Chapter 10: Hazardous Materials

A. INTRODUCTION

As described in the 2020 *City Environmental Quality Review (CEQR) Technical Manual*, a hazardous material is defined as any substance that poses a threat to human health or to the environment. Such substances include but are not limited to: metals; volatile organic compounds (VOCs), commonly found in petroleum products and solvents; semi-volatile organic compounds (SVOCs), typically associated with fuel oil, coal, and ash; and polychlorinated biphenyls (PCBs), usually associated with transformers and utilities. Hazardous materials also include substances used in building materials and fixtures, such as asbestos-containing materials (ACM), lead-based paint (LBP), and mercury.

The presence of hazardous or contaminated materials does not necessarily indicate a threat to human health or the environment; a means of an exposure pathway, the presence of a receptor, and an unacceptable dose must also be present to cause a threat. During construction on development sites, hazardous materials could be disturbed through excavation of soil and bedrock, extraction of groundwater, or the demolition or renovation of existing structures. The most likely routes of human exposure from the hazardous materials evaluated are the inhalation of VOCs, the ingestion of particulate matter containing SVOCs or metals, or dermal (skin) contact with hazardous materials that can be released during soil-disturbing activities.

Based on the above, this chapter assesses the potential for the presence of hazardous or contaminated materials in soil, groundwater, or soil gas at all projected and potential development sites identified in the Reasonable Worst-Case Development Scenario (RWCDS), i.e., properties where ground disturbance and/or renovation/conversion and enlargements of existing structures may result from the Proposed Actions.

PRINCIPAL CONCLUSIONS

Based on this assessment, measures are recommended to avoid or reduce exposure to future occupants and workers at projected and potential development sites where potential concerns were identified as it relates to hazardous and contaminated materials. These recommended measures would be implemented in accordance with an (E) Designation that would be incorporated to the Proposed Actions for all projected and potential development sites with potential hazardous or contaminated materials concerns. This (E) Designation requires, prior to change of use or redevelopment requiring ground disturbance, that the fee-owner of the property conduct a Phase I Environmental Site Assessment (ESA), subsurface testing and remediation, where appropriate, to the satisfaction of the New York City Mayor's Office of Environmental Remediation (OER). New York City Department of Buildings (DOB) permits associated with such actions cannot be issued without OER approval. The OER review would ensure protection of human health and the environment from known or suspected hazardous materials. With the above measures in place, the Proposed Actions would avoid the potential for significant adverse impacts related to hazardous materials.

B. METHODOLOGY

As described in the *CEQR Technical Manual*, the purpose of a hazardous materials assessment is to determine whether a proposed action could lead to potential increased human exposure to hazardous materials and whether the increased exposure could lead to significant public health impacts or environmental impacts. The objective of this analysis is to determine which, if any, of the projected and potential development sites identified as part of the RWCDS may have been adversely affected by current or historical uses on-site, adjacent to, or within 400 feet of the sites.

Hazardous materials, as defined in the *CEQR Technical Manual*, are substances that pose a threat to human health and the environment including, but not limited to, heavy metals, VOCs, SVOCs, methane, PCBs, pesticides, and hazardous wastes. Historic building materials, such as ACM and LBP, are also considered in the hazardous materials assessment.

Each of the sites was evaluated for potential impacts due to hazardous materials by: (1) reviewing historic Sanborn fire insurance maps; (2) reviewing an environmental regulatory database summary for the site and nearby properties; and (3) conducting site reconnaissance (from streets and public rights-of-way, as interior access was not available) to determine current occupants/use and any indications of historic or current hazardous materials use or storage (e.g., underground storage tank fill caps). See **Appendix D** for the Hazardous Materials Database and Sanborn reports.

SANBORN FIRE INSURANCE MAP REVIEW

Historic and recent Sanborn maps were reviewed to assess site and nearby activities and operations listed in *Hazardous Materials Appendix 1* of the *CEQR Technical Manual* from circa 1894 through 2005. The review included identifying historic vehicle uses (fueling operations, garages with gasoline tanks, auto repair shops, etc.) and/or industrial uses (manufacturing, machine works, motor freight stations, etc.).

DATABASE REVIEW

A set of standard federal and state regulatory databases (per ASTM E1527-13) indicating the potential for hazardous materials was reviewed including:

- The New York State SPILLS database, which lists sites where petroleum or chemical releases have been reported to the New York State Department of Environmental Conservation (DEC) since April 1, 1986.
- The DEC chemical bulk storage (CBS) database that contains registered (since July 15, 1998) facilities that store (non-petroleum) hazardous substances—as defined by 6 New York Codes, Rules and Regulations (NYCRR) Part 597—in aboveground tanks (ASTs) with capacity equal to or greater than 185 gallons and/or in underground tanks (USTs) of any size.
- The DEC Petroleum Bulk Storage (PBS) database, which keeps track of properties that store petroleum products of greater than 1,100 gallons in aggregate.
- The DEC Leaking Storage Tank Incident Reports (LTANKS), which records leaking AST or UST incidents reported after April 1, 1986. The causes of releases may be tank test failures, tank failures, or tank overfills.
- The Hazardous Waste Generators database, which uses both the DEC manifest system for hazardous waste handlers and the U.S. Environmental Protection Agency (EPA) records pursuant to the Resource Conservation and Recovery Act (RCRA), also referred to as the

Resource Conservation and Recovery Information System (RCRIS) database, and includes information on sites that generate, transport, store, treat, and/or dispose of hazardous waste as defined by RCRA.

