FDR Drive starting in 1936. Therefore, soils under and in the vicinity of the study area are expected to be fill material.

Groundwater is expected to be first encountered approximately five feet or less below grade. While groundwater throughout the study area would be expected to flow toward the East River, local variations are possible due to intervening subsurface structures (such as tunnels and former or current bulkheads), tidal fluctuations and past filling. Groundwater in Manhattan is not used as a source of drinking water.

Bedrock depths (below ground surface) vary from approximately 25 feet near the southern end of the project site to more than 160 feet near the South Street Seaport.

### **SITE HISTORY AND CURRENT CONDITIONS**

As shown in Figures 1-1 through 1-4 in Chapter 1, "Project Description," the project site extends from Whitehall Street and Peter Minuit Plaza at its southern end to Pier 42 at its northern end. The study area includes the neighborhood within approximately 500 feet of the project site and is roughly bounded by Water and Cherry Streets to the north and west and by the East River to the east and south.

### **OVERALL FINDINGS**

Land use in the study area over the past century included predominantly residential, retail, and office space rather than industrial uses. Historical and current land uses in the area that pose potential environmental concerns include: coal and petroleum storage, manufacturing, dry cleaning, printing and painting shops, electrical substations, vehicle maintenance and fueling, and ash or junk dump sites. As discussed in the previous section, additionally, the entire study area is expected to be underlain by historic fill, which could include municipal trash, street sweepings, soil, rubble, ship ballast, ash, and possibly industrial wastes.

Numerous petroleum spills, many of which have not yet been cleaned up to the satisfaction of the New York State Department of Environmental Conservation (DEC), are located within the project site and in the surrounding neighborhood. It is therefore possible that petroleum-contaminated soil and groundwater could be encountered in the subsurface during construction. There are no known above-ground storage tanks on the project site.

A summary of findings, organized by street intersection, is presented in Table 10-1. The summary lists potential or confirmed usage of hazardous materials within the project site, as well as activities occurring in the remainder of the study area that may have affected environmental conditions at the project site. Areas where pavilions could be constructed under the Proposed Action are noted in the table and are shown in Figures 1-2 through 1-4 in Chapter 1.

**Table 10-1  
Current and Historical Hazardous Material Usage**

Location	Potential On-site Sources of Environmental Contamination	Potential Off-site Sources of Environmental Contamination
Battery Maritime Building and Battery Park Underpass – near intersection of Whitehall Street and South Street	Resource Conservation and Recovery Act (RCRA) hazardous waste generation	Eighteen RCRA hazardous waste generators One Petroleum Bulk Storage (PBS) site, containing two 10,000-gallon ASTs containing No. 5 or 6 fuel oil and a 550-gallon gasoline UST (removed in 1996) at the Whitehall Ferry Terminal Sixteen releases listed in the SPILLS database, including a 1996 tank removal project that uncovered soil contamination at the Whitehall Ferry Terminal Historical usage includes a US Army depot, a Manhattan Railroad supply depot, a metal works and a manufacturing facility Listed once in DEC SPILLS database (leaking generator in BMB)
Near the intersection of Broad Street and South Street	Possible fuel oil tank serving boiler in former pier shed serving Pier 4 (removed)	Two RCRA hazardous waste generators Four PBS sites Six releases listed in the SPILLS database, including a 2005 excavation that uncovered floating petroleum product Historical usage includes a Manhattan Railroad power house, an oil and grease facility, and two garages
Near the former intersection of Coenties Slip and South Street	Listed three times in SPILLS database Oil room and possible fuel oil tank serving boiler room on Pier 7 (removed), and possible fuel oil tank serving boiler room on Pier 8 (removed)	Three RCRA generators Four releases listed in the SPILLS database, including a 2003 excavation that indicated contaminated soil Historical usage includes a soap works, a paint and oil facility, factory, and three lube oil facilities
Near the intersection of Old Slip and South Street	Listed once in SPILLS database Possible fuel oil tank serving boiler on former Pier 10 (removed)	Seven RCRA generators Five PBS sites Five releases listed in the SPILLS database Two historic utility facilities Historical usage includes five lube oil facilities and two paint facilities
Near the intersection of Gouverneur Lane and South Street	1951 map shows four gasoline tanks (on land) serving a former heliport located on a floating dock Listed once in SPILLS database	Two RCRA generators One PBS site Historical usage includes two lube oil facilities
Near the intersection of Wall Street and South Street	Listed four times in SPILLS database Possible fuel oil tank serving boilers formerly located on Pier 12 (removed) and Pier 13, and an oil room formerly located on Pier 13	Eleven RCRA generators Two PBS sites Three large spills resulted in the release of approximately 2,000 gallons of hydraulic oil and 200 gallons of diesel fuel Four other releases listed in the SPILLS database, including soil contaminated with diesel fuel in 2000 Two suspected vent pipes for storage tanks Historical usage includes a former filling station
Pier 15 – near the intersection of Maiden Lane and South Street (possible pavilion location)	Listed once in SPILLS database Possible fuel oil tank serving boilers on former Pier 19 (removed) and Pier 14 Oil room on Pier 15	Two RCRA generators Four PBS sites Eight releases listed in the SPILLS database Fill pipe for a storage tank Historical usage includes dry chemical storage, a ship chandler, a lube oil facility, a chemical laboratory, a print shop, a freight warehouse, a chemical facility, and a filling station

