Chapter 9: NATURAL RESOURCES

9.1. Introduction

The *CEQR Technical Manual* defines natural resources to include plants, wildlife and other organisms, the aquatic or terrestrial habitat for such biodiversity, and areas capable of functioning in support of ecological systems fundamental to the City's environmental stability. A natural resources assessment is appropriate when a natural resource is present on or near the project site, or may be affected by a proposed action. The *CEQR Technical Manual* recommends that a natural resources assessment consider species in the context of the surrounding environment, habitat, or ecosystem. No critical or significant resource is identified on the project site, which primarily comprises maintained lawn, driveways, and surface parking areas. However, Old Mill Creek and associated wetlands are located just east of Fountain Avenue. In addition, the project site is located within the Jamaica Bay Watershed, and there are significant and protected natural resources identified in the vicinity of the project site, including Significant Coastal Fish and Wildlife Habitats ("SCFWH") and low salt marshes (considered Significant Natural Communities of New York State). Therefore, given the relationship of the project site to these natural resources, the potential for impacts to natural resources is assessed.

9.2. Principal Conclusions

No natural resources are present on the project site, which comprises maintained lawn, driveways and surface parking areas. In the future without the proposed action, project site conditions are expected to remain unchanged, and conditions of natural resources in the vicinity are anticipated generally to resemble existing conditions. Thus, the proposed action, which is limited to the project site, would not result in direct impacts to natural resources, either during construction or occupancy. Further, as described in this chapter and in Chapter 11, "Water and Sewer Infrastructure," the proposed action would provide for appropriate wastewater and stormwater management. As such, the proposed action would be consistent with applicable federal, state, and City policies with regard to the management of wetlands, water bodies, and natural resources, and the proposed action would not result in significant adverse impacts to any natural resources, including water quality, wetlands, aquatic and terrestrial resources, or threatened, endangered, or special concern species.

9.3. Methodology

APPROACH

As described in Chapter 1, "Project Description," the construction activities and occupancy of the proposed development that would be implemented with the proposed action would be limited to the project site, which is developed with maintained lawn and parking areas and is not known to contain natural resources. Therefore, the natural resources assessment considers the potential impacts that would be expected to result from proposed changes to the project site, including any potential indirect impacts that may result to natural resources off-site, such as the surrounding wetlands, water bodies, and naturalized areas that may provide habitat. The natural resources assessment also considers whether the proposed action would be compliant with applicable federal, state, and City policy pertaining to natural resources in the vicinity of the project site. Because the project site is located within the Jamaica Bay Watershed, a Jamaica Bay Watershed Protection Plan Project Tracking Form has been prepared and is referenced in the natural resources assessment and included in Appendix G.

STUDY AREA AND DATA SOURCES

A study area defined to include the project site and a primary study area comprising the area within 400 feet of the project site (i.e., a study area coterminous with the study area considered in the assessment of land use, zoning and public policy, as described previously in Chapter 2, "Land Use, Zoning, and Public Policy," of this EIS) provides for the opportunity to assess potential indirect impacts off-site, to the extent that the proposed action may be expected to result directly or indirectly to the built and natural environs of the project site. A secondary study area, delineated by a ½-mile radius around the project site, is also utilized to identify natural resources in the vicinity that either are related to applicable federal, state and City policies governing the management of natural resources, or which potentially could be affected by changes occurring at the site (such as changes to surface water run-off, habitat alteration, etc.); specifically, the secondary study area facilitates identification of ecological communities and significant habitat as part of the broader context of ecologically related natural resources, such as floodplains, water resources, and wetlands.

The natural resources assessment includes field investigation and review of publicly available data sources, including United States Geological Survey ("USGS") topographic mapping, United States Department of Agriculture ("USDA") soil surveys, National Wetlands Inventory ("NWI") mapping, New York State Department of Environmental Conservation ("NYSDEC") coastal wetlands mapping, NYSDEC freshwater wetlands mapping, USGS water resource mapping, data from NYSDEC's Environmental Mapper (GIS system), Federal Emergency Management Agency ("FEMA") floodplain mapping, and available aerial photography. In addition, the NYSDEC Natural Heritage Program has been consulted to

request information on known plant and animal species of concern that may potentially be on the project site or in the vicinity.

Field investigations conducted in June 2014, June 2015, and October 2015 confirmed that no natural resources are present on the project site, though as the secondary source data indicate, some natural resources are located within the study area and general vicinity.

REGULATORY CONTEXT

Various federal and state agencies, as well as local agencies, promulgate programs that relate to the management of natural resources, and, as such, provide regulatory context applicable to the assessment of natural resources for the proposed action, as follows:

Federal

- *National Flood Insurance Act of 1968* resulted in the creation of the National Flood Insurance Program ("NFIP"), a program created by Congress that enables property owners in participating communities to purchase insurance protection from the government against losses from flooding. Participation in the NFIP is based on an agreement between local communities and the federal government whereby a community adopts and enforces a floodplain management ordinance to reduce future flood risks to new construction in Special Flood Hazard Areas ("SFHA"), primarily those areas that may be inundated by a 100-year flood.

- Presidential Executive Order 11990, entitled "Protection of Wetlands," requires any projects requiring permits from federal agencies, including the U.S. Army Corps of Engineers, to protect wetlands to the fullest extent possible. This executive order has resulted in the promulgation of both State and Federal regulations governing disturbance to wetlands.

- The *Clean Water Act of 1972* was enacted to restore and maintain the chemical, physical, and biological integrity of the waters of the United States. It regulates point sources of water pollution, such as discharges of municipal sewage, industrial wastewater, and stormwater, and the discharge of dredged or fill material into navigable waters and other waters including wetlands.

- The *Endangered Species Act of 1973* recognizes that endangered species of wildlife and plants are of aesthetic, ecological, educational, historical, recreational, and scientific value to the nation and its people. This Act provides for the protection of critical habitats on which endangered or threatened species depend for survival.

State

- The New York State *Tidal Wetlands Act* (pursuant to ECL Article 25) applies anywhere tidal inundation occurs on a daily, monthly, or intermittent basis. In New York, tidal wetlands occur along the tidal waters of the Hudson River up to the salt line and along the saltwater shore, bays, inlets, canals, and estuaries of Long Island, New York City, and Westchester County. NYSDEC administers the tidal wetlands regulatory program and the mapping of the state's tidal wetlands. A permit is required for almost any activity that would alter wetlands or their buffer zones, otherwise known as "Adjacent Areas" (up to 150 feet inland within New York City).