- An air discharge facility database (ADF) for air pollutant sources that are permitted with EPA, DEC, or OER.
- New York State Brownfield Cleanup Sites for sites on record with DEC as abandoned, idle, or under-used industrial and commercial sites where redevelopment is being contemplated under the DEC Brownfield Cleanup Program.
- Solid Waste Facilities (SWF) sites, which are included in a DEC database with certain landfills, incinerators, transfer stations, recycling centers, and other sites that manage or managed solid waste.
- State Inactive Hazardous Waste Disposal Site Registry (SHWS), which is a program (also known as State Superfund) listing information regarding a variety of sites likely requiring cleanup.
- An inventory of historical and current registered dry cleaning facilities compiled by Environmental Data Resources, Inc. (EDR) of Shelton, Connecticut.

SITE RECONNAISSANCE

Each site and nearby properties were observed in an attempt to verify and potentially supplement literature and database records, and to identify any existing environmental conditions and note any potential evidence of historical conditions. Because the interiors of the sites were not accessible for this effort, the reconnaissance was performed from publicly accessible areas, such as streets and sidewalks.

Typical observations included the nature of visible operations; evidence of petroleum bulk storage tanks from either signs, fill ports, and/or vent pipes; roof or sidewall vents where potential air discharges occur; electrical transformers or large capacitors; sheens, discoloration, or staining of surfaces; topographical disturbances, including excavation and filling; stressed vegetation; and solid waste disposal practices.

C. EXISTING CONDITIONS

TOPOGRAPHY AND HYDROGEOLOGY

Based on reports compiled by the U.S. Geological Survey (USGS), the neighborhood is approximately 30 to 40 feet above sea level on the northern portion (NoHo) and the southern portion (SoHo) ranges in elevation from roughly 10 to 40 feet above mean seal level. Groundwater is expected to be encountered at approximately 10 to 35 feet below grade (generally a few feet above sea level). Groundwater is expected to flow in a generally westerly direction towards the Hudson River. However, locally actual groundwater flow and depth may be affected by other factors, such as subway lines, utilities, and basements.

REGULATORY DATABASE RECORDS

The regulatory database records indicated certain facilities listed within or adjacent to the study area with some potential to have affected environmental conditions within the Project Area, including several listings on the DEC SPILLS database, PBS facilities, Hazardous Waste

Generators, DEC Brownfield Cleanup Sites (including several former automotive facilities/filling stations), and LTANKS sites.

OVERVIEW OF HISTORICAL USES

The Project Area is generally bounded by Astor Place and Houston Street to the north; Bowery, Lafayette Street, and Baxter Street to the east; Canal Street to the south; and Sixth Avenue, West Broadway, and Broadway to the west (see Figures 1-1 and 1-2 in Chapter 1, "Project Description").

The neighborhood was predominantly residential with some institutional, commercial, and religious uses since before 1895, with some interspersed light manufacturing uses, including paper box manufacturers and candy factories, primarily in the southern portion of the study area. Additional industrial and automotive uses were more prevalent by the 1920s, including several garages and manufacturing facilities along Lafayette Street in the northern portion of the study area, with multiple warehouses, garages, and manufacturing uses on blocks south of Houston Street replacing many former tenement buildings noted in the late 1890s, including several garages and a freight motor shed along West Broadway.

Additional automotive and industrial establishments were present in the study area by 1950 (i.e., prior to modern environmental regulations), including warehouses, various manufacturers, furriers and textile facilities, metal works, machine works, motor freight stations, filling stations, and garages with gasoline tanks throughout the study area. By the 1970s, many former manufacturing buildings were vacant and/or converted to lofts and various commercial and office uses and several former industrial and automotive buildings were razed and converted to parking areas by the early 1980s.

Currently, the study area includes primarily mixed-use residential, commercial, and office/loft uses, with interspersed religious institutional, educational, and community facility developments. These uses are interspersed with industrial and automotive facilities, such as automotive repair shops

Based on the age of most of the structures on the projected and potential development sites, building materials are likely to include ACM, LBP, and/or PCBs. At currently vacant sites, such materials and/or buried petroleum storage tanks may also remain from the debris of former structures in the subsurface.

Historical uses potentially of environmental concern (see **Table 10-1**) are principally associated with the following uses and activities in the study area:

- Auto-related, transportation, industrial or utility uses on the development site or an adjacent site (e.g., garage, filling station, auto repair, substation and other uses noted in *Hazardous Materials Appendix 1* of the *CEQR Technical Manual*);
- USTs or leaking USTs on the development site or an adjacent site;
- Spills of petroleum or chemicals on the development site or an adjacent site; and
- Aboveground storage tanks on the development site or an adjacent site.