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**Table 10-1 (cont'd)  
Current and Historical Hazardous Material Usage**

Location	Potential On-site Sources of Environmental Contamination	Potential Off-site Sources of Environmental Contamination
Near the intersection of Burling Slip and South Street (possible pavilion location)	Possible fuel oil tanks serving boilers on former Pier 20	Eight RCRA generators Three PBS sites Four releases listed in the SPILLS database, including contaminated soil and USTs found in an excavation in 2000 Con Ed's Farragut Substation, located approximately 1,400 feet inland of the project site, was listed 185 times for releases totaling more than one hundred thousand gallons of transformer oil, diesel fuel and other petroleum products Historical usage includes coal pockets, an ash dump, a blacksmith, two lube oil facilities, a print shop, two filling stations, a garage, and a paint warehouse
South Street Seaport and New Market Building – near the intersections of Fulton Street and South Street, or Beekman Street and South Street	Listed eleven times in SPILLS database for minor incidents and one tank test failure Possible fuel oil tanks serving former boilers on Piers 16 and 17, and a power house on Pier 17 A building between Piers 18 and 19 was noted on historical maps to contain asbestos. No evidence of USTs or ASTs inside New Market Building, based on site inspection.	Nine RCRA generators One PBS site Five releases listed in the SPILLS database, including soil contaminated with gasoline found during a 2000 tank removal Fill pipe for a storage tank. Historical usage includes two print shops, a Chinese laundry, an auto repair shop with two 1,000-gallon gasoline USTs, a chemical facility, and a lacquer spraying shop
Near the intersection of Peck Slip and South Street (possible pavilion location)	Former freight shed located between Pier 20 (removed) and former Pier 27 (removed) Possible fuel oil tank serving boiler on Pier 20 (removed)	One RCRA generator Two PBS site Twenty releases were reported in the SPILLS database from a large Con Ed transformer yard Three other releases reported in the SPILLS database Historical usage includes a shot and lead works, an oil and grease facility, dye storage and manufacture, a paint, varnish and shellac store, a chemical and oil warehouse, a large Con Ed transformer yard, and an auto repair shop
Near the intersection of Dover Street and South Street (possible pavilion location)	Oil room on former Pier 27 (removed)	Four RCRA generators One PBS site Twenty releases were reported in the SPILLS database from a large Con Ed transformer yard (see previous entry) Three other releases reported in the SPILLS database Historical usage includes two lube oil facilities, an auto repair shop with a gasoline tank, a garage, and a large Con Ed transformer yard (see previous entry)
Near the intersection of Wagner Place (also known as the Avenue of the Finest or Robert F. Wagner Sr. Place) and South Street	Listed four times for RCRA hazardous waste generation Department of Street Cleaning (later Department of Sanitation) dump on former Pier 29 (removed) Coal pockets on land between former Pier 29 (removed) and Pier 22 (removed) Possible fuel oil tanks serving boilers on former Pier 29 (removed), on land near the base of former Pier 31 (removed) Oil room on former Pier 29 (removed)	Three RCRA generators Eleven releases reported in the SPILLS database Historical usage includes a distillery, a coal yard, a brush factory, a print shop, junk storage, a wagon builder, a garage with two gasoline tanks, five metal shops, a filling station, and a power plant
Near the intersection of Catherine Slip and South Street (possible pavilion location)	Possible fuel oil tanks serving boilers on former Pier 32 (removed), on land between former Piers 34 and 35 (both removed), Pier 25 (removed), and Pier 28 (removed) Oil room on Pier 26 (removed) Former freight depot between former Piers 32 and 33 (both removed)	A Con Ed site listed in the Voluntary Cleanup Program Two RCRA generators Nine releases reported in the SPILLS database, including the 1994 release of 300 gallons of petroleum due to tank overflow Historical usage includes a machine shop, two coal yards, a garage with a 1,000-gallon gasoline UST, two junk storage yards, a blacksmith, two Chinese laundry sites, a garage with a 650-gallon gasoline UST, two garages with 550-gallon gasoline USTs, and the American Newspapers (later New York Post) building including paper manufacturing

