Chapter 10: Hazardous Materials

A. INTRODUCTION

This chapter assesses the potential for the Proposed Actions to result in significant adverse impacts associated with hazardous materials. It considers the potential for the presence of hazardous materials at the 133 projected and potential development sites identified in the reasonable worst-case development scenario (RWCDS). Measures are proposed to remediate contamination and reduce exposure to future occupants and workers. The measures would be included as part of the Proposed Actions and would preclude the potential for significant adverse impacts related to hazardous materials.

An assessment of potential hazardous materials impacts was performed for the projected and potential development sites, i.e., properties where ground disturbance and/or renovation/conversion and enlargements of existing structures would be expected to occur as a result of the Proposed Actions.

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. Hazardous materials in (primarily historical) building materials and fixtures include asbestos-containing materials (ACM), lead-based paint (LBP), and mercury. Subsurface hazardous materials include, but are not limited to: volatile organic compounds (VOCs), commonly found in petroleum products and solvents; semi-volatile organic compounds (SVOCs), typically associated with petroleum products, coal, and ash; coal tar and other non-aqueous phase liquid (NAPL), byproducts of the manufactured gas plants (MGPs) historically in the area; heavy metals, including lead; and polychlorinated biphenyls (PCBs), usually associated with electrical transformers.

The presence of hazardous materials does not necessarily indicate a threat to human health or the environment; rather an exposure pathway, the presence of a receptor, and an unacceptable dose must also be present to cause a threat. Without proper controls hazardous materials could be released during demolition or renovation of existing structures, or during excavation or dewatering of a site. The most likely routes of human exposure from the hazardous materials evaluated would occur during construction and are the inhalation of VOCs, the ingestion of particulate matter containing SVOCs or metals, or dermal (skin) contact with hazardous materials.

PRINCIPAL CONCLUSIONS

The Proposed Actions would not result in significant adverse impacts related to hazardous materials. Based on the assessment contained in the DEIS, the potential for significant adverse impacts related to hazardous materials resulting from the Proposed Actions would be precluded through compliance with existing regulatory requirements (for the hazardous materials in the structures) and with the placement of (E) Designations or comparable institutional controls for all development under private ownership.

An (E) Designation for hazardous materials would require that, prior to change of use or redevelopment of a site requiring ground disturbance, the owner of the site conduct a Phase I Environmental Site Assessment (ESA) and subsurface testing and remediation, as needed, to the satisfaction of the City's Office of Environmental Remediation (OER). With such controls, (E)-designated sites for which there is an application for Department of Buildings (DOB) permits associated with a change of use or ground disturbance cannot be issued without OER approval. The (E) Designation requirements would therefore ensure the protection of human health and the environment from known or suspected hazardous materials.

For the City-owned site under the jurisdiction of HPD (Block 471, Lots 1 and 100), it is expected that measures to require testing and remediation would be included as part of the Land Disposition Agreement (LDA), Restrictive Declaration (RD), or comparable binding mechanism between the City of New York and a developer, and would require measures similar to those required by an (E) Designation. Development of certain sites may require additional coordination with DEC and EPA, as necessary. For the proposed new parkland on Block 471 similar measures addressing requirements for subsurface disturbance and any necessary remedial activities would be conducted in accordance with NYC Parks procedures, and with other agency involvement as required.

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 or environmental impacts. The objective of this chapter 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 or in the vicinity. For the purposes of this assessment, the study area includes all projected and potential development sites within the Project Area.

Hazardous materials in (primarily historical) building materials and fixtures include ACM, LBP, and mercury. Subsurface hazardous materials include, but are not limited to VOCs, commonly found in petroleum products and solvents; SVOCs, typically associated with petroleum products, coal and ash; coal tar, a byproduct of the manufactured gas plants historically in the area: heavy metals, including lead; and PCBs, usually associated with electrical transformers. Of particular concern in the Project Area are coal tar and other non-aqueous phase liquid (NAPL), wastes associated with the historical MGP facilities and solvents (e.g., from former paint/metals works).

Since there are well-established regulatory programs addressing hazardous materials in existing buildings (e.g., relating to ACM and LBP), the analysis in this chapter primarily focuses on subsurface hazardous materials. As part of this assessment, each site was evaluated for potential subsurface hazardous materials by (1) reviewing historical Sanborn fire insurance maps for the site and nearby properties; (2) reviewing environmental regulatory databases for the site and nearby properties; and (3) conducting site reconnaissance (from streets and other public rights-of-way as interior access was not available) to determine current occupants/uses and any indications of historical or current hazardous materials use or storage (e.g., signage or petroleum storage tank fill caps).

SANBORN FIRE INSURANCE MAP REVIEW

Sanborn maps from recent years and dating as far back as the 1880s were reviewed to assess site and nearby activities and operations, including those listed in *Hazardous Materials Appendix 1* of

the *CEQR Technical Manual*. This review included identifying automotive uses (fueling operations, garages with gasoline tanks, auto repair shops, etc.) and/or industrial uses (various manufacturing, coal storage, MGPs, smelters, chemical laboratories, metal works, printing facilities, substations, foundries, paint manufacturers, junk yards, rail yards, etc.).

DATABASE REVIEW

A standard list of federal and state regulatory databases (per ASTM E1527-13) related to the potential for hazardous materials was reviewed, including the following:

- The New York State SPILLS database, which lists sites where petroleum or chemical releases have been reported to the 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 (or BULK PETRO), 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 (HAZ) database, which uses both the DEC manifest system for hazardous waste handlers and the 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 the 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 sites' interiors were not accessible, the reconnaissance was performed from public access areas such as streets and sidewalks.

Typical observations (noted in **Table 10-1**) included the nature of the 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; monitoring wells, dry cleaning, automotive and other industrial uses; 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 Gowanus study area ranges from barely above sea level (at the Canal) to approximately 40 feet above sea level. Groundwater is expected to be first encountered below grade at or at most at a few feet above sea level and flow generally (it is likely tidally influenced, especially near the Canal) towards the Canal and ultimately out to the Gowanus Bay. Actual local groundwater flow may be affected by bulkheads, utilities, and other factors.

OVERVIEW OF HISTORICAL USES

GENERAL AREA HISTORY

The Gowanus Canal (formerly occupied by Gowanus Creek, local tributaries, and lowland marshes) was bulkheaded and dredged in the late 1860s to facilitate the construction of a passageway for the numerous industrial uses in the area.