- The New York State *Freshwater Wetlands Act* (pursuant to ECL Article 24) applies to those non-tidally-influenced wetlands within the State of New York that are identified and mapped by the NYSDEC (generally those wetlands greater than 12.4 acres in size). NYSDEC administers the freshwater wetlands regulatory program and the mapping of the freshwater wetlands in New York. A freshwater wetlands permit is required for almost any activity that would alter freshwater wetlands or their adjacent areas (up to 100 feet inland).

- The *State Pollutant Discharge Elimination System* ("SPDES") was created to regulate discharges to the State's waters to protect and maintain surface and ground water resources. The following activities require SPDES permits: constructing or using an outlet or discharge pipe (point source) that discharges wastewater into surface or ground water of the State; constructing or operating a disposal system (sewage treatment plant); discharge of stormwater; or any industrial activity. Construction activities that disturb one acre or more also must obtain coverage under the SPDES General Permit for Stormwater Discharges from Construction Activity.

- The New York State Department of State ("NYSDOS") Coastal Management Program was developed by the State to implement the *Coastal Zone Management Act* ("CZMA") which created a set of State coastal policies. These policies are intended to guide the development of the State's coastal waterfronts, and certain inland coastal zones. The CZMA allows municipalities to create local coastal plans setting forth policies specific to their communities, called Local Waterfront Revitalization Plans ("LWRPs"). If a project is located in a coastal area and an approval (or permit) is needed from a State agency, the agency must certify that the proposed action is consistent with the State's coastal policies or with an applicable LWRP.

- The Floodplain Management Criteria for State Projects (6 NYCRR 502) require all state agencies to ensure that the use of state lands, and the siting, construction, administration and disposition of state-owned and state-financed projects involving any change to improved or unimproved real estate, are conducted in ways that minimize flood hazards and losses. Projects located within the floodplain are to be designed and constructed to minimize flood damage, and to include adequate drainage to reduce exposure to flood hazards. No project may be undertaken

unless the cumulative effect of the proposed action and existing developments would not cause material flood damage to the existing developments.

- On September 22, 2014, Governor Cuomo signed the Community Risk Resiliency Act ("CRRA") into law. CRRA is intended to ensure that decisions regarding State permits and expenditures consider climate risk, including sea-level rise, and requires NYSDEC to adopt regulations establishing science-based State sea-level rise projections. NYSDEC has proposed to establish 6 NYCRR Part 490, Projected Sea-Level Rise, which will set forth projections in three specified geographic regions, including New York City, for the years 2020, 2050, 2080, and 2100. CRRA requires that implementation guidance be developed by January 1, 2017; although this guidance is not yet available, in recognition of the State policy reflected in the CRRA, this EIS considers available projected 2020 flood zones, developed by the New York City Mayor's Office of Long-Term Planning and Sustainability, on behalf of City University of New York ("CUNY") Institute for Sustainable Cities and the New York Panel on Climate Change.

Local

- New York City's *New Waterfront Revitalization Program* ("WRP") is the City's approved LWRP.
- The New York City Department of Parks and Recreation ("NYCDPR") has implemented the "Forever Wild" Program to protect the City's most ecologically important areas. Through this program, NYCDPR designates "Forever Wild" nature preserves that, as part of the City parks system, typically are available for public enjoyment.

9.4. Existing Conditions

Per the guidance of the *CEQR Technical Manual*, the natural resources assessment considers subsurface and surface conditions on the project site and in the vicinity, including soils and geology, and ground water, as well as the surface conditions that include floodplains and coastal zones, wetlands and habitat.

GEOLOGY

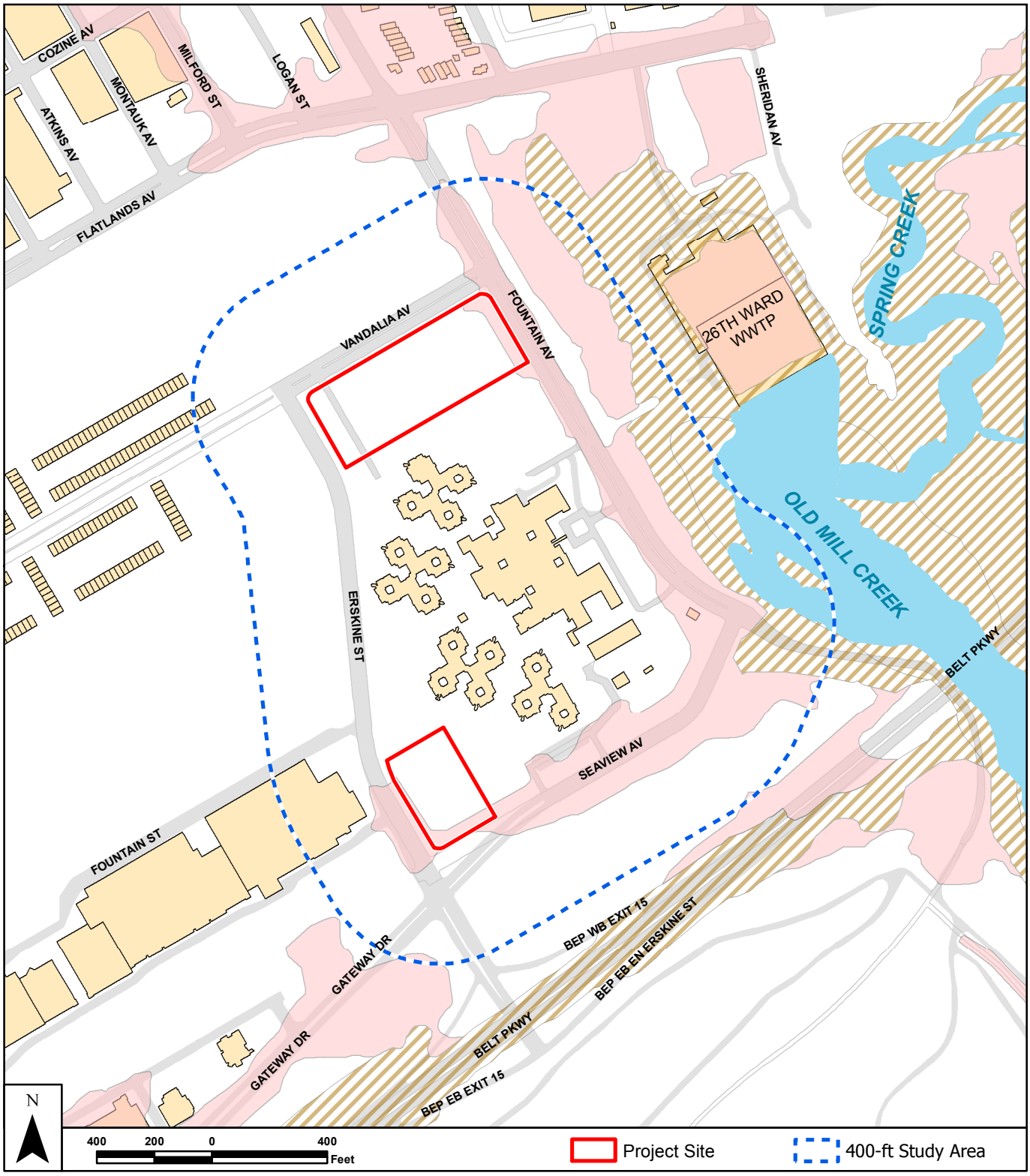
According to the *New York City Reconnaissance Soil Survey Map* published by the New York City Soil and Water Conservation Board, the soil type identified on the project site is "Laguardia-Ebbets-Pavement & Buildings," with wet substratum complex and 0 to 8 percent slopes.