**Table 10-1 (cont'd)**  
**Current and Historical Hazardous Material Usage**

Location	Potential On-site Sources of Environmental Contamination	Potential Off-site Sources of Environmental Contamination
Near the intersection of Market Slip and South Street	Possible fuel oil tanks serving a boiler on former Pier 38 (removed), a boiler in a building formerly located between former Piers 39 and 40 (both removed), and Pier 29 (removed) Oil room on Pier 29 (removed)	Three RCRA generators Three releases reported in the SPILLS database, including contaminated soil found at two separate locations in 2002 Historical usage includes a rubber plant, an ironworks, a dental factory, a wagon builder, an auto repair shop with a gas tank, a service station with a grease pit, and a filling station
Near the intersection of Pike Slip and South Street, underneath the Manhattan Bridge (possible pavilion location)	The area beneath the Manhattan Bridge served as the Water Front Disposal Station Four coal pockets located on northern extension of Pier 31 (removed) Possible fuel oil tanks serving boilers on former Pier 42 (removed), Pier 31 (removed), Pier 32 (removed) Auto storage for NY Department of Purchase on Pier 31	Four RCRA generators Seven releases listed in the SPILLS database, including contaminated soil found in 1996, 1998, 2004, and 2005, and No. 2 fuel oil coming through a basement wall in 1997 Historical usage includes a shipyard, a shipwright's yard, two coal yards, a machine oil manufacturing plant, a paint shop, two machine shops, a wagon builder, a garage with two 550-gallon gasoline USTs, a repair shop, a coppersmith, an ironworks, a chemical facility, two filling stations, a motor freight storage building, a garage and filling station with two gasoline tanks, two auto repair shops, and a garage
Near the intersection of Rutgers Slip and South Street (possible pavilion location)	Possible fuel oil tank serving a boiler on Pier 34 (removed) Freight shed and oil room on Pier 34 (removed)	Two RCRA generators Three PBS sites Seven releases reported in the SPILLS database, including contaminated soil found in 1999 Historical usage includes a shipyard, an iron and brass foundry, a boiler shop, a shipsmith and bolt plant, a wire springs factory, a wagon factory, a tin can factory, a garage with one 550-gallon and one 1,000-gallon gasoline UST, two garages with 550-gallon gasoline USTs, a paint shop, two ironworks, two paint shops, a large Con Ed substation, a bus garage with three gasoline tanks, a garage with one gasoline tank, a bed springs plant, a motor freight station and an equipment storage facility
Pier 35 – near the former intersection of Jefferson Street and South Street	Possible fuel oil tank serving a boiler on Pier 35 Oil room on Pier 35 Freight shed on land between former Piers 45 and 46 (removed)	One RCRA generator Two PBS sites Five releases listed in the SPILLS database Historical usage includes shipyards, an ironworks, a wagon builder, a steam laundry, a tin can factory, a garage with a 1,000-gallon gasoline UST, a motor freight station with gasoline tanks, an auto service station with two 550-gallon gasoline USTs, a garage with a gasoline tank, and a garage with a 550-gallon gasoline UST
Pier 36 – near the intersection of Clinton Street and South Street	Pier 37 (removed) was used as a rubbish dump by the NY Department of Street Cleaning Possible fuel oil tank serving a boiler on Pier 38 (removed) Freight piers located on land between Piers 37 and 38 (both removed), and between Piers 38 and 39 (both removed)	Two RCRA generators One PBS site Nine releases listed in the SPILLS database, including contaminated soil found in 2000 Historical usage includes a shipyard, two machine shops, a lime and cement shed, a coal yard, a steam laundry, an auto repair and filling station, a garage with a gasoline tank, a garage with three 550-gallon gasoline USTs, a garage with a 550-gallon gasoline UST, and a coal bunker
Pier 36 – near the intersection of Montgomery Street and South Street	A 4,000-gallon diesel UST, three 3,000-gallon diesel USTs, two 3,000-gallon lubricating oil ASTs, and a 275-gallon used oil AST on Pier 36 Pier 36 was listed as a RCRA hazardous waste generator and/or transporter in 1984; Drums (asphalt basecoat) observed during site inspection; Oil stained asphalt also observed Oil room on former Pier 50 (removed) Two freight sheds located on land on either side of former Pier 50 (removed) Equipment, compressed gas cylinder, and vehicle storage for the NYPD on Pier 42	Three RCRA generators One PBS site Five releases listed in the SPILLS database, including a release of No. 6 fuel oil into East River Park and East River in 1995 Suspected UST Historical usage includes a shipyard, junk storage, a freight yard, a garage and warehouse with a gasoline tank, a garage and warehouse with four gasoline tanks, a cigarette factory, a garage with two gasoline USTs, a garage, and a garage with a 550-gallon gasoline UST