By the 1880s, the study area included a mixture of residential, commercial, and industrial uses, including MGPs (facilities that processed coal and/or oil to make "town gas," used initially for lighting), coal yards, lumber yards, tanneries, machine/metal works, chemical production plants, oil refineries, and other manufacturing facilities.

Industrial and automotive uses increased by the 1920s, including numerous garages with fueling operations and repair shops; warehouses and manufacturers on the blocks east of 3rd Avenue in the northern and eastern portions of the study area; expansion of MGP facilities (including the Fulton Municipal Works, Citizens (Public Place) Gas Works, and the Metropolitan Works, discussed below); coal yards; and warehouses.

There were additional automotive and industrial facilities in and after the 1930s (prior to modern environmental regulations). These included new warehouses, manufacturers, foundries, smelters, metals/plating works and chemical works; and printers, filling stations, motor freight stations, and garages with gasoline tanks throughout the study area. The large industrial properties included the Eagle Clothing manufacturing facility, a transit switch yard, and the Con Edison storage yard (with repair shops and filling operations) on the south-central portion of the study area and several major oil storage terminals along the Canal.

Dense industrial and automotive development continued into the 1970s, replacing some of the historical uses (including coal and lumberyards), and the area remained largely developed with industrial and automotive uses with some interspersed community facilities and residences. The northern- and southernmost portions of the study area along 4th Avenue have historically been more residential in nature, with some interspersed automotive facilities including filling stations.

Table 10-1
Assessment of Projected and Potential Development Sites

Site Number	Site Lot	Block	Lot	Address	Zoning	On-site Sanborn Maps/City Directories Concerns	On-Site Database Listings	Concerns within 400-foot radius	On-site Environmental Concern (Historical and/or Current)	Site Visit Findings	E-DESIGNATION Recommendation
Projected Sites											
1	a	395	35	90 4 AVENUE	R8A/C2-4	X	X	X	A, SP		E-Designation*
	b	395	36	92 4 AVENUE	R8A/C2-4						
	c	395	37	94 4 AVENUE	R8A/C2-4						
	e	395	30	58 ST MARKS PLACE	R8A/C2-4						
	f	395	32	86 4 AVENUE	R8A/C2-4						
	g	395	33	88 4 AVENUE	R8A/C2-4						
	h	395	34	88A 4 AVENUE	R8A/C2-4						
2	a	934	1	97 4 AVENUE	R8A/C2-4	x	x	x	E-des, A, I		E-Designation E-42‡
	b	934	2	95 4 AVENUE	R8A/C2-4						
	c	934	3	93 4 AVENUE	R8A/C2-4						
	d	934	4	91 4 AVENUE	R8A/C2-4						
	e	934	5	89 4 AVENUE	R8A/C2-4						
	f	934	6	87 4 AVENUE	R8A/C2-4						
	g	934	7	85 4 AVENUE	R8A/C2-4						
	h	934	10	79 4 AVENUE	R8A/C2-4						
	i	934	12	82 ST MARKS PLACE	R8A/C2-4						
	j	934	74	607 WARREN STREET	R8A/C2-4						
3	a	399	39	196 NEVINS STREET	R6			X			E-Designation†
	b	399	41	491 BALTIC STREET	R6						
4	a	399	58	463 BALTIC STREET	M1-2	X		X	A		E-Designation*
	b	399	59	461 BALTIC STREET	M1-2						
	c	399	60	459 BALTIC STREET	M1-2						
5	a	405	13	456 BALTIC STREET	M1-2	X	X	X	I, A		E-Designation*
	b	405	14	458 BALTIC STREET	M1-2						
	c	405	15	460 BALTIC STREET	M1-2						
	d	405	16	462 BALTIC STREET	M1-2						
6	a	405	63	BUTLER STREET	M1-2	X	X	X	M, A, I		E-Designation*
	b	405	64	BUTLER STREET	M1-2						
	c	405	12	454 BALTIC STREET	M1-2						
7	aa	405	27	255 BUTLER STREET	M1-2	X	X	X	M, Tk, SP, FTTS		E-Designation*
	ac	405	27	255 BUTLER STREET	M1-2						
	ab	405	27	255 BUTLER STREET	M1-2						

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

Site Number	Site Lot	Block	Lot	Address	Zoning	On-site Sanborn Maps/City Directories Concerns	On-Site Database Listings	Concerns within 400-foot radius	On-site Environmental Concern (Historical and/or Current)	Site Visit Findings (To Come)	E-DESIGNATION Recommendation
Projected Sites (continued)											
8	a	405	60	209 BUTLER STREET	M1-2		x	x	SP		E-Designation*
9	a	407	8	BALTIC STREET	M1-2			x			E-Designation†
	b	407	9	BALTIC STREET	M1-2						
10	a	407	12	570 BALTIC STREET	M1-2			x			E-Designation†
	b	407	13	572 BALTIC STREET	M1-2						
11	a	411	12	192 BUTLER STREET	M1-2			x			E-Designation†
12	a	412	1	239 NEVINS STREET	M1-2	x	x	x	I, RCRA		E-Designation*
	ba	412	6	233 NEVINS STREET	M1-2						
	bb	412	6	233 NEVINS STREET	M1-2						
	c	412	15	BUTLER STREET	M1-2						
	d	412	51	DOUGLASS STREET	M1-2						
	e	412	50	251 DOUGLASS STREET	M1-2						
13	a	412	18	258 BUTLER STREET	M1-2	X	X	X	A, I, M, SP		E-Designation*
	b	412	19	260 BUTLER STREET	M1-2						
	c	412	20	262 BUTLER STREET	M1-2						
	d	412	45	261 DOUGLASS STREET	M1-2						
	e	412	48	255 DOUGLASS STREET	M1-2						
14	a	413	1	189 3 AVENUE	M1-2		X	X	RCRA		E-Designation*
	b	413	2	183 3 AVENUE	M1-2						
	c	413	7	181 3 AVENUE	M1-2						
15	a	417	1	259 BOND STREET	M2-1	X	X	X	M, I, SP, RCRA, Tk, NPL adjacent		E-Designation‡‡
	b	417	10	261 BOND STREET	M2-1						
	c	417	14	198 DOUGLASS STREET	M2-1						
	d	417	21	479 DE GRAW STREET	M2-1						
16	a	420	19	304 DOUGLASS STREET	M1-2			X			E-Designation†