FLOODPLAINS AND COASTAL ZONE

The project site is located outside the designated 100-year flood zone, though the 500-year flood zone is located along the southern and western edges of Parcel A and along the eastern edge of Parcel B. (Please refer to Figure 9-1, "Flood Zones.") According to the *New York City Coastal Boundary Map*, the project site is located within the New York Coastal Zone. (Please refer to Figure 9-2, "Coastal Zone," and the NYSDOS Coastal Assessment Form ("CAF"), prepared as an attachment to the EAF included in Appendix A.)

GROUND WATER AND AQUIFERS

As reported in the Phase II Environmental Site Assessment ("ESA") conducted on the parcels in August 2014 and included in Appendix F, depth to ground water is present at approximately 8 to 12 feet below ground surface at the project site; the quality of the ground water encountered during the Phase II ESA was determined to be typical of ground water resources in urban areas. It is noted that the Brooklyn-Queens Aquifer System, which underlies the project site, is designated by United States Environmental Protection Agency ("USEPA") as a Sole Source Aquifer ("SSA"). (Please refer to Figure 9-3, "Water Resources and Wetlands.") By definition, a SSA is an aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer; however, ground water is not utilized for the potable water supply at the project site or in this part of New York City.



Source: FEMA, Digital Flood Insurance Rate Map Database, City of New York, January 30, 2015.

Figure 9-1

FLOOD ZONES

100-Year Flood Zone
500-Year Flood Zone
Building

Fountain Avenue Land Use Improvement and Residential Project

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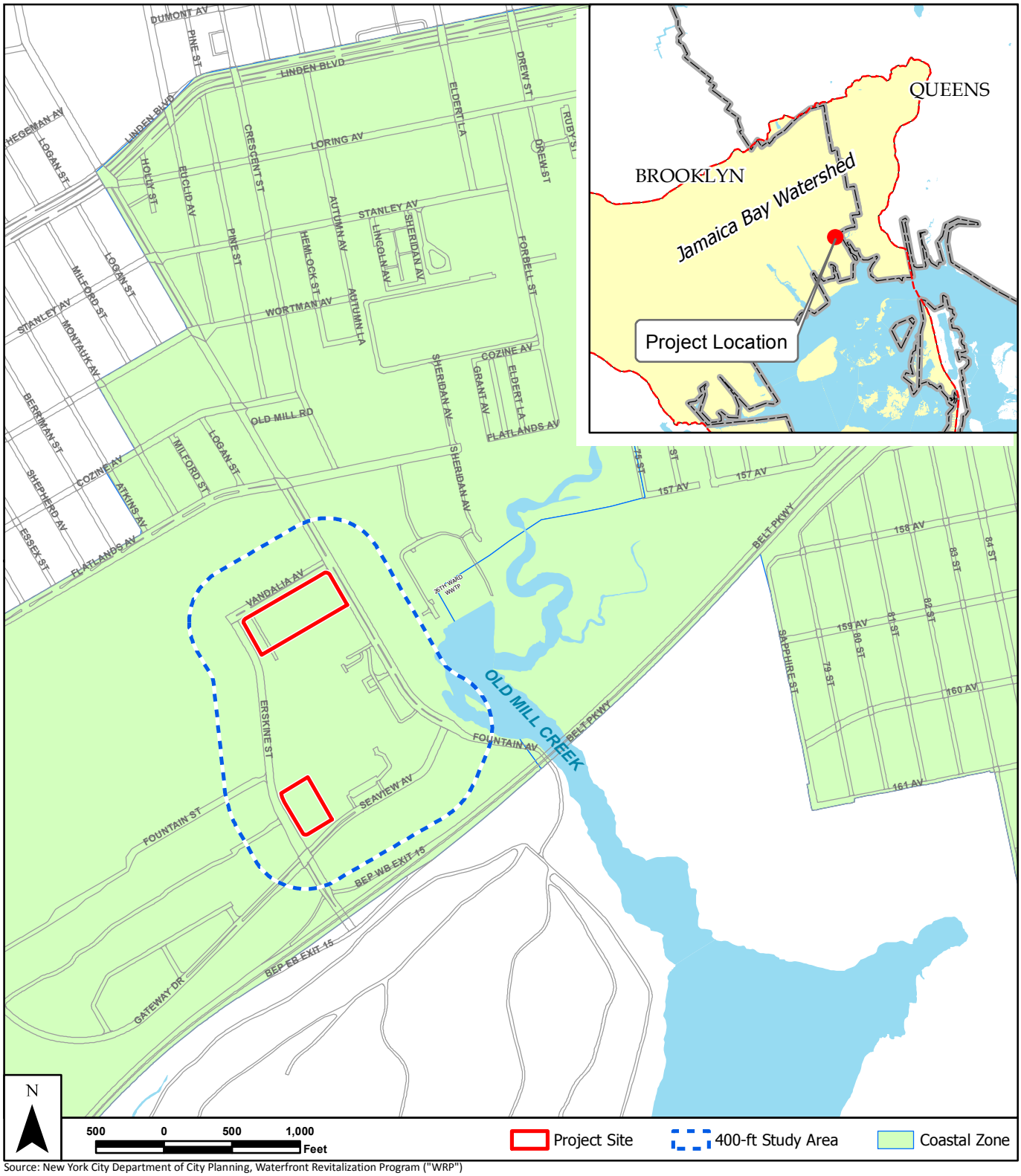

Source: New York City Department of City Planning, Waterfront Revitalization Program ("WRP") Coastal Zone Boundary, September, 2011; U.S Department of Agriculture, Natural Resources Conservation Service, 12 Digit Watershed Boundary Dataset ("WBD"), 2009.

