

Appendix C

Wetland Delineation Report

WETLAND DELINEATION REPORT

SOUTH SHORE OF STATEN ISLAND FEASIBILITY STUDY

**STATEN ISLAND,
RICHMOND COUNTY, NEW YORK**



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1.0 INTRODUCTION

This report documents the findings of a wetland delineation survey performed in an approximately 6.5-mile Study Area along the South Shore of Staten Island (SSSI), Richmond County, New York (Appendix A, Figure 1). The Study Area coincides with areas being considered for beach erosion control and storm damage protection measures in areas most susceptible to storm damage in the Borough of Staten Island.

The purpose of the delineation was to determine the presence and extent of areas within the Study Area that meet the criteria for wetland identification and other Waters of the United States, as established by U.S. Army Corps of Engineers (USACE) guidelines. Areas identified and delineated are potentially jurisdictional and regulated pursuant to Section 404 of the Clean Water Act (CWA), as well as the New York State Environmental Conservation Law, Article 24 (Freshwater Wetlands) and Article 25 (Tidal Wetlands). This report was prepared in support of a feasibility study being prepared by the USACE that identifies potential solutions to storm damage problems on the SSSI.

Solutions being considered to reduce the flooding problems historically experienced along in the Study Area include the construction of a structural line of protection to protect inland areas from storm surges. In addition, interior drainage areas would be used to detain and store interior stormwater runoff during storm or tidal events that create conditions preventing the immediate discharge of floodwater by gravity based outlets to the Lower New York Bay. Portions of the interior drainage areas would be dredged to create (or deepen) ponds, thereby increasing the floodwater storage capacity along the SSSI. Floodwater would then be transferred from the interior drainage areas back to Lower New York Bay by gravity-fed outlets and/or pumping stations, depending upon final approved project designs.

A wetland investigation was performed in September and October 2003, to accurately document and delineate the existing freshwater and tidal wetland resources within the Study Area. A supplemental delineation survey was performed in June and July of 2009 to verify these previously delineated boundaries, and to examine additional areas that were not included in the original survey. A total of 1,099 acres were surveyed.

Section 2.0 of this report describes the methods used for the collection and review of pertinent background information, and the delineation of wetlands within the Study Area. Section 3.0 presents the results of both a background information review, and the field identification and delineation of wetlands located within the Study Area. Section 4.0 of this report summarizes the survey results. Finally, Section 5 contains a list of references used to prepare this report.

Appendix A contains all of the figures, including a General Site Location Map, a map showing the survey limits, maps of resources mapped by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) and New York State Department of Environmental Conservation (NYSDEC), and maps showing the field surveyed wetland boundaries. Appendix B contains photographic documentation of the surveyed areas. Appendix C contains the field data forms used to document the wetland determinations.



2.0 METHODS

This section provides a description of the methodology used for the delineation of jurisdictional wetlands. Background information was used to identify areas that were likely to contain wetlands, and this information supplemented the on-site field determination.

2.1 SELECTION OF DELINEATION METHOD

The delineation of wetlands on site was performed in accordance with the currently accepted state and federal methodology, presented in the 1987 *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* (Environmental Laboratory 1987). Based on the level of detail required for the Project, the *Routine On-Site Determination Method* was selected as the most appropriate technique to meet the study objectives. This technique involves collection and review of existing available site background information, including soils, topography, and hydrology data, followed by an on-site survey and delineation. The following sections describe the methods used to delineate wetlands and waterbodies in the Study Area.

2.2 BACKGROUND RESEARCH

Prior to conducting fieldwork, a thorough review of existing site information was performed, including:

- United States Geological Survey (USGS) 7.5-minute series topographic quadrangle maps for the Arthur Kill NY-NJ, 1966, photorevised 1981 and Narrows NY-NJ 1966, photorevised 1998 (USGS 1966a, 1966b);
- New York State Department of State (NYSDOS) Digital Ortho Imagery for Richmond County, New York (NYSDOS 1994-1999);
- NYSDEC, New York State Freshwater Wetlands Map for Richmond County (NYSDEC 1990); and,
- United States Department of the Interior, USFWS NWI, electronic data for the Arthur Kill and Narrows (USFWS 1994, 1995).

