

A. INTRODUCTION

This chapter examines the proposed project's potential impacts on aquatic, palustrine, and terrestrial natural resources located in northwest Staten Island. According to the *CEQR Technical Manual*, a natural resource is defined as a plant or animal species and any area capable of providing habitat for plant and animal species or capable of functioning to support environmental systems and maintain the City's environmental balance. Such resources include surface and groundwater, wetlands, dunes and beaches, grasslands, woodlands, landscaped areas, gardens, and build structures used by wildlife. An assessment of natural resources is appropriate if a natural resource exists on or near the site of the proposed action, or if an action involves disturbance of that resource. As described in greater detail in Chapter 1, "Project Description," the proposed project is a retail development consisting of two one-story retail buildings, a one-story retail building with three uses, a gas station, an automated bank teller, a stormwater management area and enhanced and preserved natural areas. An assessment of natural resources is necessary, as the project site contains natural resources and the development of the project site involves the disturbance of natural resources. Natural resources located on the project site include, but are not limited to, water resources (water bodies and groundwater), wetland resources (freshwater wetlands, tidal wetlands, and surface water hydrology), upland resources (ecological communities), and significant, sensitive, or designated resources. The chapter describes:

- The regulatory programs that protect wetlands, wildlife, threatened or endangered species, aquatic, and terrestrial resources, or other natural resources within the project site;
- The current condition of the natural resources within the project site, including groundwater, floodplain, aquatic resources, wetlands, terrestrial resources, significant, sensitive, and designated resources, and threatened or endangered species and species of special concern;
- The groundwater, floodplain, aquatic resources, wetlands, terrestrial resources, significant, sensitive, and designated resources, and threatened or endangered species and species of special concern in the future under the No Action condition;
- The potential impacts of the proposed project on the groundwater, floodplains, aquatic resources, wetlands, terrestrial resources, significant, sensitive, and designated resources, and threatened or endangered species and species of special concern (the With Action condition); and
- The measures that would be developed, as necessary, to mitigate and/or reduce any of the proposed project's potential significant adverse impacts on natural resources.

PRINCIPAL CONCLUSIONS

As detailed in this chapter, the surface water quality, groundwater quality, and aquatic biota conditions within and near the proposed project would essentially remain unchanged. Wetlands,

South Avenue Retail Development

floodplains, and terrestrial natural resources would be impacted to the same extent in both the No Action and With Action conditions, as they both entail site disturbance of the same development area. However, the applicant believes proper stormwater management practices and wetlands enhancements that would be incorporated in both the No Action and With Action conditions, would result in an overall improvement to natural resources on site. The proposed project would include retail development of a primarily vacant lot that presently contains natural resources including disturbed upland area, forested upland area, isolated freshwater wetlands, and disturbance-tolerant wildlife species that are ubiquitous in urban areas. Proposed green infrastructure inclusive of a stormwater basin would offset the potential impacts of increased impervious surface coverage from the proposed project, thereby decreasing stormwater runoff and maintaining water quality, freshwater wetland and wetland adjacent area values, and wildlife habitat. The proposed project includes the freshwater wetland buffer plantings and freshwater and tidal wetland adjacent area enhancements which would compensate for the loss of freshwater wetland adjacent area and benefit wildlife, waterfowl, and songbirds. Displacement of some wildlife will occur as a result of the proposed project, but the southern portion of the property, the area of highest wildlife utilization, will remain undeveloped or enhanced in some locations with native vegetative plantings that will provide food and cover for wildlife. Habitat would remain onsite directly adjacent to the proposed project to support potentially displaced wildlife.

Threatened or endangered species with the potential to occur in the area are limited to piping plover and roseate tern. The piping plover and roseate tern both utilize wide, flat, open sandy beaches with very little grass and other vegetation which is not found within or adjacent to the proposed project.

Overall, the proposed project would not have any significant adverse impacts to natural resources in the area. Enhancing freshwater and tidal wetland adjacent areas may improve water quality and flood protection and storage.

B. METHODOLOGY

STUDY AREA

The approximately 28.07-acre proposed project site is currently a mix of forested upland and wetlands and a Phragmites monoculture. The proposed project site is bordered by Forest Avenue to the north, South Avenue to the east, Morrow Street to the west, and a mapped, unbuilt portion of Amador Street to the south. Aquatic, wetland, and terrestrial natural resources were evaluated within the boundaries of the proposed project site (**Figure 4-1**). The overall study area included the proposed project site and adjacent woodlands to the south. Specifically, the study area was limited by Forest Avenue to the north, South Avenue to the east, wetland areas to the south and Morrow Street to the west. Natural areas located southwest of the proposed project site were evaluated during the natural resource inventory. Threatened, endangered, and special concern species were evaluated for a distance of 0.5 miles from the proposed project site.¹

¹ NY Natural Heritage Program conducts database searches for a radius of 0.5 miles for threatened, endangered, and special concern species. Evaluation of threatened, endangered, and special concern species was conducted by CEA and Capital Environmental Consultants (Capital) throughout the study area.



CEA Engineers, P.C (CEA) conducted a natural resource inventory including wildlife and vegetative identification and enumeration point stations.² A total of 18 sample communities were situated along 5 transects mapped throughout the property as depicted on **Figure 4-1**.³ The transect method is based on the 1987 Corps of Engineers Wetland Delineation Manual.⁴ At each sample point, tree, shrub, and herbaceous vegetation and wildlife were identified and documented. In addition to the sample points, CEA conducted general surveys of each distinct vegetative community to ensure a thorough examination of all vegetative species present onsite. Evaluations for vegetation and wildlife were conducted monthly by CEA from February 2012 through January 2013, thereby evaluating wildlife through four seasons.⁵ Seasonal field surveys and site walks were also conducted from 2013 to present.⁶ A complete listing of vegetative and wildlife species identified at the site can be found in **Tables 4-3 and 4-4**, respectively. A map showing the ecological communities identified on site is shown in **Figure 4-2**.

EXISTING CONDITIONS

Existing conditions for natural resources within the study area were summarized from:⁷

- Existing information identified in literature and obtained from governmental and nongovernmental sources (see Appendix C, Natural Resources Correspondence), such as the:
 - U.S. Fish and Wildlife Service (USFWS) Official Species List, National Wetland Inventory (NWI) maps (**Figure 4-3**), Critical Habitat Mapper, Information, Planning and Consultation system, and Classification of Wetlands and Deepwater Habitats of the United States;
 - U.S. Army Corps of Engineers (USACE) 1987 Wetlands Delineation Manual, 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, and Northcentral-Northeast 2012 Final Regional Wetland Plant List;
 - Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) and Revised Preliminary FIRMs (**Figures 4-4 through 4-7**);
 - United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey (WSS) National Cooperative Soil Survey, Plant Fact Sheets, and NRCS New York City (NYC) Reconnaissance Soil Survey (RSS) map;
 - New York State Department of Environmental Conservation's (NYSDEC) Environmental Resource mapper (ERM) (**Figure 4-8**), 1987 Freshwater Wetland Maps, 1974 Tidal Wetland Maps, Infrared aerials, Critical Environmental Areas, Comprehensive Wildlife Conservation Strategy (CWCS) Plan, Natural Heritage Program (NHP) Ecological Communities of New York State Online Conservation Guide

² NYC Mayor's Office of Environmental Coordination; 2014 CEQR Technical Manual (March Addition). Chapter 11 – Natural Resources.

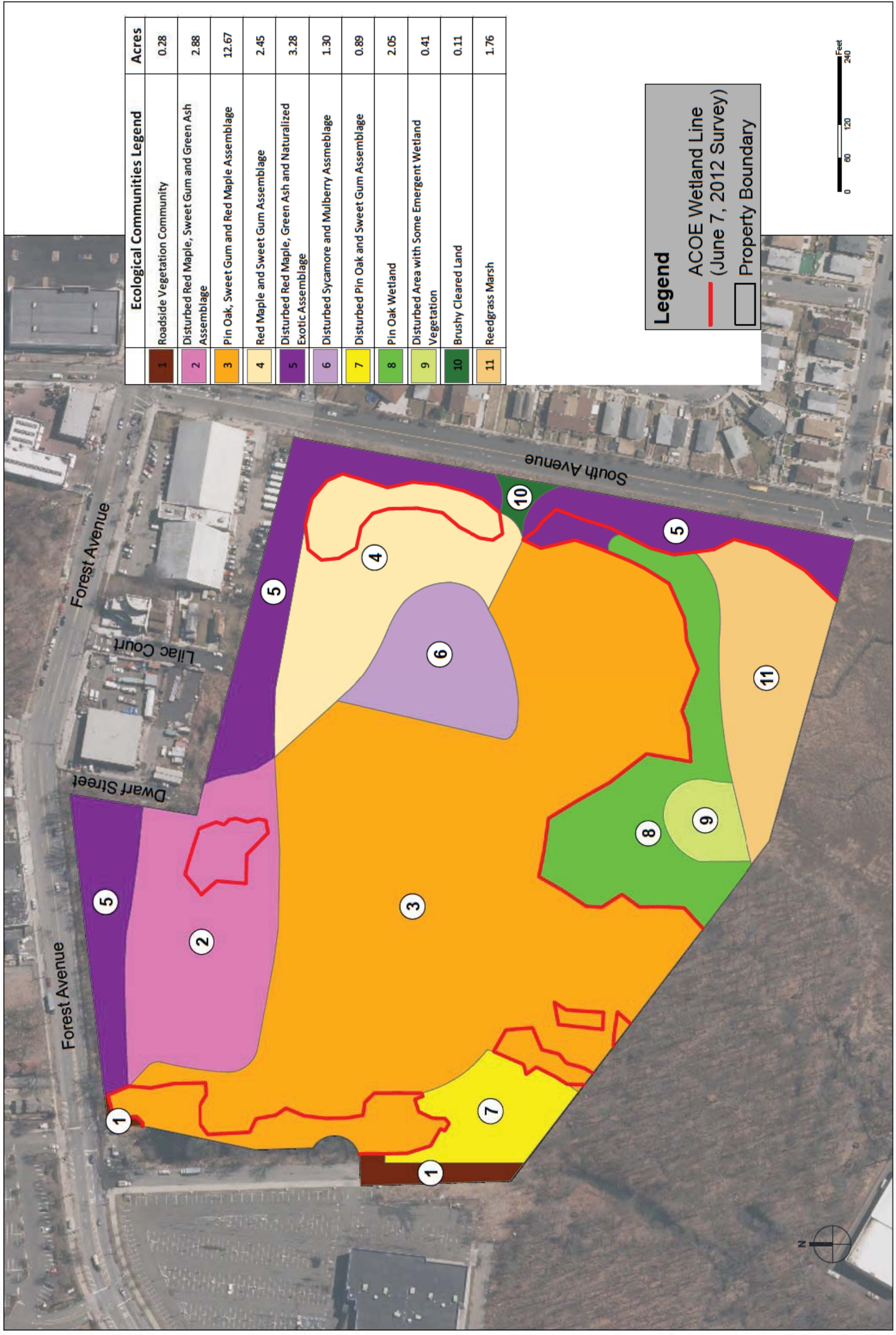
³ NYC Mayor's Office of Environmental Coordination; 2014 CEQR Technical Manual (March Addition). Chapter 11 – Natural Resources; 323.2; pg. 11-17.

⁴ Environmental Laboratory. (1987). Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

⁵ CEA – NRI Field Surveys; February 2012 through January 2013.

⁶ CEA and Capital Environmental Consultants (Capital).

⁷ See Figure 4-1 – Transect Map through study area.



	Ecological Communities Legend		Acres
1	Roadside Vegetation Community		0.28
2	Disturbed Red Maple, Sweet Gum and Green Ash Assemblage		2.88
3	Pin Oak, Sweet Gum and Red Maple Assemblage		12.67
4	Red Maple and Sweet Gum Assemblage		2.45
5	Disturbed Red Maple, Green Ash and Naturalized Exotic Assemblage		3.28
6	Disturbed Sycamore and Mulberry Assmblage		1.30
7	Disturbed Pin Oak and Sweet Gum Assemblage		0.89
8	Pin Oak Wetland		2.05
9	Disturbed Area with Some Emergent Wetland Vegetation		0.41
10	Brushy Cleared Land		0.11
11	Reedgrass Marsh		1.76

Legend

- ACOE Wetland Line (June 7, 2012 Survey)
- Property Boundary

South Avenue Retail Development

Ecological Communities
Figure 4-2

Wetlands



August 18, 2016

- | | | |
|--|---|--|
|  Estuarine and Marine Deepwater |  Freshwater Forested/Shrub Wetland |  Other |
|  Estuarine and Marine Wetland |  Freshwater Pond |  Riverine |
|  Freshwater Emergent Wetland |  Lake | |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations (BFEs) shown on this map apply only landward of 0.9' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was New York State Plane FIPSZONE 3104. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
 NOAA, NIMS12
 National Geodetic Survey
 SSMC-3, #6202
 1315 East-West Highway
 Silver Spring, Maryland 20910-3182
 (301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

Base map information shown on this FIRM was provided in digital format by the Department of Information Technology and Telecommunication, City of New York. This information was derived from digital orthophotos produced at a scale of 1:1,200 with 2-foot pixel resolution from photography dated 2004.

Based on updated topographic information, this map reflects more detailed and up-to-date **stream channel configurations** and **floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unretained streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map showing the layout of map panels for this jurisdiction.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at <http://msc.fema.gov>.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov>.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, AV, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A
 No Base Flood Elevations determined.

ZONE AE
 Base Flood Elevations determined.

ZONE AH
 Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO
 Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depth determined. For areas of shallow fan flooding, velocities also determined.

ZONE AR
 Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently identified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE ARV
 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V
 Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE
 Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment to ensure that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X
 Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X
 Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D
 Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
 0.2% annual chance floodplain boundary
 Floodway boundary
 Zone boundary
 Zone D boundary
 CBRS and OPA boundary
 Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
 Base Flood Elevation line and value; elevation in feet*
 Base Flood Elevation value where uniform within zone; elevation in feet*
 * Referenced to the National Geodetic Vertical Datum of 1929

○ Cross section line
 ⊕ Traverset line
 87°07'45", 32°22'00"
 1983 meter Universal Transverse Mercator grid values, zone 18
 600000 FT
 5000-foot grid ticks: New York State Plane coordinate system, Long Island zone (FIPSZONE 3104), Lambert Conformal Conic projection
 DX5510 x
 ● M1.5
 River Mile

MAP REPOSITORY
 Refer to listing of Map Repositories on Map Index

INITIAL NFIP MAP DATE
 June 23, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS
 June 11, 1975

FLOOD INSURANCE RATE MAP EFFECTIVE
 November 16, 1983

FLOOD INSURANCE RATE MAP REVISIONS
 September 5, 2007 - to update map format, to change Special Flood Hazard Areas, and to reflect updated topographic information
 May 21, 2001 - to change Special Flood Hazard Areas, to reflect updated topographic information, and to update map format
 July 5, 1994 - to add base flood elevations, to add Special Flood Hazard Areas, and to change Special Flood Hazard Areas
 February 15, 1991 - to change zone designations and to add Special Flood Hazard Areas

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6629.

MAP SCALE 1" = 600' 1000' 1500'
 150 0 150 300
 FEET
 METERS

NFIP PANEL 0306F

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
NEW YORK, NEW YORK
 BRONX, RICHMOND, NEW YORK,
 QUEENS, AND KINGS COUNTIES

PANEL 306 OF 457
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS	COMMUNITY	NUMBER	PANEL	SUFFIX
	NEW YORK, CITY OF	360497	6006	F

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
 3604970306F

MAP REVISED
 SEPTEMBER 5, 2007

Federal Emergency Management Agency

NOTES TO USERS

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National Geodetic Survey
SSMC-3, #9202
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Silver Spring, Maryland 20910-3182
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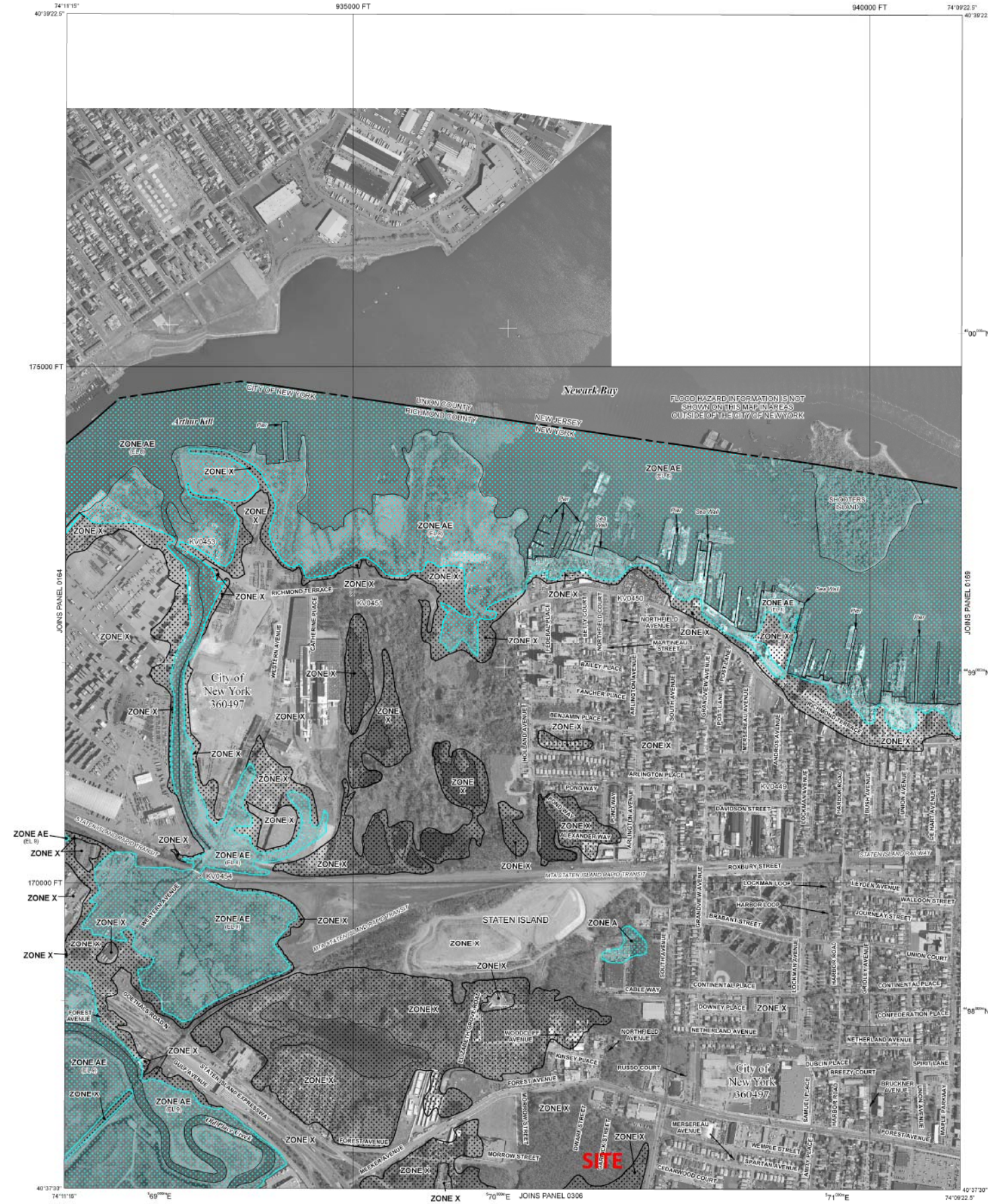
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ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually about flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently dismantled. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

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OTHERWISE PROTECTED AREAS (OPAs)

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1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
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Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
Base Flood Elevation line and value; elevation in feet*
Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the National Geodetic Vertical Datum of 1929

○ A ○ A Cross section line
○ B ○ B Transsect line
87°07'45", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
1000-meter Universal Transverse Mercator grid values; zone 18
600000 FT 5000-Foot grid ticks: New York State Plane coordinate system, Long Island zone (FIPSZONE 3104), Lambert Conformal Conic projection
DX5510 x Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5 River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index
INITIAL NFIP MAP DATE
June 28, 1974
FLOOD HAZARD BOUNDARY MAP REVISIONS
June 11, 1978
FLOOD INSURANCE RATE MAP EFFECTIVE
November 18, 1993
FLOOD INSURANCE RATE MAP REVISIONS
September 5, 2007 - to change Special Flood Hazard Areas, to reflect updated hydrographic information, and to update map format
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MAP SCALE 1" = 500'
250 0 250 500 1000 FEET
100 0 100 200 METERS

NFIP PANEL 0168F

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
NEW YORK,
NEW YORK
BRONX, RICHMOND, NEW YORK,
QUEENS, AND KINGS COUNTIES

PANEL 168 OF 457
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:
COMMUNITY NUMBER: 360497
PANEL: 0168
SUFFIX: F

Notice to User: The Map Number shown below should be used when placing map orders, the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
3604970168F

MAP REVISED
SEPTEMBER 5, 2007
Federal Emergency Management Agency

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NGS Information Services
 NOAA NNGS12
 National Geodetic Survey
 SSMC-3, #2022
 1315 East-West Highway
 Silver Spring, Maryland 20910-3182
 (301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