Figure 9-2

COASTAL ZONE

Fountain Avenue Land Use Improvement and Residential Project

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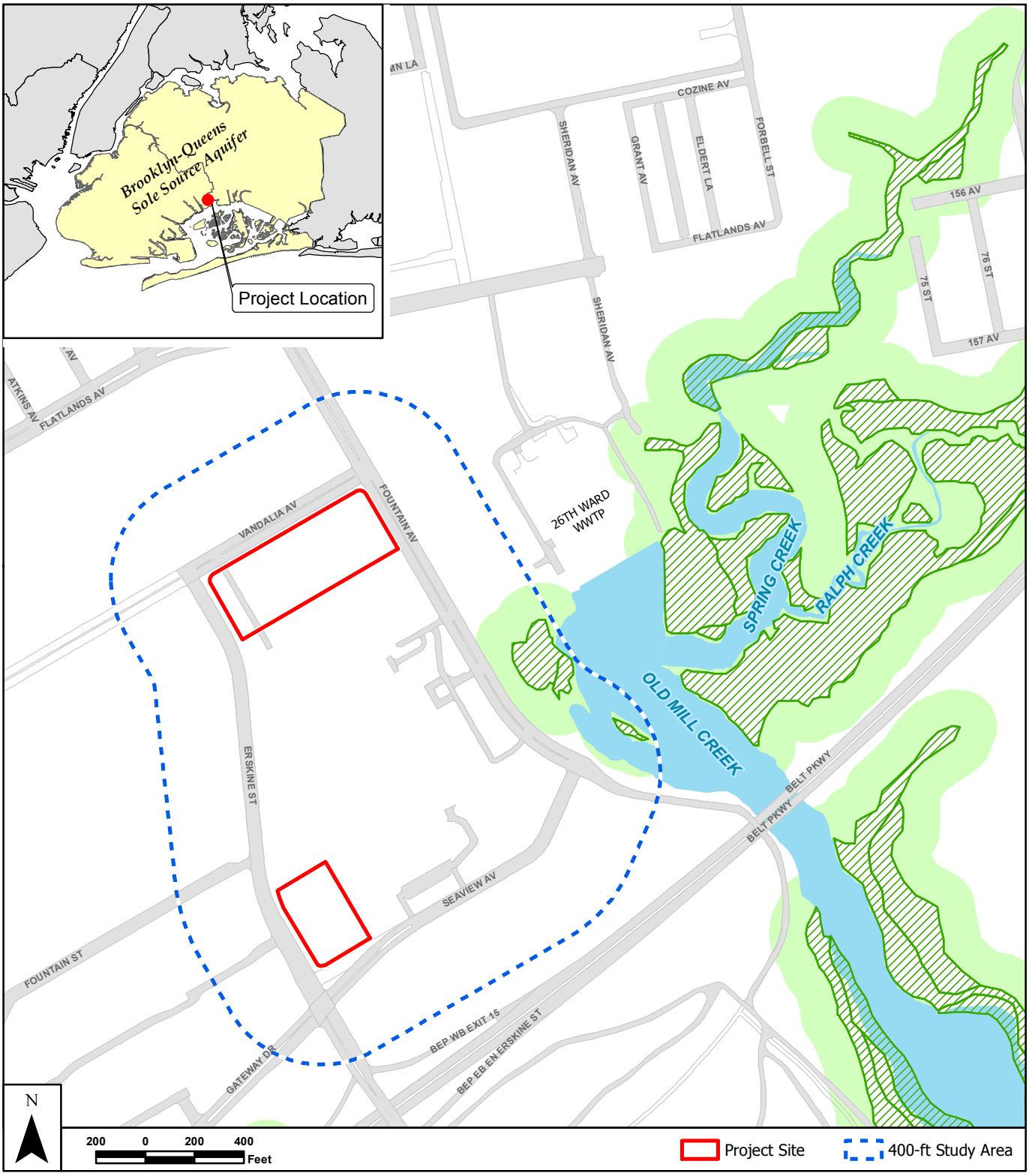

Source: National Wetlands Inventory, 2014; NYSDEC, USEPA, Sole Source Aquifers in New York and New Jersey, 2007.

NWI Wetlands

Maximum Extent of NYSDEC-Regulated Adjacent Area

Figure 9-3

WATER RESOURCES AND WETLANDS

Fountain Avenue Land Use Improvement and Residential Project

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SURFACE WATERS AND WETLANDS

The project site, which is located approximately ½-mile north of the Jamaica Bay shoreline, is located within the Jamaica Bay Watershed. (Please refer to the Jamaica Bay Watershed Protection Plan Project Tracking Form in Appendix G.) However, no surface water body is located on or adjacent to the project site. Old Mill Creek is located within Spring Creek Park east of Fountain Avenue, approximately 1,300 feet east of Parcel A and approximately 700 feet southeast of Parcel B. Old Mill Creek includes a "remnant" portion of historic Betts Creek, much of which has been land-filled but which comprises the water area approximately adjacent to the 26th Ward Waste Water Treatment Plant. Spring Creek and Ralph Creek are tributaries that approach Old Mill Creek from the northeast. (Please refer to previous Figure 9-3, "Water Resources and Wetlands.")

No state- or federally mapped wetlands or "Adjacent Areas" are present on the project site. Field inspection confirms there are no wetland resources present on the project site. However, portions of NYSDEC-mapped and NWI wetlands (in both cases associated with Old Mill Creek and tributaries) are located east of Fountain Avenue, approximately 1,000 feet northeast of Parcel A and approximately 600 feet southeast of Parcel B. (Please refer to previous Figure 9-3, "Water Resources and Wetlands.")

TERRESTRIAL ECOLOGICAL COMMUNITIES AND VEGETATION

Except for the portions of the project site that are paved for parking areas and driveways, and the areas covered by existing temporary structures (Dormitory Authority of the State of New York ("DASNY") building and storage containers), the project site comprises maintained grassy lawn, consisting of red fescue (*Festuca rubra*), crabgrass (*Digitaria sanguinalis*), common dandelion (*Taraxacum officinale*) and white clover (*Trifolium repens*). Observed trees include black locust (*Robinia pseudoacacia*), pin oak (*Quercus palustris*) and red maple (*Acer rubrum*). As such, according to the Ecological Communities of New York State habitat classification, the project site consists of maintained ("mowed") lawn and sparsely planted ornamental trees.