Under normal circumstances, the published Natural Resource Conservation Service (NRCS) Soil Survey of the area would be obtained and reviewed. However, no published or draft soil survey presently exists for Richmond County, New York.

2.3 ON-SITE FIELD DETERMINATION

The *Routine On-site Determination and Delineation Method* involves a detailed survey of the soils, vegetation, and hydrologic indicators of a study area. Two teams consisting of two wetland ecologists per team performed field investigations in September and October 2003. Additionally, one team of two ecologists performed follow-up field investigations in June and July 2009 to verify the previously delineated boundaries and survey additional areas. The survey



was initiated with a walkover inspection of the entire Study Area to identify topographic, drainage, and vegetation features that would indicate the potential for jurisdictional wetland classification.

Based on the "three parameter" approach described in the *Corps of Engineers Wetlands Delineation Manual*, an area is defined as a wetland if, under normal circumstances, it exhibits the following three characteristics:

1. The land supports a dominance (i.e., > 50%) of hydrophytic vegetation;
2. The substrate is hydric soil; and,
3. The hydrological conditions of the area are such that the soil/substrate is at least periodically saturated or inundated during a significant portion of the growing season.

This definition and this survey of wetlands relates solely to vegetated wetlands, and does not include non-vegetated wetlands (such as tidal flats in coastal areas), which may be regulated under New York State tidal wetlands regulations.

To describe the wetlands within the Study Area, sampling points were established along the wetland boundary at representative locations within each plant assemblage encountered along the wetland boundary. At each sampling point, data regarding the vegetation, soil, and hydrology were collected from both the wetland and the upland side of the boundary line and recorded on field data forms (Appendix C). Specific methods for characterizing and evaluating the soils, vegetation, and hydrologic indicators within the Study Area are described below.

2.3.1 Vegetation

A hydrophyte is any plant that has the ability to grow in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content and depleted soil oxygen levels. The USFWS has prepared a list of wetland plant species for the Northeast, entitled *National List of Plant Species that Occur in Wetlands: Region 1* (Reed 1988). The plant species listed in this publication are classified based on their affinity for wetland conditions. These wetland indicator classifications were used for plant species found at the site. The wetland indicator classification assigned to each species listed is as follows:

Table 1. Plant Affinity for Wetland Condition.

Classification	Percent Occurrence In Wetlands
Obligate (OBL)	>99
Facultative Wetland (FACW)	67-99
Facultative (FAC)	34-66
Facultative Upland (FACU)	1-33
Non-Wetland (UPL)	<1

Source: Reed 1998.



In addition, a positive (+) or negative (-) symbol used in conjunction with one of the facultative indicator classes relates to a species preference to either the wetter or drier end of its indicator class, with the positive sign indicating a preference to the wetter end of the class. Species for which insufficient information is available for classification are listed in the USFWS list with a designation of NI (No Indicator) for regional status.

To accurately describe the vegetation at each sampling point, data on each horizontal strata or layer was collected. Vegetative strata for which dominants were determined included: (1) tree layer (> 3.0 inches diameter at breast height [dbh]); (2) sapling/shrub (< 3.0 inches dbh and > 3.2 feet in height); (3) woody vine; and (4) herb (herbaceous plants including graminoids, forbs, ferns, fern allies, herbaceous vines, and tree seedlings).

Dominant plant species in each major vegetation stratum (tree, sapling/shrub, woody vine, and herbaceous) were identified within 10-meter radius sample plots. The wetland indicator status of each species was assigned according to Reed 1988. Hydrophytic vegetation was determined to be present where more than 50 percent of the dominant species from all vegetation strata were classified as facultative (FAC), facultative wetland (FACW), or obligate wetland species (OBL).

2.3.2 Soils

At each sampling location, the soil profile was examined to a depth of at least 18 inches, or until auger refusal. Soils were characterized by determining soil texture, structure, and color. A soil core was extracted and examined for hydric indicators. Examples of hydric soil indicators include a histic epipedon, gleying, low-chroma soil color with or without mottles, and iron and manganese concretions. Matrix and mottle colors were identified using a Munsell Soil Color Chart (Munsell Color 1988). The depths to saturation and standing water were noted where present in the top 18 inches of the soil profile.