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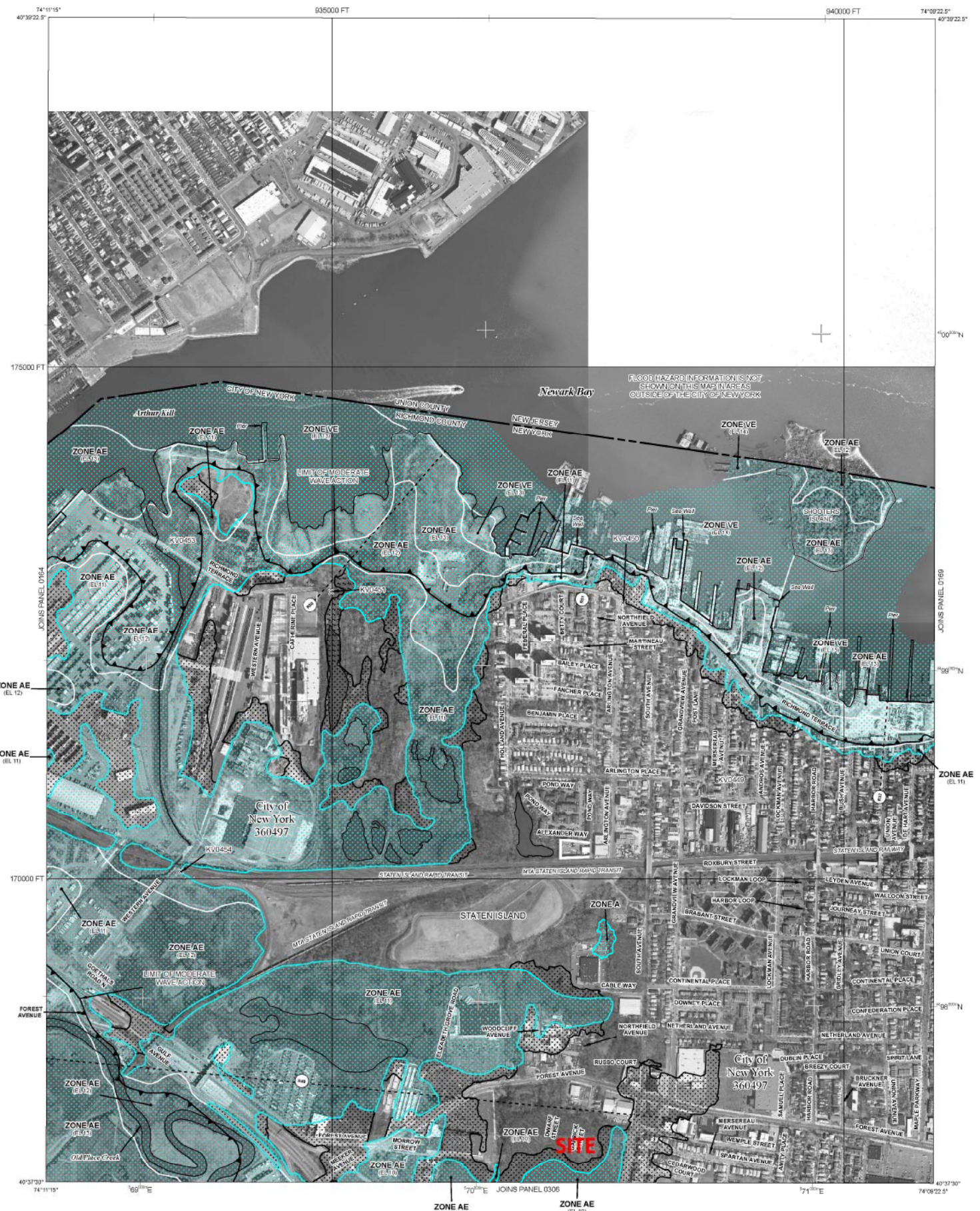
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LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones AE, VE, X, AO, AH, AR, and V. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depth determined. For areas of actual fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently discontinued. Zone AE indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE AV Area to be protected from 1% annual chance flood by a Federal flood control system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with average area less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Limit of Moderate Wave Action

Base Flood Elevation line and value; elevation in feet (EL 807)

Base Flood Elevation value where uniform within zone; elevation in feet

* Referenced to the North American Vertical Datum of 1988

Cross section line

Transect line

Culvert, Flume, Penstock or Aqueduct

Road or Railroad bridge

Footbridge

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

87°07'45", 32°22'30"

17°00'N

3000-meter Universal Transverse Mercator grid values, zone 18

600000 FT

5000-foot grid values: New York State Plane coordinate system, Long Island zone (FIPSZONE 3104), Lambert Conformal Conic projection

Search mark (see explanation in Notes to Users section of this FIRM panel)

DX5510 x

1:1.5

River Mile

MAP REPOSITORY

Refer to listing of Map Repositories on Map Index

INITIAL NFIP MAP DATE

June 28, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS

June 11, 1978

FLOOD INSURANCE RATE MAP EFFECTIVE

November 16, 1993

FLOOD INSURANCE RATE MAP REVISIONS

For descriptions of revisions see Notice to Users page in the Flood Insurance Study report.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

0 100 200 300 FEET

0 100 200 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0168G

FIRM

FLOOD INSURANCE RATE MAP

CITY OF NEW YORK
 BRONX, RICHMOND, NEW YORK, QUEENS, AND KINGS COUNTIES

PANEL 168 OF 457
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
NEW YORK, CITY OF	360497	0168	G

PRELIMINARY
 DECEMBER 5, 2013

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
 3604970168G

MAP REVISED

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0 North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to section 2 of "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was New York Long Island State Plane FIPSZONE 3104. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
 NOAA NNGS12
 National Geodetic Survey
 SSMC-3, #2022
 1315 East-West Highway
 Silver Spring, Maryland 20910-3182
 (301) 713-3242

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ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

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OTHER AREAS

ZONE B Areas determined to be outside the 0.2% annual chance floodplain.

ZONE C Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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1% annual chance floodplain boundary
 0.2% annual chance floodplain boundary
 Floodway boundary
 Zone D boundary
 CBRS and OPA boundary
 Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities
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 Base Flood Elevation line and value; elevation in feet (EL 807)
 Base Flood Elevation value where uniform within zone; elevation in feet
 * Referenced to the North American Vertical Datum of 1988
 Cross section line
 Transect line
 Culvert, Flume, Penstock or Aqueduct
 Road or Railroad bridge
 Flood bridge
 Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
 3000-meter Universal Transverse Mercator grid values, zone 18
 600000 FT
 5000-foot grid values: New York State Plane coordinate system, Long Island zone (FIPSZONE 3104), Lambert Conformal Conic projection
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 River Mile
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 FLOOD INSURANCE RATE MAP REVISIONS

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MAP SCALE 1" = 500'

250 0 250 500
 FEET
 150 0 150 300
 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0306G

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
 NEW YORK
 NEW YORK
 BRONX, RICHMOND, NEW YORK,
 QUEENS, AND KINGS COUNTIES

PANEL 306 OF 457
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS
 COMMUNITY NUMBER PANEL SUFFIX
 NEW YORK, CITY OF 360497 0306 G

PRELIMINARY
DECEMBER 5, 2013

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
 3604970306G

MAP REVISED

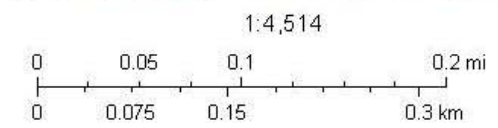
Federal Emergency Management Agency



November 22, 2016

Legend

- State Regulated Freshwater Wetlands
- State Regulated Wetland Checkzone



Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,
 CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User
 Community

NYS Department of Environmental Conservation
 Not a legal document

South Avenue Retail Development

- and New York Nature Explorer, Breeding Bird Atlas (2000-2005), Herpetological Atlas Project, Open Space Conservation Plan, List of protected fish and wildlife (6 NYCRR Part 182), and List of protected plants and trees (6 NYCRR Part 193);
- New York State Department of State (DOS) Significant Coastal Fish and Wildlife Habitats (SCFWHs);
 - New York City's Comprehensive Waterfront Plan, New Waterfront Revitalization Program (WRP), Coastal Erosion Hazard Area (CEHA) Maps, and Zoning Maps;
 - New York City's Significant, Sensitive, and Designated Resources;⁸
 - New York/New Jersey Harbor Estuary Program (HEP);
 - New York City Audubon Society, "An Islanded Nature: Natural Area Conservation and Restoration in Western Staten Island, including the Harbor Herons Region," (2001);
 - New York City Department of Environmental Protection (DEP) Harbor Water Quality Survey reports
 - USFWS Significant Habitats and Habitat Complexes of the New York Bight Watershed,
- Responses to requests for information on rare, threatened, or endangered species in the vicinity of the project site from the NHP and USFWS (see Appendix C).
 - Observations made during the NRI and field visits conducted within the proposed project site.⁹

HISTORICAL DISTURBANCES

The proposed project site has been subject of various degrees of disturbances since as early as 1937. Residential dwellings were constructed throughout the northern portion of the project site as well as the eastern boundary adjacent to South Avenue. More specifically, a residential dwelling was constructed along South Avenue and remained on the property until approximately 1977. Several residential dwellings existed along Lilac Court (Garrick Street) from 1937 to 1966. The northwestern portion of Lot 1 contained a few residential dwellings from 1937 until approximately 1957. In addition, the northern portion of Lot 5 contained a functioning go-kart track from approximately 1966 through 1980.

Development of the adjacent properties to the northeast and east along South Avenue between 1950 and 1977 led to the filling of a freshwater brook that drained to Wetland B. The widening of South Avenue also occurred from the late 1960's to early 1970's which resulted in disturbed areas from construction cast off along the entire length of the eastern property boundary.

THE FUTURE WITHOUT THE PROPOSED PROJECT

Absent the proposed actions (the No Action condition), the development site is assumed to be developed with six new retail buildings as well as a gas station and automated bank teller. The No Action development would not require any discretionary approvals, and would not include the mapping or demapping of any City streets. In accordance with the NYSDEC-approved site plan, the No Action development will not develop a portion of project site which will be preserved as mapped wetlands, as well as a landscaped buffer between the regulated wetlands

⁸ NYC Mayor's Office of Environmental Coordination; 2014 CEQR Technical Manual (March Addition). Chapter 11 – Natural Resources; Attachment.

⁹ CEA – NRI Field Surveys; February 2012 through January 2013. CEA and/or Capital 2013 to present.

and the development site and a stormwater management area. Therefore, impacts to natural resources due to the proposed project (Future with the Proposed Project) are expected to be comparable to those for the No Action condition.

THE FUTURE WITH THE PROPOSED PROJECT

Potential impacts in the With Action condition were assessed by considering aspects of proposed project operation, such as stormwater management, disturbances to wetlands and wildlife, and proposed habitat improvements (e.g., freshwater wetland and tidal wetland adjacent area enhancements, improved terrestrial habitat from landscaping). Potential impacts to natural resources during construction of the proposed project are evaluated in Chapter 11, "Construction."

C. REGULATORY CONTEXT

The following sections identify the federal, state, and city legislation and regulatory programs that pertain to activities in coastal areas, surface waters, floodplains, wetlands, and the protection of species of special concern that would apply to the proposed project.

FEDERAL

CLEAN WATER ACT (33 USC §§ 1251 TO 1387)

The objective of the Clean Water Act, also known as the Federal Water Pollution Control Act, is 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; the discharge of dredged or fill material into navigable waters and other waters; and non-point source pollution, such as runoff from streets, agricultural fields, construction sites, and mining.

Under Section 401 of the Act, any applicant for a federal permit or license for an activity that may result in a discharge of pollutants to navigable waters must provide to the federal agency issuing a permit a certificate, either from the state where the discharge would occur or from an interstate water pollution control agency, that the discharge would comply with Sections 301, 302, 303, 306, 307, and 316 (b) of the Clean Water Act. Applicants for discharges to navigable waters in New York must obtain a Water Quality Certification from NYSDEC.

Section 404 of the Act requires authorization from the Secretary of the Army, acting through USACE, for the permanent or temporary discharge of dredged or fill material into navigable waters and other waters of the United States. Waters of the United States is defined in 33 CFR 328.3 and includes wetlands, mudflats, and sandflats that meet the specified requirements, in addition to streams and rivers that meet the specified requirements. Activities authorized under Section 404 must comply with Section 401 of the Act.

ENDANGERED SPECIES ACT OF 1973 (16 USC §§ 1531 TO 1544)

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. The Act prohibits the importation, exportation, taking, possession, and other activities involving illegally taken species covered under the Act, and interstate or foreign

South Avenue Retail Development

commercial activities. The Act also provides for the protection of critical habitats on which endangered or threatened species depend for survival.

FISH AND WILDLIFE COORDINATION ACT (PL 85-624; 16 USC 661-667D)

The Fish and Wildlife Coordination Act entrusts the Secretary of the Interior with providing assistance to, and cooperation with, federal, state, and public or private agencies and organizations to ensure that wildlife conservation receives equal consideration and coordination with other water-resource development programs. These programs can include the control (such as a diversion), modification (such as channel deepening), or impoundment (dam) of a body of water.

NEW YORK STATE

PROTECTION OF WATERS, ARTICLE 15, TITLE 5, ENVIRONMENTAL CONSERVATION LAW [ECL], IMPLEMENTING REGULATIONS 6 NYCRR PART 608.

NYSDEC is responsible for administering the Protection of Waters Act and regulations to prevent undesirable activities within surface waters (rivers, streams, lakes, and ponds). The Protection of Waters Permit Program regulates five different categories of activities: disturbance of stream beds or banks of a protected stream or other watercourse; construction, reconstruction, or repair of dams and other impoundment structures; construction, reconstruction, or expansion of docking and mooring facilities; excavation or placement of fill in navigable waters and their adjacent and contiguous wetlands; and Water Quality Certification for placing fill or other activities that result in a discharge to waters of the United States in accordance with Section 401 of the Clean Water Act.

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) (N.Y. ECL ARTICLE 3, TITLE 3; ARTICLE 15; ARTICLE 17, TITLES 3, 5, 7, AND 8; ARTICLE 21; ARTICLE 70, TITLE 1; ARTICLE 71, TITLE 19; IMPLEMENTING REGULATIONS 6 NYCRR ARTICLES 2 AND 3)

Title 8 of Article 17, ECL, Water Pollution Control, authorized the creation of SPDES to regulate discharges to New York State's waters. Activities requiring a SPDES permit include point source discharges of wastewater into surface or groundwater of the State, including the intake and discharge of water for cooling purposes, constructing or operating a disposal system (sewage treatment plant), discharge of stormwater, and construction activities that disturb one or more acres.

FRESHWATER WETLANDS, ARTICLE 24, ENVIRONMENTAL CONSERVATION LAW IMPLEMENTING REGULATIONS-6NYCRR PART 663, PART 664, AND PART 665.

The Freshwater Wetlands Act requires NYSDEC to map freshwater wetlands protected by the Act (12.4 acres or greater in size containing wetland vegetation characteristic of freshwater wetlands as specified in the Act). Around each mapped wetland is a protected 100-foot buffer. In accordance with the Act, the NYSDEC ranks wetlands in one of four classes that range from Class I, which represents the greatest benefits and is the most restrictive, to Class IV. The permit requirements are more stringent for a Class I wetland than for a Class IV wetland. Certain activities (e.g., normal agricultural activities, fishing, hunting, hiking, swimming, camping or picnicking, routine maintenance of structures and lawns, and selective cutting of trees and

harvesting fuel wood) are exempt from regulation. Activities that could have negative impact on wetlands are regulated and require a permit if conducted in a protected wetland or its adjacent area.

TIDAL WETLANDS ACT, ARTICLE 25, ECL, IMPLEMENTING REGULATIONS 6 NYCRR PART 661.

Tidal wetlands regulations apply anywhere tidal inundation occurs on a daily, monthly, or intermittent basis. In New York State, tidal wetlands occur along the salt-water shore, bays, inlets, canals, and estuaries of Long Island, New York City and Westchester County, and the tidal waters of the Hudson River up to the salt line. NYSDEC administers the tidal wetlands regulatory program and the mapping of the state's tidal wetlands. A permit is required for most activities that would alter wetlands or the adjacent areas (up to 300 feet inland from wetland boundary or up to 150 feet inland within New York City).

ENDANGERED AND THREATENED SPECIES OF FISH AND WILDLIFE; SPECIES OF SPECIAL CONCERN (ECL, SECTIONS 11-0535[1]-[2], 11-0536[2], [4], IMPLEMENTING REGULATIONS 6 NYCRR PART 182).

These regulations prohibit the taking, import, transport, possession, or selling of any endangered or threatened species of fish or wildlife, or any hide, or other part of these species, as listed in 6 NYCRR §182.6. Plants listed in 6 NYCRR Part 193 and animals listed in 6 NYCRR Part 182 are protected by State law: it is illegal to pick, damage, or destroy any protected plants on property not owned by the individual, to apply any defoliant or herbicide, or to carry these plants away without the owner's consent; it is also illegal to hunt, import, export, or possess protected animals.

NEW YORK CITY

WATERFRONT REVITALIZATION PROGRAM (WRP).

The City's WRP established a Coastal Zone; all discretionary projects within the Coastal Zone area must be reviewed for consistency with coastal zone policies. This program is administered by the New York City Department of City Planning (DCP).

D. EXISTING CONDITIONS

The *City Environmental Quality Review (CEQR) Technical Manual* defines natural resources as “(1) the City’s biodiversity (plants, wildlife and other organisms); (2) any aquatic or terrestrial areas capable of providing suitable habitat to sustain the life processes of plants, wildlife, and other organisms; and (3) any areas capable of functioning in support of the ecological systems that maintain the City’s environmental stability.” Under CEQR, a natural resources assessment considers species in the context of the surrounding environment, habitat, or ecosystem and examines a project's potential to impact those resources. Resources such as groundwater, soils and geologic features, natural and human- created habitats, and any areas used by wildlife may be considered in a natural resources analysis. Stormwater runoff may also be considered in a natural resources assessment and evaluated in the context of its impact on local ecosystem functions and on the quality of adjacent waterbodies.

South Avenue Retail Development

In accordance with the *CEQR Technical Manual*, this section describes the following existing natural resources within the study areas on the basis of existing information and the results of the reconnaissance field survey: groundwater, floodplains, surface waters, wetlands, vegetation and ecological communities, wildlife, and threatened, endangered, and special concern species.

A total of 11 ecological communities were identified based on the Ecological Communities of New York State.¹⁰ As the site has been historically disturbed and shaped by both internal and surrounding development activities, a number of ecological communities, of varying size and characteristics were identified based on the 12-month NRI survey; Classification system outlined in the *Ecological Communities of New York State* (Edinger *et al.* 2014);¹¹ wetland delineation; and the investigating team's experience and familiarity with the site.¹² Palustrine and terrestrial communities were determined to be present and the various wetland and upland vegetative cover types found throughout the project site were characterized. Utilizing NRI data collected at the 18 sample points, a detailed ecological communities map was generated (**Figure 4-2**). Existing conditions are detailed on **Figure 4-9**.

GROUNDWATER

Groundwater is first encountered between 3 ½ feet and 12 feet below ground surface (bgs) throughout upland portions of the proposed project site. Fluctuations in groundwater levels can occur due to variations in season, rainfall, snowmelt, surface infiltration, temperature, construction activities, pumping of dewatering systems, leakage from utilities, and other factors. Groundwater in Staten Island is not used as a source of potable water (the municipal water supply uses upstate reservoirs).

FLOODPLAINS

FEMA FIRMs are official maps of a community on which FEMA has delineated both the special hazard areas and, for insurance purposes, the risk premium zones applicable to the community. The land area covered by the floodwaters of the base flood is the Special Flood Hazard Area (SFHA). A base flood is the flood having a one percent chance of being equaled or exceeded in any given year. This is the regulatory standard also referred to as the 100-year flood. Most floods fall into three major categories: riverine flooding, coastal flooding, and shallow flooding.

The southern and eastern portions of the project site fall within the 500-year floodplain (an area with a 0.2 percent chance of flooding in a given year) or 100-year floodplain with average depths of less than 1 foot or with drainage areas less than 1 square mile; the remainder of the site is outside of any currently effective floodplain boundary, as depicted on **Figures 4-4 and 4-5 - Flood Insurance Rate maps (FIRMs)**.