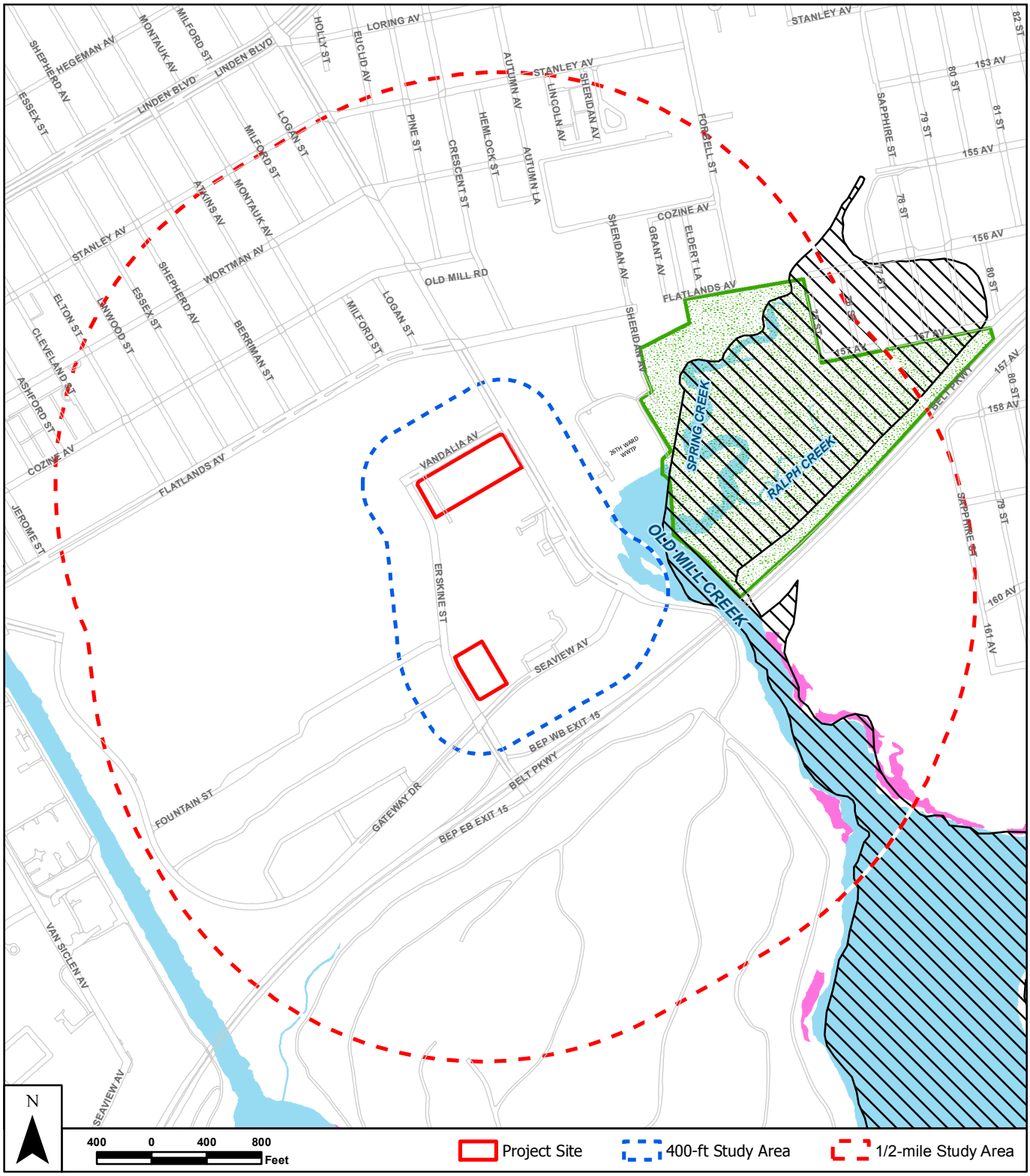
In addition, as described in Chapter 5, "Open Space," there is a portion of Spring Creek Park, east of Old Mill Creek that is designated as "Forever Wild" area by New York City Department of Parks and Recreation ("NYCDPR"). In total, this area, identified as the "Spring Creek Park Preserve," represents the largest undeveloped salt marsh in northern Jamaica Bay, according to NYCDPR. This preserve area, as is the case with all of Spring Creek Park (within which is also located the 26th Ward Waste Water Treatment Plant), is not accessible to the public.

THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES AND SIGNIFICANT HABITAT AREAS

According to the "Federally Listed Endangered and Threatened Species and Candidate Species in New York" database, except for occasional transient individuals, no Federally-listed or proposed endangered or threatened species, or candidate species under United States Fish and Wildlife ("USFWS") jurisdiction, are known to exist in Kings County. Consultation with the NYSDEC Natural Heritage Program indicated that a state-listed species, Short-eared Owl (*Asio flammeus*), has been documented in the vicinity of the project site (approximately 0.2 miles from the project site), and is assumed to be within the large contiguous areas owned and protected by either the NYCDPR or the National Park Service ("NPS") in and around Jamaica Bay. (Please refer to copies of agency correspondence provided in Appendix D.) However, field observation at the project site (June 17, 2014) confirmed that the site does not appear to contain suitable habitat for the Short-eared owl, as suitable habitat is considered to include large grasslands, marshlands, swamps and sand dunes; characteristics not exhibited on the project site. Common bird species identified on the site during field observations included American robin (*Turdus migratorius*), upland sandpiper (*Bartramia longicauda*), and killdeer (*Charadrius vociferus*).

The NYSDEC Natural Heritage Program refers to different types of habitats or ecosystems as "natural ecological communities." The NYSDEC Natural Heritage Program documents only those locations of natural communities where the community type is rare in New York State or, for more common community types, where the community at that location is a high-quality example and meets specific, documented criteria for state significance in terms of size, undisturbed and intact condition, and the quality of the surrounding landscape. These documented natural communities are identified by NYSDEC as "Significant Natural Communities of New York State," and may include areas of rare or high-quality wetlands, forests, grasslands, ponds, streams, and other types of habitats, ecosystems, and ecological areas. No Significant Natural Communities are identified on or immediately adjacent to the project site, though "Low Salt Marsh" (one type of Significant Natural Community) is present within several locations approximately 2,000 feet southeast of the site, along the Old Mill Creek shoreline adjacent to Jamaica Bay. (Please refer to Figure 9-4, "Ecological Communities and Significant Habitat.")

In addition, SCFWH are mapped by NYSDOS Office of Planning and Development. To designate a SCFWH, NYSDEC evaluates the significance of coastal fish and wildlife habitat areas, and following a recommendation from NYSDEC, NYSDOS designates and maps specific areas as SCFWH. One SCFWH is located in the vicinity of the project site, comprising much of Old Mill Creek, as well as its tributaries, Spring Creek and Ralph Creek, to the northeast, and the wetlands surrounding them, approximating the delineation of the "Forever Wild" Spring Creek Park Preserve, discussed previously.