**Table 10-1 (cont'd)**  
**Current and Historical Hazardous Material Usage**

Location	Potential On-site Sources of Environmental Contamination	Potential Off-site Sources of Environmental Contamination
Pier 42 – near the intersection of Gouverneur Street and South Street	Garage on southern end of Pier 42 Short pier used as a dirt dump north of former Pier 52 (removed) Possible fuel oil tank serving boiler on drydock north of former Pier 52 (removed) Freight shed located on land between former Piers 51 and 52 (both removed)	Three RCRA generators Twelve releases listed in the SPILLS database Historical usage includes a lard oil factory, a boiler shop, a furniture factory, two iron safe factories, three wagon builders, a toy and tinware factory, a stearic acid plant, an ironworks, a factory, a garage with a 1,000-gallon gasoline UST, a garage with a 250-gallon gasoline UST, a garage, a hospital dispensary, and a gasoline tank at the Mental Hygiene Gouverneur State School
Near the intersection of Jackson Street and South Street	Pier 43 (removed) was used as a dump by the New York Department of Street Cleaning Possible fuel oil tanks serving boilers on former Piers 53 and 54 (both removed), and former Pier 44 (removed)	Twelve RCRA generators Two PBS sites Thirty releases listed in the SPILLS database Historical usage includes a machine shop, a marine engine works, a coppersmith, a brass foundry, a wagon factory, two garages with 500-gallon gasoline USTs, a garage with two 500-gallon gasoline USTs, a truck garage with a 1,000-gallon gasoline UST, a machine oil mixing and compounding plant, a mineral water factory with a 500-gallon gasoline UST, a garage, and a garage with a gasoline tank

For a detailed description of potential or confirmed hazardous material usage within the project site and study area, see Appendix B, “Hazardous Materials.” Access to the New Market Building and the pier shed on Pier 36 was obtained to perform visual inspections to identify any potential environmental concerns resulting from past or current usage of the buildings. The findings of those inspections are also summarized in Table 10-1 and detailed in Appendix B.

**E. THE FUTURE WITHOUT THE PROPOSED ACTION**

Remediation of sites already known to regulatory agencies (e.g., active spills) will continue (no such projects are known to be currently ongoing). Remediation of other sites that might only be discovered during excavation activities for the Proposed Action would likely not occur unless the pollution was discovered by some other means. Overall, without the Proposed Action, there would be a lower potential for disturbance of hazardous materials, but, unlike conditions in the future with the Proposed Action (where remediation would be performed under a Construction Health and Safety Plan [CHASP] and would include remediation of contamination under the streets), there would be less extensive remediation of hazardous materials.

**F. PROBABLE IMPACTS OF THE PROPOSED ACTION**

Construction of the Proposed Action would involve both demolition and disturbance of existing structures (which may contain LBP, ACMs, and PCB-containing electrical components) and a variety of earthmoving/excavating activities that could encounter contamination within fill and soil. Dewatering may also be required.