Table 10-1
Assessment of Projected and Potential Development Sites

Site ID	Borough	Block	Lot	BBL	Address	Group	Existing Zoning	Proposed Zoning	Sanborns or City Directories	On-site Database listings	Concerns within 400-foot Radius	On-Site Concerns	Site Visit Findings	E-Designation	Rationale
1	MN	531	41	1005310041	352 BOWERY	Projected	M1-5B	M1-5/R10A		No	Filling station to the north, other automotive and industrial uses	Minimal		Yes	Off-site Concerns
1	MN	531	42	1005310042	350 BOWERY	Projected	M1-5B	M1-5/R10A	X	No	Filling station south-adjacent, other automotive and industrial uses	Historic manufacturing		Yes	On-site concerns
1	MN	531	43	1005310043	348 BOWERY	Projected	M1-5B	M1-5/R10A	X	Yes, Spills	Automotive and industrial uses	Former filling station		Yes	On-site concerns
1	MN	531	44	1005310044	54 GREAT JONES STREET	Projected	M1-5B	M1-5/R10A	X	No	Filling station east-adjacent, other automotive and industrial uses	Minimal		Yes	Off-site concerns
2	MN	531	17	1005310017	317 LAFAYETTE/GREAT JONES STREET	Projected	M1-5B	M1-5/R9X	X	Yes, PBS, Spills	Minimal	Historic filling station/automotive		Yes	On-site concerns
2	MN	531	52	1005310052	GREAT JONES STREET	Projected	M1-5B	M1-5/R9X		No	Filling station, Fire Department station	Limited printing		Yes	On- and Off-site concerns
2	MN	531	56	1005310056	30 GREAT JONES STREET	Projected	M1-5B	M1-5/R9X		Yes, PBS, Spills	Filling station west-adjacent, Fire Department station	AST and Spill		Yes	On- and Off-site concerns
3	MN	522	41	1005220041	301 MULBERRY STREET	Projected	M1-5B	M1-5/R9X	X	Yes, RCRA, ECHO, FINDS	Filling station/NY SPILL west-adjacent, automotive, historic cleaner	Historic Automotive		Yes	On- and Off-site concerns
3	MN	522	43	1005220043	315 LAFAYETTE STREET	Projected	M1-5B	M1-5/R9X		No	Filling station/NY SPILL west-adjacent, automotive, historic cleaner	Minimal		Yes	Off-site concerns
4	MN	234	9	1002340009	155 GRAND STREET	Projected	M1-5B	M1-5/R10		No	Gasoline station south-adjacent	Minimal		Yes	Off-site concerns
4	MN	234	11	1002340011	159 GRAND STREET	Projected	M1-5B	M1-5/R10	X	No	Minimal	Gasoline station		Yes	On-site concerns
5	MN	227	20	1002270020	43 GRAND STREET	Projected	M1-5A	M1-5/R10	X	No	Industrial/ manufacturing	Historic motor repair/ manufacturing		Yes	On-site concerns
5	MN	227	22	1002270022	47 GRAND STREET	Projected	M1-5A	M1-5/R10	X	No	Electric Motor Repair/Unspecified Manufacturing west-adjacent, industrial/ manufacturing	Historic manufacturing		Yes	On-site and off-site concerns
6	MN	227	6	1002270006	391 CANAL STREET	Projected	M1-5B	M1-5/R10		No	Unspecified manufacturing west-adjacent, Industrial/ manufacturing	Minimal		Yes	Off-site concerns
6	MN	227	7	1002270007	393 CANAL STREET	Projected	M1-5B	M1-5/R10	X	No	Industrial/ manufacturing	Historic manufacturing		Yes	On-site and off-site concerns
7	MN	227	1	1002270001	381 CANAL STREET	Projected	M1-5A	M1-5/R10	X	No	Historic cleaner east-adjacent, industrial/ manufacturing	Historic manufacturing		Yes	On-site and off-site concerns
7	MN	227	2	1002270002	383 CANAL STREET	Projected	M1-5A	M1-5/R10		No	Candy factory west-adjacent, industrial/ manufacturing	Minimal		Yes	Off-site concerns

Table 10-1 (cont'd)
Assessment of Projected and Potential Development Sites

Site ID	Borough	Block	Lot	BBL	Address	Group	Existing Zoning	Proposed Zoning	Sanborns or City Directories	On-site Database listings	Concerns within 400-foot Radius	On-Site Concerns	Site Visit Findings	E-Designation	Rationale
8	MN	209	21	1002090021	126 LAFAYETTE STREET	Projected	M1-5B	M1-5/R10	X	No	Historic cleaner, packing box factory, brass and copper factory and hotel north-adjacent. Industrial/ manufacturing	Distillery		Yes	On-site and off-site concerns
8	MN	209	26	1002090026	257 CANAL STREET	Projected	M1-5B	M1-5/R10	X	No	Distillery north-adjacent, industrial/ manufacturing	Automobile		Yes	On-site and off-site concerns
9	MN	208	13	1002080013	3 HOWARD STREET	Projected	M1-5B	M1-5/R10	X	Yes, Spills	Storage of 2nd Hand Boilers and Radiators east and south adjacent, industrial/ manufacturing	Automobile		Yes	On-site and off-site concerns
9	MN	208	19	1002080019	239 CANAL STREET	Projected	M1-5B	M1-5/R10	X	No	industrial/ manufacturing	Historic boiler and radiator storage		Yes	On-site and off-site concerns
9	MN	208	20	1002080020	243 CANAL STREET	Projected	M1-5B	M1-5/R10	X	Yes, PBS, EDR MGP (no actual former MGP use)	Storage of 2nd Hand Boilers and Radiators northeast adjacent; industrial/ manufacturing	Minimal		Yes	Off-site concerns
10	MN	207	5	1002070005	204 CENTRE STREET	Projected	M1-5B	M1-5/R10	X		Industrial/ manufacturing	Minimal		Yes	On-site and off-site concerns
10	MN	207	6	1002070006	204 CENTRE STREET	Projected	M1-5B	M1-5/R10	X	Yes, BCP, former MGP	Industrial/ manufacturing	Minimal		Yes	On-site and off-site concerns
10	MN	207	7	1002070007	204 CENTRE STREET	Projected	M1-5B	M1-5/R10	X	Yes, BCP, former MGP	Industrial/ manufacturing	Minimal		Yes	On-site and off-site concerns
10	MN	207	8	1002070008	208 HESTER STREET	Projected	M1-5B	M1-5/R10	X	Yes, BCP, former MGP	Industrial/ manufacturing	Minimal		Yes	On-site and off-site concerns
10	MN	207	10	1002070010	204 HESTER STREET	Projected	M1-5B	M1-5/R10	X	BCP	Industrial/ manufacturing	BCP		Yes	On-site and off-site concerns
12	MN	545	48	1005450048	410 LAFAYETTE STREET	Projected	M1-5B	M1-5/R9X	X	No	Minimal, general commercial or industrial	Minimal/previous site structures		Yes	Possible on- and off-site concerns
13	MN	531	37	1005310037	358 BOWERY	Projected	M1-5B	M1-5/R10A	X	No	Filling station, Fire Department station	Historic filling station/automotive		Yes	On-site concerns
14	MN	529	35	1005290035	53 BOND STREET	Projected	M1-5B	M1-5/R7X	X	No	Filling station, industrial/manufacturing	Historic automotive		Yes	On-site and off-site concerns
15	MN	510	33	1005100033	281 LAFAYETTE STREET	Projected	M1-5B	M1-5/R7X	X	No	Silverware manufacturing south-adjacent, industrial/ manufacturing, automotive	Historic manufacturing		Yes	On-site and off-site concerns
16	MN	485	28	1004850028	81 MERCER STREET	Projected	M1-5A	M1-5/R7X		No	Industrial/ manufacturing	Minimal		Yes	Off-site concerns
20	MN	476	73	1004760073	356 WEST BROADWAY	Projected	M1-5B M1-5A	M1-5/R10	X	Yes, Spill, PBS, LTANK	Automotive, industrial/ manufacturing	Spill, current and historic automotive		Yes	On-site and off-site concerns
21 (now p/o 20)	MN	476	56	1004760056	30 THOMPSON STREET	Projected	M1-5B M1-5A	M1-5/R10	X	Yes, Spill	Automotive, industrial/ manufacturing	Spill, noted gasoline tank		Yes	On-site and off-site concerns

