

A. INTRODUCTION

This chapter describes known existing conditions at the project site relating to the presence of hazardous materials, as identified in a Phase I Environmental Site Assessment (ESA) and Phase II Investigation Reports.

This chapter also discusses the potential presence of and impacts from contaminated materials, both during and following construction, and the specific measures that would be employed to protect public health, workers' safety, and the environment.

PRINCIPAL CONCLUSIONS

Construction at the project site would entail demolition of the existing buildings on the project site, raising the existing elevation by approximately 0 to 6 feet depending on site topography, and subsequent construction of new foundations. Prior to or as part of any new construction at the project site, the project sponsor would undertake the following actions:

- Any drums, chemicals, and remaining equipment would be removed and disposed of off-site in accordance with all applicable regulations.
- Demolition of the existing structures would be in accordance with applicable federal, state and city requirements relating to asbestos, lead paint and disposal of solid waste.
- Any found Underground Storage Tanks (USTs) and existing Aboveground Storage Tanks (ASTs) would be registered with the New York State Department of Environmental Conservation (DEC), then removed in accordance with DEC requirements.
- Any excavated soils and fill materials would be removed from the site and properly disposed of in accordance with all applicable DEC regulations and at an appropriate disposal facility.

All subsurface soil disturbance would be performed in accordance with a Remedial Action Plan (RAP)/Construction Health and Safety Plan (CHASP). The RAP would provide for the appropriate handling, stockpiling, testing, transportation and disposal of these materials in accordance with all applicable federal, state and local regulations. The CHASP would ensure that all such work is done in a manner protective of both human health and the environment. The RAP/CHASP has been submitted to the New York City Department of Environmental Protection (DEP) for review and was approved on January 29, 2009. The remediation will also be approved, and the implementation overseen, by DEC in order to close any active spill numbers. These measures will be implemented in accordance with a DEP-approved Restrictive Declaration for the project site.

With these measures in place, significant adverse impacts related to hazardous materials would be avoided during and post construction.

B. EXISTING CONDITIONS

TOPOGRAPHY AND SUBSURFACE CONDITIONS

The project site is located at approximately 10 feet above mean sea level (based on USGS maps). The property gently slopes downwards about 5 feet to the southeast toward the Gowanus Canal. Groundwater is expected to be shallow (ranging in depth from 1 to 10 feet below grade, dependant on site location and tidal influence) and generally flows towards the canal, but varies tidal cycles. The project site geology includes fill material (from 6 to 17 feet thick) above a layer of clay (from 8 to 15 feet thick).

PROJECT SITE AND AREA HISTORY

Based on a review of historical Sanborn fire insurance maps and previous reports, the project site and surrounding area have over one hundred years of history in manufacturing and industrial uses.

365 Bond Street (Block 458, Lot 1) was occupied by: an oil terminal (ca. 1886 to 1939); a building materials warehouse (ca. 1886 to 1915); a lumber company (ca. 1939); a paper products warehouse (ca. 1915); a lumber company (ca. 1969); and a warehouse (ca. 1977 to 1986). It also historically included dwellings, stores, parking lots, vacant land used for storage, a machine shop, and warehouses. Several large oil tanks associated with a former oil terminal that operated ca. 1886 through ca. 1939 were noted in historical maps. The property is currently occupied by a storage facility and surface truck storage.

363 Bond Street (Block 452, Lot 1) included the following: an asphalt/cement works (ca. 1904); a paint manufacturer (ca. 1915); a garage with two 550-gallon underground storage tanks (USTs) and auto repair shop (ca. 1939); and a radio parts manufacturer and an auto spray pain booth (ca. 1950). The northern portion has been used as a warehouse since ca. 1969. The property is currently occupied by a clothing warehousing facility.

400 Carroll Street (Block 452, Lot 15) has over a 100-year history of manufacturing and industrial uses. The property was previously occupied by an oil terminal (several large tanks were noted on historical maps), an auto salvage yard, a timber yard, and a marine equipment storage yard. The property currently includes a vacant building. Remnants of the secondary containment for three former ASTs for the oil terminal are also still present.

ENVIRONMENTAL DATABASE SEARCH

Toxics Targeting, Inc. of Ithaca, New York, was contracted in February 2008 to obtain information regarding the regulatory status of the property (and the surrounding area per the search radii specified in ASTM E1527-05—the standard for performing Phase I ESAs). This information included databases maintained by the United States Environmental Protection Agency (USEPA) and DEC. None of the off-site listings indicated a high potential to have significantly affected the project site. Three petroleum spills were reported for the project site (Spill numbers 0400876, 0407393 and 0501697) in 2004 and 2005. The spills are designated as “active,” meaning cleanup has not been completed to DEC’s satisfaction.