Source: NYS Department of State, Division of Coastal Resources, Significant Coastal Fish and Wildlife Habitats - 2.0, 1998; New York City Department of Parks and Recreation, Forever Wild, February 2008; New York State Department of Environmental Conservation,New York Natural Heritage Program, Significant Natural Community Occurrences - Long Island & NYC - KML/KMZ Format, 2011.

Jamaica Bay Significant Coastal Fish and Wildlife Habitat
New York City "Forever Wild" Preserve
Significant Natural Community of New York State (Low Salt Marsh)

Figure 9-4

ECOLOGICAL COMMUNITIES AND SIGNIFICANT HABITAT

Fountain Avenue Land Use Improvement and Residential Project

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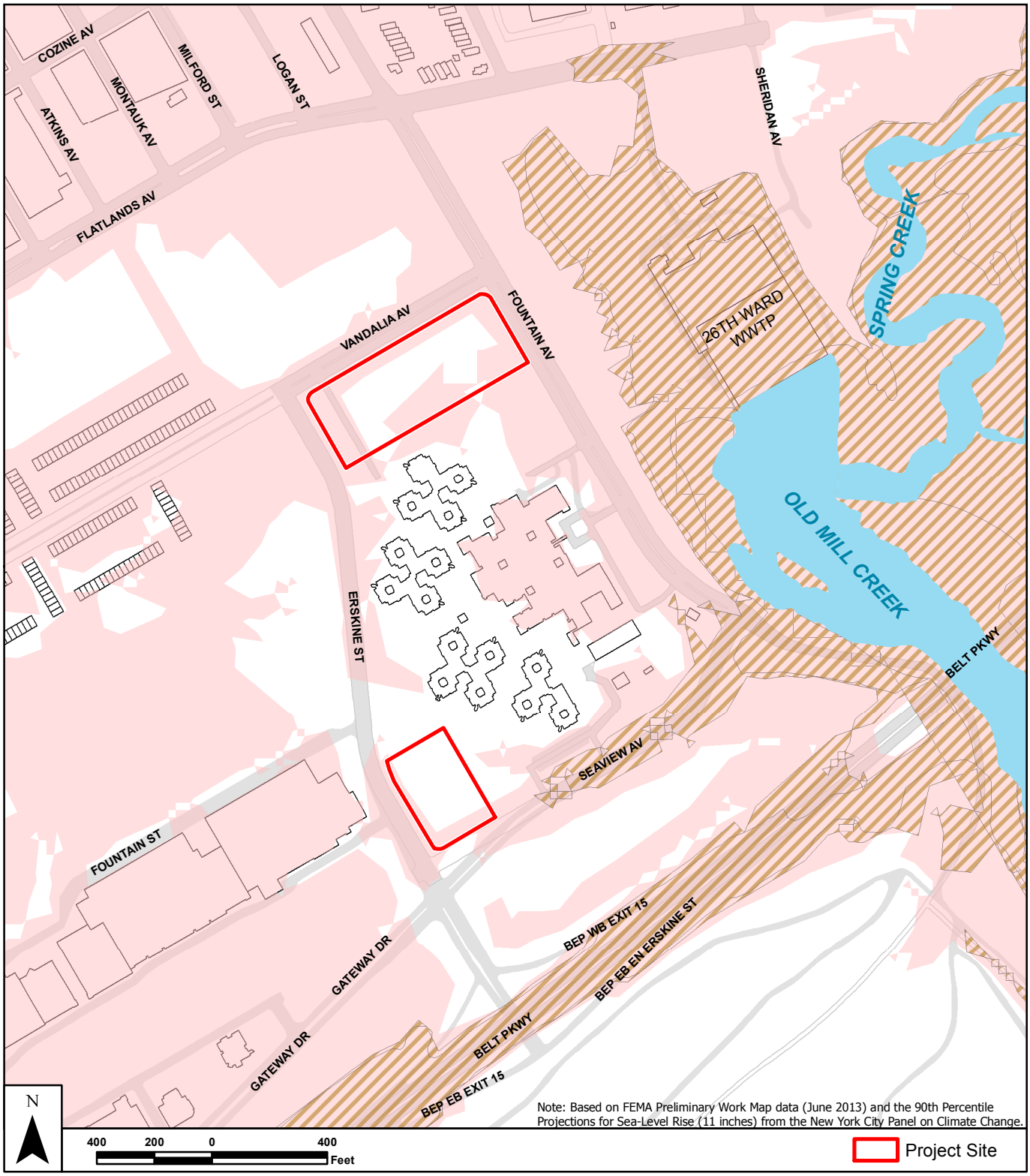
9.5. The Future Without the Proposed Action ("No Action" Conditions)

In the future without the proposed action, the conditions of the project site are anticipated generally to resemble existing conditions. It is assumed the Office for People with Developmental Disabilities ("OPWDD") would continue to maintain the lawn area of parcels A and B, and therefore, no change in vegetation, wildlife, soils, water resources, floodplains or coastal zones would be expected on the project site.

Further, as described in Chapter 2, "Land Use, Zoning, and Public Policy," no substantial new development is anticipated in the vicinity of the project site except for the completion of the Gateway Estates development to the north and west, which is currently under construction. It is noted that new parks are planned as part of the Gateway Estates development (please refer to Chapter 5, "Open Space"), but these new open space areas are expected to be maintained as urban parks typical of the City and therefore would not represent the introduction of new habitat for plant or animal species of concern. Further, the conditions of the neighboring Spring Creek Park (including Spring Creek Park Preserve) to the east and to the south of the project site, as well as the overall conditions of the surrounding wetlands and water bodies are also anticipated to resemble existing conditions in the future without the proposed action.

Although NYSDEC guidance for implementation of CRRA is not currently available for assessment of the potential for sea level rise to affect the proposed action, the New York City Mayor's Office of Long-Term Planning and Sustainability, on behalf of CUNY Institute for Sustainable Cities and the New York City Panel on Climate Change, has developed projected 2020 and 2050 flood zones mapping. As shown on Figure 9-5, "Projected 2020 Flood Zones," and Figure 9-6, "Project 2050 Flood Zones," the project site is expected to include some areas designated as 500-year flood zones on both parcels A and B. Based on these flood zone projections, the project site would be expected to include more area mapped as 500-year flood zone in the future without the proposed action (2028) then under existing conditions. As shown on Figure 9-6, the southwestern corner of Parcel A also is expected to include some area mapped as 100-year flood zone in 2050.