Table 10-1 (cont'd)
Assessment of Projected and Potential Development Sites

Site ID	Borough	Block	Lot	BBL	Address	Group	Existing Zoning	Proposed Zoning	Sanborns or City Directories	On-site Database listings	Concerns within 400-foot Radius	On-Site Concerns	Site Visit Findings	E-Designation	Rationale
22	MN	476	1	1004760001	92 AVENUE OF THE AMER	Projected	M1-5B	M1-5/R10	X	Yes, Spill, BCP, EDR Historic Auto	Automotive, industrial/ manufacturing	Spill, BCP, noted GTs, EDR Historic Auto		Yes	On-site concerns
23	MN	475	61	1004750061	72 GRAND STREET	Projected	M1-5B	M1-5/R7X	X	No	Minimal, general commercial or industrial	Minimal		Yes	Possible on- and off-site concerns
24	MN	235	29	1002350029	217 HESTER STREET	Projected	M1-5B	M1-5/R10		No	Industrial/ manufacturing	Minimal		Yes	Off-site concerns
25	MN	208	4	1002080004	123 LAFAYETTE STREET	Projected	M1-5B	M1-5/R10	X	No	Brass and Copper Factory west-adjacent, Storage of 2nd Hand Boilers and Radiators east-adjacent, industrial/ manufacturing	Historic industrial		Yes	On-site and off-site concerns
26	MN	208	1	1002080001	247 CANAL STREET	Projected	M1-5B	M1-5/R10	X	Yes, EDR MGP (not actual MGP site)	Distillery northwest-adjacent, industrial/ manufacturing	Historic industrial		Yes	On- and Off-site concerns
27	MN	207	20	1002070020	114 BAXTER STREET	Projected	M1-5B	M1-5/R10	X	No	Mattress factory north-adjacent,	Minimal		Yes	On- and Off-site concerns
28	MN	482	27	1004820027	218 LAFAYETTE STREET	Projected	M1-5B	M1-5/R7X		No	Paper box factory northwest-adjacent, machine repair shop south adjacent, NY Edison Co. Rotary Station, iron works, and paper box factory south Property block, industrial/ manufacturing	Minimal		Yes	Off-site concerns
28	MN	482	28	1004820028	216 LAFAYETTE STREET	Projected	M1-5B	M1-5/R7X	X	No	NY Edison Co. Rotary Station south-adjacent, paper box factory northwest and southwest Property block, iron works south Property block, industrial/ manufacturing	Historic industrial		Yes	On-site and off-site concerns
30	MN	522	28	1005220028	324 LAFAYETTE STREET	Projected	M1-5B	M1-5/R9X		No	Cigar factory and envelope manufacturing south-adjacent, industrial/ manufacturing, automotive	Minimal		Yes	Off-site concerns
31	MN	496	40	1004960040	75 SPRING STREET	Projected	M1-5B	M1-5/R9X		Yes, AST	Fire Dept, industrial/ manufacturing	Minimal		Yes	On-and off site concerns
32	MN	472	28	1004720028	154 GRAND STREET	Projected	M1-5B	M1-5/R9X		Yes, AST, FINDS, ECHO	Filling station and school west-adjacent, police headquarters east-adjacent block, industrial/ manufacturing	Minimal (possible historic manufacturing - see link)		Yes	On-site and off-site concerns