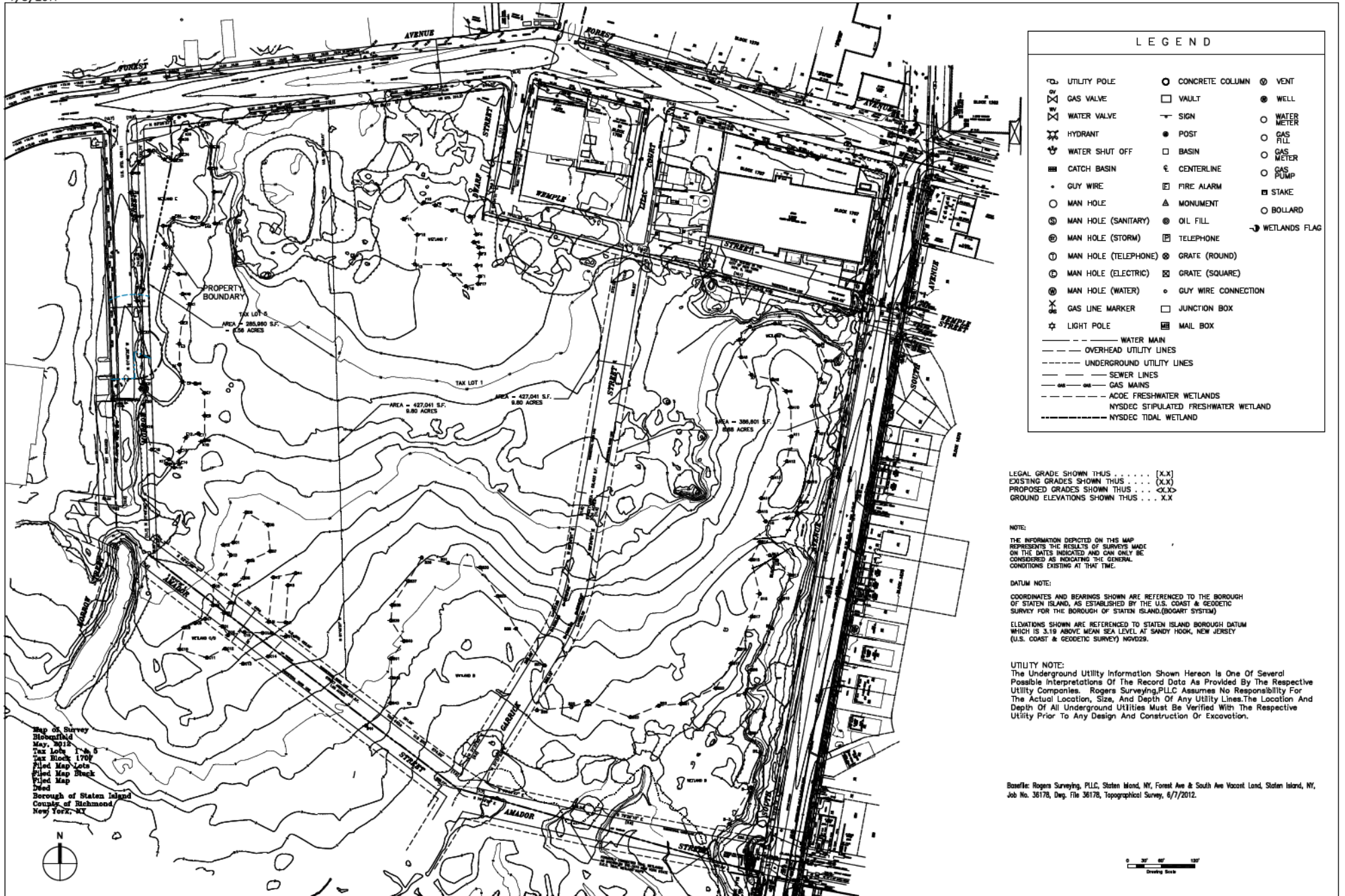
Based on FEMA FIRM maps, the 500-year flood elevation within the southern portion of the site has not been determined. No coastal flood zones are mapped on the project site.

In June 2013, FEMA released Preliminary FIRMs (revised December 5, 2013) that replaced the ABFE maps for areas in New York City, including Staten Island (**Figures 4-6 and 4-7 -**

¹⁰Edinger, G.J., D.J. Evans, S. Gebauer, T.G. Howard, D.M. Hunt, and A.M. Olivero (editors). 2014. *Ecological Communities of New York State*. Second Edition. A revised and expanded edition of Carol Reschke's Ecological Communities of New York State. New York Natural Heritage Program, NYSDEC, Albany, NY.

¹¹Edinger *et al.* 2014

¹²CEA – NRI Field Surveys; February 2012 through January 2013. CEA and/or Capital 2013 to present.



Preliminary FIRMs).¹³ The 100-year flood preliminary BFE for the project site extends further north from the southern and eastern boundaries and is 10 feet NAVD88.¹⁴ The 500-year floodplain extends landward (north) of the 100-year floodplain on the project site.

AQUATIC RESOURCES

SURFACE WATER RESOURCES

The proposed project site is located within the USGS Sandy Hook-Statens Island Watershed (HUC 02030104), and contains a portion of the headwaters of Old Place Creek located within the Phragmites monoculture within the extreme southern portion of the proposed project site. A branch of the upper reaches of Old Place Creek's headwaters begins along the southern edge of the project site. As the creek exits the project site it meanders south and west for approximately 2 miles toward the lower reaches of Old Place Creek that is comprised of tidal and subtidal complexes. The tidal salt marsh habitats of Old Place Creek ultimately drain towards the northern end of the Arthur Kill next to the Goethals Bridge.

WATER QUALITY

Title 6 of the New York Code of Rules and Regulations (NYCRR) Part 701 includes classifications for surface waters and groundwater. The NYSDEC classification of Old Place Creek within the project site is SD/C. The best usage for class C fresh surface waters is fishing. Class C waters are suitable for fish, shellfish and wildlife propagation and survival and for primary and secondary contact recreation, although other factors may limit the use for these purposes. Best usage for class SD saline surface waters is fishing. Class SD waters are suitable for fish, shellfish, and wildlife survival and for primary and secondary contact recreation, although other factors may limit the use for these purposes.

In 2016 NYSDEC opened an access kayak/hand launch site to the public along the lower reach of Old Place Creek, providing access to Old Place Creek for recreational purposes.

AQUATIC BIOTA

Old Place Creek supports a diverse and productive aquatic community consisting of a variety of invertebrate species and finfish. The following sections provide a brief description of the primary groups of aquatic biota found in Old Place Creek.

Aquatic Vegetation

Aquatic vegetation associated with the portion of Old Place Creek's upper reach within the project area consists primarily of a Phragmites monoculture.

¹³ The City of New York has reviewed FEMA's updated Preliminary FIRMs, and filed an appeal released January 2015, noting some errors. In October 2016, FEMA announced that it agreed with the City's findings, and that it would work with the City to revise the 2015 Preliminary FIRMs and issue new maps in the coming years that better reflect current flood risk. Until the new flood maps are issued, flood insurance rates in New York City will continue to be based on the 2007 Effective FIRMs (Figures 4-4 and 4-5).

¹⁴ Floodplain boundaries based on currently effective FIRMs are currently the only regulatory standard relating to elevations of new developments, although the preliminary BFE may soon be adopted into the New York City Building Code and other pertinent City policies.

Benthic Invertebrates

Invertebrate organisms that inhabit bottom sediments and surfaces of submerged objects (such as rocks, pilings, or debris) are commonly referred to as benthic invertebrates. These organisms are important to an ecosystem's energy flow because they convert detrital and suspended organic material into carbon (or living material). They are also integral components of the diets of ecologically and commercially important fish and waterfowl species. Benthic invertebrates are also essential in promoting the exchange of nutrients between the sediment and water column. Substrate type (rocks, pilings, sediment grain size, etc.), salinity, and DO levels are the primary factors influencing benthic invertebrate communities; secondary factors include currents, wave action, predation, succession, and disturbance.

There are a number of benthic species present within the upper reaches of Old Place Creek including, but not limited to, fiddler crab (*Uca spp.*) and marsh snails (*Melampus bidentatus*). The benthic community located within the Phragmites monoculture is populated by a variety of worms, and snails.

Fish

The fish fauna within the lower reaches of Old Place Creek are influenced by the tidal waters of the Arthur Kill and consists of a number of species of fish including, but not limited to, schools of small striped killfish and Atlantic silversides (*Menidia menidia*) which attract winter flounder, bluefish (*Pomatomus saltatrix*), and striped bass (*Morone saxatilis*).¹⁵ No fish spawning habitat occurs on the project site.

WETLANDS

A detailed wetland delineation was conducted on the project site in accordance with both the USACE as well as the NYSDEC guidelines.^{16,17} The USACE Wetland Delineation Manual (Environmental Laboratory, 1987) was used to delineate federal wetlands pursuant to the USACE. The NYSDEC *Freshwater Wetland Delineation Manual* (1995) was used to delineate state wetlands.¹⁷

As recommended in the guidelines, available data on the site were obtained from US Geological Survey quadrangle maps, U.S. Fish and Wildlife Service National Wetlands Inventory Maps (NWI), NYSDEC Freshwater and Tidal Wetland Maps, US Department of Agriculture—NRCS New York City Soil Survey map, aerial imagery, and other relevant sources.^{18,19,20,21}

¹⁵ NYSDEC website – Old Place Creek.

¹⁶ Environmental Laboratory. (1987). Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

¹⁷ New York State Department of Environmental Conservation. 1995. Freshwater Wetlands Delineation Manual.

¹⁸ USGS 7.5 Min. Quadrangle Map – Arthur Kill; NY-NJ; 1975.

¹⁹ U.S. Fish and Wildlife Service – National Wetlands Inventory; Wetlands Mapper; <http://www.fws.gov/wetlands/data/Mapper.html>.

²⁰ New York State Department of Environmental Conservation; Online Environmental Resource Mapper; <http://www.dec.ny.gov/gis/erm/>.

²¹ New York City Soil Survey Staff. 2005. New York City Reconnaissance Soil Survey. United States Department of Agriculture, Natural Resource Conservation Service, Staten Island, NY.

The NWI maps show the general configuration, location, and category of wetlands found within a given area of coverage.²² A NWI wetland map depicting the location of the proposed project can be seen in **Figure 4-3**. Because the NWI maps are limited in precision by their scale and by the identification method used, the presence and boundaries of wetlands shown on the NWI maps need to be more precisely verified in the field. Commonly, small wetland areas, and, less frequently, large wetland areas are not precisely located on NWI maps and may not be wetlands that exhibit the three parameters set forth in USACE guidance. The freshwater wetland boundaries were field confirmed by Craig Spitz of the USACE on September 21, 2012.

The NYSDEC is responsible for mapping larger freshwater wetlands that are 12.4 acres in size or greater, or some smaller wetlands that are of unusual local importance (Environmental Conservation Law, Article 24). A NYSDEC Freshwater Wetlands Map for the project site is included in **Figure 4-8**. The NYSDEC 1987 Freshwater Wetlands Map identified wetland complex E-3 within and adjacent to the site.²³ The current NYSDEC wetland line was determined by NYSDEC Region 2 Natural Resources staff members following field verification and memorialized in a Stipulation of Settlement (Stipulation) with regard to Freshwater Wetland Appeals Board case #87-100.²⁴ The boundaries of the stipulated NYSDEC freshwater wetland and wetland adjacent area on the project site are depicted on **Figure 4-10**.

The NYSDEC is also responsible for mapping tidal wetlands which border on or lie beneath tidal waters or reside in the intertidal and high marsh areas subject to tidal action (Environmental Conservation Law, Article 25). The NYSDEC Tidal Wetlands Map for the project site (Map No. 570-496) is included in **Figure 4-11**.²⁵ The NYSDEC Tidal Wetlands Map identifies one type of tidal wetland area categorized as FC (Formerly Connected) located within the Phragmites monoculture and associated with Old Place Creek in the far southern portion of the project site. A portion of the mapped NYSDEC tidal wetland and its associated tidal wetland adjacent area is located within and extends into the project site boundaries (**Figure 4-10**). The extent of the tidal wetland boundary was field confirmed by NYSDEC Region 2 Marine Resources staff member George Stadnik on March 10, 2010.

All USACE freshwater areas within the boundaries of the project site were flagged in the field by Carpenter Environmental Associates, Inc. during the week of April 9th, 2012. There is a total of six delineated freshwater wetlands within the boundaries of the project site. Delineated Wetland B is a freshwater wetland that adjoins the edge of Old Place Creek and is supported hydrologically by both surface water runoff and groundwater. Wetland B, totaling 4.36 acres within the project site, falls under the jurisdiction of the USACE and is considered to be a “jurisdictional wetland” subject to the policies, regulations, and procedures established by 33 CFR Parts 320, 323, and 325, respectively, all as administered by the USACE. Delineated freshwater Wetland Areas A, C/D, E, F and H (totaling 1.96 acres of seasonal, stormwater fed isolated freshwater wetlands within the project site boundaries) do not fall under the jurisdiction of the USACE, as it was determined the isolated wetlands do not meet the

²² Cowardin, L.M., V. Carter, F.C. Golet, E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

²³ New York State Department of Environmental Conservation; Online Environmental Resource Mapper; <http://www.dec.ny.gov>.

²⁴ FWAB Index No. 87-100; Charles and Joseph Alpert v. Thomas Jorling as Commissioner of the New York State Department of Environmental Conservation. August 27, 2012 Stipulation of Settlement. 1994.

²⁵ NYSDEC Tidal Wetland Maps 570-496; Prepared by Earth Satellite Corporation – Mark Hurd Aerial Surveys; August 10, 1974-October 9, 1974.



LEGEND					
	UTILITY POLE		CONCRETE COLUMN		VENT
	GAS VALVE		Vault		WELL
	WATER VALVE		SIGN		WATER METER
	HYDRANT		POST		GAS FILL
	WATER SHUT OFF		BASIN		GAS METER
	CATCH BASIN		CENTERLINE		GAS PUMP
	GUY WIRE		FIRE ALARM		STAKE
	MAN HOLE		MONUMENT		BOLLARD
	MAN HOLE (SANITARY)		OIL FILL		
	MAN HOLE (STORM)		TELEPHONE		
	MAN HOLE (TELEPHONE)		GRATE (ROUND)		
	MAN HOLE (ELECTRIC)		GRATE (SQUARE)		
	MAN HOLE (WATER)		GUY WIRE CONNECTION		
	GAS LINE MARKER		JUNCTION BOX		
	LIGHT POLE		MAIL BOX		
	WATER MAIN				
	OVERHEAD UTILITY LINES				
	UNDERGROUND UTILITY LINES				
	SEWER LINES				
	GAS LINES				
	ACOE JURISDICTIONAL FRESHWATER WETLAND B				
	NYSDEC STIPULATED FRESHWATER WETLAND				
	NYSDEC TIDAL WETLAND				

AREA OF JURISDICTIONAL WETLANDS - 6.94 ACRES
 [NYSDEC STIPULATED WETLAND, ACOE JURISDICTIONAL WETLAND B, NYSDEC TIDAL WETLAND (AREAS OF OVERLAP REPRESENTED ONCE)]

AREA OF JURISDICTIONAL WETLANDS AND WETLAND ADJACENT AREA - 9.86 ACRES
 [NYSDEC STIPULATED WETLAND, ACOE JURISDICTIONAL WETLAND B, NYSDEC TIDAL WETLAND, STIPULATED NYSDEC FRESHWATER WETLAND ADJACENT AREA, NYSDEC TIDAL WETLAND ADJACENT AREA (AREAS OF OVERLAP REPRESENTED ONCE)]

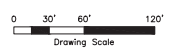
LEGAL GRADE SHOWN THUS [X.X]
 EXISTING GRADES SHOWN THUS (X.X)
 PROPOSED GRADES SHOWN THUS . . . <X.X>
 GROUND ELEVATIONS SHOWN THUS . . . X.X

NOTE:
 THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

DATUM NOTE:
 COORDINATES AND BEARINGS SHOWN ARE REFERENCED TO THE BOROUGH OF STATEN ISLAND, AS ESTABLISHED BY THE U.S. COAST & GEODETIC SURVEY FOR THE BOROUGH OF STATEN ISLAND.(BOGART SYSTEM)
 ELEVATIONS SHOWN ARE REFERENCED TO STATEN ISLAND BOROUGH DATUM WHICH IS 3.19 ABOVE MEAN SEA LEVEL AT SANDY HOOK, NEW JERSEY (U.S. COAST & GEODETIC SURVEY) NGVD29.

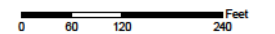
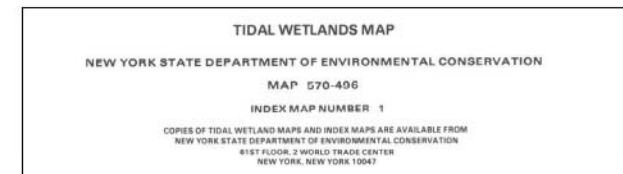
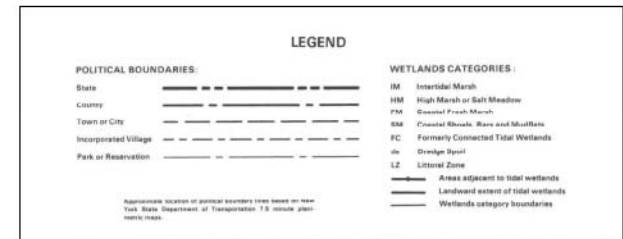
UTILITY NOTE:
 The Underground Utility Information Shown Hereon Is One Of Several Possible Interpretations Of The Record Data As Provided By The Respective Utility Companies. Rogers Surveying,PLLC Assumes No Responsibility For The Actual Location, Size, And Depth Of Any Utility Lines.The Location And Depth Of All Underground Utilities Must Be Verified With The Respective Utility Prior To Any Design And Construction Or Excavation.

Basefile: Rogers Surveying, PLLC, Staten Island, NY, Forest Ave & South Ave Vacant Land, Staten Island, NY, Job No. 36178, Dwg. File 36178, Topographical Survey, 6/7/2012.



Map of Survey
 Bloomfield
 May, 2012
 Tax Lots 1 & 5
 Tax Block 1707
 Filed Map Lots
 Filed Map Block
 Filed Map
 Deed
 Borough of Staten Island
 County of Richmond
 New York, NY





South Avenue Retail Development

NYSDEC TW Map
Figure 4-11

South Avenue Retail Development

current criteria of waters of the United States (WOUS).²⁶ The USACE wetlands were delineated in accordance with accepted USACE methodology. Rogers Surveying, P.L.L.C, surveyed the flagged locations of the USACE freshwater wetland boundaries on the proposed project, as depicted on **Figure 4-12**.

The jurisdictional wetlands and associated adjacent areas are depicted on **Figure 4-10**. Together, these jurisdictional wetlands total 6.94 acres of the project site. Inclusive of the NYSDEC adjacent areas, the regulated jurisdictional wetland areas on the project site total 9.86 acres. Benefits from the freshwater and tidal wetlands areas are shown in **Table 4-1** and **Table 4-2**, respectively. A description of each wetland area whether jurisdictional or isolated is as follows.

Table 4-1
Assessment of On-site Freshwater Wetland Benefits

Freshwater Wetland Benefit	Wetland A	Wetland B	Wetland C/D	Wetland E	Wetland F	Wetland H
1) Flood and storm control by the hydrologic absorption and storage capacity of freshwater wetlands.	Low	High	Low	Medium	Low	Low
2) Wildlife habitat by providing breeding, nesting and feeding grounds and cover for many forms of wildlife, wildfowl and shorebirds, including migratory wildfowl and rare species such as the bald eagle and osprey.	Low	High	Low	Medium	Low	Low
3) Protection of subsurface water resources and provision for valuable watersheds and recharging groundwater supplies.	Low	Low	Low	Low	Low	Low
4) Recreation by providing areas for hunting, fishing, boating, hiking, bird watching, photography, camping and other uses:	Low	Medium	Low	Medium	Low	Low
5) Pollution treatment by serving as biological and chemical oxidation basins.	Low	High	Low	Medium	Low	Low
6) Erosion control by serving as sedimentation areas and filtering basins, absorbing silt and organic matter and protecting channels and harbors.	Low	Medium	Low	Medium	Low	Low
7) Education and scientific research by providing readily accessible outdoor biophysical laboratories, living classrooms and vast training and education resources.	Low	Low	Low	Low	Low	Low
8) Open space and aesthetic appreciation by providing often the only remaining open areas along crowded riverfronts and coastal regions.	Low	High	Low	Low	Low	Low
9) Sources of nutrients in the freshwater food cycles and nursery grounds and sanctuaries for freshwater fish.	N/A	N/A	N/A	N/A	N/A	N/A
<p>Source: Environmental Conservation Law, Article 24, Title 1, Section 24-0105-7 & Capital 2016. Based on best professional judgement utilizing the information gathered through the wetland delineation and subsequent monthly field visits through four seasons for the Natural Resource Inventory. The information included, but was not limited to the physical, chemical, and biological characteristics of the wetland being evaluated with a focus on landscape position, species of vegetation, and wildlife habitat. Field visits provided qualitative data regarding surrounding land use, roadway noise, stormwater flow, and public accessibility. Quantitative data from the wetland delineation, tree survey, and monthly field visits served as the basis for developing background assumptions for assessing on-site freshwater wetland benefits.</p>						

²⁶ Department of the Army. New York State District, Corp of Engineers. Regulatory Branch – Eastern Section. Permit Application Number NAN-2012-00861-ESP. Jurisdictional Determination. December 19, 2012. (2012 JD)



Table 4-2
Assessment of On-site Tidal Wetland Benefits

Tidal Wetland Benefit	
1) Marine food production.	Low
2) Wildlife habitat.	Medium
3) An element of flood and storm control.	High
4) A source of recreation, education and research.	Low
<p>Source: Environmental Conservation Law, Article 25, Title 3, Section 25-0302-1 & Capital 2016. Based on best professional judgement utilizing the information gathered through the wetland delineation and subsequent monthly field visits through four seasons for the Natural Resource Inventory. The information included, but was not limited to the physical, chemical, and biological characteristics of the wetland being evaluated with a focus on landscape position, species of vegetation, and wildlife habitat. Field visits provided qualitative data regarding surrounding land use, roadway noise, stormwater flow, and public accessibility. Quantitative data from the wetland delineation, tree survey, and monthly field visits served as the basis for developing background assumptions for assessing on-site freshwater wetland benefits.</p>	

FRESHWATER WETLAND AREA A

Wetland Area A, which comprises 0.59 acres of isolated, non-jurisdictional wetland, lies within the northeastern portion of the of the project site as depicted on **Figure 4-12**. This wetland has dominant freshwater wetland characteristics. The USFWS classification system typifies this community as a forested palustrine wetland (PFO1E). The 2012 JD verified Wetland A was isolated, does not meet the current criteria of WOUS under Section 404 of the Clean Water Act and is therefore, non-jurisdictional. The wetland was dominated by red maple (*Acer rubrum*, FAC), sweetgum (*Liquidambar styraciflua*, FAC), pin oak (*Quercus palustris*, FACW), jewelweed (*Impatiens capensis*, FACW), northern arrow-wood (*Viburnum dentatum*, FAC), common reed (*Phragmites australis*, FACW) and Virginia creeper (*Parthenocissus quinquefolia*, FACU) along the wetland margin.