C. PREVIOUS REPORTS

Based on a review of the previous Phase I ESA and Phase II Investigations for the project site, the following classes of contaminated materials have been identified at the project site:

- *Volatile organic compounds (VOCs)*. There are two principal types of VOCs: aromatic compounds and chlorinated compounds. Aromatic compounds include benzene, toluene, ethylbenzene, and xylene (BTEX) and methyl tertiary butyl ether (MTBE), which are found in petroleum products, especially gasoline. Chlorinated compounds include tetrachloroethene (also known as perchloroethylene, or “perc”) and trichloroethene, which are common ingredients in solvents, degreasers, and cleansers, and in chemicals commonly used in dry cleaners. VOCs present the greatest potential for hazardous material impacts, since they can generate vapors that migrate, as well as contaminate soil and groundwater.
- *Semivolatile organic compounds (SVOCs)*. The most common SVOCs in urban areas are polycyclic aromatic hydrocarbons (PAHs), which are constituents of partially combusted coal or petroleum-derived products, such as coal and fuel oil. PAHs are commonly found in urban fill material, which is known to be present at the project site (and throughout the area). In addition, SVOCs could be associated with the fuel oil tanks currently or formerly located at the project site.
- *Polychlorinated biphenyls (PCBs)*. Commonly used as a dielectric fluid in transformers, some underground high-voltage electric pipelines, and hydraulically operated machinery (e.g., hydraulic lifts), PCBs were also used in manufacturing and industrial applications (e.g., plastic manufacturing).
- *Metals*. Although metals contamination can be associated with smelters, platers, foundries, and metalworks, and found as components in paint, ink, and petroleum products, they are commonly associated with natural background conditions and are frequently present at above background levels in fill material in urban areas.
- *Pesticides, herbicides, and rodenticides*. These are commonly used to control pests/rodents, insects, and vegetation. They can be used both inside buildings and outdoors.
- *Fill materials of unknown origin*. In the past, waste materials, including coal and incinerator ash, demolition debris, and industrial wastes, were commonly used as fill material. Even fill material consisting primarily of soil may exhibit elevated levels of PAHs, metals, and other contaminants. Such materials are present throughout the project site as the area around the Gowanus Canal was originally marshland.

PHASE I ENVIRONMENTAL SITE ASSESSMENT

A previous Phase I ESA was prepared for 365 Bond Street by Environmental Liability Management of New York, LLC (ELM) dated September 30, 2004. It identified the following issues beyond those identified above in the map and database review:

- Chemicals and miscellaneous debris were observed on site. Older fluorescent lights and elevators that might contain PCBs.
- A former 1,080-gallon AST was reportedly removed in 2000. The tank was reportedly located in the paved parking lot area between the five interconnected structures and the two-story structure. Two steel plates of unknown use were also noted in this area.
- A “truck saddle tank containing fuel” and stored drums with evidence of leakage in the paved vacant lot adjacent to the canal.

PHASE II INVESTIGATIONS

Phase II Investigation Reports were prepared by ELM for the project site's three parcels—365 Bond Street, dated October 25, 2004; 400 Carroll Street, dated May 6, 2005; and 365 Bond Street, dated May 31, 2005. The Phase II studies collected and analyzed 59 subsurface soil samples and 17 groundwater samples to investigate the areas/issues of concern. Conclusions included the following:

- Evidence of petroleum contamination (including odors, staining, and elevated photoionization detector [PID] readings indicating the presence of VOCs) throughout the project site. Six inches of floating petroleum was found in one well with a lesser amount in one other well. Both of these wells were located in the sidewalk adjacent to 363 Bond Street.
- Evidence of petroleum contamination appeared limited to the fill material and the clay layer appears to have acted as a barrier, restricting vertical migration of contaminants.
- VOCs and SVOCs, particularly common petroleum constituents, were detected in soil samples throughout the project site above Technical and Administrative Guidance Memorandum 4046 Recommended Soil Cleanup Objectives (RSCOs). It should be noted that the RSCOs are guidelines developed for exposed soils at occupied sites where contact with soils is routine.
- Metals (generally typical of urban fill) were detected above RSCOs (which for metals are based on typical statewide background levels) in all samples.
- Groundwater samples contained a variety of VOCs, SVOCs, pesticides and metals detected at levels slightly above Class GA Standards (i.e., drinking water standards), but below the Class SD standards applicable to the Gowanus Canal. It should be noted that groundwater in Brooklyn is not used as a source of drinking water.

D. FUTURE WITHOUT THE PROPOSED PROJECT

This analysis assumes that without the proposed project, the project site would continue in its current condition and uses. Without the proposed project there would be little or no potential for disturbance of the site's hazardous materials, however, unlike conditions in the future with the proposed project (where remediation would be performed under health and safety plans), there would be little or no remediation of hazardous materials.