Table 10-1 (cont'd)
Assessment of Projected and Potential Development Sites

Site ID	Borough	Block	Lot	BBL	Address	Group	Existing Zoning	Proposed Zoning	Sanborns or City Directories	On-site Database listings	Concerns within 400-foot Radius	On-Site Concerns	Site Visit Findings	E-Designation	Rationale
A	MN	482	9	1004820009	57 CROSBY STREET	Potential	M1-5B	M1-5/R7X	X	No	NY Edison Co. Rotary Station south-adjacent, machine repair east-adjacent, iron works, and paper box factory south Property block, industrial/ manufacturing.	Historic transfer yard for Con Edison		Yes	On-site and off-site concerns
AA	MN	488	30	1004880030	382 WEST BROADWAY	Potential	M1-5A	M1-5/R7X		No	Paper factory north, paint and dye warehouse and filling station south Property block, metal works east adjacent Property block, automotive/ manufacturing	Minimal		Yes	Off-site concerns
AAA	MN	230	7	1002300007	325 CANAL STREET	Potential	M1-5B	M1-5/R9X		No	Manufacturing northwest adjacent, minimal automotive/ manufacturing	Minimal		Yes	Off-site concerns
AAA	MN	230	8	1002300008	327 CANAL STREET	Potential	M1-5B	M1-5/R9X		No	Manufacturing northwest adjacent, minimal automotive/ manufacturing	Minimal		Yes	Off-site concerns
B	MN	515	7	1005150007	463 WEST BROADWAY	Potential	M1-5A	M1-5/R7X	X	No	Manufacturing north-adjacent, AST south-adjacent, manufacturing/ automotive	Historic automotive		Yes	On-site and off-site concerns
BB	MN	531	3	1005310003	686 BROADWAY	Potential	M1-5B	M1-5/R9X		No	AST south adjacent, silversmith manufacturing northeast Property block, printers north, filling station southeast, manufacturing/ automotive.	Minimal		Yes	Off-site concerns
BBB	MN	487	28	1004870028	146 SPRING STREET	Potential	M1-5A	M1-5/R7X	X	No	Metal works adjacent-southwest, Fire Dept, industrial/ manufacturing/ automotive	Minimal		Yes	On-site and off-site concerns
BBB	MN	487	29	1004870029	144 SPRING STREET	Potential	M1-5A	M1-5/R7X	X	No	Metal works adjacent-southwest, Fire Dept, industrial/ manufacturing/ automotive	Minimal		Yes	On-site and off-site concerns
C	MN	487	18	1004870018	395 WEST BROADWAY	Potential	M1-5A	M1-5/R7X	X	No	Fire Dept, industrial/ manufacturing/ automotive	Historic metal works		Yes	On-site and off-site concerns

Table 10-1 (cont'd)
Assessment of Projected and Potential Development Sites

Site ID	Borough	Block	Lot	BBL	Address	Group	Existing Zoning	Proposed Zoning	Sanborns or City Directories	On-site Database listings	Concerns within 400-foot Radius	On-Site Concerns	Site Visit Findings	E-Designation	Rationale
CC	MN	483	29	1004830029	54 CROSBY STREET	Potential	M1-5B	M1-5/R9X	X	No	NY Edison Co. Rotary Station east-adjacent, paper box factory northeast and southeast adjacent, industrial/ manufacturing	Historic industrial		Yes	On-site and off-site concerns
CCC	MN	475	1	1004750001	337 WEST BROADWAY	Potential	M1-5A	M1-5/R7X	X	No	Two garages with buried gasoline tanks northwest adjacent, industrial/ manufacturing	Historic glass warehouse		Yes	On-site and off-site concerns
CCC	MN	475	3	1004750003	341 WEST BROADWAY	Potential	M1-5A	M1-5/R7X	X	No	Two garages with buried gasoline tanks northwest adjacent, industrial/ manufacturing	Historic printer/glass		Yes	On-site and off-site concerns
CCC	MN	475	4	1004750004	343 WEST BROADWAY	Potential	M1-5A	M1-5/R7X	X	No	Two garages with buried gasoline tanks northwest adjacent, industrial/ manufacturing	Historic printer/glass		Yes	On-site and off-site concerns
D	MN	475	59	1004750059	76 GRAND STREET	Potential	M1-5B	M1-5/R7X	X	No	Doll manufacturing northeast-adjacent, industrial/ manufacturing	Historic manufacturing		Yes	On-site and off-site concerns
DD	MN	516	25	1005160025	480 WEST BROADWAY	Potential	M1-5A	M1-5/R7X		No	Laundry northwest adjacent, wagon yard west-adjacent, manufacturing of heating apparatus northeast adjacent, industrial/ manufacturing/ automotive	Minimal		Yes	Off-site concerns
DDD	MN	229	4	1002290004	345 CANAL STREET	Potential	M1-5B	M1-5/R9X		No	Garage with three buried gasoline tanks and candy factory west-adjacent, popcorn and candy factory north Property block, automotive/ manufacturing	Minimal		Yes	Off-site concerns
DDD	MN	229	5	1002290005	349 CANAL STREET	Potential	M1-5B	M1-5/R9X	X	Yes, UST	Candy factory west-adjacent, popcorns and candy factory north Property block, automotive/ manufacturing	Historic automotive, UST		Yes	On-site and off-site concerns