FRESHWATER WETLAND AREA B

Wetland Area B comprises approximately 4.36 acres of USACE jurisdictional freshwater wetland and emanates from the southern portion of the project site as depicted on **Figure 4-10**. This wetland has dominant freshwater wetland characteristics. The USFWS classification system typifies this community as an estuarine intertidal wetland (E2EM5P) transitioning to a forested palustrine wetland (PFO1E) as you head north. Although the wetland is classified as estuarine, it has very little if any mixing between tidal and freshwaters and is palustrine in nature. The wetland was dominated by red maple (*Acer rubrum*, FAC), sweetgum (*Liquidambar styraciflua*, FAC), pin oak (*Quercus palustris*, FACW), northern arrow-wood (*Viburnum dentatum*, FAC), gray dogwood (*Cornus racemosa*, FAC), soft rush (*Juncus effusus*, OBL) and common reed (*Phragmites australis*, FACW).²⁷

FRESHWATER WETLAND AREA C/D

Wetland Area C/D, which comprises 0.19 acres of isolated, non-jurisdictional wetland within the project site boundary, lies within the southwestern portion of the of the project site as depicted on **Figure 4-12**. This wetland has dominant freshwater wetland characteristics. Wetland C/D is

²⁷ Wetland Indicator Status – OBL (Obligate Wetland); FACW (Facultative Wetland); FAC (Facultative); FACU (Facultative Upland); UPL (Obligate Upland)

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not mapped by the USFWS. The 2012 JD verified Wetland C/D was isolated, does not meet the current criteria of WOUS under Section 404 of the Clean Water Act and is therefore, non-jurisdictional. The wetland was dominated by pin oak (*Quercus palustris*, FACW), red maple (*Acer rubrum*, FAC), sweetgum (*Liquidambar styraciflua*, FAC), swamp-white oak (*Quercus bicolor*, FACW), highbush blueberry (*Vaccinium corymbosum*, FACW), cinnamon fern (*Osmunda cinnamomea*, FACW) and northern arrow-wood (*Viburnum dentatum*, FAC).

FRESHWATER WETLAND AREA E

Wetland Area E, which comprises 0.83 acres of isolated, non-jurisdictional wetland within the project site boundary, lies within the northwestern portion of the of the project site as depicted on **Figure 4-12**. This wetland has dominant freshwater wetland characteristics. The USFWS classification system typifies this community as a forested palustrine wetland (PFO1E). The 2012 JD verified Wetland E was isolated, does not meet the current criteria of WOUS under Section 404 of the Clean Water Act and is therefore, non-jurisdictional. The wetland was dominated by pin oak (*Quercus palustris*, FACW), red maple (*Acer rubrum*, FAC), sweetgum (*Liquidambar styraciflua*, FAC), and northern arrow-wood (*Viburnum dentatum*, FAC).

FRESHWATER WETLAND AREA F

Wetland Area F, which comprises 0.29 acres of isolated, non-jurisdictional wetland, lies within the northcentral portion of the of the project site as depicted on **Figure 4-12**. This wetland has dominant freshwater wetland characteristics. The USFWS classification system typifies this community as a forested palustrine wetland (PFO1E). The 2012 JD verified Wetland F was isolated, does not meet the current criteria of WOUS under Section 404 of the Clean Water Act and is therefore, non-jurisdictional. The wetland was dominated by pin oak (*Quercus palustris*, FACW), red maple (*Acer rubrum*, FAC), and sweetgum (*Liquidambar styraciflua*, FAC).

FRESHWATER WETLAND AREA H

Wetland Area H, which comprises 0.06 acres of isolated, non-jurisdictional wetland, lies within the southwestern portion of the of the project site as depicted on **Figure 4-12**. This wetland has dominant freshwater wetland characteristics. Wetland H is not mapped by the USFWS. The 2012 JD verified Wetland H was isolated, does not meet the current criteria of WOUS under Section 404 of the Clean Water Act and is therefore, non-jurisdictional. The wetland was dominated by pin oak (*Quercus palustris*, FACW), red maple (*Acer rubrum*, FAC), sweetgum (*Liquidambar styraciflua*, FAC), swamp-white oak (*Quercus bicolor*, FACW), highbush blueberry (*Vaccinium corymbosum*, FACW), cinnamon fern (*Osmunda cinnamomea*, FACW) and northern arrow-wood (*Viburnum dentatum*, FAC).

STIPULATED FRESHWATER WETLAND

The stipulated boundary of the onsite NYSDEC freshwater wetland, which comprises 5.06 acres of freshwater wetlands and 3.76 acres of wetland adjacent area, is located along the southern and western boundaries of the project site as depicted on **Figure 4-10**. The stipulated boundary encompasses delineated wetland and upland areas. The wetland areas are dominated by pin oak (*Quercus palustris*, FACW), red maple (*Acer rubrum*, FAC), sweetgum (*Liquidambar styraciflua*, FAC), swamp-white oak (*Quercus bicolor*, FACW), highbush blueberry (*Vaccinium corymbosum*, FACW), cinnamon fern (*Osmunda cinnamomea*, FACW), northern arrow-wood (*Viburnum dentatum*, FAC), gray dogwood (*Cornus racemosa*, FAC), soft rush (*Juncus effusus*, OBL) and common reed (*Phragmites australis*, FACW). Upland vegetation residing beyond the wetland/upland interfaces included tree-of-Heaven (*Ailanthus altissima*, FACU), black cherry

(*Prunus serotina*, FACU), black locust (*Robinia pseudoacacia*, FACU), poison ivy (*Toxicodendron radicans*, FAC), Japanese knotweed (*Polygonum cuspidatum*, FACU), enchanter's nightshade (*Circaea Canadensis*, FACU), Japanese honeysuckle (*Lonicera japonica*, FACU), Virginia strawberry (*Fragaria virginiana*, FACU), Virginia creeper (*Parthenocissus quinquefolia*, FACU), mugwort (*Artemisia vulgaris*, UPL), and Canada mayflower (*Maianthemum canadense*, FAC).

FORMERLY CONNECTED TIDAL WETLAND AREA

The FC tidal wetland area, which comprises 0.50 acres of NYSDEC tidal wetland and is associated with 2.67 acres of NYSDEC tidal wetland adjacent area, is located within the far southern portion of the project site as depicted on **Figure 4-10**. The FC tidal wetland area was not directly observed during all site visits as it is surrounded by the southern portion of Wetland B, containing a Phragmites monoculture and extremely wet and mucky substrate (histic epipedon). Through the review of aeriels and observations from surrounding sites it was noted that the FC tidal wetland was dominated by common reed (*Phragmites australis*, FACW).

TERRESTRIAL RESOURCES

VEGETATION AND ECOLOGICAL COMMUNITIES

These resources are characterized according to their vegetation, potential for wildlife habitat, current use, and, as appropriate, the environmental systems that support it. The palustrine and terrestrial communities identified onsite include: roadside vegetation community, disturbed red maple, sweet gum and green ash assemblage, pin oak, sweet gum and red maple assemblage, red maple and sweet gum assemblage, disturbed red maple, green ash and naturalized exotic assemblage, disturbed sycamore and mulberry assemblage, disturbed pin oak and sweet gum assemblage, pin oak wetland, disturbed area with some emergent wetland vegetation, brushy cleared land, reedgrass marsh. The characterizations were based on the Ecological Communities of New York State (Edinger et al. 2014) to the extent feasible, however, due to historical disturbances the ecological communities were evaluated in greater detail and described accordingly. Hydrology, hydric soil characteristics, vegetation and landscape position were the determinant factors in establishing upland and wetland community types. Provided below is a description of each of the ecological communities, their location, and an inventory of the vegetative species observed within each of these community types during site surveys. Following *CEQR Technical Manual* guidelines, the ecological communities identified on site are either highly disturbed and/or are commonly found throughout Staten Island. The areas to be disturbed for the proposed project site do not represent rare habitat.

Roadside Vegetation Community (1)

The roadside vegetation community was found along the western boundary, south of Morrow Street, and within the northwestern corner of the project site. This community is characterized by the lack of tree cover and the presence of a variety of herbaceous species typically found along disturbed roadsides and/or edge of pavement. The area is not maintained and allows for herbaceous species to reach heights of 1 to 3 feet. Approximately 0.28 acres (1% of the proposed project site) is classified as the roadside vegetation community.

Species noted included, but were not limited to common mugwort, Queen Anne's lace (*Daucus carota*), goldenrod (*solidago spp.*), common reed, evening primrose (*Oenothera fruticose*),

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thistle (*Cirsium spp.*), common dandelion (*Taraxacum officinale*), common plantain (*Plantago major*), grass species (*Poa spp.*), and Japanese knotweed.

Disturbed Red Maple, Sweet Gum, and Green Ash Assemblage (2)

The disturbed red maple, sweet gum and green ash assemblage was found within the northwestern to northcentral portion of the project site, inclusive of Wetland F. The disturbed red maple, sweet gum and green ash assemblage was characterized by the excessive level of disturbance due to the historical presence of a go-kart track as early as 1966 and the dominance of red maple, sweet gum, and pin oak. Approximately 2.88 acres (10.3% of the proposed project site) is classified as the disturbed red maple, sweet gum, and green ash assemblage.

Other species noted included, but were not limited to pin oak, tree-of-heaven, black gum (*Nyssa sylvatica*), black cherry, northern arrow-wood, Japanese knotweed, wisteria (*Wisteria frutescens*), Virginia creeper, and poison ivy.

Pin Oak, Sweet Gum, and Red Maple Assemblage (3)

The pin oak, sweet gum, and red maple assemblage was found throughout the entire project site, inclusive of Wetlands C/D, E and H. This assemblage is characterized by the dominance of pin oak, sweet gum and red maple trees throughout upland and wetland habitats that have exhibited only minor levels of disturbance from anthropogenic debris including but not limited to windblown garbage from the adjacent movie theater parking lot, abandoned car frame, scrap wood, and traffic cones. The level of disturbance was not significant enough to alter the vegetation found within the assemblage. Approximately 12.67 acres (45.1% of the proposed project site) is classified as the pin oak, sweet gum, and red maple assemblage.

Other species noted included, but were not limited to, swamp white oak, sweet birch (*Betula lenta*), black cherry, northern arrow-wood, gray dogwood, highbush blueberry, Japanese knotweed, Canada mayflower, enchanter's nightshade, Virginia strawberry, Japanese honeysuckle, Virginia creeper, poison ivy, and green brier.

Red Maple and Sweet Gum Assemblage (4)

The red maple and sweet gum assemblage was found within the northeastern portion of the project site, inclusive of Wetland A. This assemblage is characterized by the dominance of red maple and sweet gum trees throughout upland and wetland habitats. This assemblage is fairly undisturbed, yet surrounded by areas of severe disturbance due to the widening of South Avenue and the historical presence of residential dwellings on the project site. Approximately 2.45 acres (8.7% of the proposed project site) is classified as the red maple and sweet gum assemblage.

Other species noted included, but were not limited to pin oak, black cherry, green ash, sycamore (*Platanus occidentalis*), mulberry (*Morus spp.*), northern arrow-wood, multiflora rose (*Rosa multiflora*), Japanese knotweed, Virginia creeper, poison ivy, jewelweed, common reed, and meadow garlic (*Allium canadense*).

*Disturbed Red Maple, Green Ash, and Naturalized Exotic Assemblage*²⁸ (5)

The disturbed red maple, green ash, and naturalized exotic assemblage was found along the northern, northeastern, eastern, and southeastern boundary of the project site. This assemblage was characterized by the dominance of red maple, green ash and naturalized exotic tree species and disturbance associated with the widening of South Avenue during the 1970's, historical residential development, historical go-kart track and the abutment of adjacent properties. Approximately 3.28 acres (11.7% of the proposed project site) is classified as the disturbed red maple, green ash, and naturalized exotic assemblage.

Other species noted included but were not limited to sweet gum, sycamore, tree-of-Heaven, mulberry, pin oak, Norway maple (*Acer platanoides*), black cherry, black locust, gray dogwood, multiflora rose, common reed, common mugwort, enchanter's nightshade, wisteria, summer grape, Virginia creeper, Japanese honeysuckle, Japanese knotweed, and grass species.

Disturbed Sycamore and Mulberry Assemblage (6)

The disturbed sycamore and red maple assemblage was found within the eastern central portion of the project site. This assemblage was characterized by the dominance of sycamore and mulberry trees and disturbance due to the historical presence of residential dwellings as early as 1937. Approximately 1.30 acres (4.6% of the proposed project site) is classified as the disturbed sycamore and red maple assemblage.

Other species noted included, but were not limited to red maple, sweet gum, periwinkle (*Vinca minor*), ground ivy (*Glechoma hederacea*), poison ivy, Virginia creeper, and green brier.

Disturbed Pin Oak and Sweet Gum Assemblage (7)

The disturbed pin oak and sweet gum assemblage was found within the southwestern corner of the project site. This assemblage is characterized by the dominance of pin oak and sweet gum trees within an area disturbed due to historical activities associated with the adjacent movie theatre lot. Approximately 0.89 acres (3.2% of the proposed project site) is classified as the disturbed pin oak, and sweet gum assemblage.

Other species noted included, but were not limited to red maple, northern arrow-wood swamp white oak, Japanese knotweed, enchanter's nightshade, Virginia strawberry, Japanese honeysuckle, Virginia creeper, and poison ivy.

Pin Oak Wetland (8)

Pin oak wetland was found within the southern portion of the project site, within Wetland B. This community is characterized by the dominance of pin oak trees within a forested area beginning to transition from the wetland proper (reedgrass marsh). This community was noticeably a transition between the reedgrass marsh to the south and the forested upland to the north as a distinguished shrub layer consisting primarily of northern arrowwood was present. Approximately 2.05 acres (7.3% of the proposed project site) is classified as the disturbed pin oak and sweet gum assemblage.

²⁸ Naturalized Exotic Assemblage - Naturalized means species that can form self-sustaining populations; they do not need continued introduction to persist. The terms non-native, alien, and exotic generally refer to organisms that come from other political jurisdictions, usually other nations; Final Report of the New York State Invasive Species Task Force Fall 2005 (New York State Department of Environmental Conservation and New York State Department of Agriculture and Markets)

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Other species noted included, but were not limited to sweet gum, red maple, tree-of-heaven, black gum, black cherry, northern arrow-wood, green ash, gray dogwood, Canada mayflower, common reed, trout lily (*Erythronium americanum*), soft rush, poison ivy, and Virginia creeper.

Disturbed Area with Some Emergent Wetland Vegetation (9)

The disturbed area with some emergent wetland vegetation was found within the southern portion of the project site, inclusive of a portion of Wetland B. Bordered to the north by the pin oak wetland, this area further transitions toward the wetland proper and exhibits some emergent vegetation species. Approximately 0.41 acres (1.5% of the proposed project site) is classified as the disturbed area with some emergent wetland vegetation.

Species noted included but are not limited to sweet gum, red maple, soft rush, common reed and sedge species (*Carex spp.*).

Brushy Cleared Land (10)

An area of brushy cleared land was found along the eastern boundary of the project site. This area is characterized as a former forest, woodland, or shrubland that has been clear cut or cleared by brush-hog (Edinger *et al.* 2014). The area was clear cut to provide for a residence present as early as 1954. Approximately 0.11 acres (0.4% of the proposed project site) is classified as the brushy cleared land.

Species noted included but were not limited to common reed, Virginia creeper, and poison ivy.

Reedgrass Marsh (11)

A *Phragmites australis* (Phragmites) dominated reedgrass marsh is present within the southern portion of the project site. Reedgrass marsh is a marsh that has been disturbed by draining, filling, road salts, etc. in which reedgrass (*Phragmites australis*) or purple loosestrife (*Lythrum salicaria*) is the dominant species (Edinger *et al.* 2014). The Phragmites monoculture is the result of historical disturbances likely related to the initial expansion of residential and commercial development within and around the project site. Approximately 1.76 acres (6.3% of the proposed project site) is classified as the reedgrass marsh.

Table 4-3 lists the observed species of vegetation identified within the wetland and terrestrial ecological communities during the natural resource inventory.

WILDLIFE

Prior to initiating field efforts, a literature search was performed to identify wildlife species common to the area that might be expected to utilize the project site.^{29,30,31} NHP, National Marine Fisheries Service (NMFS) (Northeast Region) National Oceanic and Atmospheric Administration (NOAA) and the USFWS were also contacted for a listing of wildlife species of concern which have been reported within the area. A wildlife survey of the project site was

²⁹ NYSDEC New York Nature Explorer; County – Richmond.

³⁰ NYSDEC Breeding Bird Atlas 200-2005; Block 5548B Summary;
<http://www.dec.ny.gov/cfmX/extapps/bba/index.cfmXRequestTimeout=250>.

³¹ Blanchard III, Peter P., Kerlinger Ph.D., Paul; The Trust for Public Land and The New York City Audubon Society; *An Islanded Nature- Natural Area Conservation and Restoration in Western Staten Island, including the Harbor Herons Region*; 2001

Table 4-3
Observed Vegetation Species Common name (Scientific name)

Trees	
American elm (<i>Ulmus americana</i>)	Red Maple (<i>Acer rubrum</i>)
Basswood (<i>Tilia americana</i>)	Sassafras (<i>Sassafras albidum</i>)
Black Cherry (<i>Prunus serotina</i>)	Striped maple (<i>Acer pensylvanicum</i>)
black gum (<i>Nyssa sylvatica</i>)	Sugar Maple (<i>Acer saccharum</i>)
Black Locust (<i>Robinia pseudoacacia</i>)	Swamp white oak (<i>Quercus bicolor</i>)
Black Willow (<i>Salix nigra</i>)	Sweet birch (<i>Betula lenta</i>)
Eastern Cottonwood (<i>Populus deltoides</i>)	Sweet gum (<i>Liquidambar styraciflua</i>)
Gray dogwood (<i>Cornus racemosa</i>)	Sycamore (<i>Platanus occidentalis</i>)
Gray Birch (<i>Betula populifolia</i>)	Tree-of-Heaven (<i>Ailanthus altissima</i>)
Green Ash (<i>Fraxinus pennsylvanica</i>)	Tulip Poplar (<i>Liriodendron tulipifera</i>)
Norway Maple (<i>Acer platanoides</i>)	White Mulberry (<i>Morus alba</i>)
Pin Oak (<i>Quercus palustris</i>)	White oak (<i>Quercus alba</i>)
Princess Tree (<i>Paulownia tomentosa</i>)	White Pine (<i>Pinus strobus</i>)
Quaking aspen (<i>Populus tremuloides</i>)	
Shrubs	
Highbush blueberry (<i>Vaccinium corymbosum</i>)	Northern Arrowwood (<i>Viburnum recognitum</i>)
Multiflora Rose (<i>Rosa multiflora</i>)	Spicebush (<i>Lindera benzoin</i>)
Herbs	
Canada mayflower (<i>Maianthemum canadense</i>)	Japanese Stilt Grass (<i>Microstegium vimineum</i>)
Common dandelion (<i>Taraxacum officinale</i>)	Jewelweed (<i>Impatiens capensis</i>)
Common Milkweed (<i>Asclepias syriaca</i>)	Meadow garlic (<i>Allium canadense</i>)
Common Mugwort (<i>Artemisia vulgaris</i>)	Pennsylvania smartweed (<i>Polygonum pensylvanicum</i>)
Common Plantain (<i>Plantago major</i>)	Periwinkle (<i>Vinca minor</i>)
Enchanter's nightshade (<i>Circaea Canadensi</i>)	Queen Anne's Lace (<i>Daucus carota</i>)
Goldenrod (<i>Solidago</i> spp.)	Rice cut grass (<i>Leersia oryzoides</i>)
Greenbrier (<i>Smilax rotundifolia</i>)	Thistle (<i>Cirsium</i> spp.)
Ground ivy (<i>Glechoma hederacea</i>)	Violets (<i>Viola</i> spp.)
Japanese Knotweed (<i>Polygonum cuspidatum</i>)	Virginia strawberry (<i>Fragaria virginiana</i>)
Vines	
Japanese Honeysuckle (<i>Lonicera japonica</i>)	Virginia Creeper (<i>Parthenocissus quinquefolia</i>)
Poison Ivy (<i>Toxicodendron radicans</i>)	Wisteria (<i>Wisteria frutescens</i>)
Summer Grape (<i>Vitis argentifolia</i>)	
Ferns	
Cinnamon Fern (<i>Osmunda cinnamomea</i>)	Sensitive Fern (<i>Onoclea sensibilis</i>)
Grasses	
Barnyard grass (<i>Echinochloa crus-galli</i>)	Poa Species (<i>Poa</i> spp.)
Common Reed (<i>Phragmites australis</i>)	
Sedges/Rushes	
Sedge species (<i>Carex</i> spp.)	Soft Rush (<i>Juncus effusus</i>)

performed focusing on the presence/absence of avian, mammalian, reptilian, and amphibian species.³² The assessment was conducted in conjunction with vegetation identification using the same transects and sampling protocols. Survey methods included direct and indirect observations (i.e., tracks, droppings, hair, feathers, etc.). Visual observations using binoculars, spotting scopes and detailed inspections under logs, forest floor litter, and rocks were conducted. Audible indicators were also used to identify both avian and amphibian species. All observations were identified by staff scientists and recorded. Additionally, early morning and late evening surveys were conducted to identify wildlife that may not be observed or heard during the day. Surveys were conducted on February 28, March 20, March 21, April 18, May 31, June 12, June

³² CEA – NRI Field Surveys; February 2012 through January 2013. CEA and/or Capital 2013 to present

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19, July 24, August 29, September 26, October 15, November 29, December 19, 2012, and January 17, 2013. The project site has been walked seasonally since 2013 in order to monitor any changes to wildlife populations associated with the project site.