2.3.3 Hydrology

Each sampling location was examined for evidence of wetland hydrology. Indicators of wetland hydrology could include vegetated hummocks, water marks on tree trunks and other vegetation, evidence of inundation or ponding, morphological adaptations of plants, oxidized rhizospheres or root channels, drift lines, and drainage patterns. The presence or absence of wetland hydrology indicators was noted at each sampling location.

2.3.4 GPS Mapping

Wetland and waterbody boundaries were surveyed using a Trimble, Inc. (Sunnyvale, CA) Geo XH Global Positioning System ("GPS"). Wetland boundary flags were located in accordance with Trimble, Inc. sub-meter accuracy standards. Surveyed points that did not meet the sub-meter accuracy criteria due to restricted satellite reception or interference caused by heavy vegetation, topography, or densely developed areas were identified as such in field log books and the metadata associated with the GPS/GIS survey.

GPS data were differentially corrected using Pathfinder Office 4.10 software (Trimble Inc., Sunnyvale, CA) and commercial base station control points. A geo-referenced wetland



delineation boundary suitable for overlay onto Project maps and aerial photographs was created using a ArcMap, ArcView 9.3 (Environmental Systems Research Institute, Inc.; Redlands, CA) GIS mapping software.



3.0 SURVEY RESULTS

This section provides a site description, results of the background information review, field delineation/determination, and descriptions of identified jurisdictional wetlands and adjacent upland areas.

3.1 SITE DESCRIPTION

The Study Area consists of approximately 6.5 miles of coastline along the south shore of the Borough of Staten Island, Richmond County, New York, extending along Lower New York Bay and Raritan Bay. The approximate western and eastern limits of the Study Area are the western edge of land in Crescent Beach at the mouth of Great Kills Harbor, and the easternmost point of land within Fort Wadsworth at the Narrows

The survey areas that were reviewed in this wetland delineation survey are depicted on the map in Appendix A, Figure 2. A total of 1,099 acres were included in the survey area.

The entire Study Area is included within the city limits of the City of New York Borough of Staten Island, and consists of a series of communities. The principal communities along the SSSI from west to east are Great Kills, Oakwood Beach, New Dorp Beach, Eltingville Beach, Midland Beach, Ocean Breeze/Graham Beach, and South Beach. Adjacent to Staten Island's west is the New Jersey shoreline of Raritan Bay, which extends from the community of South Amboy to the Sandy Hook peninsula. East of Staten Island is Brooklyn on the Narrows, Coney Island on the Lower New York Bay, and Rockaway Point on the Atlantic Ocean, all of which are located on Long Island. The approach to Lower New York Bay from deep water in the ocean is through a 6-mile wide opening between Sandy Hook, New Jersey, and Rockaway Point, New York.

3.2 REVIEW OF BACKGROUND INFORMATION

Background information research included review of NWI Wetland Maps and NYSDEC Freshwater Wetland Maps. Typically, soil surveys are examined for the presence of hydric soils, although there is currently no published soil data for the survey area.

3.2.1 NWI Mapped Wetlands

The NWI wetland maps (Appendix A, Figure 3, Sheets 1 through 5) identify a number of estuarine and palustrine wetland systems in the Study Area (USFWS 1994, 1995). In all, a total of 416 acres of NWI mapped wetlands are present within the survey area.

The wetlands identified in the Crescent Beach area (Figure 3, Sheet 1) consist of a small palustrine, narrow-leaved persistent emergent, semi-permanently flooded (PEM1F) wetland and a complex of estuarine, intertidal, unconsolidated shore, irregularly flooded (E2US2P) and estuarine, intertidal, narrow-leaved persistent emergent, regularly flooded (E2EM1N) wetlands.

The estuarine wetlands in the Oakwood Beach area (Figures 3, Sheet 2) are hydrologically connected by Oakwood Creek and are identified as a complex of several wetland types.