Table 10-1 (cont'd)
Assessment of Projected and Potential Development Sites

Site ID	Borough	Block	Lot	BBL	Address	Group	Existing Zoning	Proposed Zoning	Sanborns or City Directories	On-site Database listings	Concerns within 400-foot Radius	On-Site Concerns	Site Visit Findings	E-Designation	Rationale
E	MN	496	18	1004960018	62 PRINCE STREET	Potential	M1-5B	M1-5/R7X	X	Yes, Spills, UST, EDR Historic Auto	Gasloine station and auto repair, packing box yard south-adjacent, silverware and candy factories northeast, fire dept and steam laundry southeast, automotive/ manufacturing	Historic filling station and automotive, Spills, UST		Yes	On-site and off-site concerns
EE	MN	516	34	1005160034	456 WEST BROADWAY	Potential	M1-5A	M1-5/R7X		No	EDR Historic Automotive north adjacent, Chinese laundries on north and south Property block, candy factory southeast, manufacturing of heating apparatus northeast, industrial/ manufacturing	Minimal		Yes	Off-site concerns
EE	MN	516	35	1005160035	454 WEST BROADWAY	Potential	M1-5A	M1-5/R7X	X	No	EDR Historic Automobile north, Chinese laundries on north and south Property block, candy factory southeast, manufacturing of heating apparatus northeast, industrial/ manufacturing	Historic machine shop		Yes	On-site and off-site concerns
EEE	MN	544	5	1005440005	403 LAFAYETTE STREET	Potential	M1-5B	M1-5/R9X	X	Yes PBS, Spills	Industrial/Automotive	Historic Automotive and Fueling		Yes	On-site and off-site concerns
F	MN	545	14	1005450014	724 BROADWAY	Potential	M1-5B	M1-5/R9X	X	No	Industrial/Automotive	Historic manufacturing		Yes	On-site and off-site concerns
FFF	MN	474	26	1004740026	90 GRAND STREET	Potential	M1-5B	M1-5/R7X	X	No	Minimal, general commercial or industrial	Minimal		Yes	Possible on- and off-site concerns
G	MN	475	19	1004750019	47 WOOSTER STREET	Potential	M1-5B	M1-5/R7X	X	No	Candy factory adjacent east, automotive/industrial	Historic manufacturing/machine shop		Yes	On-site concerns
GG	MN	482	26	1004820026	220 LAFAYETTE STREET	Potential	M1-5B	M1-5/R7X	X	No	Adjacent manufacturing and nearby machine shop	Sign Painting and warehouse use		Yes	On- and Off-site Concerns
GGG	MN	484	3	1004840003	96 SPRING STREET	Potential	M1-5B	M1-5/R9X	X	AST	Minimal	Minimal		Yes	On-site tank
H	MN	496	9	1004960009	95 CROSBY STREET	Potential	M1-5B	M1-5/R7X	X		East-adjacent filling station	On-site and adjacent automotive repair		Yes	On- and Off-site concerns
HH	MN	499	6	1004990006	102 GREENE STREET	Potential	M1-5A	M1-5/R7X	X	No	Minimal, general commercial or industrial	Minimal		Yes	Possible on-and off-site concerns
HHH	MN	529	69	1005290069	55 Bleeker Street	Potential	M1-5B	M1-5/R9X	X	UST	Minimal, general commercial or industrial	Former Auto Repair and Filling Station		Yes	On- and Off-site concerns

Table 10-1 (cont'd)
Assessment of Projected and Potential Development Sites

Site ID	Borough	Block	Lot	BBL	Address	Group	Existing Zoning	Proposed Zoning	Sanborns or City Directories	On-site Database listings	Concerns within 400-foot Radius	On-Site Concerns	Site Visit Findings	E-Designation	Rationale
I	MN	229	15	1002290015	18 WOOSTER STREET	Potential	M1-5B	M1-5/R7X	X	Closed Spill (Paint in Sewer)/Closed 2013	Industrial/Automotive	Manufacturing, Lumber Storage		Yes	On- and Off-site concerns
II	MN	230	44	1002300044	3 MERCER STREET	Potential	M1-5B	M1-5/R9X		No	Minimal, general commercial or industrial	Minimal/Commercial		Yes	Possible on- and off-site concerns
J	MN	544	72	1005440072	27 EAST 4 STREET	Potential	M1-5B	M1-5/R9X	X	UST	Some Automotive	UST, Auto Repair		Yes	On- and Off-site concerns
JJ	MN	513	33	1005130033	149 MERCER STREET	Potential	M1-5A	M1-5/R7X	X	No	Adjacent lumber, manufacturing	Manufacturing		Yes	On- and Off-site concerns
K	MN	514	4	1005140004	140 WOOSTER STREET	Potential	M1-5A	M1-5/R7X	X	No	Adjacent manufacturing and lumber	Lumber		Yes	On- and Off-site concerns
KK	MN	486	17	1004860017	83 GREENE STREET	Potential	M1-5A	M1-5/R7X	X	No	Adjacent manufacturing	Manufacturing (unspecified)		Yes	On- and Off-site concerns
L	MN	501	3	1005010003	417 WEST BROADWAY	Potential	M1-5A	M1-5/R7X	X	No	Some Automotive	Auto Repair and gasoline tank		Yes	On-site concerns
LL	MN	483	8	1004830008	506 BROADWAY	Potential	M1-5B	M1-5/R9X		No	Drycleaners south-adjacent with RCRA listing	Minimal		Yes	Off-site concerns
M	MN	485	24	1004850024	89 MERCER STREET	Potential	M1-5A	M1-5/R7X			Manufacturing uses adjacent and nearby	Minimal		Yes	Off-site concerns
MM	MN	474	14	1004740014	53 MERCER STREET	Potential	M1-5B	M1-5/R7X		No	Auto Repair and gasoline tank south-adjacent	Minimal		Yes	Off-site concerns
N	MN	530	31	1005300031	53 GREAT JONES STREET	Potential	M1-5B	M1-5/R7X	X		Proximal Lumber and Industrial Use	Industrial Use		Yes	On- and Off-site concerns
NN	MN	514	24	1005140024	141 GREENE STREET	Potential	M1-5A	M1-5/R7X		No	Filling station north-adjacent	Minimal		Yes	Off-site concerns
O	MN	474	7501	1004747501	51 MERCER STREET	Potential	M1-5B	M1-5/R7X	X	No	Some Industrial/Automotive	Auto Repair and gasoline tank		Yes	On- and Off-site concerns
OO	MN	513	39	1005130039	103 PRINCE STREET	Potential	M1-5A	M1-5/R7X		No	Manufacturing	Minimal		Yes	Off-site concerns
P	MN	514	1	1005140001	134 WOOSTER STREET	Potential	M1-5A	M1-5/R7X	X	No	Manufacturing, Lumber	Motor Freight Station		Yes	On- and Off-site concerns
PP	MN	497	15	1004970015	558 BROADWAY	Potential	M1-5B	M1-5/R9X		No	Manufacturing	Minimal		Yes	Off-site concerns
Q	MN	516	36	1005160036	452 WEST BROADWAY	Potential	M1-5A	M1-5/R7X		No	Manufacturing, machine shop	Minimal		Yes	Off-site concerns
Q	MN	516	37	1005160037	450 WEST BROADWAY	Potential	M1-5A	M1-5/R7X		No	Manufacturing, machine shop	Minimal		Yes	Off-site concerns
QQ	MN	474	19	1004740019	43 MERCER STREET	Potential	M1-5B	M1-5/R7X	X	No	Automotive and Industrial	Laundry, gasoline tank and Auto Repair		Yes	On- and Off-site concerns
RR	MN	501	32	1005010032	143 SPRING STREET	Potential	M1-5A	M1-5/R7X			Automotive and Industrial	Minimal		Yes	Off-site concerns
S	MN	232	3	1002320003	440 BROADWAY	Potential	M1-5B	M1-5/R9X		Minimal (Con Ed Manifest)	Minimal, general commercial or industrial	Minimal		Yes	Possible on- and off-site concerns
SS	MN	475	22	1004750022	41 WOOSTER STREET	Potential	M1-5B M1-5A	M1-5/R7X	X	No	Minimal, general commercial or industrial	Minimal		Yes	Possible on- and off-site concerns
T	MN	232	10	1002320010	454 BROADWAY	Potential	M1-5B	M1-5/R9X		No	Minimal, general commercial or industrial	Minimal		Yes	Possible on- and off-site concerns