The various ecological communities that exist on the project site provide habitat for a variety of wildlife. Based on the location, environmental characteristics, and site surveys, wildlife species that inhabit or are expected to inhabit the aforementioned ecological communities are listed below.

Birds

Large bird species observed on, above, and adjacent to the proposed project include but were not limited to Canada geese (*Branta canadensis*), red-tailed hawk (*Buteo jamaicensis*), great blue heron (*Ardea herodias*), mallard (*Anas platyrhynchos*), turkey vulture (*Cathartes aura*), and laughing gull (*Larus atricilla*).

Smaller passerine and piciforme species of birds observed on the project site include the American crow (*Corvus brachyrhynchos*), American redstart (*Setophaga ruticilla*), American robin (*Turdus migratorius*), American woodcock (*Philohela minor*), Baltimore oriole (*Icterus galbula*), barn swallow (*Hirundo rustica*), belted kingfisher (*Ceryle alcyon*), black-capped chickadee (*Poecile atricapilla*), blue jay (*Cyanocitta cristata*), Carolina wren (*Thryothorus ludovicianus*), cedar waxwing (*Bombycilla cedrorum*), chipping sparrow (*Spizella passerina*), common grackle (*Quiscalus quiscula*), downy woodpecker (*Picoides pubescens*), eastern wood pewee (*Contopus virens*), gray catbird (*Dumetella carolinensis*), hairy woodpecker (*Picoides villosus*), mourning dove (*Zenaida macroura*), northern cardinal (*Cardinalis cardinalis*), northern mockingbird (*Mimus polyglottos*), red-bellied woodpecker (*Melanerpes carolinus*), redwing blackbird (*Agelaius quiscula*), song sparrow (*Melospiza melodia*), tufted titmouse (*Baeolophus bicolor*), veery (*Catharus fuscescens*), white-breasted nuthatch (*Sitta carolinensis*), white-throated sparrow (*Zonotrichia albicollis*), wood thrush (*Hylocichla mustelina*) and yellow warbler (*Setophaga petechial*).

Other common bird species that should be expected to be present on site include flycatchers, various sparrows, thrushes, goldfinches, meadowlark, and various warblers to name a few. Other common species to New York State may also utilize the project site for various reasons, including foraging and breeding.

Mammals

White-tailed deer (*Odocoileus virginianus*) were observed during most site visits, commonly within the southern portion of the site near Wetland B and the neighboring mitigated property although they were also observed closer to developed properties at the terminus of Lilac Court.

Smaller mammals regularly observed onsite include the following: eastern gray squirrels (*Sciurus carolinensis*), house mouse (*Mus musculus*), common muskrat (*Ondatra zibethicus*), striped skunk (*Mephitis mephitis*), and raccoons (*Procyon lotor*).

Other mammals which should be expected to be present based on the ecological characteristics of the project site include meadow vole (*Microtus pennsylvanicus*), deer mouse (*Peromyscus spp.*) and various other species of mice, voles and shrews (*Sorex spp.*).

Reptiles and Amphibians

Reptiles observed onsite include the common garter snake (*Thamnophis sirtalis*).

Amphibians heard onsite were limited to American bullfrog (*Rana catesbeiana*) and spring peeper (*Pseudacris crucifer*) calls in the vicinity of the phragmites monoculture.³³

All of the dominant species at the site are considered to be highly mobile and generally adaptable to the existing suburban setting of the region. The observed wildlife population densities at the project site are considered to be in the low to normal range.³⁴ The northern portion of the site, with the exception of the northwest corner, exhibited a low variety of wildlife species. This is attributable to the proximity to major roadways and predominantly low quality vegetation on this portion of the site which limits the diversity and value of the on-site wildlife habitat. The southern portion of the project site, closest to Wetland B exhibited a normal variety of wildlife species. This is attributable to the variety of habitats, adjacent undeveloped properties contiguous to Graniteville Swamp Park and Old Place Creek, quality and diversity of vegetation.

Table 4-4 provides a complete listing of the wildlife species identified on the project site. No federal or state-listed rare plant or animal species, habitats or significant natural communities were identified on the project site by staff biologists.

SOILS

Topography

The proposed project is located in northwestern Staten Island within the Sandy Hook-Staten Island watershed. Topography of the site consists of a gentle slope from north to south. Low areas of the subject property occur along the east side of the property bordering South Avenue, the northwestern edge bordering Morrow street, a small area along Amador Street, between Garrick Street and Morrow Street, and the southern edge of the property between South Avenue and Garrick Street along Amador Street. The site drains to a Phragmites dominated monoculture at the upper reaches of Old Place Creek which eventually drains to the Arthur Kill.

The majority of the project site, has gradual slopes of less than 10 percent. Slopes in excess of 10 percent comprise a very small portion of the project site and are associated with road construction cast-off located in the southeastern corner of the site adjacent to South Avenue.

The project site does not contain any prominent or unique geologic features.

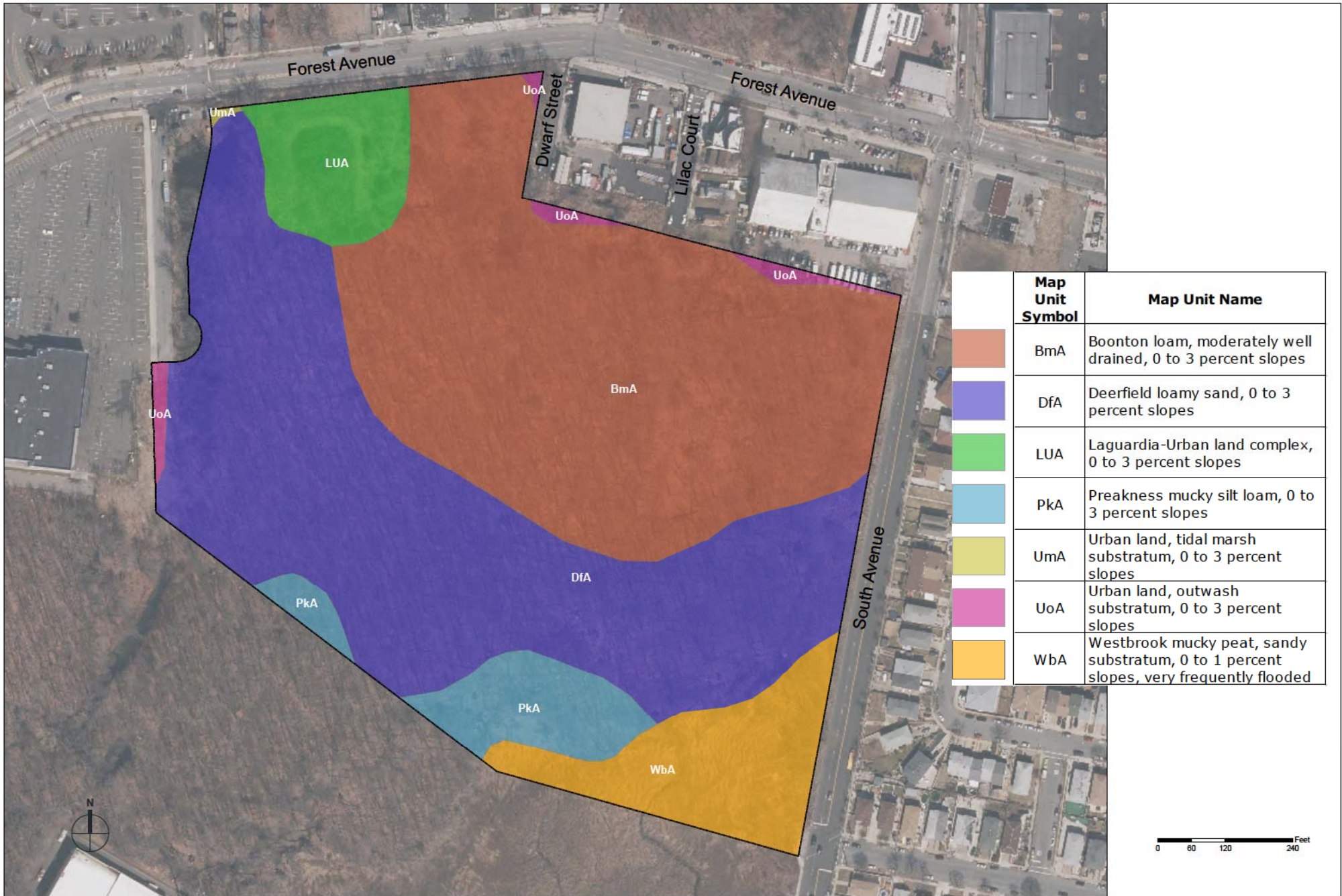
Soil Types

The soils on the project site have been identified and described using the soil classifications of the USDA Natural Resources Conservation Service (NRCS). The site is underlain by seven (7) soil types and/or complexes: Boonton loam, Deerfield loamy sand, Laguardia-Urban land complex, Preakness mucky silt loam, Urban land - tidal marsh substratum, Urban land – outwash substratum and Westbrook mucky peat sandy substratum.³⁵ The distribution of the soil types on the project site is shown on the soils map illustrated in **Figure 4-13**. The characteristics of each soil type are described below.

³³ The species identified were found in Wetland B, the Phragmites monoculture, located within the area to be preserved along the southern portion of the project site.

³⁴ Based on best professional judgement from observations of wildlife in similar landscape settings throughout Staten Island.

³⁵ USDA. NRCS. Web Soil Survey. National Cooperative Soil Survey. Online Mapper.



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Soil Map
Figure 4-13

**Table 4-4
Observed Wildlife Species
Common name (Scientific name)**

Mammals	
Common Muskrat (<i>Ondatra zibethicus</i>)	Raccoon (<i>Procyon lotor</i>)
Eastern Gray Squirrel (<i>Sciurus carolinensis</i>)	Striped Skunk (<i>Mephitis mephitis</i>)
House Mouse (<i>Mus musculus</i>)	White-tailed Deer (<i>Odocoileus virginianus</i>)
Birds	
American Black Duck* (<i>Anas rubripes</i>)	Green Heron* (<i>Butorides virescens</i>)
American Crow (<i>Corvus brachyrhynchos</i>)	Hairy Woodpecker (<i>Picoides villosus</i>)
American Goldfinch* (<i>Spinus tristis</i>)	Herring Gull* (<i>Larus argentatus</i>)
American Kestrel* (<i>Falco sparverius</i>)	House Finch* (<i>Carpodacus mexicanus</i>)
American Redstart (<i>Setophaga ruticilla</i>)	House Sparrow* (<i>Passer domesticus</i>)
American Robin (<i>Turdus migratorius</i>)	House Wren* (<i>Troglodytes aedon</i>)
American Woodcock (<i>Philohela minor</i>)	Killdeer* (<i>Charadrius vociferous</i>)
Baltimore Oriole (<i>Icterus galbula</i>)	Laughing Gull** (<i>Larus atricilla</i>)
Barn Owl* (<i>Tyto alba</i>)	Mallard (<i>Anas platyrhynchos</i>)
Barn Swallow (<i>Hirundo rustica</i>)	Marsh Wren* (<i>Cistothorus palustris</i>)
Belted Kingfisher (<i>Ceryle alcyon</i>)	Mourning Dove (<i>Zenaidura macroura</i>)
Black-billed Cuckoo* (<i>Coccyzus erythrophthalmus</i>)	Northern Cardinal (<i>Cardinalis cardinalis</i>)
Black-capped Chickadee (<i>Parus atricapilla</i>)	Northern Flicker* (<i>Colaptes auratus</i>)
Blue Jay (<i>Cyanocitta cristata</i>)	Northern Mockingbird (<i>Mimus polyglottos</i>)
Brown Thrasher* (<i>Toxostoma rufum</i>)	Northern Rough-winged Sparrow* (<i>Stelgidopteryx serripennis</i>)
Brown-headed Cowbird* (<i>Molothrus ater</i>)	Orchard Oriole* (<i>Icterus spurius</i>)
Canada Goose (<i>Branta Canadensis</i>)	Osprey* (<i>Pandion haliaetus</i>)
Carolina Wren (<i>Thryothorus ludovicianus</i>)	Peregrine Falcon* (<i>Falco peregrinus</i>)
Cedar Waxwing (<i>Bombicilla cedrorum</i>)	Red-bellied Woodpecker (<i>Melanerpes carolinus</i>)
Chimney Swift* (<i>Chaetura pelagica</i>)	Red-eyed Vireo* (<i>Vireo olivaceus</i>)
Chipping Sparrow (<i>Spizella passerina</i>)	Red-tailed Hawk (<i>Buteo jamaicensis</i>)
Clapper Rail* (<i>Rallus longirostris</i>)	Redwing Blackbird (<i>Agelaius quiscula</i>)
Common Grackle (<i>Quiscalus quiscula</i>)	Rock Pigeon* (<i>Columba livia</i>)
Common Yellowthroat* (<i>Geothlypis trichas</i>)	Song Sparrow (<i>Melospiza melodia</i>)
Cooper's Hawk* (<i>Accipiter cooperii</i>)	Spotted Sandpiper* (<i>Actitis macularius</i>)
Double-crested Cormorant* (<i>Phalacrocorax auritus</i>)	Swamp Sparrow* (<i>Melospiza melodia</i>)
Downy Woodpecker (<i>Picoides pubescens</i>)	Tree Swallow* (<i>Tachycineta bicolor</i>)
Eastern Kingbird* (<i>Tyrannus tyrannus</i>)	Tufted Titmouse (<i>Baeolophus bicolor</i>)
Eastern Screech-owl* (<i>Megascops asio</i>)	Turkey Vulture (<i>Cathartes aura</i>)
Eastern Towhee* (<i>Pipilo erythrophthalmus</i>)	Veery (<i>Catharus fuscescens</i>)
Eastern Wood Pewee (<i>Contopus virens</i>)	Warbling Vireo* (<i>Vireo gilvus</i>)
European Starling (<i>Sturnus vulgaris</i>)	White-breasted Nuthatch (<i>Sitta carolinensis</i>)
Field Sparrow* (<i>Spizella pusilla</i>)	White-eyed Vireo* (<i>Vireo griseus</i>)
Fish Crow* (<i>Corvus ossifragus</i>)	White-throated Sparrow (<i>Zonotrichia albicollis</i>)
Gadwall* (<i>Anas strepera</i>)	Willow Flycatcher* (<i>Empidonax traillii</i>)
Gray Catbird (<i>Dumetella carolinensis</i>)	
Great Blue Heron** (<i>Ardea herodias</i>)	Wilson's Snipe* (<i>Gallinago delicata</i>)
Great Black-backed Gull* (<i>Larus marinus</i>)	Wood Thrush (<i>Hylocichla mustelina</i>)
Great Crested Flycatcher* (<i>Myiarchus crinitus</i>)	Yellow Warbler (<i>Setophaga petechial</i>)
Great Horned Owl* (<i>Bubo virginianus</i>)	Yellow-breasted Chat* (<i>Icteria virens</i>)
Insects/Butterflies/Arachnids	
American Dog Tick (<i>Dermacentor variabilis</i>)	Monarch Butterfly (<i>Danaus plexippus</i>)
Bumblebee (<i>Bombus</i> spp.)	Mosquito (<i>Culicidae</i> spp.)
Deer Tick (<i>Ixodes scapularis</i>)	Wood Tick (<i>Dermacentor andersoni</i>)
Field Cricket (<i>Gryllus</i> spp.)	
Reptiles/Amphibians	
American Bullfrog (<i>Rana catesbeiana</i>)	Spring Peeper (<i>Pseudacris crucifer</i>)
Common Garter Snake (<i>Thamnophis sirtalis</i>)	
Notes:	
*Species listed in NYSDEC Breeding Bird Atlas, but not observed (Block 5649B)	
**Observed adjacent to or flying over the subject property	

Boonton loam

The soil is described as areas of ground moraine. Soils are derived from red coarse-loamy till derived from sedimentary rock.³⁶

Deerfield loamy Sand

The soil is described as areas of outwash plains and terraces. Soils are derived from sandy glaciofluvial deposits derived from igneous and metamorphic rock.³⁷

Laguardia-Urban Land Complex

The soil is a combination of Laguardia soils overlain with urban cover. Laguardia soils are described as areas of summit or slopes. Soils are derived from loamy-skeletal human-transported material.³⁸

Preakness Mucky Silt Loam

The soil is described as areas of depressions and drainageways. Soils are derived from coarse-loamy outwash over gravelly outwash and/or sandy outwash.³⁹

Urban land-Flatbush Complex

The soil is a combination of Flatbush soils overlain with urban cover (e.g. asphalt). Flatbush soils are described as areas of summit or slopes. Soils are derived from loamy human transported material over outwash.⁴⁰

Urban land, Tidal Marsh Substratum

The soil is described as areas of summit. Soils consist of asphalt over human transported material (cemented material over very gravelly sand).⁴¹

Urban land, Outwash Substratum

The soil is described as areas of summit. Soils consist of asphalt over human transported material (cemented material over gravelly sand).⁴²

Soil characteristics are described in **Table 4-5**. This information has been compiled from data available from the *USDA NRCS Web Soil Survey*.

³⁶ USDA. NRCS. Web Soil Survey. National Cooperative Soil Survey. Map Unit Description: Boonton loam, moderately well drained, 0 to 3 percent slopes.

³⁷ USDA. NRCS. Web Soil Survey. National Cooperative Soil Survey. Map Unit Description: Deerfield loam, 0 to 3 percent slopes.

³⁸ USDA. NRCS. Web Soil Survey. National Cooperative Soil Survey. Map Unit Description: Laguardia-Urban Land Complex, 0 to 3 percent slopes.

³⁹ USDA. NRCS. Web Soil Survey. National Cooperative Soil Survey. Map Unit Description: Preakness mucky silt loam, 0 to 3 percent slopes.

⁴⁰ USDA. NRCS. Web Soil Survey. National Cooperative Soil Survey. Map Unit Description: Urban land-Flatbush complex, 0 to 3 percent slopes.

⁴¹ USDA. NRCS. Web Soil Survey. National Cooperative Soil Survey. Map Unit Description: Urban land, Tidal marsh substratum, 0 to 3 percent slopes.

⁴² USDA. NRCS. Web Soil Survey. National Cooperative Soil Survey. Map Unit Description: Urban land, Tidal marsh substratum, 0 to 3 percent slopes.

**Table 4-5
Soil Characteristics**

Soil Series	Hydrologic Group ¹	Permeability	Erosion Hazard	Drainage Class
Boonton loam	C/D	Very low to moderately low	Slight to moderate	Moderately well drained
Deerfield loam	A/D	Moderately high to very high	Slight	Moderately well drained
Flatbush	B	Moderately high	N/A	Well drained
Laguardia	C	Moderately low to moderately high	Slight	Well drained
Preakness mucky silt loam	A/D	High	Slight	Poorly drained
Urban land outwash substratum	N/A	Very low	Not Rated	N/A
Urban land tidal marsh substratum	N/A	Very low	Not Rated	N/A
Urban land till stratum	N/A	Very low	Not Rated	NA
Westbrook mucky peat	A/D	Moderately low to very high	Slight	Very poorly drained
Note: 1. Hydrologic groups are used to estimate runoff from precipitation; they range from high infiltration (A) to low infiltration (D).				

Hydrologic soils are grouped in to A, B, C, and D categories. Group A soils have a high infiltration rate (low runoff potential) when thoroughly wet and consist mainly of deep well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission. Group B soils have a moderate infiltration rate when thoroughly wet and consist chiefly of moderately deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission. Group C soils have a slow infiltration rate when thoroughly wet and consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission. Group D soils have a very slow infiltration rate (high runoff potential) when thoroughly wet and consist chiefly of clays that have high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

SIGNIFICANT, SENSITIVE, OR DESIGNATED RESOURCES

WATERFRONT REVITALIZATION PROGRAM

Special Natural Waterfront Area (SNWA)

New York City’s new Waterfront Revitalization Program (WRP) of has designated a number of Special Natural Waterfront Areas (Policy 4). Projects located within SNWAs should use minimal environmentally damaging mitigation measures, avoid fragmentation of natural ecological communities, remediate and restore ecological systems (to the extent practicable), utilize stormwater management best practices, protect non-invasive plants from excessive loss or disturbance and encourage greater quantity and diversity of non-invasive plants (to the extent

practicable), prepare a natural resource assessment, and target public investment towards habitat protection and improvement.