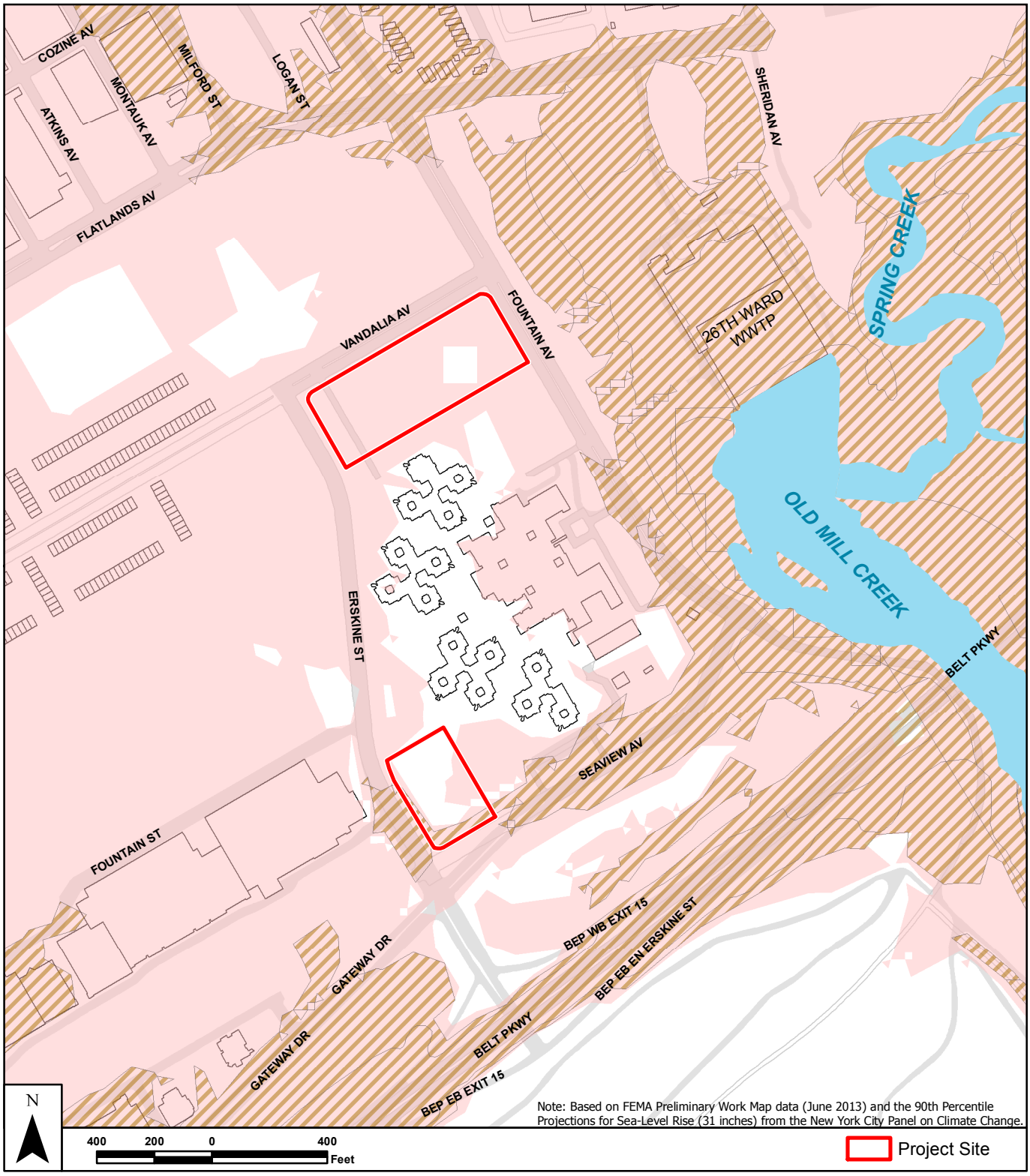


Source: New York City, the Mayor's Office of Long-Term Planning and Sustainability ("OLTPS") on behalf of CUNY Institute for Sustainable Cities ("CISC") and the New York City Panel on Climate Change ("NPCC"), NYC OpenData, Sea Level Rise Maps, downloaded January 2016.

Figure 9-5

PROJECTED 2020 FLOOD ZONES

- Projected 2020 100-Year Flood Zone
- Projected 2020 500-Year Flood Zone
- Building



Source: New York City, the Mayor's Office of Long-Term Planning and Sustainability ("OLTPS") on behalf of CUNY Institute for Sustainable Cities ("CISC") and the New York City Panel on Climate Change ("NPCC"), NYC OpenData, Sea Level Rise Maps, downloaded January 2016.

Figure 9-6

PROJECTED 2050 FLOOD ZONES

Projected 2050 100-Year Flood Zone
Projected 2050 500-Year Flood Zone
Building

Fountain Avenue Land Use Improvement and Residential Project

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9.6. The Future With the Proposed Action ("With Action" Conditions)

The proposed action would be consistent with the laws and regulations applicable to consideration of natural resources on the project site and in study area. A portion of the project site is located within the 500-year flood zone that was established by FEMA and is currently in effect, though there are no special building requirements associated with development in this flood zone. Per the NYSDOS CAF prepared for the proposed action (included as an attachment to the EAF, which is provided in Appendix A), the proposed action would be consistent with the NYSDOS Coastal Management Program and CZMA. As reported in Chapter 2, "Land Use, Zoning, and Public Policy," the proposed action would be consistent with the New York City WRP. Therefore, the proposed action would be consistent with applicable coastal zone management policy and would not result in significant adverse impacts with regard to flood plains or coastal zone management.

As described in Chapter 11, "Water and Sewer Infrastructure," and Chapter 12, "Solid Waste and Sanitation Services," the proposed action would ensure the appropriate management of solid waste and sanitary waste water generated by the proposed action, and storm water would be appropriately managed on-site and as part of the separate sewerage system (e.g., separate waste water and storm water sewers) serving the project site and surrounding area. Therefore, the completed development, once occupied, would not result in significant adverse impacts to ground water (e.g., the Brooklyn-Queens Sole Source Aquifer) or to nearby surface water bodies including Old Mill Creek and its tributaries, and associated wetlands. Moreover, as demonstrated in the completed Jamaica Bay Watershed Protection Plan Project Tracking Form, included as Appendix G, the proposed action would not result in significant adverse impacts to the Jamaica Bay Watershed, nor would the proposed action result in significant adverse impacts to the associated water quality and aquatic biota, either during construction or during operation.

As described in Chapter 20, "Construction," the proposed action's construction activities would disturb more than one acre, and therefore would need to meet standards for coverage under the SPDES General Permit. This would also involve the preparation of a Stormwater Pollution Prevention Plan ("SWPPP"), which would typically include a description and detail of 1) the erosion and sediment control measures during construction; 2) post-construction stormwater management strategies; and 3) periodic certifications, inspections and reporting (if required). With these measures in place, no significant adverse impacts to wetlands or water resources are anticipated during or following construction.