Table 10-1 (cont'd)
Assessment of Projected and Potential Development Sites

Site ID	Borough	Block	Lot	BBL	Address	Group	Existing Zoning	Proposed Zoning	Sanborns or City Directories	On-site Database listings	Concerns within 400-foot Radius	On-Site Concerns	Site Visit Findings	E-Designation	Rationale
TT	MN	475	9	1004750009	355 WEST BROADWAY	Potential	M1-5A	M1-5/R7X	X	No	Minimal	Historic Manufacturing		Yes	On-site concerns
U	MN	473	5	1004730005	470 BROADWAY	Potential	M1-5B	M1-5/R9X		No	Minimal, general commercial or industrial	Minimal		Yes	Possible on- and off-site concerns
UU	MN	473	7	1004730007	474 BROADWAY	Potential	M1-5B	M1-5/R9X		No	Minimal, general commercial or industrial	Minimal		Yes	Possible on- and off-site concerns
V	MN	228	111	1002280111	323 WEST BROADWAY	Potential	M1-5A	M1-5/R7X		No	Automotive, industrial/manufacturing, Rail transfer shed and truck parking south-adjacent	Minimal		Yes	Off-site concerns
VV	MN	474	32	1004740032	481 BROADWAY	Potential	M1-5B	M1-5/R9X		No	Minimal, general commercial or industrial	Minimal		Yes	Possible on- and off-site concerns
W	MN	498	1	1004980001	92 PRINCE STREET	Potential	M1-5B	M1-5/R7X		No	South-adjacent garage with gasoline tank	Minimal		Yes	Off-site concerns
WW	MN	483	14	1004830014	518 BROADWAY	Potential	M1-5B	M1-5/R9X		RCRA Gen of Ignitable Waste	Minimal	Minimal		Yes	On-site concerns
X	MN	513	25	1005130025	163 MERCER STREET	Potential	M1-5A	M1-5/R7X	X		North-adjacent garage	Manufacturing		Yes	On- and Off-site concerns
XX	MN	512	17	1005120017	589 BROADWAY	Potential	M1-5B	M1-5/R9X		No	West-adjacent manufacturing	Minimal		Yes	Off-site concerns
Y	MN	502	31	1005020031	424 WEST BROADWAY	Potential	M1-5A	M1-5/R7X		No	Minimal	Paints		Yes	On-site concerns
YY	MN	500	16	1005000016	120 PRINCE STREET	Potential	M1-5A	M1-5/R7X		No	Adjacent manufacturing	Minimal		Yes	Off-site concerns
YY	MN	500	17	1005000017	118 PRINCE STREET	Potential	M1-5A	M1-5/R7X	X	No	Minimal	Manufacturing		Yes	On-site concerns
Z	MN	488	23	1004880023	396 WEST BROADWAY	Potential	M1-5A	M1-5/R7X		No	Motor Freight Station West-adjacent. Manufacturing and varnish works on Site block	Minimal		Yes	Off-site concerns
ZZ	MN	230	3	1002300003	317 CANAL STREET	Potential	M1-5B	M1-5/R9X		No	Minimal, general commercial or industrial	Minimal		Yes	Possible on- and off-site concerns
ZZ	MN	230	4	1002300004	319 CANAL STREET	Potential	M1-5B	M1-5/R9X		No	Minimal, general commercial or industrial	Minimal		Yes	Possible on- and off-site concerns

Notes:
X=On-Site Concerns identified in Sanborn Maps or City Directories (historical and/or current automotive or industrial uses): RCRA=Resource Conservation & Recovery Act, BCP=NYSDEC Brownfield Cleanup Program, FP/VP=Suspect Fuel Oil Fill Port/Vent Pipe, MW=Suspect Monitor Well,

D. THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the Future without the Proposed Actions (No Action condition), the sites are assumed to either remain generally unchanged from existing conditions or become occupied by uses that are as-of-right under existing zoning (see Chapter 1, "Project Description"). Although the sites do not currently present a hazard to people or the environment, any construction involving soil disturbance could potentially increase pathways for human exposure to any subsurface hazardous materials present. As such, soil disturbance would likely not be conducted in accordance with all of the procedures (e.g., for conducting testing before commencing excavation and implementation of health and safety plans during construction) described in the following section. However, should petroleum tanks and/or petroleum spills be identified (e.g., during excavation for new foundations), legal requirements (including those of DEC) would need to be followed, as would applicable regulatory requirements prior to demolition relating to ACMs and relating to disturbance and handling of suspect LBP. Off-site disposal of excess soil/fill would also need to be conducted in accordance with federal and state requirements. Overall, in the No Action condition, the amount of soil disturbance would likely be less than in the Future with the Proposed Actions, but the controls on its performance would not be as stringent as under the Proposed Actions, as described below.