The project site is located within the NYC WRP designated SNWA, Northwestern Staten Island Harbor Herons SNWA (Harbor Herons Complex). The Harbor Herons Complex extends along shorelines of the marshes, creeks and islands on western Staten Island, starting just north of the Goethals Bridge, stretching south along the eastern shoreline of the Arthur Kill, continuing south along Prall's Island to the south shoreline of Great Fresh Kill, then stretching east along the south shore of Great Fresh Kill and both shores of Richmond Creek, then turning north and weaving around the boundaries of Fresh Kill Marsh, Sawmill Creek Marsh, Mariners Marsh, and Old Place Creek Marsh.⁴³ The Harbor Herons Complex consists of several nesting islands and foraging areas throughout the New York City area.⁴⁴ The Harbor Heron's complex's mixture of productive tidal marsh, freshwater marsh, shallow water foraging habitats, their proximity to islands with suitable nesting habitat and minimal human and predator intrusion, is key to the importance of the area for nesting wading birds.⁴⁵

CONSERVATION AREAS

A number of groups and organizations have expressed interest in preserving and protecting the project site. The project site lies within the Graniteville Swamp section of the Northwestern Staten Island Harbor Herons Region. Graniteville Swamp is bounded to the north by Forest Avenue and to the south by Goethals Road North. The western boundary is provided by Albert Street and Morrow Street, while South Avenue forms the eastern boundary. The area contains approximately 45 acres, consisting of upland and swamp forest, open marsh and salt marsh. The groups/organizations and their publications are as follows:

The New York-New Jersey Harbor Estuary Program

In 2006, Habitat Workgroup listed Graniteville Swamp Woods as a Highest Priority Site for acquisition.

2014 Draft New York State Open Space Conservation Plan

Graniteville Swamp/Old Place Creek is listed in the 2014 Draft New York State Open Space Conservation Plan by the Regional Advisory Committee as a NYS Priority Open Space Conservation Project.

The Trust for Public Land and the New York City Audubon Society

In 2001, the groups jointly published *An Islanded Nature: Natural Area Conservation and Restoration in Western Staten Island, including the Harbor Herons Region*, inclusive of Graniteville Swamp.

⁴³ NYC Mayor's Office of Environmental Coordination; 2014 CEQR Technical Manual (March Addition). Chapter 11 – Natural Resources; Attachment.

⁴⁴ NYSDEC. Harbor Herons BCA Management Guidance Summary. Available at <http://www.dec.ny.gov/animals/27250.html>.

⁴⁵ NYSDEC. Harbor Herons BCA Management Guidance Summary. Available at <http://www.dec.ny.gov/animals/27250.html>.

THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES

The NHP was contacted in May 2015 for the presence of rare or state-listed species that may be present within or adjacent to the proposed project (Appendix C, Natural Resources Correspondence).

The USFWS Information for Planning and Conservation (IPaC) was contacted in December 2016 for federally listed threatened and endangered species within or adjacent to the project site (Appendix C, Natural Resources Correspondence).

The NMFS was contacted in March of 2015 and concluded that the project would not affect any listed species.

VEGETATION

The NHP's records provided historical records (c.1900-1907) for orange fringed orchid (*Platanthera ciliaris*) and log fern (*Dryopteris celsa*). None of these plants were identified during site vegetation surveys during the four-season natural resource inventory. **Table 4-3** lists the observed species of vegetation identified during the NRI. No state listed rare or endangered plant species or communities identified on the site by the NHP as occurring within areas adjacent to the project site were observed during visits to the site.

WILDLIFE

Correspondence with NHP in May 2016 indicated that the State-listed special concern species southern leopard frog (*Lithobates sphenoccephalus*) was identified within the vicinity of the project site (Appendix C, Natural Resources Correspondence). The NHP also provided historical records (c. 1900) for the eastern mud turtle (*kinosternon subrubrum*). No state listed rare or endangered wildlife species were identified by the NHP as occurring within areas adjacent to the project site and none were observed during visits to the site.

The USFWS IPaC identified one threatened bird species, piping plover (*Charadrius melodus*), and one endangered bird species, roseate tern (*Sterna dougallii*).⁴⁶

Piping Plover (Charadrius melodus)

No piping plovers were observed or identified on or adjacent to the project site during NRI field visits. Piping plovers are shorebirds that arrive at breeding grounds in New York around early to mid-March. Breeding grounds are typically grassless, dry, sandy beaches or in areas that have been filled with dredged sand, above the high tide mark.⁴⁷ Within New York, this species breeds on Long Island's sandy beaches, from Queens to the Hamptons, in the eastern bays and in the harbors of northern Suffolk County, although a single pair was also recorded in 1984 at Sandy Pond, Lake Ontario in Oswego County.⁴⁸ Continued human pressures such as coastal development, recreational activities, and disturbance by off-road vehicles have reduced the available suitable breeding habitat for these birds.⁴⁹ No suitable breeding habitat, such as grassless, dry, sandy beaches, for the piping plover was present on or near the project site.

⁴⁶ USFWS. Information, Planning, and Conservation System (IPAC). Trusted Resources List. Accessed April 7, 2015.

⁴⁷ NYSDEC; *Piping Plover Fact Sheet*; Available from: <http://www.dec.ny.gov/animals/7086.html>

⁴⁸ NYSDEC; *Piping Plover Fact Sheet*; Available from: <http://www.dec.ny.gov/animals/7086.html>

⁴⁹ NYSDEC; *Piping Plover Fact Sheet*; Available from: <http://www.dec.ny.gov/animals/7086.html>

Roseate Tern (Sterna dougallii)

In New York, roseate terns are always found nesting with common terns.⁵⁰ The nest may be only a depression in sand, shell, or gravel, and may be lined with bits of grass and other debris.⁵¹ It is usually placed in dense grass clumps, or even under boulders or rip-rap.⁵² In New York, this species breeds only at a few Long Island colonies.⁵⁰ Threats to roseate tern populations include vegetational changes on the breeding areas, competition with gulls for suitable nesting areas, and predation.⁵³ No suitable habitat for the roseate tern was present on or near the project site.

E. THE FUTURE WITHOUT THE PROPOSED PROJECT

As described in Chapter 1, “Project Description,” absent the proposed actions (the No Action development), the development site is assumed to be developed with six new retail buildings as well as a gas station and automated bank teller. The No Action development would not require any discretionary approvals, and would not include the mapping or demapping of any City streets. In accordance with the NYSDEC-approved site plan, the No Action development would not develop a portion of project site which would be preserved as mapped wetlands, as well as a landscaped buffer between the regulated wetlands and the development site and a stormwater management area. The No Action development would result in a similar development footprint as the proposed project and, therefore, effects on natural resources for the No Action condition are expected to be comparable to those due to the proposed project.

GROUNDWATER

Under the No Action condition, the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan.

Groundwater in Staten Island is not used as a source of potable water (the municipal water supply uses upstate reservoirs) and as such the groundwater onsite will not be used as a source of drinking water. The No Action development includes six new retail buildings as well as a gas station and automated bank teller. As such, minimal subsurface intrusion into the existing groundwater may result from the proposed structures foundation. The flow of groundwater may be minimally altered within the vicinity of the structures. It is anticipated that the majority of existing groundwater will continue to flow south towards Wetland B and Old Place Creek following completion of site construction. Any alterations to groundwater flow post construction due to construction or stormwater management practices are not anticipated to affect surrounding properties. Piezometers will be installed onsite prior to construction to determine groundwater flow direction.

FLOODPLAINS

Under the No Action condition, the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan.

⁵⁰ NYSDEC; *Roseate Tern Fact Sheet*; Available <http://www.dec.ny.gov/animals/7084.html>

⁵¹ NYSDEC; *Roseate Tern Fact Sheet*; Available <http://www.dec.ny.gov/animals/7084.html>

⁵² NYSDEC; *Roseate Tern Fact Sheet*; Available <http://www.dec.ny.gov/animals/7084.html>

⁵³ NYSDEC; *Roseate Tern Fact Sheet*; Available <http://www.dec.ny.gov/animals/7084.html>

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The channels and floodways of the Old Place Creek will not be impacted by the No Action condition. The No Action development will result in the loss of some of the floodplain fringe and associated 100 Year Floodplain boundary along Wetland B due to development, however, Wetland B will be preserved in its entirety within the project site.⁵⁴ Wetland B provides the site flood storage and attenuation functions, and the No Action condition includes the creation of a stormwater management area within the southern portion of the project site that will aid in stormwater storage and minimize the risk of flooding. In addition, significant freshwater wetland plantings will serve to improve protection and provide an added measure of flood storage. The stormwater management area and enhanced and preserved wetland adjacent areas will provide critical flood and stormwater control functions by absorbing, storing, and slowing down the movement of flood, rain, and melt water, minimizing flooding and stabilizing water flow onsite.

As designed, with the No Action development, the site would be graded at an elevation of 12 feet NAVD88. All retail space and the parking lot within the No Action condition would be located at an elevation of at least 12 feet NAVD88, or 2 feet above the preliminary BFE range of 10 feet NAVD88.

In addition, the No Action development would preserve the NYSDEC tidal wetland, contiguous freshwater wetland, and the associated wetland adjacent areas area which ~~provides~~ provide storm surge protection for the project site and surrounding areas. The No Action development would not adversely affect existing wetland storm surge protection or stormwater attenuation and would not result in an increase flooding potential to the area. Moreover, the significant freshwater wetland buffer and enhancement plantings would serve to improve flood protection and provide an added measure of flood storage within the southern portion of the site. As discussed below in Aquatic Resources, in accordance with NYSDEC SPDES (GP-0-15-002), a Stormwater Pollution Prevention Plan (SWPPP) consisting of post-construction stormwater management practices would be prepared. Water quantity would be designed to meet the NYSDEC design criteria.

AQUATIC RESOURCES

SURFACE WATER RESOURCES

Under the No Action condition, the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site, including the headwaters of Old Place Creek, in accordance with the NYSDEC-approved site plan.

WATER QUALITY

The operation of the proposed No Action development would not result in water quality conditions within Old Place Creek that fail to meet Class C fresh surface waters or class SD saline surface waters. Wetland B and the formerly connected tidal wetland would continue to act as a natural filter for the No Action development's stormwater runoff. The No Action condition includes the conservation of natural areas, enhancement of wetland buffer areas through mitigative plantings, and installation of a stormwater management area. Further, the No Action development will maintain the water balance to the regulated freshwater and tidal wetland areas allowing the wetland to continue to filter the site's stormwater runoff and preserve pre-

⁵⁴ Preliminary Firm GIS Data 1/30/2015.

construction water quality associated with Old Place Creek. In addition, utilization of structural stormwater controls will ensure compliance with the post construction requirements of the SPDES General Permit for Stormwater Discharges from Construction Activity - GP-0-15-002.

Stormwater Pollution Prevention Plan - SWPPP

As part of the No Action condition, coverage under a NYSDEC State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002) would be required. In accordance with NYSDEC SPDES (GP-0-15-002), a Stormwater Pollution Prevention Plan (SWPPP) consisting of both temporary erosion and sediment controls and post-construction stormwater management practices would be prepared. Water quantity and quality treatment would be designed to meet the NYSDEC design criteria and treat stormwater runoff from the No Action development.

Construction Erosion and Sediment Control Plan

The No Action development will require a NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities (Permit No. GP-0-15-002) as more than one acre of land will be disturbed. Erosion and sedimentation will be controlled during the construction period by temporary devices in accordance with the construction Erosion and Sediment Control (ESC) plan developed specifically for the project site.

Erosion and sedimentation from lands cleared during development can cause indirect impacts to adjacent freshwater and tidal wetland areas. Although construction of the No Action development would require regrading of a portion of the site, existing drainage patterns would generally remain the same, with all drainage occurring southward towards Wetland B and subsequently Old Place Creek. However, as a result of additional impervious area, more surface runoff would occur and stormwater management practices would be employed to control runoff characteristics. A hydrologic analysis has been prepared to estimate the increase in runoff from the No Action development. Peak rates of surface runoff would significantly increase on the northern portion of the site if not appropriately managed. The No Action development would also increase pollutant loadings found in site stormwater runoff, and would be abated by approved stormwater management practices both during and post-construction. During construction activities, potential short-term impacts from regrading and stockpiling of soil materials can impact surface water quality by the loss of sediment and suspended solids to on-site and downstream waters. Long-term impacts to surface water quality can result after developments are completed and operational. Increases in levels of pollutants typically associated with retail land use activities would occur as well.

The ESC plan has been prepared in conjunction with Rampulla Associates and addresses erosion control and slope stabilization during all construction phases of the No Action development. These plans were developed in accordance with the Erosion and Sediment Control Guidelines in the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities (Permit No. GP-0-15-002). The plans include limitations on the area of disturbance and devices to be used to help control soil erosion such as silt fencing, storm inlet protection and a stabilized construction entrance.

Erosion controls include silt fencing to surround all grading activities as well as the installation of curb inlet sediment traps for the proposed stormwater drains along the access roads. The plan proposes construction entrances which would be stabilized and used for the duration of

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construction. The stabilized entrances will prevent soil from being carried onto the adjacent and nearby roads.

The stabilized construction entrances will be constructed in conformance with the NYS Standards and Specification for Erosion and Sediment Control. Filter cloth will be placed over the entire area prior to the placement of stone. The entrances will be maintained in a condition to prevent tracking or flowing of sediment onto the public right of way. Any sediment that is spilled, dropped, washed or tracked onto the public right of way will be removed immediately. If washing is required it will be done in an area stabilized with stone, which drains to an approved sediment trapping device. Inspection and needed maintenance will be provided after each rain.

Silt fencing will also be placed around the entire construction envelope during the initial phase of the erosion control process. When two pieces of filter cloth adjoin, they will be overlapped by at least 6-inches and folded, to maintain the proper erosion control function. Maintenance will be performed in accordance with the ESC plan.

The ESC plan would include guidelines and controls for conducting construction elements such as:

- Installation of protective fencing around trees and other features to be preserved.
- Installation of a stabilized construction entrance and temporary perimeter silt fencing around the construction area.
- Construction of permanent water quality and stormwater control devices and installation of temporary swales and berms as needed to direct runoff to the devices. The stormwater control devices are to be utilized as temporary sediment traps during construction.
- Clearing and grubbing of vegetation, removal of existing structural debris.
- Provision of temporary sediment protection at all stormwater inlets.
- Maintenance of silt fence barriers, sediment traps, and other erosion control measures in working order throughout the construction period.
- Planting, seeding, or paving of all disturbed areas in a timely manner to prevent or minimize erosion.
- Monitoring all provisions over time to ensure successful establishment of all landscape plantings and other permanent erosion control measures at the site, including the prompt stabilization and restoration of damaged plantings and seeded areas.

Post-Construction Permanent Control Measures

As noted above, a SWPPP that includes post-construction stormwater management practices would be prepared for the No Action development. The permanent stormwater control measures would incorporate the standards presented in the latest *New York State Stormwater Management Design Manual* (January 2015). All water discharged from the stormwater management devices would flow in a pattern similar to the pre-development drainage condition of the site. The implementation of the post-construction measures included in the SWPPP would further mitigate discharge of stormwater to Wetland B (and subsequently Old Place Creek) and maintain its quality. The stormwater management practices are designed to address any potential adverse impacts on water quality associated with post-development conditions.

AQUATIC BIOTA

The No Action condition would not result in water quality conditions within Old Place Creek that fail to meet Class C freshwater surface water or class SD saline surface water standards. As discussed under “Water Quality,” potential impacts to Old Place Creek from the discharge of stormwater would be minimized due to implementation of stormwater infrastructure practices as part of the post-construction stormwater management measures that would be incorporated in the SWPPP. These measures would minimize the potential for operation of the project to adversely affect the quality of stormwater discharged to the Old Place Creek and adversely affect the aquatic biota.

WETLANDS

Under the No Action condition, the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan. Effects on wetlands due to the No Action development would be mitigated. In accordance with the NYSDEC-approved plan, the southern portion of the property would be preserved encompassing the mitigative plantings, a stormwater management area and natural areas. The Wetland B would be preserved and continue to attenuate and filter stormwater flows. The NYSDEC freshwater and tidal wetlands and the associated adjacent areas would be preserved and enhanced with mitigative plantings.

WETLAND AND WETLAND BUFFER DISTURBANCES

The No Action development would disturb on-site regulated NYSDEC freshwater wetland 100-foot adjacent area associated with the NYSDEC Stipulated FWW boundary and isolated, non-jurisdictional USACE freshwater wetlands. The NYSDEC stipulated freshwater wetland, the NYSDEC tidal wetland, and the USACE regulated Wetland B will not be affected by the No Action development.

The disturbances to the regulated NYSDEC freshwater wetland 100-foot adjacent area was minimized to the maximum extent possible when designing the site plan in conjunction with NYSDEC staff. The minimal intrusion to the regulated adjacent area (0.39 acres) depicted on Figure 1-6 – No Action Scenario Site Plan are unavoidable due to road access and building construction. The disturbance to the isolated non-regulated USACE wetland areas were also minimized to the maximum extent possible when designing the site plan, however, due to the location of the wetlands the impacts depicted are unavoidable. To compensate for the loss of NYSDEC freshwater wetland adjacent area, the applicant has proposed 10.77 acres of freshwater buffer plantings, freshwater wetland enhancement area, tidal wetland adjacent area enhancement, stormwater management area, and preserved natural areas (Figure 1-6).

SHORT-TERM AND LONG-TERM MODIFICATION TO WETLANDS

The No Action development will not result in any short-term or long-term modifications to the functions of the on-site NYSDEC freshwater or tidal wetlands or jurisdictional USACE freshwater wetland. Indirect impacts that could result from the No Action development would include potential water quality impacts associated with uncontrolled discharge of stormwater runoff. To address this potential impact, a SWPPP would be prepared and implemented with the No Action development, as described under “Water Quality” above. Physical and biological controls over the post-development runoff rates and water quality conditions would be provided

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through the freshwater buffer plantings, freshwater wetland enhancement area, tidal wetland adjacent area enhancement, stormwater management area, and preserved natural areas (Figure 1-6).

NYSDEC WETLAND MITIGATION PLAN

The NYSDEC ~~wetland mitigation plan~~ Wetland Mitigation Plan will be implemented which will reduce or avoid potential significant adverse effects to natural resources. The project sponsor is committed to minimizing impacts to freshwater and tidal wetlands attributable to construction and development activities as well as compensating for any unavoidable losses. The project team has designed the No Action development to reduce or avoid direct impacts to wetlands and wetland buffer zones to the extent possible based on the project design.

The southern portion of the project site would provide the area for the proposed mitigation. The proposed wetland mitigation area contains areas of tidal and freshwater wetland enhancement, freshwater buffer plantings, a stormwater management area, and preserved natural areas. The existing, disturbed woodland vegetation would be supplemented by native plants and associated landscaping within the project site. This would include removal of invasive or nonnative plant species. The introduced plantings will likely be used for foraging by wildlife and many of the shrub species chosen for landscaping would provide habitat for songbirds and other avian species. Trees that are planted would mature in the long-term and would provide roosting and nesting opportunities for birds that are adaptable to urban conditions. Grasses and low growing shrub plantings provide cover for ground-nesting birds. The wetland enhancement and buffer planting areas would provide enhancement of natural features through the establishment of native tree, shrub, and herbaceous vegetation in areas dominated by invasive species. The stormwater management area would provide means to manage the increased amount of stormwater in addition to maintaining the water quality of Wetland B through installation of appropriate stormwater management practices.

To promote habitat continuity, the proposed enhancement and buffer planting areas will be designed to accommodate different planting zones thereby facilitating connections with adjacent freshwater wetlands and wetland adjacent areas. Large native trees within the proposed mitigation areas will be preserved to the extent possible (**Figure 4-19**).

The wetland enhancement areas have been designed to utilize the natural substrates to maintain the proposed mitigative plantings. The soil substrate will provide the necessary structural support and nutrients to aid in the establishment of the proposed wetland plantings and associated microbial populations. Proposed mitigative planting species are representative of the vegetative communities found on the subject property and were thus chosen with the anticipation of a high success rate.

Freshwater Wetland Mitigation Plan

The focus of the freshwater wetland enhancement and buffer planting design is to improve onsite habitat for resident and migrating wildlife species through the provision of freshwater wetland and adjacent area habitats. The wetland enhancement and buffer planting areas will be established with tree, shrub and herbaceous plantings. Improving this area will provide both food and cover for area wildlife and serve to enhance the subject area providing for more diverse flora and fauna. The existing functions of these areas served as a basis for the designated wetland enhancement and buffer planting areas (Figure 1-6).

Two distinguished planting zones will be established within the freshwater wetland mitigation area: freshwater wetland buffer planting area and the freshwater wetland enhancement area (see Table 4-6).

**Table 4-6
Mitigation Plantings**

Freshwater Wetland Buffer Planting Area
<i>Trees</i>
Red Maple (<i>Acer rubrum</i>)
Sweetgum (<i>Liquidambar styraciflua</i>)
Pin Oak (<i>Quercus palustris</i>)
<i>Shrubs</i>
Spicebush (<i>Lindera benzoin</i>)
Arrowwood (<i>Viburnum recognitum</i>)
Highbush blueberry (<i>Vaccinium corymbosum</i>)
Red Chokeberry (<i>Aronia arbutifolia</i>)
Coastal Sweet Pepperbush (<i>Clethra alnifolia</i>)
Groundsel Bush (<i>Baccharis halimifolia</i>)
Freshwater Wetland Enhancement Area
<i>Trees</i>
Red Maple (<i>Acer rubrum</i>)
Sweetgum (<i>Liquidambar styraciflua</i>)
Pin Oak (<i>Quercus palustris</i>)
<i>Shrubs</i>
Spicebush (<i>Lindera benzoin</i>)
Arrowwood (<i>Viburnum recognitum</i>)
Highbush blueberry (<i>Vaccinium corymbosum</i>)
Red Chokeberry (<i>Aronia arbutifolia</i>)
Coastal Sweet Pepperbush (<i>Clethra alnifolia</i>)
Groundsel Bush (<i>Baccharis halimifolia</i>)
<i>Seed Mix</i>
Ernst Conservation Seeds - FACW Wetland Meadow Mix Species
Switchgrass (<i>Panicum virgatum</i>)
Tidal Wetland Adjacent Area Enhancement Area
Groundsel Bush (<i>Baccharis halimifolia</i>)

Freshwater Wetland Buffer Planting Area

The freshwater wetland buffer planting area will include areas that fall between the stipulated NYSDEC freshwater wetland boundary, Wetland B and the No Action development. The total area of this zone is 129,296 square feet (2.97 acres). This area will be planted with a variety of trees and shrubs including:

- Red Maple (*Acer rubrum*): *A. rubrum* can tolerate periodic inundation and is well adapted to moist soils. This species seeds provide food for squirrels and some birds.⁵⁵ Plants with a 3” caliper will be planted at a distribution of one per 100 square feet.