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

Site Number	Site Lot	Block	Lot	Address	Zoning	On-site Sanborn Maps/City Directories Concerns	On-Site Database Listings	Concerns within 400-foot radius	On-site Environmental Concern (Historical and/or Current)	Site Visit Findings (To Come)	E-DESIGNATION Recommendation
Projected Sites (continued)											
17	a	946	1	171 4 AVENUE	R8A/C2-4			X			E-Designation†
	b	946	3	167 4 AVENUE	R8A/C2-4						
	c	946	4	165A 4 AVENUE	R8A/C2-4						
	d	946	5	165 4 AVENUE	R8A/C2-4						
	e	946	6	163 4 AVENUE	R8A/C2-4						
	f	946	7	161 4 AVENUE	R8A/C2-4						
	g	946	84	645 DE GRAW STREET	R8A/C2-4						
	h	946	85	643 DE GRAW STREET	R8A/C2-4						
	i	946	101	4 AVENUE	R8A/C2-4						
18	a	424	1	267 BOND STREET	M2-1	X	X	X	M, I, SP, Tk, NPL adjacent		E-Designation‡‡
	b	424	20	495 SACKETT STREET	M2-1						
19	aa	426	17	560 DE GRAW STREET	M1-2		X	X	BCP, RCRA		E-Designation††
	ab	426	17	560 DE GRAW STREET	M1-2						
	b	426	44	563 SACKETT STREET	M1-2						
	c	426	49	553 SACKETT STREET	M1-2						
20	aa	426	1	537 SACKETT STREET	M1-2	X	X	X	SP, Tk, MGP, A, I		E-Designation**
	ab	426	1	537 SACKETT STREET	M1-2						
21	a	427	1	215 3 AVENUE	M1-2	X	X	X	A, SP		E-Designation*
	b	427	7	213 3 AVENUE	M1-2						
	c	427	10	209 3 AVENUE	M1-2						
22	a	431	12	498 SACKETT STREET	M2-1	X	X	X	A, SP, Tk, RCRA, FTTS, FS		E-Designation‡‡
	b	431	17	510 SACKETT STREET	M2-1						
	c	431	7	287 BOND STREET	M2-1						
	d	431	43	499 UNION STREET	M2-1						
23	a	433	18	SACKETT STREET	M1-2			X			E-Designation†
24	aa	433	28	586 SACKETT STREET	M1-2	X	X	X	I, RCRA		E-Designation*
	ab	433	28	586 SACKETT STREET	M1-2						
	b	433	46	577 UNION STREET	M1-2						
25	a	434	1	231 3 AVENUE	M1-2	X	X	X	Tk, RCRA, I, FS, A		E-Designation*
	ba	434	12	SACKETT STREET	M1-2						
	bb	434	12	SACKETT STREET	M1-2						

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

Site Number	Site Lot	Block	Lot	Address	Zoning	On-site Sanborn Maps/City Directories Concerns	On-Site Database Listings	Concerns within 400-foot radius	On-site Environmental Concern (Historical and/or Current)	Site Visit Findings (To Come)	E-DESIGNATION Recommendation
Projected Sites (continued)											
26	a	434	24	638 SACKETT STREET	M1-2	X		X	I		E-Designation*
27	a	434	35	204 4 AVENUE	M1-2	X	X	X	A, SP, Tk, FS		E-Designation*
28	a	438	1	BOND STREET	M2-1	X	X	X	A, FS, BCP, SP, RCRA, I		E-Designation‡‡
	b	438	2	BOND STREET	M2-1						
	c	438	3	319 BOND STREET	M2-1						
	d	445	8	327 BOND STREET	M2-1						
	e	445	11	383 CARROLL STREET	M2-1						
	f	445	20	426 PRESIDENT STREET	M2-1						
	g	445	50	PRESIDENT STREET	M2-1						
29	a	439	1	365 NEVINS STREET	M2-1	X	X	X	I, RCRA, SP, Tk		E-Designation‡‡
30	a	440	1	469 PRESIDENT STREET	M1-2	X	X	X	BCP, M, SP, RCRA		E-Designation††
	ba	440	12	514 UNION STREET	M1-2						
	bb	440	12	514 UNION STREET	M1-2						
31	a	441	24	608 UNION STREET	M1-2		X	X	RCRA		E-Designation*
	b	441	33	4 AVENUE	M1-2						
	c	441	35	240 4 AVENUE	M1-2						
32	a	441	16	588 UNION STREET	M1-2	X		X	A		E-Designation*
	b	441	18	590 UNION STREET	M1-2						
33	a	447	32	280 3 AVENUE	M1-2	X		X	I		E-Designation*
34	a	447	1	341 NEVINS STREET	M1-2		X	X	E-des		E-Designation E-453‡
35	a	448	25	PRESIDENT STREET	M1-2			X			E-Designation†
36	a	451	25	344 CARROLL STREET	M1-2		X	X	BCP		E-Designation††
37	a	453	1	420 CARROLL STREET	M2-1	X	X	X	BCP, SP, RCRA, I		E-Designation‡‡
	b	453	21	430 CARROLL STREET	M2-1						
38	aa	456	1	27 DENTON PLACE	M1-2	X	X	X	A, I, RCRA		E-Designation*
	ab	456	1	27 DENTON PLACE	M1-2						
	b	456	34	290 4 AVENUE	M1-2						
	c	456	6	21 DENTON PLACE	M1-2						
	ab	969	1	283 4TH AVENUE	R6B						

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

Site Number	Site Lot	Block	Lot	Address	Zoning	On-site Sanborn Maps/City Directories Concerns	On-Site Database Listings	Concerns within 400-foot radius	On-site Environmental Concern (Historical and/or Current)	Site Visit Findings (To Come)	E-DESIGNATION Recommendation
Projected Sites (continued)											
39	aa	969	1	283 4TH AVENUE	R8A/C2-4	X	X	X	M, E-des		E-Designation E-113‡
	ab	969	1	283 4TH AVENUE	R6B						
40	a	462	12	142 2 STREET	M2-1	X	X	X	FS,A, SP, Tk		E-Designation‡‡
	b	462	14	155 3 STREET	M2-1						
41	a	972	1	169 3 STREET	M2-1	X	X	X	BCP, I, SP, Tk, RCRA		E-Designation‡‡
	ba	972	43	201 3 STREET	M2-1						
	bb	972	43	201 3 STREET	M2-1						
	c	972	58	225 3 STREET	M2-1						
42	a	465	27	102 3 STREET	M1-1	X	X	X	I, M, SP, CBS, Tk, RCRA		E-Designation*
	b	465	28	3 STREET	M1-1						
	c	465	29	110 3 STREET	M1-1						
	d	465	33	116 3 STREET	M1-1						
	e	465	46	101 4 STREET	M1-1						
	f	465	47	99 4 STREET	M1-1						
	g	465	48	3 STREET	M1-1						
	h	465	49	95 4 STREET	M1-1						
	i	465	50	3 STREET	M1-1						
43	a	466	17	3 STREET	M2-1	X		X	A		E-Designation‡‡
	b	466	60	421 BOND STREET	M2-1						
44	a	466	19	152 3 STREET	M2-1			X			E-Designation‡‡
45	a	468	59	13 5 STREET	M1-1			X			E-Designation†
	b	468	60	11 5 STREET	M1-1						
46	a	468	25	38 4 STREET	M3-1			X			E-Designation†
47	a	471	1	5 STREET	M3-1	X	X	X	MGP, M, I		RD or Similar‡‡
	b	471	100	431 HOYT STREET	M3-1						
48	a	471	200	459 SMITH STREET	M3-1			X			RD or Similar‡‡
49	a	980	77	376 4 AVENUE	C8-2	X		X	A		E-Designation*
50	a	992	24	244 6 STREET	C8-2	X		X	I		E-Designation*
	b	992	26	246 6 STREET	C8-2						
	c	992	29	250 6 STREET	C8-2						