E. THE FUTURE WITH THE PROPOSED ACTIONS

In the future with the Proposed Actions (With Action condition), activities associated with the development on the projected or potential development sites could result in demolition and construction activities that could increase pathways for human exposure. **Table 10-1** summarizes the findings of the hazardous materials evaluation for each of the sites. The final column includes the recommendation concerning the placement of a hazardous materials (E) Designation (E-619) for all potential and projected development sites that could have been adversely affected by current or historical uses at, adjacent to, or within 400 feet of the development site. In evaluating whether the placement of an (E) Designation for hazardous materials is necessary, current site conditions and previous on-site uses were prioritized, followed by the adjacent site use or history, and finally the conditions within a 400-foot radius.

As noted above, construction-related activities anticipated for the With Action condition could increase pathways for exposure to hazardous materials. However, the possibility of impacts to the health and safety of workers, the community, and future occupants would be reduced by performing demolition and construction in accordance with the measures identified below:

- Prior to construction, further investigation would be performed on each site. This would start with preparation of a Phase I ESA in accordance with American Society of Testing Materials (ASTM) Standard E1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Practice*. The findings would be used to prepare a subsurface investigation protocol for agency review. Upon approval of the protocol, the investigation (typically including laboratory analysis of soil, groundwater, and soil vapor samples from the site) would be implemented and a report of the findings submitted to the agency along with the proposed remediation plan (i.e., measures to be implemented prior to or as part of construction to avoid impacts to the health and safety of workers, the community, and future occupants), which would include a construction health and safety plan to protect workers and the surrounding community during development activities.

- Any renovation or demolition activities with the potential to disturb LBP would be performed in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62—*Lead Exposure in Construction*).
- Prior to any renovation or demolition activities with the potential to disturb suspect ACMs, an asbestos survey would be conducted to determine whether these materials are ACMs. If these materials prove to contain asbestos, they would be properly removed and disposed of in accordance with all state and federal regulations.
- Unless there is labeling or test data that indicates that florescent lights, other electrical equipment, and hydraulic fluid are not mercury- and/or PCB-containing, if disposal is required, it would be performed in accordance with applicable federal, state, and local regulations and guidelines.
- All excavated soil requiring off-site disposal would be managed in accordance with applicable regulatory requirements. All soil and any other materials intended for off-site disposal would be tested in accordance with the requirements of the intended receiving facility. Transportation of material leaving the site for off-site disposal would be in accordance with federal, state, and local requirements covering licensing of haulers and trucks, placarding, truck routes, manifesting, etc. All on-site petroleum storage tanks (and any unforeseen tanks encountered during redevelopment) would be properly closed and removed in accordance with applicable requirements.
- If dewatering is required for construction, testing would be performed to ensure compliance with New York City Department of Environmental Protection (DEP) sewer discharge permit/approval requirements and, if necessary, pre-treatment world be conducted prior to discharge to the sewer.

To ensure the measures above are implemented, as warranted, an (E) Designation (E-619) for hazardous materials would be placed on all 84projected and potential development sites identified in **Table 10-1** as part of the Proposed Actions. Recommendations for (E) Designations are based on whether the sites may have been adversely affected by current or historical uses at, adjacent to, or within 400 feet. In determining whether a site is recommended for an (E) Designation, current site conditions were given priority, followed by the adjacent site use or history, and finally the conditions within a 400-foot radius.

The (E) Designation would require that, prior to redevelopment, the property owner conduct: a Phase I ESA in accordance with the ASTM E1527-13; and implement a soil, soil vapor, and groundwater testing protocol, and remediation where appropriate, to the satisfaction of OER before issuance of construction-related DOB permits (pursuant to Section 11-15 of the *Zoning Resolution*—Environmental Requirements). The (E) Designation also mandates construction-related health and safety plans, which must be approved by OER.

The text of the (E) Designation (E-619) would be the following:

> ***Task 1****—The applicant submits to OER, for review and approval, a Phase I ESA of the site along with a soil and groundwater testing protocol, including a description of methods and a site map with all sampling locations clearly and precisely represented.*
>
> *If site sampling is necessary, no sampling should begin until written approval of a protocol is received from OER. The number and location of sample sites should be selected to adequately characterize the site, the specific source of suspected contamination (i.e., petroleum based contamination and non-petroleum based contamination), and the remainder of the site's*

condition. The characterization should be complete enough to determine what remediation strategy (if any) is necessary after review of sampling data. Guidelines and criteria for selecting sampling locations and collecting samples are provided by OER upon request.

***Task 2**—A written report with findings and a summary of the data must be submitted to OER after completion of the testing phase and laboratory analysis for review and approval. After receiving such results, a determination is made by OER if the results indicate that remediation is necessary.*

If OER determines that no remediation is necessary, written notice shall be given by OER.

If remediation is indicated from the test results, a proposed remediation plan must be submitted to OER for review and approval. The applicant must complete such remediation as determined necessary by OER. The applicant should then provide proper documentation that the work has been satisfactorily completed.

F. CONCLUSION

As shown in **Table 10-1**, the Proposed Actions would include the placement of hazardous materials E-Designations (E-619) for all projected and potential development sites. The implementation of these measures would preclude the potential for significant adverse impacts associated with the Proposed Actions. ✷