Specifically, these wetlands consist of: estuarine, intertidal, persistent emergent, common reed dominated, irregularly flooded (E2EM5P) wetlands; E2EM1N wetlands; and, palustrine, forested, broad-leaved deciduous, temporarily flooded (PFO1A) and seasonal tidal (PFO1R) wetland components. A complex of one estuarine and palustrine wetlands are identified on the east side of the Oakwood Beach area and are hydrologically connected to the others by means of an excavated drainage system. This complex includes E2EM5P, palustrine forested, and palustrine scrub-shrub broad leaved deciduous, seasonal tidal (PFO1R, PSS1R) wetlands.

The palustrine systems identified in the Midland Beach area (Figure 3, Sheet 4) consist of large palustrine, common reed dominated, seasonally flooded/saturated (PEM5E) wetlands with a few, smaller associated PFO1A and palustrine, forested, broad-leaved deciduous, seasonally flooded/saturated (PFO1Eh) components. These are hydrologically connected by a series of streams that flow throughout the wetland complexes.

The palustrine systems identified within the survey limits between the South Beach area and Midland Beach (Figure 3, Sheets 4 and 5) are classified as palustrine emergent seasonally flooded (PEM1C) wetlands. Many small PEM1C systems are scattered throughout the area adjacent to / outside of the designated survey limits.

The wetlands identified in the upper South Beach area (Figure 3, Sheet 5) consist of a small PEM5E wetland and a larger complex of palustrine, narrow-leaved emergent, semi-permanently flooded (PEM5F) wetlands with smaller associated palustrine, broad-leaved deciduous forested, seasonally flooded/saturated (PFO1E) and palustrine, unconsolidated bottom, permanently flooded (PUBH) components.

3.2.2 NYSDEC Mapped Freshwater Wetlands

The NYSDEC Freshwater Wetlands Map (Appendix A, Figure 4, Sheets 1 through 3) identifies a number of state-designated freshwater wetland areas within the Study Area. These wetlands are located in the Oakwood Beach area, the Midland Beach area, and the South Beach area. No state-designated freshwater wetlands were identified within the Crescent Beach survey area.

Although there are numerous, separately mapped areas, the NYSDEC has grouped a number of them together based on their geographic area, and labeled them as four different state-designated wetlands: NA-10, NA-9, NA-8, and NA-7 (Figure 4, sheets 1 through 3). In all, a total of approximately 386 acres of NYSDEC mapped freshwater wetlands are present within the survey area.

3.3 RESULTS OF FIELD DELINEATION

The Study Area is continually under development pressure as indicated by ongoing construction in and around the fringes of the Study Area. In addition, review of aerial photography has concluded that many wetland areas previously identified on NYSDEC and NWI wetland maps have been converted to residential areas. Vegetated uplands in the SSSI Study Area consist of residential areas; maintained lawns; recreational fields; small patches of scrub-shrub habitat dominated by Japanese knotweed (*Polygonum cuspidatum*), multiflora rose (*Rosa multiflora*), winged sumac (*Rhus copallinum*) and frost grape (*Vitis vulpina*); forests dominated by black



locust (*Robinia psuedoacacia*), oak (*Quercus* spp.), and tree of heaven (*Ailanthus altissima*); and, herbaceous and vine communities dominated by various grasses, goldenrods (*Solidago* spp.), annual ragweed (*Ambrosia artemisiifolia*), Japanese honeysuckle (*Lonicera japonica*), field bindweed (*Convolvulus arvensis*), and poison ivy (*Toxicodendron radicans*).

Field identification and delineation (Figure 5, Sheets 1 through 13) revealed eighteen (18) palustrine and twelve (12) estuarine wetlands within the survey area. A total of approximately 297.76 acres of wetlands were found to be present in the survey area. Table 2 presents the wetland identification numbers and classifications of each wetland surveyed, in order generally from south to north along the Study Area. A detailed narrative description of each wetland is provided in Section 3.3.1.

In addition to vegetated wetlands, unvegetated rocky intertidal zone (RI-1) and clam flat (CF-1) features were delineated in the Crescent Beach survey area due to the proximity of potential project alternatives to these resources (Appendix A, Figure 5, Sheet 1). Also, the high tide line was delineated along the beach areas throughout the entire approximately 6.5-mile-long survey area. The natural high tide drift line was mapped by locating the highest wrack along the coastline. The location of high tide line is depicted on the Figure 5 series maps (Appendix A).