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

Site Number	Site Lot	Block	Lot	Address	Zoning	On-site Sanborn Maps/City Directories Concerns	On-Site Database Listings	Concerns within 400-foot radius	On-site Environmental Concern (Historical and/or Current)	Site Visit Findings (To Come)	E-DESIGNATION Recommendation
Projected Sites (continued)											
51	a	1028	7	487 4 AVENUE	R8A/C2-4	X	X	X	SP, Tk, A		LDA or Similar*
52	a	420	34	334 DOUGLASS STREET	M1-2	X	X	X	I, A,SP, Tk, RCRA		E-Designation*
	b	420	37	164 4 AVENUE	M1-2						
53	a	433	1	301 NEVINS STREET	M1-2	X	X	X	A, Tk, FS		E-Designation*
54	a	427	47	202 4 AVENUE	M1-2	X		X	I		E-Designation*
55	a	440	35	3 AVENUE	M1-2	X	X	X	I, Tk		E-Designation*
	b	440	36	264 3 AVENUE	M1-2						
	c	440	38	268 3 AVENUE	M1-2						
56	a	445	1	335 BOND STREET	M2-1	X	X	X	BCP, I, A		E-Designation††
57	aa	405	51	233 BUTLER STREET	M1-2		X	X	Tk, SP		E-Designation*
	ab	405	51	233 BUTLER STREET	M1-2						
58	a	399	6	195 BOND STREET	R6			X			E-Designation†
59	a	471	125	98 4TH STREET	M3-1			X			E-Designation‡‡
60	a	407	26	126 4TH AVENUE	R8A/C2-4	X	X	X	E-des, A, I, SP, Tk, RCRA		E-Designation E-42‡
61	a	464	51	33 4 STREET	M1-1			X			E-Designation†
62	a	464	41	33 4 STREET	M1-1		X	X	I, RCRA		E-Designation*
	a	464	45	33 4 STREET	M1-1						
63	aa	456	13	9 DENTON PLACE	M1-2	X	X	X	A, RCRA, I		E-Designation*
	ab	456	13	9 DENTON PLACE	M1-2						
	b	456	17	538 CARROLL STREET	M1-2						
	c	456	23	272 4 AVENUE	M1-2						

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

Site Number	Site Lot	Block	Lot	Address	Zoning	On-site Sanborn Maps/City Directories Concerns	On-Site Database Listings	Concerns within 400-foot radius	On-site Environmental Concern (Historical and/or Current)	Site Visit Findings (To Come)	E-DESIGNATION Recommendation
Potential Sites											
A	a	198	34	360 DEAN STREET	R8A/C2-4			X			E-Designation†
	b	198	35	362 DEAN STREET	R8A/C2-4						
	c	198	36	52 4 AVENUE	R8A/C2-4						
	d	198	37	54 4 AVENUE	R8A/C2-4						
	e	198	38	56 4 AVENUE	R8A/C2-4						
B	a	932	2	75 4 AVENUE	R8A/C2-4	X		X	I		E-Designation*
	b	932	3	73 4 AVENUE	R8A/C2-4						
	c	932	4	71 4 AVENUE	R8A/C2-4						
	d	932	5	69 4 AVENUE	R8A/C2-4						
Potential Sites (continued)											
C	a	399	2	203 BOND STREET	R6	X		X	M, I		E-Designation*
D	a	399	47	483 BALTIC STREET	M1-2	X	X	X	A, Tk, M		E-Designation*
	b	399	49	479 BALTIC STREET	M1-2						
E	a	399	51	475 BALTIC STREET	M1-2	X	X	X	RCRA, A, M		E-Designation*
	b	399	53	471 BALTIC STREET	M1-2						
F	a	399	55	465 BALTIC STREET	M1-2	X		X	I		E-Designation*
G	a	399	62	455 BALTIC STREET	M1-2	X		X	I		E-Designation*
H	a	405	24	478 BALTIC STREET	M1-2			X			E-Designation†
J	a	406	25	534 BALTIC STREET	M1-2	X	X	X	A, I, SP, Tk		E-Designation*
	b	406	27	538 BALTIC STREET	M1-2						
	c	406	50	156 3 AVENUE	M1-2						
	d	406	52	158 3 AVENUE	M1-2						
	e	406	69	291 BUTLER STREET	M1-2						
	f	406	71	295 BUTLER STREET	M1-2						
K	a	406	18	526 BALTIC STREET	M1-2	X	X	X	I		E-Designation*
L	a	407	41	345 BUTLER STREET	M1-2	X	X	X	I, Tk		E-Designation*
	a	407	41	345 BUTLER STREET	M1-2						
M	a	407	1	159 3 AVENUE	M1-2		X	X	SP, Tk,A, RCRA		E-Designation*
N	aa	407	52	313 BUTLER STREET	M1-2	X	X	X	RCA, I, A		E-Designation*
	ab	407	52	313 BUTLER STREET	M1-2						
O	a	411	1	241 BOND STREET	M1-2			X			