⁵⁵ USDA –NRCS Plant Fact Sheet; Red Maple (*Acer rubrum*); John Dickerson; USDA NRCS, New York State Office, Syracuse, New York; January 31, 2002 – rev May 24, 2006.

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- Sweetgum (*Liquidambar styraciflua*): *L. styraciflua* is tolerant of flooding. This species seeds are eaten by birds, squirrels, and chipmunks.⁵⁶ Plants with a 3” caliper will be planted at a distribution of one per 100 square feet.
- Pin Oak (*Quercus palustris*): *Q. palustris* can tolerate periodic inundation and is well adapted to moist soils. This species seeds provide food for small mammals and deer. Plants with a 3” caliper will be planted at a distribution of one per 100 square feet.
- Spicebush (*Lindera benzoin*): *L. benzoin* is well adapted to moist soils and provides food for birds, deer, rabbits, raccoons, and opossums.⁵⁷ Plants with a height of 18” to 24” will be planted at a distribution of one per 25 square feet.
- Arrowwood (*Viburnum recognitum*): *V. recognitum* can tolerate seasonal flooding and provides cover and fruit for birds. Plants with a height of 18” to 24” will be planted at a distribution of one per 25 square feet.
- Highbush Blueberry (*Vaccinium corymbosum*). *V. corymbosum* is well adapted to moist soils and provides food for gamebirds, songbirds, and mammals.⁵⁸ Plants with a height of 18” to 24” will be planted at a distribution of one per 25 square feet.
- Red Chokeberry (*Aronia arbutifolia*): *A. arbutifolia* can tolerate periodic inundation and provides food and cover for birds and mammals. Plants with a height of 18” to 24” will be planted at a distribution of one per 25 square feet.
- Coastal Sweet Pepperbush (*Clethra alnifolia*): *C. alnifolia* can tolerate seasonal flooding and provides cover and fruit for birds and sometimes deer.⁵⁹ Plants with a height of 18” to 24” will be planted at a distribution of one per 25 square feet.
- Groundsel Bush (*Baccharis halimifolia*): *B. halimifolia* is highly resistant to flooding and provides nesting habitat for marsh wrens and other small birds.⁶⁰ Plants with a height of 18” to 24” will be planted at a distribution of one per 25 square feet.

Freshwater Wetland Enhancement Area

The freshwater wetland enhancement area will include areas that fall within the stipulated NYSDEC freshwater wetland boundary, along the southern property boundary, and are not located within Wetland B. The total area of this zone is 91,353 square feet (2.10 acres). This area will be planted with a variety of tree, shrub, and herbaceous plants including:

- Red Maple (*Acer rubrum*): *A. rubrum* can tolerate periodic inundation and is well adapted to moist soils. This species seeds provide food for squirrels and some birds.⁶¹ Plants with a 3” caliper will be planted at a distribution of one per 100 square feet.

⁵⁶ USDA –NRCS Plant Fact Sheet; Sweetgum (*Liquidambar styraciflua*); USDA NRCS National Plant Materials Center, Beltsville, Maryland; February 5, 2002.

⁵⁷ USDA-NRCS Plant Guide; Spicebush (*Lindera benzoin*). USDA NRCS National Plant Data Center & Biota of North America Program; December 5, 2000.

⁵⁸ USDA-NRCS Plant Fact Sheet; Highbush Blueberry (*Vaccinium corymbosum*). USDA NRCS National Plant Data Center & Biota of North America Program; July 26, 2002.

⁵⁹ USDA-NRCS Plant Guide; Coastal Sweet Pepperbush (*Clethra alnifolia*); USDA NRCS National Plant data Center; Baton Rouge Louisiana. May 24, 2004.

⁶⁰ USDA –NRCS Plant Fact Sheet; Eastern Baccharis (*Baccharis halimifolia*); Christopher Miller and William Skaradek; USDA NRCS, Somerset, New Jersey and Cape May Plant Materials Center Cape May Court House, New Jersey; January 31, 2002 – rev. May 31, 2006.

⁶¹ USDA –NRCS Plant Fact Sheet; Red Maple (*Acer rubrum*); John Dickerson; USDA NRCS, New York State Office, Syracuse, New York; January 31, 2002 – rev May 24, 2006.

- Sweetgum (*Liquidambar styraciflua*): *L. styraciflua* is tolerant of flooding. This species seeds are eaten by birds, squirrels, and chipmunks.⁶² Plants with a 3” caliper will be planted at a distribution of one per 100 square feet.
- Pin Oak (*Quercus palustris*): *Q. palustris* can tolerate periodic inundation and is well adapted to moist soils. This species seeds provide food for small mammals and deer. Plants with a 3” caliper will be planted at a distribution of one per 100 square feet.
- Spicebush (*Lindera benzoin*): *L. benzoin* is well adapted to moist soils and provides food for birds, deer, rabbits, raccoons, and opossums.⁶³ Plants with a height of 18” to 24” will be planted at a distribution of one per 25 square feet.
- Arrowwood (*Viburnum recognitum*): *V. recognitum* can tolerate seasonal flooding and provides cover and fruit for birds. Plants with a height of 18” to 24” will be planted at a distribution of one per 25 square feet.
- Highbush Blueberry (*Vaccinium corymbosum*). *V. corymbosum* is well adapted to moist soils and provides food for gamebirds, songbirds, and mammals.⁶⁴ Plants with a height of 18” to 24” will be planted at a distribution of one per 25 square feet.
- Red Chokeberry (*Aronia arbutifolia*): *A. arbutifolia* can tolerate periodic inundation and provides food and cover for birds and mammals. Plants with a height of 18” to 24” will be planted at a distribution of one per 25 square feet.
- Coastal Sweet Pepperbush (*Clethra alnifolia*): *C. alnifolia* can tolerate seasonal flooding and provides cover and fruit for birds and sometimes deer.⁶⁵ Plants with a height of 18” to 24” will be planted at a distribution of one per 25 square feet.
- Groundsel Bush (*Baccharis halimifolia*): *B. halimifolia* is highly resistant to flooding and provides nesting habitat for marsh wrens and other small birds.⁶⁶ Plants with a height of 18” to 24” will be planted at a distribution of one per 25 square feet.
- Ernst Conservation Seeds - FACW Wetland Meadow Mix Species
- Switchgrass (*Panicum virgatum*): *P. virgatum* provides excellent nesting and foraging habitat, especially in the fall and winter, for area wildlife.⁶⁷

Areas to be planted are shown on Figure 1-6.

Tidal Wetland Adjacent Area Mitigation Plan

The focus of the tidal wetland adjacent area enhancement planting design is to improve onsite habitat for resident and migrating wildlife species through the provision of tidal wetland adjacent

⁶² USDA –NRCS Plant Fact Sheet; Sweetgum (*Liquidambar styraciflua*); USDA NRCS National Plant Materials Center, Beltsville, Maryland; February 5, 2002.

⁶³ USDA-NRCS Plant Guide; Spicebush (*Lindera benzoin*). USDA NRCS National Plant Data Center & Biota of North America Program; December 5, 2000.

⁶⁴ USDA-NRCS Plant Fact Sheet; Highbush Blueberry (*Vaccinium corymbosum*). USDA NRCS National Plant Data Center & Biota of North America Program; July 26, 2002.

⁶⁵ USDA-NRCS Plant Guide; Coastal Sweet Pepperbush (*Clethra alnifolia*); USDA NRCS National Plant Data Center; Baton Rouge Louisiana. May 24, 2004.

⁶⁶ USDA –NRCS Plant Fact Sheet; Eastern Baccharis (*Baccharis halimifolia*); Christopher Miller and William Skaradek; USDA NRCS, Somerset, New Jersey and Cape May Plant Materials Center Cape May Court House, New Jersey; January 31, 2002 – rev. May 31, 2006.

⁶⁷ USDA-NRCS Plant Fact Sheet; Switchgrass (*Panicum virgatum*); USDA NRCS Plant Materials Program; January 16, 2001.

South Avenue Retail Development

area wetland habitat. The wetland enhancement areas will be established with shrub plantings. Improving this area will provide both food and cover for area wildlife and serve to enhance the subject area providing for more diverse flora and fauna. The existing functions of these areas served as a basis for the designated wetland enhancement planting area (Figure 1-6).

The tidal wetland adjacent area enhancement area will include area that falls between Wetland B, the southern property boundary, and South Avenue. The total area of this zone is 10,980 square feet (0.25 acres). This area will be planted with a shrub species including:

- Groundsel Bush (*Baccharis halimifolia*): *B. halimifolia* is highly resistant to flooding and provides nesting habitat for marsh wrens and other small birds.⁶⁸ Plants with a height of 18” to 24” will be planted at a distribution of one per 25 square feet.

Proposed Measures to Protect Trees to Remain

No trees in healthy condition beyond the field-identified limits of disturbance would be disturbed. These limits would be delineated by snow fencing or similar methods. Trees near working areas may be wrapped at the base by snow fencing to avoid accidental damage to trunks and roots. No disturbance is planned within the projected root zone of these trees or within the drip line of the tree foliage. Snow fencing or other highly visible means of marking would be placed around the maximum area of the root system to prevent the destruction of roots by exposure or through the compaction of soils. Construction crews would be notified to exclude all equipment from these protected areas. If necessary, trees would be protected by tree wells in fill areas, and retaining walls in cut areas.

TERRESTRIAL RESOURCES

VEGETATION AND ECOLOGICAL COMMUNITIES

Under the No Action condition, the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan. Impacts to onsite vegetation and ecological communities due to the No Action development would be mitigated accordingly.

Based upon the No Action condition, the development will impact 17.32 acres (61.7 percent) of the Project Site. Ecological communities that would be directly impacted include roadside vegetation community, disturbed red maple, sweet gum and green ash assemblage, pin oak, sweet gum and red maple assemblage, red maple and sweet gum assemblage, disturbed red maple, green ash and naturalized exotic assemblage, disturbed sycamore and mulberry assemblage, and disturbed pin oak and sweet gum assemblage.

Of the 17.32 acres of total disturbance, 0.03 acres of the No Action development will result in the loss of and/or change in roadside vegetation community.

Of the 17.32 acres of total disturbance, 2.88 acres of the No Action development will result in the loss of and/or change in disturbed red maple, sweet gum and green ash assemblage.

⁶⁸ USDA –NRCS Plant Fact Sheet; Eastern Baccharis (*Baccharis halimifolia*); Christopher Miller and William Skaradek; USDA NRCS, Somerset, New Jersey and Cape May Plant Materials Center Cape May Court House, New Jersey; January 31, 2002 – rev. May 31, 2006.

Of the 17.32 acres of total disturbance, 8.61 acres of the No Action development will result in the loss of and/or change in pin oak, sweet gum and red maple assemblage.

Of the 17.32 acres of total disturbance, 2.29 acres of the No Action development will result in the loss of and/or change in red maple and sweet gum assemblage.

Of the 17.32 acres of total disturbance, 2.19 acres of the No Action development will result in the loss of and/or change in disturbed red maple, green ash and naturalized exotic assemblage.

Of the 17.32 acres of total disturbance, 1.30 acres of the No Action development will result in the loss of and/or change in disturbed sycamore and mulberry assemblage.

Of the 17.32 acres of total disturbance, 0.02 acres of the No Action development will result in the loss of and/or change in disturbed pin oak and sweet gum assemblage.

The ecological communities remaining outside the No Action condition's development envelope include, pin oak wetland, disturbed area with some emergent wetland vegetation, brushy cleared land, reedgrass marsh, and portions of the roadside vegetation community, pin oak, sweet gum and red maple assemblage, red maple and sweet gum assemblage, disturbed red maple, green ash and naturalized exotic assemblage and disturbed pin oak and sweet gum assemblage.

Trees

As shown in **Figure 4-18**, 1,018 trees, 6 inches or greater diameter at breast height (dbh), will be preserved on site. Construction in the center of the site and the stormwater management area will result in the loss of approximately 1,850 trees, 6 inches or greater dbh.

The No Action development entails a variety of mitigative actions as depicted and detailed on the No Action Scenario Site Plan (Figure 1-6). Figure 1-6 for the project illustrates the significant new native plantings which are included in the No Action development design (see "Mitigation Measures" above). The mitigation area was designed in consultation with NYSDEC Natural Resources staff and will be physically separated from the retail development by a fence. The proposed mitigation area will be comprised of 2,207 new tree plantings and 9,267 new shrub plantings. Additional landscaping trees will be planted throughout the retail development's parking lot. Tree protection measures would be implemented to save trees that exist near the limits of disturbance on the boundaries of the development. The loss of the onsite forested uplands, isolated freshwater wetlands, and freshwater wetland adjacent area will alter the movement of most of the wildlife that may use the project site, however, it will not significantly impact the wildlife's access to adjacent forested and wetland areas. It will also result in the loss of habitat for those individuals that currently use the site. The highest value existing habitat with in the southern portion of the project site would remain undisturbed. These areas would continue to provide resident and local wildlife populations the opportunity to move around the development to access other undisturbed adjacent wetlands and forest lands in the vicinity.

Wetland Mitigation Plan with Native Vegetation

Native species would be used for mitigation purposes and for revegetating the portions of the project site where possible. This preference is based on native plant adaptability to local climatic conditions, including temperature, precipitation and length of the growing season. Many native species selected for mitigation use may also be beneficial to indigenous wildlife, especially birds, by providing wildlife benefits such as nesting, cover, and food. Typical mitigation plantings that may be chosen for their hardiness to the local climate and to the proposed settings on the site include the native or regionally adaptable landscaping species listed in **Table 4-6**.

South Avenue Retail Development

Figure 1-6 presents substantial tree and shrub plantings to be installed within the southern portion of the project site. This list would be supplemented with other minor shrubs and plants that would provide a variety of foraging, nesting, and shelter benefits for the wildlife that repopulates the site. Plantings would be determined in consultation with the Department of City Planning and its consultants.

The existing, disturbed woodland vegetation would be supplemented by native plants and associated landscaping within the project site. This would include removal of invasive or nonnative plant species. The introduced plantings will likely be used for foraging by wildlife and many of the shrub species chosen for landscaping would provide habitat for songbirds and other avian species. Trees that are planted would mature in the long-term and would provide roosting and nesting opportunities for birds that are adaptable to urban conditions. Grasses and low-growing shrub plantings provide cover for ground-nesting birds.

In addition to their value as hardy plantings, some of the native plant species in **Table 4-6** are berry and seed-bearing trees and shrubs that would offer songbirds and mammals seasonal food sources incidental to their use as landscape plantings. In addition to providing food sources, native plantings provide good nesting habitat for many birds and arboreal mammals.

The following mitigation plants develop seasonal fruiting characteristics that are useful as food for wildlife:

Deciduous Fruiting Trees:

Red maple
Sweetgum
Pin oak

Shrubs:

Spicebush
Arrowwood
Highbush Blueberry
Red chokeberry
Groundsel-tree

The proper bedding and positioning of mitigation plantings is important, as each of the species used would not thrive in all of the soils or exposures presented by the developed site. Particular plant requirements regarding planting, soil, water and sun/shade preferences would be used in determining final plant positioning.

The replacement of invasive plants with native plants would be beneficial to most wildlife species that would repopulate the site. Certain of the invasive species present such as Japanese knotweed and multiflora rose would be eliminated on mitigated portions of the project site, depicted on Figure 1-6.

Proposed Measures to Protect Trees to Remain

As detailed above, no trees in healthy condition beyond the field-identified limits of disturbance would be disturbed. Construction crews would be notified to exclude all equipment from these protected areas. If necessary, trees would be protected by tree wells in fill areas, and retaining walls in cut areas

In accordance with the NYSDEC-approved site plan, the southern portion of the property would contain native mitigative plantings, a stormwater management area and natural areas.

WILDLIFE

Under the No Action condition, the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan.

No adverse effects to wildlife are anticipated. Nearby residential and commercial buildings along Forest Avenue separate the site from freshwater wetland and forested habitat areas north of the project site. The No Action development maintains continuity of the onsite wildlife habitat with Wetland B, Old Place Creek and adjacent undeveloped properties contiguous to Graniteville Swamp Park through the enhancement and preservation of natural areas. Due to the mix of urban landscape that borders the northern and eastern edges of the site, the overall diversity of wildlife in the area is expected to be in the low to normal range and dominated by generalist species capable of tolerating human contact. Such species include small mammals like gray squirrel, raccoon, opossum, deer mouse, and woodchuck. With the No Action development, it is likely that deer would occur less frequently within the northern extent of the project site due to the reduction in browsing and the increased human activity. It is expected that deer would continue to browse and inhabit the southern portion of the project site, likely at a higher frequency due to the wetland buffer and enhancement plantings.

The northern portion of the project site has been disturbed by historical human activities and was observed to provide minimal ecological benefits to wildlife due to low plant diversity and proximity to adjacent developed areas. Areas within the southern portion of the project site provide a more diverse plant community that is not to be directly affected by the No Action development.

In general, as a project site is developed and habitat is reduced, some species would relocate to similar forested habitats off-site. In particular, adjacent undeveloped protected land includes wetlands and forested areas inclusive of an extension of USACE Wetland B (*Phragmites* monoculture), Old Place Creek (*Phragmites* monoculture), and adjacent undeveloped properties contiguous to Graniteville Swamp Park (freshwater wetlands and upland forest). The composition of the wildlife population on the project site may be altered immediately adjacent to developed areas, as species able to adapt to a suburban environment (such as raccoons, opossum, woodchucks, mice, songbirds, etc.) would have a greater ecological advantage in comparison to species that are less tolerant of human activity.

An indirect and unavoidable impact of wildlife dispersal could be increased competitive interactions with other individuals of the same species on adjacent properties. It is not anticipated that there would be a loss of species from the area or significant impacts to existing populations.

In accordance with the NYSDEC-approved ~~plan~~ Wetland Mitigation Plan, the southern portion of the property would be preserved containing native mitigative plantings, a stormwater management area and natural areas. These Many native species selected for mitigation use may also be beneficial to indigenous wildlife displaced by the development, especially birds, by providing wildlife benefits such as nesting, cover, and food within preserved areas. The introduced plantings would likely be used for foraging by wildlife and would provide habitat for songbirds and other avian species. Trees that are planted would mature in the long-term and would provide roosting and nesting opportunities for birds that are adaptable to urban conditions. Grasses and low growing shrub plantings would provide cover for ground-nesting birds. The wetland enhancement and buffer planting areas would provide enhancement of natural features through the establishment of native tree, shrub and herbaceous vegetation and these areas would provide a protected wildlife corridor contiguous with adjacent undeveloped

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land. Therefore, wildlife habitat would be maintained on the site, which would minimize the displacement of wildlife into surrounding residential developments.

SIGNIFICANT, SENSITIVE, OR DESIGNATED RESOURCES

Under the No Action condition, the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan.

CONSERVATION AREAS

All ecological impacts for the No Action development have been minimized and mitigated. As proposed, the on-site stipulated NYSDEC freshwater wetland and USACE Wetland B will be protected and maintained through use of a mitigation area. The focus of the wetland mitigation design is to improve onsite habitat for resident and migrating wildlife species through the provision of freshwater wetland habitat. The mitigation area was designed in conjunction with NYSDEC Natural Resources staff and will be physically separated from the preserved/enhanced areas by a fence and buffer plantings and no public access is currently proposed. The proposed 4.73-acre natural area ~~will~~ would remain undeveloped, deed restricted wetland and wetland adjacent area, ~~comprised of 2,207 tree plantings and 9,267 native shrub plantings, and will~~ and would maintain the existing protective border areas that potentially provide foraging grounds for the wading birds within the Harbor Heron's Complex. Improving this area will provide both food and cover for area wildlife and serve to enhance the subject area providing for more diverse flora and fauna. The No Action development does not include any structures or activities that ~~will~~ would interrupt landscapes and discordant elements ~~will~~ would be avoided to the maximum extent possible.

SPECIAL NATURAL WATERFRONT AREA

Consistent with Policy 4 of the NYC WRP, the No Action condition has identified the natural resources, uses design features to incorporate restoration objectives, and remediates, protects, and restores portions of the of the Graniteville Swamp section of the Northwestern Staten Island Harbor Herons Region SNWA.

The proposed freshwater and tidal wetlands mitigation provides protection and restoration of the Graniteville Swamp section of the Northwestern Staten Island Harbor Herons Region SNWA. The focus of the wetland preservation and enhancement design is to improve onsite habitat for resident and migrating wildlife species through the provision of tidal and freshwater wetland and adjacent area habitats. Improving this area will provide both food and cover for area wildlife and serve to enhance the subject area providing for more diverse flora and fauna.

THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES

Under the No Action condition, the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan.

No species of plants or wildlife identified on the project site are listed as endangered or threatened by Federal or State government.

PROTECTED PLANT SPECIES

No species of plants identified on the project site are listed as endangered or threatened by Federal or State government, thus no impact to threatened or endangered plant species are anticipated.