E. FUTURE WITH THE PROPOSED PROJECT

Construction at the project site would entail demolition of the existing buildings on the project site raising the existing elevation by approximately 10 feet and subsequent construction of new foundations. Prior to or as part of any new construction at the project site, the project sponsor would undertake the following actions:

- Any drums, chemicals, and remaining equipment would be removed and disposed of off-site in accordance with all applicable regulations.
- Demolition of the existing structures would be in accordance with applicable federal, state and city requirements relating to asbestos, lead paint and disposal of solid waste.

- Any found and existing USTs and ASTs would be registered with DEC, then removed in accordance with DEC requirements.
- Any excavated soils and fill materials would be removed from the site and properly disposed of in accordance with all applicable DEC regulations and at an appropriate disposal facility.

Based on the previous investigations (which include 59 soil samples and 17 groundwater samples), VOCs and SVOCs related to common petroleum constituents are present throughout the project site. Fill material, which is 6 to 17 feet thick has elevated levels of PAHs, metals, PCBs, and other contaminants. As a result of elevated concentrations of VOCs, SVOCs and heavy metals exceeding DEC Guidance Levels, all subsurface disturbance would be performed in accordance with a RAP/CHASP. The RAP would provide for the appropriate handling, stockpiling, testing, transportation and disposal of these materials in accordance with all applicable federal, state and local regulations. The CHASP would ensure that all such work is done in a manner protective of both the community and site workers. The RAP/CHASP has been submitted to DEP for review and was approved on January 29, 2009. The remediation will also be approved, and the implementation overseen, by DEC in order to close any active spill numbers.

The RAP would specify that:

- Any encountered USTs (or drums or other containers) will be removed in accordance with DEC requirements including any necessary registration and spill reporting.
- Any impacted soils (which display petroleum odors and/or staining) that are encountered during the excavation/grading activities will be removed and properly disposed of in accordance with all DEC Regulations.
- If dewatering into NYC storm/sewer drains will occur during the proposed construction, then a DEP Sewer Discharge Criteria should also be completed in any areas where dewatering is expected.
- Upon completion of construction activities, a Closure Report certified by a Professional Engineer or Registered Architect will be submitted to DEP. This report will demonstrate that all remediation activities have been implemented appropriately. At a minimum, the report will include a summary of post-excavation analytical results, soil removal activities, all transportation manifests, soil disposal/recycling certificates, proof of installation of a vapor barrier, and proof of importing clean fill/top soil at any landscaped or grass covered areas (uncapped) at the site.

The CHASP would include:

- Dust control measures such as: fine sprays of water, mist curtains or chemical foams within the excavation area; covering of stockpiled or staged soils; real-time air monitoring for particulates and VOCs.
- Worker training; routine oversight/emergency response procedures; personnel protection standards; and mandatory safety practices and procedures.

As part of the proposed redevelopment of the project site:

- Any areas not covered by buildings or pavement (e.g., unpaved areas in the proposed waterfront esplanade) would be covered with a minimum of two feet of imported clean fill imported from an approved facility/source. A demarcation barrier would be placed to

identify the base of the clean fill cover and the top of the remaining fill material. The clean fill/top soil would be segregated at the source, have qualified environmental personnel collect representative samples at a frequency of one sample for every 250 cubic yards, analyzed the samples for Target Compound List (TCL) VOCs, SVOCs, pesticides/PCBs and TAL metals by a New York State Department of Health Environmental Laboratories Approval Program-certified laboratory, compare to TAGM 4046 Recommended Soil Clean-up Objectives, and receive DEP written approval to use the clean fill/top soil. The clean fill/top soil would not be comprised of any construction and demolition (C&D) debris.

- Excavated soils, which are temporarily stockpiled on-site, would be covered with polyethylene sheeting while disposal options are determined. Additional testing may be required by the disposal/recycling facility. If any petroleum-based impacted soils (which display petroleum odors and/or staining) are encountered during the excavation/grading activities, the impacted soils would be removed and properly disposed of in accordance with all DEC Regulations.
- To avoid the potential for vapor intrusion into the future buildings, a vapor barrier, such as Grace Preprufe® membrane, would be applied to the underside of all foundation slabs. Any penetrations would be sealed with a product such as Grace Bituthene® liquid membrane. The design of the vapor barrier system would be submitted to the DEP for review and approval.

These measures will be implemented in accordance with a DEP-approved Restrictive Declaration (a type of legal of agreement/institutional control) for the project site (see Chapter 1, “Project Description.”). With these measures in place, significant adverse impacts related to hazardous materials would be avoided during and post construction. *