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

Site Number	Site Lot	Block	Lot	Address	Zoning	On-site Sanborn Maps/City Directories Concerns	On-Site Database Listings	Concerns within 400-foot radius	On-site Environmental Concern (Historical and/or Current)	Site Visit Findings (To Come)	E-DESIGNATION Recommendation
	b	411	2	241 BOND STREET	M1-2						E-Designation†
	c	411	3	241 BOND STREET	M1-2						
P	a	411	58	195 DOUGLASS STREET	M2-1	X	X	X	RCRA, SP, I		E-Designation*
	b	411	60	191 DOUGLASS STREET	M2-1						
Q	a	412	21	264 BUTLER STREET	M1-2	X	X	X	A, I		E-Designation*
R	a	412	29	172 3 AVENUE	M1-2		X	X	A, RCRA		E-Designation*
S	a	413	21	314 BUTLER STREET	M1-2	X	X	X	FS, RCRA		E-Designation*
T	a	413	58	305 DOUGLASS STREET	M1-2	X		X	I		E-Designation*
U	a	420	1	575 DE GRAW STREET	M1-2	X	X	X	I, SP, Tk, RCRA		E-Designation*
V	a	980	19	254 3 STREET	C8-2	X		X	I		E-Designation*
W	a	425	1	270 NEVINS STREET	M2-1	X	X	X	I, SP, Tk, RCRA		E-Designation‡‡
	b	432	15	525 UNION STREET	M2-1						
X	a	426	36	224 3 AVENUE	M1-2	X	X	X	A, SP		E-Designation*
	ba	426	41	573 SACKETT STREET	M1-2						
	bb	426	41	573 SACKETT STREET	M1-2						
Y	a	427	12	600 DE GRAW STREET	M1-2	X		X	I		E-Designation*
	b	427	15	608 DE GRAW STREET	M1-2						
Z	a	427	37	184 4 AVENUE	M1-2			X			E-Designation†
	b	427	38	188 4 AVENUE	M1-2						
	c	427	40	190 4 AVENUE	M1-2						
AA	a	427	21	620 DE GRAW STREET	M1-2	X	X	X	I, SP, Tk		E-Designation*
AB	a	427	31	638 DE GRAW STREET	M1-2	X	X	X	A, SP		E-Designation*
AC	a	427	42	194 4 AVENUE	M1-2	X	X	X	I, SP		E-Designation*
AD	a	427	52	623 SACKETT STREET	M1-2	X		X	A, I		E-Designation*
AE	a	431	2	303 BOND STREET	M2-1	X		X	A		E-Designation*
AF	a	432	25	179 4 AVENUE	M2-1	X	X	X	I, RCRA		E-Designation*
AG	a	432	7501	543 UNION STREET	M2-1	X	X	X	I, M, Tk		E-Designation*
AH	a	433	8	289 NEVINS STREET	M1-2	X	X	X	A, I, SP		E-Designation*
	b	433	9	287 NEVINS STREET	M1-2						
	c	433	10	285 NEVINS STREET	M1-2						

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

Site Number	Site Lot	Block	Lot	Address	Zoning	On-site Sanborn Maps/City Directories Concerns	On-Site Database Listings	Concerns within 400-foot radius	On-site Environmental Concern (Historical and/or Current)	Site Visit Findings (To Come)	E-DESIGNATION Recommendation
	d	433	12	554 SACKETT STREET	M1-2						
	e	433	13	556 SACKETT STREET	M1-2						
AI	a	453	26	444 CARROLL STREET	M2-1	X		X	A		E-Designation*
AJ	a	433	14	558 SACKETT STREET	M1-2	X	X	X	A, I, Tk		E-Designation*
AK	a	433	21	572 SACKETT STREET	M1-2	X	X	X	M, I		E-Designation*
AL	aa	434	16	625 UNION STREET	M1-2			X			E-Designation†
	ab	434	16	625 UNION STREET	M1-2						
AM	a	434	52	643 UNION STREET	M1-2			X			E-Designation†
AN	a	434	55	637 UNION STREET	M1-2			X			E-Designation†
AO	a	438	7	450 UNION STREET	M2-1	X	X	X	BCP, SP, Tk, RCRA, I		E-Designation‡‡
AP	a	453	31	454 CARROLL STREET	M2-1			X			E-Designation†
AQ	aa	440	21	532 UNION STREET	M1-2	X		X	I, A		E-Designation*
	ab	440	21	532 UNION STREET	M1-2						
	b	440	23	536 UNION STREET	M1-2						
	c	440	24	538 UNION STREET	M1-2						
	d	440	25	540 UNION STREET	M1-2						
	e	440	26	542 UNION STREET	M1-2						
	f	440	47	499 PRESIDENT STREET	M1-2						
	g	440	48	495 PRESIDENT STREET	M1-2						
AR	a	441	21	600 UNION STREET	M1-2			X			E-Designation†
AS	a	441	50	545 PRESIDENT STREET	M1-2	X		X	I		E-Designation*
	b	441	53	543 PRESIDENT STREET	M1-2						
AT	a	441	4	259 3 AVENUE	M1-2	X		X	A		E-Designation*
AU	a	441	11	576 UNION STREET	M1-2	X		X	A, M, I		E-Designation*
AV	a	441	14	584 UNION STREET	M1-2	X	X	X	A, I		E-Designation*
AY	a	447	3	337 NEVINS STREET	M1-2	X	X	X	A, RCRA, SP		E-Designation*
	b	447	4	335 NEVINS STREET	M1-2						
	c	447	7	325 NEVINS STREET	M1-2						
AZ	a	447	13	482 PRESIDENT STREET	M1-2			X			E-Designation†
BA	a	447	22	498 PRESIDENT STREET	M1-2			X			E-Designation†