As described in Chapter 1, "Project Description," and discussed in Chapter 16, "Greenhouse Gas Emissions," the proposed action would entail new construction designed with consideration given to

potential climate change. For example, although the project site is not located within a federally regulated flood hazard area, it is located partly within the 500-year flood plain and in a coastal zone; therefore, with consideration given to potential sea-level rise that may be associated with potential climate change in the future, residential areas of buildings would be placed at the second-story and above, with commercial space and parking on the ground floors of buildings, some building mechanical systems, including boiler rooms, would be located at the building rooftop. The proposed action would also include on-site solar- and/or wind-power generation technology.

Finally, there is no natural resource present on the project site, and no direct effect to natural resources would be expected with the proposed action, which as described in Chapter 1, "Project Description," would be limited to the project site. The Restrictive Declaration would require that vegetation introduced as part of the proposed action would be limited to non-invasive species of plants, thereby limiting the potential for the proposed action to introduce plant species that could interfere with ecological systems in the vicinity of the project site. Further, given that the proposed action would not result in any significant adverse impacts to water quality, surface water bodies, or wetlands, either during construction or operation, the proposed action would not result in significant adverse impacts to habitat areas related to water bodies and wetlands, including the Low Salt Marsh ("Significant Natural Communities"), the Spring Creek Park Preserve ("Forever Wild" area), or the Jamaica Bay SCFWH of Old Mill Creek and its environs. As such, the proposed action would not result in significant adverse impacts on plant and animal species of concern, significant habitats, or ecologically related areas, and therefore would not result in significant adverse impacts to natural resources; no further analysis of natural resources is warranted.

In consideration of the current and projected conditions of the project site, developed in accordance with the proposed action, with regard to sea level rise and climate change, it is noted that some portions of the project site may be subject to temporary flooding. As shown on Figure 9-1, "Flood Zones," small portions of parcels A and B are currently mapped within the 500-year flood zone. In the future, as shown on Figure 9-5, "Projected 2020 Flood Zones," and Figure 9-6, "Project 2050 Flood Zones," the project site is expected to include some additional areas designated as 500-year flood zones on both parcels A and B. In addition, as shown on Figure 9-6, the southwestern corner of Parcel A also is expected to include some area mapped as 100-year flood zone in 2050.

The 100-year flood event has a higher risk of occurring than the 500-year flood event. A 100-year flood event may be defined as a flood event that has a one percent chance of occurring in any given year; that is not to preclude more than one such flood from actually occurring in a single century, however, but is instead a calculation based on data of known historical occurrences. By comparison, the 500-year flood event may be defined as a flood event that has a 0.2 percent chance of occurring in any given year, based on data of known historical occurrences, though more than a single 500-year flood event could potentially occur within a 500-year period.

The proposed action would introduce development on the project site that is consistent with current building code requirements with regard to floodplains. Although buildings have been designed for the most part outside of existing or projected 100-year flood zones, there would be increased potential for flooding to occur in the future on the project site either with the 100-year flood event or with the 500-year flood event.

Based on current flood zone mapping (see previous Figure 9-1, "Flood Zones"), all Parcel A buildings and the eastern building group on Parcel B, may be affected by rising flood waters in a 500-year event. The lateral expanse of the 500-year flood zone is projected to increase to include all buildings as of 2020; therefore, all proposed action buildings would be at risk of flood damage during a 500-year flood. Based on 2050 projections of flood zones, the 500-year flood zone is expected to increase to cover more portions of the project site but, as all buildings would be affected as of 2020 projections, the increased expanse would not represent substantial new flooding risk. However, the 2050 flood zone projections indicate that the 100-year flood zone would extend into portions of Parcel A buildings, including the below grade parking area, thereby representing a greater risk of flood occurrence (greater risk of higher flood frequency) on Parcel A.

In all such cases, whether a 100-year flood event or a 500-year flood event, the risk of potential flooding damage to the affected buildings that could result from rising flood waters would be limited to non-residential components of the project site. As described in Chapter 1, "Project Description," no residential uses would be located on the first floor; the proposed action would include only commercial uses and parking on the ground floors of residential buildings (with some below-grade parking on Parcel A), and some of the critical mechanical equipment (in particular, boilers) would be located at the rooftop rather than below grade.

Potential flood damage on the project site with the proposed action would likely comprise damage to the commercial space and business inventories in any affected building. Also, at the ground-level in flood zones would be the public outdoor public space (Schroeders Walk); this public open space introduced with the proposed action would also experience flood damage (in a 500-year flood event), including damage to hardscape and to vegetation. However, the design of the open space would allow for flood waters to flow through, and to recede in natural course.

Flood damage would also potentially occur within the cellar levels of buildings affected by a particular flood event, as well as within the below-grade parking on Parcel A in any flood event at the project site. Although, the below grade parking area would be constructed with waterproof material suitable for its location and the existing depth to ground water, the below grade parking area would not be enclosed and would flood as a result of surface water flow (descending from street grade) during a flood event. The cellar areas of buildings would not be protected with flood-proof sealing at doors and other openings, as part of the proposed action, given currently applicable NYCDOB regulations; short-term flood protection measures such as sand bags may also be implemented prior to flood events to minimize

effects. Some additional protection of below-grade areas, through sealing of openings specifically to protect against flood water, may be incorporated into the buildings at a later date if flood risk increases as projected.

In addition, garbage compactor rooms (temporary waste storage areas for the buildings) would likely experience damage, though the residential waste located in these areas would be expected to remain substantially contained within the compactor areas during temporary flooding events. Other building features that may be vulnerable to temporary flooding may include some building electrical systems (with points of connection to the existing below-grade power grid), but the design and construction of the buildings would not preclude the potential for future improvements to safeguard electrical systems through flood protection measures, such as encasement of vulnerable electrical system components at points of grid connection and elsewhere within flood-prone areas. Without such future improvements in place, however, the buildings constructed as part of the proposed action would likely experience short-term loss of electrical service in all parts of the buildings, including the residential areas not directly damaged by flood waters.

In summary, the vulnerability to flood damage on the project site is expected to increase in the future, based on existing flood zone mapping and available projections. However, the vulnerability of the buildings constructed on the project site would be limited to non-residential components of the buildings during the particular flood event, as described above, and additional flood-protection measures are not precluded from future incorporation that could limit these vulnerabilities. As such, the proposed action would be consistent with Floodplain Management Criteria for State Projects (6 NYCRR 502), as it would be designed and constructed to minimize flood damage, and to include adequate drainage to reduce exposure to flood hazards, even assuming that flood zones change in the future as the result of sea level rise.

Therefore, the proposed action would not result in any significant adverse impacts related to natural resources, and it would be consistent with all applicable policy related to natural resources.