Table 2. Summary of Wetlands in the Study Area

Survey Area	Wetland Number	Classification ¹	Wetland Acres in Survey Area
Crescent Beach	LM-1	E2EM1P	0.02
	LM-2	E2EM1P	0.09
	LM-3	E2EM1P	0.22
	CB-1	PEM5E	0.81
	LM-4	E2EM1N	0.003
	LM-5	E2EM1N	0.002
	LM-6	E2EM1N	0.001
	CB-2	PEM5E/PSS1E	0.10
Oakwood Beach	A-1 (2009 ID: W11)	E2EM5P	50.61
	A-2	E2EM5P	0.03
	A-3	E2EM5P	0.29
	A-4	E2EM5P	44.34
	W13 (2003 ID: A-5)	E2EM5P	65.89
	W15	E2EM5P	5.30
	W14	PFO1E	0.16
Midland Beach	W10	PEM5E	6.88
	W9	PEM5E	1.32
	W7 (2003 ID: C-4)	PEM5E	15.23
	W8	PEM5E	1.40
	W5	PEM5E	0.07
	C-1	PEM5E	16.94
	W2	PEM5E	1.31
	W4	PEM5E	0.30
	W6	PEM5E	0.80
	W3	PEM5E/PSS1E	17.14
	C-2	PEM5E	0.19
	C-3	PEM5E	13.56
	W12	PFO1E	9.02
South Beach	W1	PSS1E/PEM1E	2.31
	E-1	PEM5F	43.42
TOTAL			297.76

¹ Classifications based on Cowardin et al. 1979.

- E2EM1P estuarine intertidal, persistent emergent vegetation, irregularly flooded
- E2EM1N estuarine intertidal, persistent emergent vegetation, regularly flooded
- E2EM5P estuarine intertidal, *Phragmites australis* emergent vegetation, irregularly flooded
- PEM1E palustrine emergent, persistent vegetation, seasonally flooded/saturated
- PEM5E palustrine emergent, *Phragmites australis* emergent vegetation, seasonally flooded/saturated
- PEM5F palustrine emergent, *Phragmites australis* emergent vegetation, semi-permanently flooded
- PSS1E palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated
- PFO1E palustrine forested, broad-leaved deciduous, seasonally flooded/saturated



3.3.1 Detailed Wetland Descriptions

Wetland LM-1

Wetland LM-1 is a small estuarine intertidal/persistent emergent, irregularly flooded (E2EM1P) community located immediately adjacent to the Armstrong Stormwater Outfall surrounded by an area of beach sand. The herbaceous layer is dominated by a densely populated monotypic stand of saltmarsh cord grass (*Spartina patens*). The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criterion for wetland vegetation.

Field investigation revealed that the soil in Wetland LM-1 consists of a 3-inch-deep, very dark grayish brown (10YR 3/2) organic silt A horizon. Auger refusal was met below this horizon where large stone rip-rap was encountered. Wetland hydrology is driven by the diurnal tide cycle. This wetland is located in a larger area of wetland depicted as an estuarine intertidal unconsolidated shore, sand substrate (E2US2P) wetland.

Wetland LM-2

Wetland LM-2 is a small estuarine intertidal/persistent emergent (E2EM1P) community located approximately 55 feet to the northeast of Wetland LM-1. The herbaceous layer is dominated by a densely populated monotypic stand of saltmarsh cord grass. The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criterion for wetland vegetation.

Field investigation revealed that the soil in Wetland LM-2 consists of a 14-inch-deep, dark grayish brown (10YR 4/2) organic silt O_A horizon. Below this horizon is a 20-inch-deep, B horizon consisting of a very dark grayish brown (2.5Y 3/2) silt. Wetland hydrology is driven by the diurnal tide cycle. This wetland is located in a larger area of wetland depicted as an estuarine intertidal unconsolidated shore, sand substrate (E2US2P) wetland.