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

Site Number	Site Lot	Block	Lot	Address	Zoning	On-site Sanborn Maps/City Directories Concerns	On-Site Database Listings	Concerns within 400-foot radius	On-site Environmental Concern (Historical and/or Current)	Site Visit Findings (To Come)	E-DESIGNATION Recommendation
BB	a	447	50	451 CARROLL STREET	M1-2			X			E-Designation†
BC	a	448	12	528 PRESIDENT STREET	M1-2	X	X	X	I, A, Tk		E-Designation*
BE	a	448	34	244 4 AVENUE	M1-2			X			E-Designation†
BF	a	448	31	572 PRESIDENT STREET	M1-2			X			E-Designation†
BG	a	448	52	519 CARROLL STREET	M1-2			X			E-Designation†
	b	448	53	CARROLL STREET	M1-2						
Potential Sites (continued)											
BH	a	958	2	249 4 AVENUE	R8A/C2-4	X	X	X	E-des, A, I		E-Designation E-113‡
BI	a	453	36	466 CARROLL STREET	M2-1	X		X	I		E-Designation*
BJ	aa	453	54	312 3 AVENUE	M2-1	X	X	X	I, A, Tk, RCRA		E-Designation*
	ab	453	54	312 3 AVENUE	M2-1						
BK	a	454	24	18 WHITWELL PLACE	M1-2	X		X	I		E-Designation*
	b	454	25	16 WHITWELL PLACE	M1-2						
	c	454	27	18 WHITWELL PLACE	M1-2						
BL	a	454	33	189 1 STREET	M1-2			X			E-Designation†
	b	454	31	195 1 STREET	M1-2						
BN	a	967	24	300 3 AVENUE	M2-1			X			E-Designation†
BO	a	462	6	132 2 STREET	M2-1	X	X	X	M, Tk, I		E-Designation*
	b	462	8	134 2 STREET	M2-1						
	c	462	9	140 2 STREET	M2-1						
	d	462	42	137 3 STREET	M2-1						
	e	462	44	135 3 STREET	M2-1						
	f	462	50	123 3 STREET	M2-1						
BQ	a	465	1	61 4 STREET	M1-1	X		X	I		E-Designation*
	b	465	10	4 STREET	M1-1						
BR	a	468	3	419 SMITH STREET	M1-1			X			E-Designation†
BS	a	471	116	80 4 STREET	M3-1	X		X	M		E-Designation*
BT	aa	980	23	356 4 AVENUE	C8-2	X	X	X	A, I, SP, Tk, CBS, RCRA		E-Designation*
	ab	980	23	356 4 AVENUE	C8-2						
	ba	980	49	362 4 AVENUE	C8-2						
	bb	980	49	362 4 AVENUE	C8-2						

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

Site Number	Site Lot	Block	Lot	Address	Zoning	On-site Sanborn Maps/City Directories Concerns	On-Site Database Listings	Concerns within 400-foot radius	On-site Environmental Concern (Historical and/or Current)	Site Visit Findings (To Come)	E-DESIGNATION Recommendation
BU	a	992	5	411 3 AVENUE	C8-2	X		X	M, A, I		E-Designation*
	b	992	7	407 3 AVENUE	C8-2						
Potential Sites (continued)											
BV	aa	992	1	415 3 AVENUE	C8-2	X		X	A		E-Designation*
	ab	992	1	415 3 AVENUE	C8-2						
BY	a	1040	46	542 4 AVENUE	R8A/C2-4			X			E-Designation†
	b	1040	47	544 4 AVENUE	R8A/C2-4						
BZ	a	949	7	179 4 AVENUE	R8A/C2-4	X		X	I		E-Designation*
	b	949	8	179A 4 AVENUE	R8A/C2-4						

Notes:
On-Site Concerns (historical and/or current):NPL=National Priorities List, MGP=Manufactured Gas Plant, FS=Filling Station, CBS=Chemcial Bulk Storgae, A=Automotive repair/service, Tk=Tank(s), M=Manufacturing, I=Industrial, SP=Spill, E-des=Existing E-designation, RCRA=Resource Conservation & Recovery Act, FTTS=FIFRA/TSCA Tracking System, BCP=NYSDEC Brownfield Cleanup Program, FP/VP=Suspect Fuel Oil Fill Port/Vent Pipe, MW=Suspect Monitor Well, Fire Sta=Fire Station

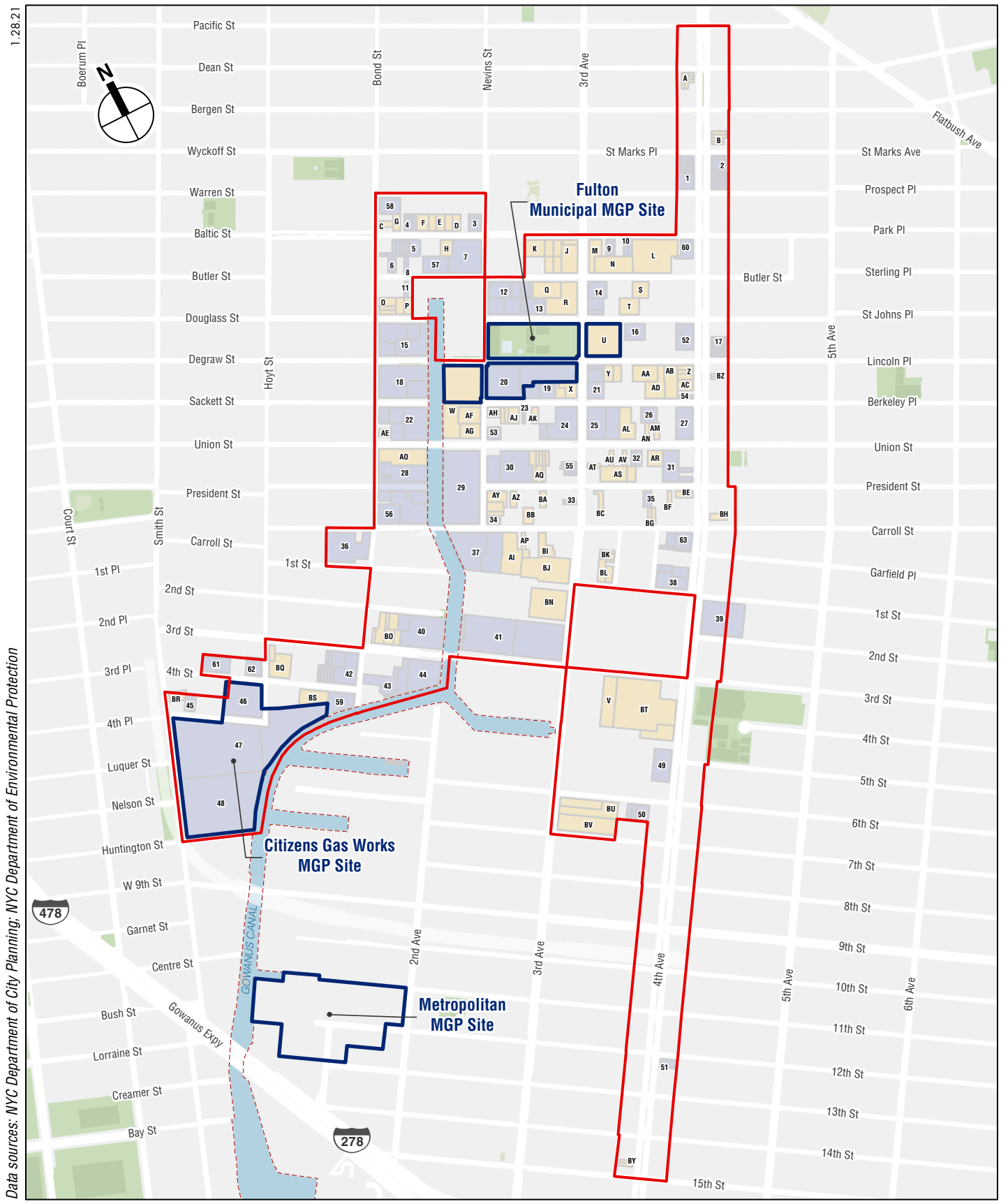
* Indicates environmental concern identified on-site
† Indicates environmental concern identified within 400 feet
‡ Indicates existing hazardous materials e-designation
** Indicates environmental concern related former MGP site
†† Indicates environmental concern related to the BCP and/or VCP Sites
‡‡ Indicates environmental concern related to frontage along Gowanus Canal Superfund Site