The presence of hazardous materials threatens human health or the environment only when exposure to those materials occurs, and, even then, a health risk requires both a complete exposure pathway to the contaminants and a sufficient dose to produce adverse health effects. In order to prevent such exposure pathways and doses, the Proposed Action would include appropriate health and safety and investigative/remedial measures that would precede or govern both demolition and soil disturbance activities. These measures are discussed more fully in the next section, but would include:

- Procedures for pre-demolition removal of asbestos and appropriate management of LBP and of PCB-containing equipment.
- Development of a CHASP for site remediation and excavation that would include detailed procedures for managing both known contamination issues (e.g., tank removal, soil and groundwater remediation of existing petroleum spills, and proper handling/disposal of any removed piles) and any unexpectedly encountered contamination issues. The CHASP would also include procedures for avoiding the generation of dust that could affect the surrounding community.

Prior to any demolition work, an appropriate Demolition and Air Monitoring Plan would be submitted for New York City Department of Environmental Protection (DEP) review and approval. Prior to construction, all appropriate Remedial Actions Plans and Construction Health and Safety Plans would be submitted to and approved by DEP to ensure proper mitigation of any potential soil and groundwater impacts in the project area.

## **EXISTING STRUCTURES**

### *ASBESTOS-CONTAINING MATERIALS (ACM)*

Proper handling, removal and disposal of ACM is governed by federal requirements (Occupational Safety and Health Administration [OSHA] 29 CFR 1926.1101, Department of Transportation 49 CFR 171-173, and EPA 40 CFR 61), New York State requirements (Labor Law Article 30—Asbestos or Products Containing Asbestos Licensing and 12 NYCRR Part 56 Asbestos Regulations) and New York City requirements (Rules of the City of New York Title 15—Handling and Disposal of Asbestos). Appropriate engineering controls (e.g., wetting and other dust control measures) to minimize asbestos exposure would be implemented prior to and throughout demolition/disturbance.

### *LBP MANAGEMENT PLAN*

If lead-coated surfaces are present, an exposure assessment would be performed to determine whether lead exposure would occur during demolition/disturbance. If the exposure assessment were to indicate the potential to generate airborne dust or fumes with lead levels exceeding health-based standards, a higher personal protection equipment standard would be employed to counteract the exposure. In all cases, appropriate methods to control dust and air monitoring, as required by OSHA, would be implemented during demolition activities.

### *PCB-CONTAINING EQUIPMENT*

Suspected PCB-containing equipment (e.g., transformers, electrical feeder cables, hydraulic equipment, and fluorescent light ballasts) would be surveyed and evaluated prior to building demolition or utility relocation. PCB-containing equipment that would be disturbed by the work would be removed and disposed of in accordance with applicable federal (40 CFR Part 761), state (6 NYCRR Parts 360 – 376), and local regulations. Unless suspected PCB-containing equipment is labeled to be “non-PCB,” it must be tested or assumed to be PCB-containing and disposed of at properly licensed facilities.

## **SUBSURFACE DISTURBANCE**

As described under “Existing Conditions,” the entire project site has some potential for the presence of subsurface hazardous materials. The shallow soil likely has low levels of metals and SVOCs consistent with urban historic fill. Some soils, such as those close to current or former petroleum storage locations, may be impacted by petroleum-related compounds or contaminants from other uses such as coal storage, auto repair, electricity substations, and manufacturing. Excavation for the Proposed Action could encounter contaminated soils. Therefore, prior to any subsurface disturbance, a subsurface investigation of soil and groundwater would be performed, in accordance with a testing plan approved by DEP, biased toward those areas where current or historical use (either on-site or off-site) indicates a greater likelihood of encountering more significant contamination (e.g., near a known spill site, a former gas station, a transformer yard, a dump site, the location of a known or suspected storage tank, etc.) and the areas of more extensive soil disturbance. Based on the results of these investigations, detailed procedures would be developed to avoid or mitigate any potential concerns associated with subsurface contamination. These procedures would be incorporated into the project’s construction documents to govern excavation and other activities that would entail subsurface disturbance. For the various types of materials (e.g., petroleum-contaminated soils, historic fill, or native materials), the types of commitments that would be included in the specifications (both to meet all applicable legal requirements and to minimize potential impacts) are described below. In areas of the East River where dredging or pile driving would occur, all applicable protocols for the testing and disposal of sediment would be followed. Preventive measures would be undertaken to protect the safety of the public, community residents, and construction workers, as well as the larger environment. All work would be performed in accordance with applicable City, State, and federal requirements. A Storm Water Pollution Prevention Plan (SWPPP), which is required by DEC for all construction projects exceeding one acre of disturbance, would also be prepared to address measures to prevent significant adverse impacts to area surface water or sewers.