PROTECTED WILDLIFE SPECIES

No species of wildlife listed as threatened or endangered were observed on the project site, thus no impact to threatened or endangered wildlife species are anticipated, and no further analysis is warranted.

F. THE FUTURE WITH THE PROPOSED PROJECT

The proposed project would develop the current mix of forested upland and wetlands into a retail development including six retail buildings, as well as a gas station, a stormwater management area, and tidal and freshwater wetland mitigation. **Figure 4-14** shows the proposed site plan and defines the limits of disturbance superimposed on an aerial photo of the site's existing conditions. The proposed project would result in a similar development footprint as the No Action development and, therefore, impacts to natural resources for the proposed project are expected to be comparable to those due to the No Action development.

GROUNDWATER

Under the proposed project the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan. Impacts to groundwater due to the proposed project are expected to be comparable to those for the No Action development. Therefore, it is concluded that the proposed project would not result in any potential significant adverse impacts on groundwater (See “Groundwater” under the Future without the Proposed Project).

FLOODPLAINS

Under the proposed project the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan. Impacts to floodplains due to the proposed project are expected to be comparable to those for the No Action development. Therefore, it is concluded that the proposed project would not result in any potential significant adverse impacts on floodplains (see “Floodplains” under the Future without the Proposed Project).

AQUATIC RESOURCES

WATER QUALITY

SURFACE WATER RESOURCES

Under the proposed project the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan. Impacts to surface water



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resources due to the proposed project are expected to be comparable to those for the No Action development. Therefore, it is concluded that the proposed project would not result in any potential significant adverse impacts on surface water resources (see “Surface Water Resources” under the Future without the Proposed Project).

WATER QUALITY

Under the proposed project the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan. Impacts to water quality due to the proposed project are expected to be comparable to those for the No Action development. Therefore, it is concluded that the proposed project would not result in any potential significant adverse impacts on water quality (see “Water Quality” under the Future without the Proposed Project).

AQUATIC BIOTA

Under the proposed project the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan. Impacts to aquatic biota due to the proposed project are expected to be comparable to those for the No Action development. Therefore, it is concluded that the proposed project would not result in any potential significant adverse impacts on aquatic biota (see “Aquatic Biota” under the Future without the Proposed Project).

WETLANDS

Under the proposed project the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan. Impacts to wetlands due to the proposed project are expected to be comparable to those for the No Action development and would be mitigated accordingly (**Figure 4-15**). In accordance with the NYSDEC-approved plan, the southern portion of the property would be preserved encompassing the mitigative plantings, a stormwater management area, and natural areas. The Wetland B would be preserved and continue to attenuate and filter stormwater flows. The NYSDEC freshwater and tidal wetlands and the associated adjacent areas would be preserved and enhanced with mitigative plantings (**Figure 4-16 – Mitigation Plan**). Therefore, it is concluded that the proposed project would not result in any potential significant adverse impacts on the regulated wetlands (see “Wetlands” under the Future without the Proposed Project).

TERRESTRIAL RESOURCES

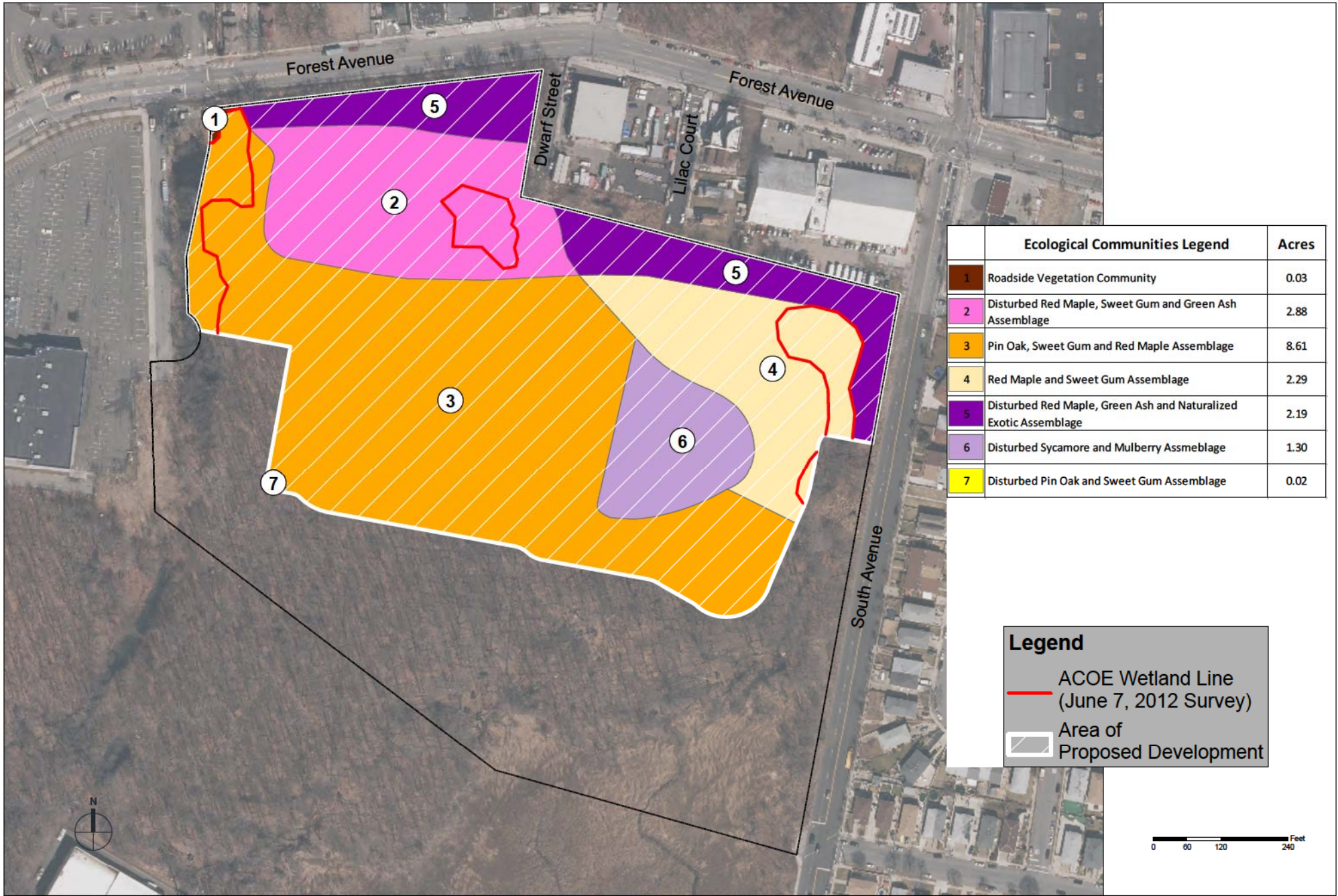
VEGETATION AND ECOLOGICAL COMMUNITIES

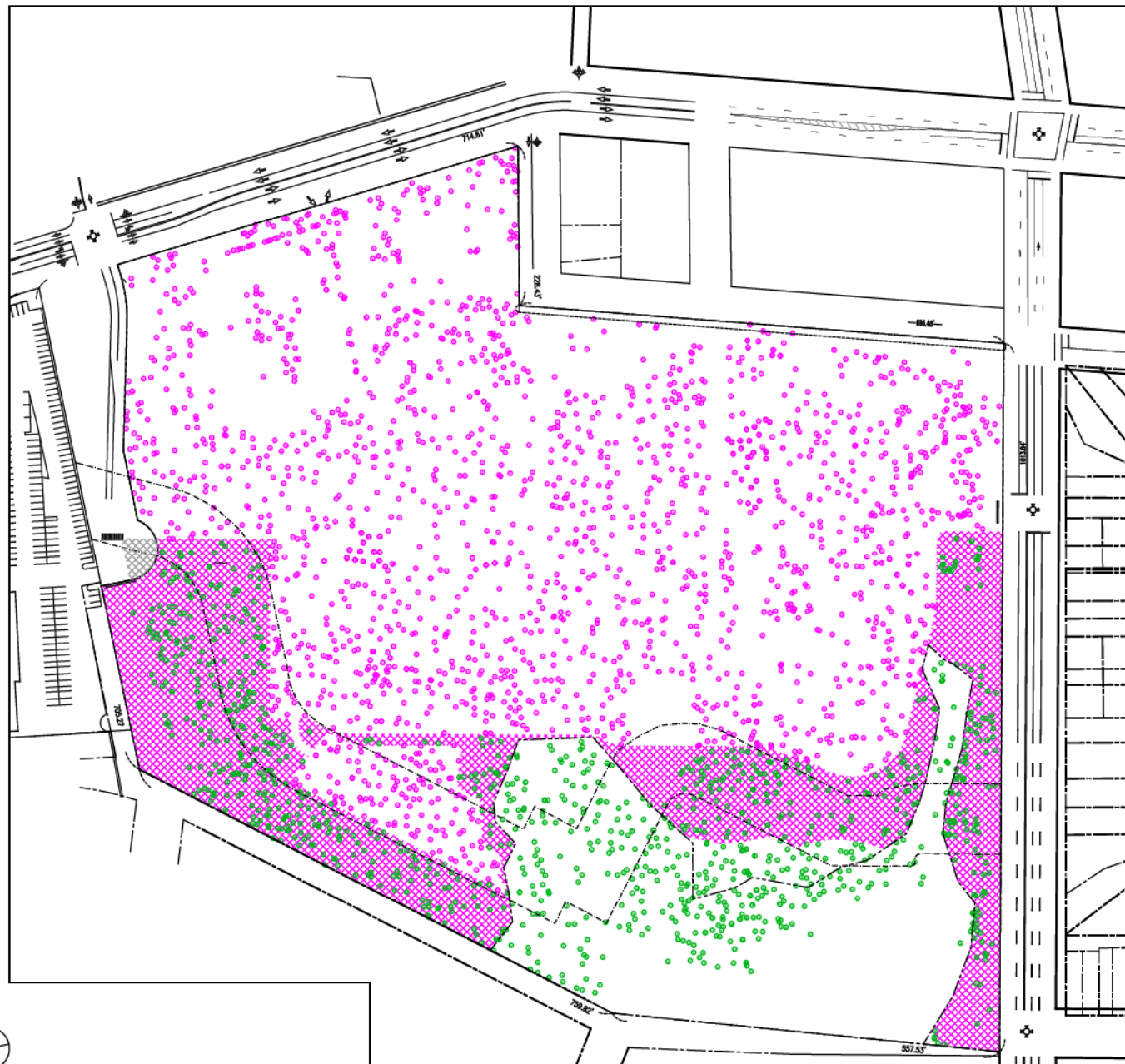
Under the proposed project the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan (**Figure 4-17**). Impacts to onsite vegetation and ecological communities due to the proposed project are expected to be comparable to those for the No Action development and would be mitigated accordingly. In accordance with the NYSDEC-approved ~~plan~~ Wetland Mitigation Plan, the southern portion of



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Development in Freshwater Wetland Adjacent Area
Figure 4-15





Tree Impact by Caliper	
Caliper Size Range (Inches)	Number
6 - 11	734
12-23	927
24 - 35	179
36 - 48	10
Total	1850

Tree Preservation by Caliper	
Caliper Size Range (Inches)	Number
6 - 11	548
12-23	424
24 - 35	42
36 - 48	4
Total	1018

Tree Impact by Species	
Species	Number
Basswood	2
Black Cherry	29
Black Gum	52
Black Locust	27
Black Willow	2
Cherry Birch	1
Cottonwood	19
Dead	9
Elm	1
Green Ash	73
Mulberry	39
Norwegian Maple	26
Pin Oak	515
Red Maple	324
Royal Paulownia	10
Sassafras	19
Striped Maple	2
Sugar Maple	8
Swamp White Oak	9
Sweet Gum	608
Sycamore	54
Tree-of-Heaven	17
Tulip poplar	2
White Oak	6
White Pine	1
Total	1850

Tree Preservation by Species	
Species	Number
Aspen	2
Black Cherry	7
Black Gum	110
Black Locust	3
Black Willow	3
Cottonwood	8
Dead	4
Elm	2
Green Ash	88
Grey Birch	1
Mulberry	21
Pin Oak	332
Red Maple	45
Sassafras	11
Swamp White Oak	21
Sweet Gum	338
Sycamore	2
Tree-of-Heaven	18
White Oak	2
Total	1018

Tree Count	
Trees within Area of Impact	1850
Trees within 5 foot Development Buffer	23
Trees within SMA	129
Trees within Mitigation Area	1018
Trees within Area of No Land Alteration	372
Trees within Buffer planting Area	353
Trees Within Wetland Enhancement Area	276
Trees within Tidal Wetland Adjacent rea Enhancement Area	17

- Sources:
- Ramplulla Associates 3/14/2017 Site Plan.
 - Capital Environmental 3/15/2016 Mitigation Plan.
 - Property Boundary from Rogers Surveying 11/24/15 Survey.

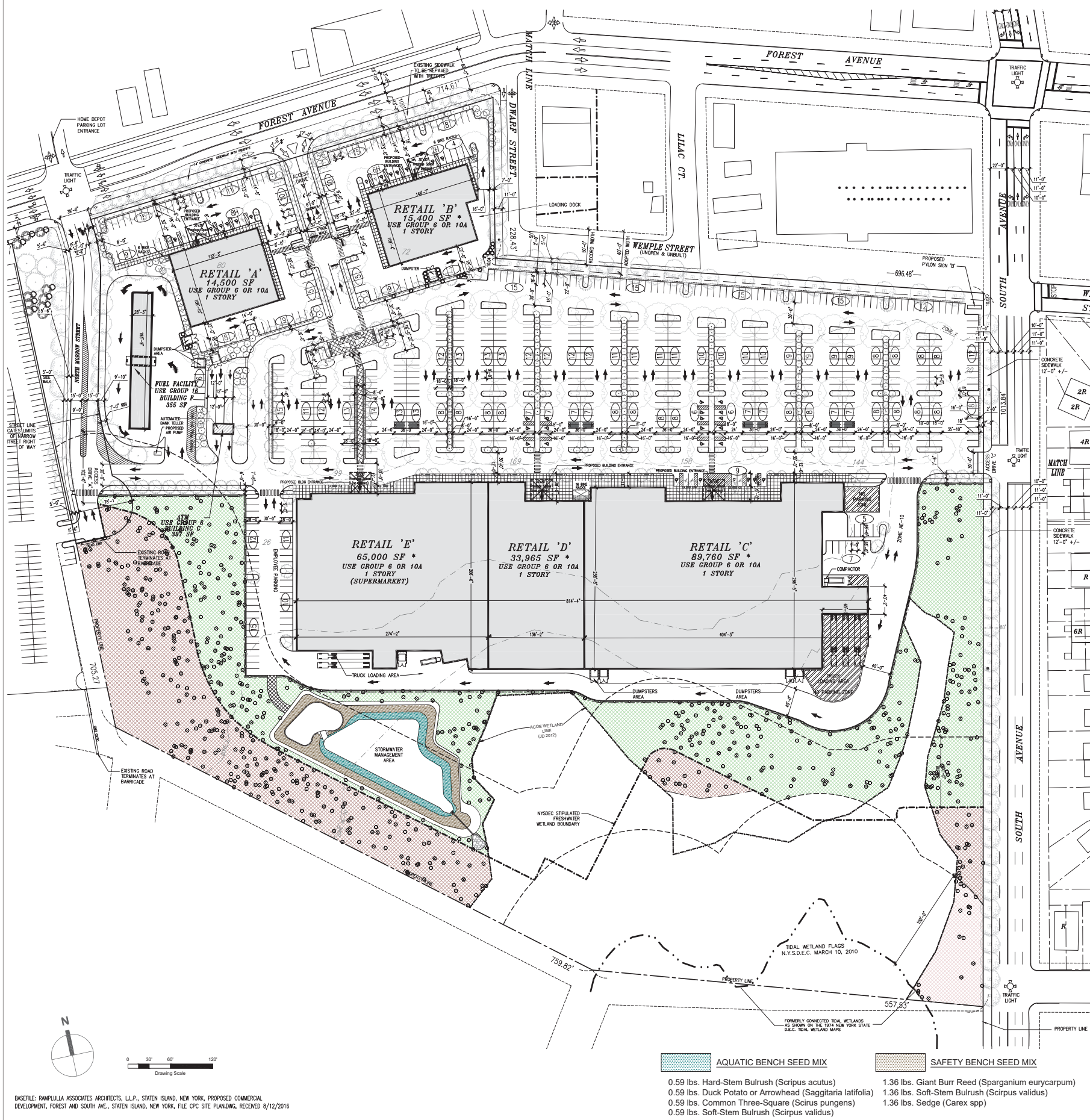
- TREES IN AREA OF IMPACT TO BE REMOVED
- TREES IN MITIGATION AREA TO BE PRESERVED
- ▨ TREES TO BE PLANTED PER WETLAND MITIGATION PLAN

Notes:

1. Trees are 6" DBH or greater.
2. Trees located in the mitigation area that are located within the 5 foot development buffer are included in the trees in area of impact number above, and not included in the mitigation area number above.

BASELINE: RAMPLULLA ASSOCIATES ARCHITECTS, LLP., STATEN ISLAND, NEW YORK, PROPOSED COMMERCIAL DEVELOPMENT, FOREST AND SOUTH AVE, STATEN ISLAND, NEW YORK, FILE CPC SITE PLAN/DWG, RECEIVED 3/14/2017





SITE LEGEND

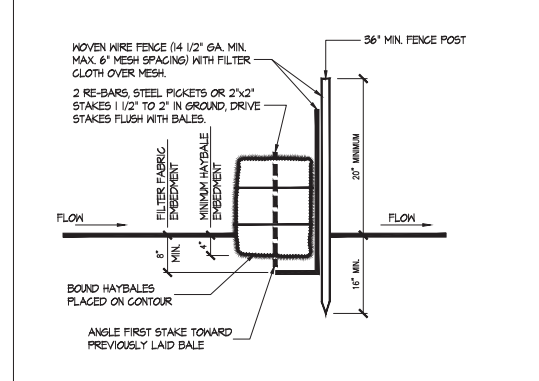
- Site Section Marker
- Match Line
- Building Entrance
- Traffic Lights
- Circulation Arrows
- Cart Corridors
- Bike Racks
- Benches
- Proposed site tree
- Proposed screening perimeter street frontage
- Proposed street tree
- Proposed driveway/sidewalk tree
- General Note: All exterior bike racks to be a minimum of 2'-0" from all buildings and/or adjacent structures.
- Provide required 4'-0" wide planting strip with densely planted shrubs maintained at a maximum height of 3'-0".
- Provide decorative planting as per directive by owner.

Proposed Interior Site Trees

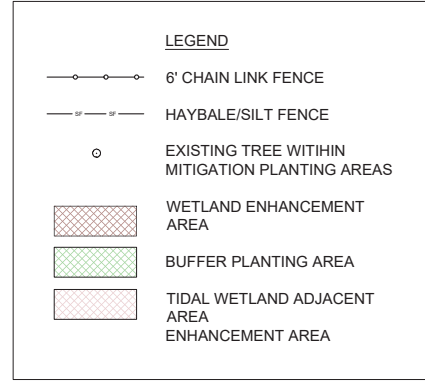
- 838 parking spaces / 8 = 105 trees, therefore 105 (3") min caliper trees required
- 110 interior site trees provided : OK

Proposed Perimeter Trees

- (1) 2" caliper tree for every 25' of parking lot street frontage



- HAY BALE & SILTY FENCE DETAIL**
- 1



BASEFILE: RAMPLULLA ASSOCIATES ARCHITECTS, L.L.P., STATEN ISLAND, NEW YORK, PROPOSED COMMERCIAL DEVELOPMENT, FOREST AND SOUTH AVE., STATEN ISLAND, NEW YORK, FILE CPC SITE PLAN/NOI, RECEIVED 8/12/2016

the property would be preserved containing native mitigative plantings, a stormwater management area and natural areas (see “Vegetation and Ecological Communities” under the Future without the Proposed Project).

WILDLIFE

Under the proposed project the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan. Impacts to onsite wildlife due to the proposed project are expected to be comparable to those for the No Action development. In accordance with the NYSDEC-approved ~~plan~~ Wetland Mitigation Plan, the southern portion of the property would be preserved containing native mitigative plantings, a stormwater management area and natural areas. These areas would provide a protected wildlife corridor contiguous with adjacent undeveloped land. In addition, the proposed mitigative plantings would provide enhanced food and cover benefits to area wildlife. Therefore, it is concluded that the proposed project would not result in any potential significant adverse impacts on wildlife (see “Wildlife” under the Future without the Proposed Project).

SIGNIFICANT, SENSITIVE, OR DESIGNATED RESOURCES

Under the proposed project the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan. Impacts to significant, sensitive, or designated resources due to the proposed project are expected to be comparable to those for the No Action development. Therefore, it is concluded that the proposed project would not result in any potential significant adverse impacts on significant, sensitive or designated resources due (see “Significant, Sensitive or Designated Resources” under the Future without the Proposed Project).

THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES

Under the proposed project the project site would be developed with six new retail buildings as well as a gas station and automated bank teller, while continuing to preserve the southern portion of the project site in accordance with the NYSDEC-approved site plan. Impacts to threatened, endangered, and special concern species due to the proposed project are expected to be comparable to those for the No Action development. Therefore, it is concluded that the proposed project would not result in any potential significant adverse impacts on threatened, endangered and special concern species (see “Threatened, Endangered and Special Concern Species” under the Future without the Proposed Project). *