GOWANUS CANAL/SUPERFUND AREA HISTORY

As described in Chapter 1, "Project Description," the Gowanus Canal was created in the 1860s to facilitate the industrial development of the area. It quickly became one of the nation's busiest industrial waterways, serving three MGPs, coal yards, cement manufacturers, tanneries, paint and ink factories, machine shops, chemical plants, oil refineries, etc. Many of these facilities, including those adjoining the Canal and others farther away, likely intentionally or unintentionally discharged to the Canal through sewer/discharge piping or overland/underground flows, contributing to contamination of the Canal's sediments and the associated water quality impacts.

In 2010, EPA placed the Canal on its National Priorities List (NPL) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, commonly referred to as Superfund), with the goal of remediating constituents of concern (certain hazardous substances) in sediments that were deposited over the Canal's long history. In September 2013, the EPA issued a Record of Decision (ROD) identifying actions to be undertaken by various parties to remediate contamination in the Canal. These actions include the dredging of approximately 307,000 cubic yards of highly contaminated sediment and 281,000 cubic yards of less contaminated sediment. A multi-layer cap (i.e., treatment layer, isolation layer, and armor layer) will be placed over dredged portions of the Canal. Another element of the ROD is the mandate for the design and construction of two CSO facilities known as the Head End Facility and the Owls Head Facility, to reduce the frequency and severity of CSO events. However, even with these future improvements some CSO events could still occur (as they do and will at many other locations around the New York Harbor). Although the Proposed Actions would result in additional population in the vicinity of the Canal, given that the Canal is not (and would not in the future be anticipated to be) used as a source of drinking water or as a location of primary contact recreation, there is no route of human exposure that would be anticipated to cause significant adverse impacts associated with CSO events.

According to the ROD, contaminants from upland sources along the Canal, including the three MGPs (Fulton Municipal Works, Citizens Gas Works, and the Metropolitan Works), have travelled to the Canal primarily by the migration of NAPL through soil and groundwater and by discharge of dissolved-phase contaminants. Although the MGP sites discontinued operations many decades ago, these contaminants continue to migrate into and impact the Canal. The investigation and remediation of these upland sources, including the MGPs, are being or will be addressed pursuant to administrative orders under the jurisdiction of DEC, in coordination with the remediation required under CERCLA. The Block 471 lots comprise a portion of the former Citizens Gas Works (Public Place) MGP Site, as shown in **Figure 10-1**. To the extent that certain projected or potential development sites are known to have subsurface contamination or have the potential for contamination (whether or not it is migrating to the Canal), these are identified and summarized in **Table 10-1**. There is also an overview of the measures that would be incorporated into the Proposed Actions so that redevelopment of these sites would be accomplished in a way that precludes significant adverse impacts related to hazardous materials. In some cases, this would entail remediating a site in advance of construction, but typically remediation of soil and groundwater would be accomplished as a part of construction (e.g., excavation of contaminated soil, dewatering, and, if necessary, treatment of soil and/or groundwater and vapor controls for new structures). In all cases, there would be regulatory oversight of this process: for privately owned sites through some combination of EPA, DEC, and OER. For the sites that are currently publicly owned, the mechanisms discussed below would be similar but different City agencies might be involved.



Gowanus Superfund Sites

GOWANUS NEIGHBORHOOD REZONING AND RELATED ACTIONS

Figure 10-1

HAZARDOUS MATERIALS IMPLICATIONS

As mentioned previously, the study area includes a mix of residential and commercial facilities, with some institutional, educational, and community facility developments as well as interspersed automotive and industrial facilities (some vacant and/or converted to lofts or commercial uses).

Based on the age of the majority of structures on the sites (pre-1970), building materials are likely to include ACM, LBP, and/or PCBs. Some of these buildings have active or historical fuel oil tanks, either underground or aboveground.

Subsurface contamination in the study area is likely to be principally associated with the following:

- Coal-tar and other contamination migrating from former MGP facilities;
- Auto-related, transportation, industrial or utility uses (e.g., garages, filling station, auto repair, substations, and other uses noted in Hazardous Materials Appendix 1 of the *CEQR Technical Manual*); and
- USTs or ASTs.

Table 10-1 summarizes the findings of the hazardous materials evaluation for each of the projected and potential development sites. In the final column, it includes the recommendation to place hazardous materials (E) designations for all privately owned potential and projected sites, as they all could have been adversely affected by current or historical uses onsite, adjacent to, or within 400 feet of the site. In evaluating whether the placement of an (E) designation for hazardous materials was necessary current site conditions and previous on-site uses were prioritized, followed by the adjacent site use history and conditions within 400 feet.

D. THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the future without the Proposed Actions (No Action condition), some of the sites are assumed to remain unchanged from existing conditions whereas others are assumed to become occupied by as-of-right residential and non-residential uses under existing zoning (see Chapter 1, "Project Description"). As discussed in Chapter 2, "Land Use, Zoning and Public Policy," in the future without the Proposed Actions, 31 of the 63 projected development sites are expected to experience as-of-right development in the form of new construction, conversions, or enlargements.

Absent the Proposed Actions, development would occur on potentially contaminated sites with no mechanism in place, such as an (E) designation, to require testing and remediation. Catalyzing redevelopment with the Proposed Actions, including the placement of (E) designations in connection with the amended zoning, is critical to the overall cleanup of the Canal and surrounding upland sites. The (E) designations would require developers and property owners to test and potentially remediate properties proposed for development, which would not occur absent the Proposed Actions.