### *CONSTRUCTION HEALTH AND SAFETY PLAN (CHASP)*

Prior to site excavation, a CHASP would be prepared to address both the known contamination issues and contingency items. As design of the elements of the Proposed Action progresses and the locations at which excavation will take place are determined, the New York City Economic Development Corporation (EDC), in conjunction with the City, will work with DEP to develop the CHASP.

The CHASP would describe in detail the health and safety procedures to minimize exposure of hazardous materials to workers and the public, including monitoring for airborne dust and VOCs. The hazards across the project site would be evaluated by determining the subsurface contaminants of concern and their chemical and physical characteristics, and health hazards would be considered within the potential exposure associated with the work to be performed. The CHASP would be developed in accordance with OSHA regulations and guidelines. The CHASP would designate the appropriate personnel to ensure that all requirements are implemented, and that on-site personnel are qualified and have received the required training. The training would enable personnel to recognize and understand the potential hazards to health and safety, provide them with the knowledge and skills necessary to perform the work with minimal risk to health and safety, and ensure that they can safely avoid, or escape from, emergency situations. It would also define site work zones and the air monitoring necessary to identify any potential exposure of the field personnel or the public to potential environmental

hazards in the soil, soil gas, or groundwater. The CHASP would include provisions for the identification and management of known and/or unexpected buried (or above ground) tanks, petroleum-contaminated soil, historic fill, or other contaminated materials that might be encountered during soil disturbance activities. An emergency response plan would also be included in the event that monitoring data indicate a potential major hazard, and protocols for reporting spills or other concerns to relevant governmental agencies would be defined.

During all subsurface disturbance work, dust control measures (e.g., applying water on haul roads, wetting equipment and excavation faces, spraying water on buckets during excavation and dumping, hauling materials in properly tarped or watertight containers, and covering stockpiled excavated material) would be implemented to minimize exposure to workers and the public.

#### *WASTE MANAGEMENT*

The CHASP would also address procedures for stockpiling, testing, loading, transporting (including truck routes), and properly disposing of all excavated material. Among the pertinent regulatory requirements are those found in 6 NYCRR Parts 360 through 376, which identify hazardous waste and other waste management requirements. Any waste disposal that would occur outside of New York State would be regulated by similar federal and individual state requirements.

#### *PETROLEUM STORAGE TANKS*

No known aboveground or underground petroleum storage tanks are located within the project site. Any unexpected aboveground or underground petroleum storage tanks would be removed in order to complete the Proposed Action. The removal is regulated by DEC (6 NYCRR Section 613.9), which requires that tanks no longer in use be closed in place or removed according to specific requirements. Contaminated soils surrounding the tanks, separate phase product on the water table, or contaminants dissolved in the groundwater are also subject to DEC regulations (6 NYCRR Section 611.6). Article 12 of the New York Navigation Law provides notification and management requirements for spills to the waters of the state.

Remediation of any known or discovered spills on site would be undertaken (with all work performed under appropriate health and safety plans including air monitoring), all on site underground storage tanks would be removed, and all documentation would be provided to properly “close” these spills with DEC.

#### *GROUNDWATER*

Proposed activities within the project site may require construction beneath the water table, which could require dewatering. Prior to any dewatering activity, samples of the groundwater would be collected and analyzed to determine whether or not the water is contaminated and unfit for discharge to surface waters or the municipal sewer system without prior treatment. Discharge to the NYC sewer system would be in compliance with DEP requirements. Direct discharge to the river (or to storm sewers that drain to the river rather than to one of the city’s treatment plants) would be in accordance with DEC’s State Pollutant Discharge Elimination System (SPDES) requirements.

**CONCLUSIONS**

Contamination in the subsurface (related primarily to localized current or former gas stations, releases, dump sites, and historic fill either on the site or on neighboring properties to the west) and inside buildings or on bridges/overpasses (primarily related to asbestos and LBP) has been identified. However, with the implementation of a variety of measures set out above, no significant adverse impacts related to hazardous materials would be expected to occur as a result of construction and operation of the Proposed Action. Although some hazardous materials would likely still remain in the subsurface following construction of the Proposed Action, the project would have reduced the long-term risks associated with contaminated materials by removing some prior contaminated materials and isolating any remainder. \*