Canal cleanup under Superfund would be performed with EPA oversight, independent of the Proposed Actions. Although Canal cleanup would consist primarily of removing contaminated sediment, there would need to be upland disturbance at certain (primarily waterfront) sites associated with the Superfund remedy, e.g., repairs or modifications to the existing bulkhead or potential installation of new bulkheads, and replacing outfall pipes. Although any new bulkheads would generally be installed waterward of the existing bulkhead, both repair work and installation work will most likely require subsurface disturbance, e.g., excavation and potentially dewatering

for installation of tie-backs. These activities (similar to the investigation and remediation of upland sources, including the MGPs) would be completed pursuant to administrative orders with DEC oversight and in coordination with the remediation required under CERCLA, as required.

Any redevelopment involving subsurface disturbance could potentially increase pathways for human exposure to any subsurface hazardous materials present. Except for a limited number of sites that are already subject to an (E) designation (or already subject to DEC requirements, primarily those fronting the Canal, such as an administrative order) 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 environmental 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), regulatory requirements (including DEC requirements) would need to be followed. Off-site disposal of excess soil/fill would also need to be conducted in accordance with applicable federal and state requirements.

E. THE FUTURE WITH THE PROPOSED ACTIONS

The development of the Project Area would contain new open space and mixed use residential and non-residential buildings on 63 projected and 70 potential development sites. In the future with the Proposed Actions (the With Action condition), activities facilitated by the Proposed Actions could increase pathways for human exposure. The analysis below considers the projected and potential sites where development is reasonably expected in the future with the Proposed Actions and would have the potential to increase the exposure of people or the environment to hazardous materials. This includes the potential for increased exposure that may be detrimental to the health and safety of workers or the surrounding community during construction, the potential for the transport of contaminated soil, or the potential for increased exposure for future residents or employees of new individual buildings on these sites. The hazardous materials assessment presented herein concludes that each projected and potential development sites has some associated concern regarding environmental conditions. As a result, the proposed zoning map amendments include (E) designations (or other measures comparable to such a designation) for all projected and potential development sites, as discussed below.

By placing (E) designations (E-601), or requiring other comparable measures, on sites where there is a known or suspect environmental concern, the potential for an adverse impact to human health and the environment resulting from the Proposed Actions would be reduced or avoided. Additionally, with the Proposed Actions, there would be cleanup of more sites (as more would be redeveloped than in the No Action condition) and that cleanup would in most cases be more stringent than would be required in the No Action condition, due to the requirements of the (E) designations. These requirements would not only reduce the potential for human exposure as described in the preceding paragraph, but would also serve to reduce the potential for contaminants (beneath the projected and potential development sites) to migrate towards and into the Canal, consistent with EPA's cleanup goal of avoiding recontamination following Canal cleanup.

DEMOLITION/RENOVATION

- 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.

SUBSURFACE DISTURBANCE

- An (E) designation for hazardous materials would be placed on the privately owned projected and potential development sites. This would require (pursuant to Section 11-15 of the New York City Zoning Resolution—Environmental Requirements) that prior to construction, further assessment of each site would be performed. This would start with preparation of a Phase I Environmental Site Assessment (ESA) in accordance with American Society of Testing Materials (ASTM) Standard E1527-13 and would be followed by preparation of a subsurface investigation protocol for review by OER. The scope of the investigation (the Remedial Investigation, or RI) would be determined based upon the findings of the Phase I ESA. Upon approval of the protocol by OER, the investigation (typically including laboratory analysis of soil, groundwater, and soil vapor samples from the site) would be implemented and a report prepared for OER.
- Along with the investigation report, there would also be preparation of a remedial action plan (RAP), setting out 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. This plan would include an environmental construction health and safety plan (CHASP). These plans would address both hazardous materials identified by the RI as well as others that could be encountered during subsurface disturbance. The RAP would also address requirements for items such as: field oversight of soil disturbance by an environmental professional, soil management (including stockpiling, handling, transportation and disposal), dust control and air monitoring, criteria for laboratory testing of any imported soil needed for landscaping, and contingency measures should USTs or soil contamination be encountered. The RAP would outline post-remediation engineering and/or institutional controls, including vapor controls for the new buildings, such as vapor barrier and potentially a sub-slab depressurization system (SSDS). The CHASP would present a hazard assessment for the construction workers and set out the requirements for real-time air monitoring (for respirable dust and VOCs) during subsurface disturbance, to protect both the construction workers and the community. Following construction, occupancy permits would only be issued once OER receives and approves a Remedial Closure Report (RCR), certified by a New York licensed Professional Engineer, that documents the RAP and CHASP were properly implemented.

- For the City-owned site on Block 471, Lots 1 and 100, it is expected that an LDA between the City of New York and the developer would require measures similar to that of an (E) designation. The Block 471 lots comprise a portion of the former Citizens Gas Works (Public Place) MGP Site and are already subject to a variety of requirements under a DEC administrative consent order (remediation is being conducted by National Grid and its contractors). As such, coordination would also be required with DEC for any disturbance on those lots, with continuation of long-term remedial components (via Site Management Plans and periodic reviews, etc.) pursuant to DEC requirements. As part of the land disposition process, the City would ensure that remedial elements are completed per DEC protocol, with additional measures, if required through an RD or other similar mechanism.
- As in the No Action condition, certain waterfront development sites may well require new or upgraded bulkheads or other subsurface work associated with the Superfund remedy for the Canal. This work might, in some cases, be coordinated with redevelopment of that site, but in other cases it would need to be performed before redevelopment. In both cases, coordination between site owners and the various regulatory agencies would be required to ensure the work, whether performed by the site owner or another party, would be conducted in accordance with applicable regulatory requirements and in a manner that it would not present significant adverse impacts related to hazardous materials.
- 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 either New York City Department of Environmental Protection (DEP) permit/approval requirements (for discharge to a combined sewer) or DEC State Pollutant Discharge Elimination System (SPDES) Permit Program, (for discharge directly to the Canal or a storm sewer draining to the Canal). If necessary, appropriate pre-treatment would be conducted prior to discharge.

To ensure the measures related to subsurface disturbance would be implemented, an E designation for hazardous materials would be placed on the New York City Zoning Map for all privately owned sites identified in **Table 10-1** as part of the proposed rezoning. The text of the (E) designation would be as follows:

> **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.

Task 3—If OER determines that no remediation is necessary, written notice shall be given by OER.

Task 4—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

With the implementation of the preventative and remedial measures outlined above and the (E) designation (and comparable binding measures for City-owned sites) to ensure they are implemented, the potential for significant adverse impacts related to hazardous materials, would be avoided. ✷