Wetland LM-3

Wetland LM-3 is a small estuarine intertidal/persistent emergent, irregularly flooded (E2EM1P) community located approximately 120 feet to the east of Wetland LM-2. The herbaceous layer is dominated by a densely populated monotypic stand of saltmarsh cord grass. The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criterion for wetland vegetation.

Field investigation revealed that the soil in Wetland LM-3 consists of a 4-inch-deep, very dark grayish brown (10YR 3/2) organic silt O_A horizon. Refusal was met below this horizon where large stone rip-rap was encountered. The saltmarsh cord grass is growing in areas in between the rip-rap where silt has accumulated. Wetland hydrology is driven by the diurnal tide cycle. This wetland is located in a larger area of wetland depicted as an estuarine intertidal unconsolidated shore, sand substrate (E2US2P) wetland.



Wetland CB-1

Wetland CB-1 is a palustrine emergent (PEM5E) community located southeast of the intersection of Tennyson Drive and Glover Street that appears to have been impacted by past fill activities. The herbaceous layer is dominated by common reed (*Phragmites australis*), soft rush (*Juncus effusus*), purple loosestrife (*Lythrum salicaria*), and flat-top fragrant goldenrod (*Euthamia graminifolia*). The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criterion for wetland vegetation.

Field investigation revealed that the soil in Wetland CB-1 consists of a 3-inch-deep, dark brown (10YR 3/3), sandy loam A horizon. Below this horizon is a 3- to 8-inch-deep, dark grayish brown (10YR 4/2) sandy loam B horizon with large faint yellowish brown (10YR 5/4) mottles. Refusal was met at 8 inches where large stones and gravel were encountered. Hydric soil indicators include the presence of reducing conditions. The primary indicator of wetland hydrology was saturation in the upper 12 inches. A secondary indicator of wetland hydrology included water stained leaves. A portion of this wetland is identified on NWI maps. Wetland CB-1 is not identified on NYSDEC wetland maps.

Wetland LM-4

Wetland LM-4 is a very small estuarine intertidal/persistent emergent, regularly flooded (E2EM1N) community located at the base of the existing seawall along Crescent Beach. The herbaceous layer is a sparsely populated monotypic colony of saltmarsh cord grass. The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criterion for wetland vegetation.

Field investigation revealed that the soil in Wetland LM-4 consists of a 3-inch-deep, very dark grayish brown (10YR 3/2) organic silt O_A horizon. Refusal was met below this horizon where large stone rip-rap was encountered. The saltmarsh cord grass is growing in between rip-rap associated with old pilings. Wetland hydrology is driven by the diurnal tide cycle. This wetland is located in a larger area of wetland depicted as an estuarine intertidal unconsolidated shore, sand substrate (E2US2P) wetland.

Wetland LM-5

Wetland LM-5 is a very small estuarine intertidal/persistent emergent, regularly flooded (E2EM1N) community located at the base of the existing seawall along Crescent Beach. The herbaceous layer is a sparsely populated monotypic colony of saltmarsh cord grass. The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criterion for wetland vegetation.

Field investigation revealed that the soil in Wetland LM-5 consists of a 3-inch-deep, very dark grayish brown (10YR 3/2) organic silt O horizon that is perched on top of an olive brown (10YR 4/3) beach sand. Wetland hydrology is driven by the diurnal tide cycle. This wetland is located in a larger area of wetland depicted as an estuarine intertidal unconsolidated shore, sand substrate (E2US2P) wetland.



Wetland LM-6

Wetland LM-6 is an extremely small estuarine intertidal/persistent emergent, regularly flooded (E2EM1N) community located amongst stone rip-rap associated with old pilings. The herbaceous layer is a sporadically populated monotypic patch of saltmarsh cord grass. The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criterion for wetland vegetation.

The saltmarsh cord grass is growing in between the stone rip-rap in an olive brown (10YR 4/3) beach sand. Wetland hydrology is driven by the diurnal tide cycle. This wetland is located in a larger area of wetland depicted as an estuarine intertidal unconsolidated shore, sand substrate (E2US2P) wetland.

Wetland CB-2

Wetland CB-2 is a PEM5E/palustrine scrub shrub (PSS1) community in an isolated depression located northeast of the intersection of Tennyson Drive and Goodall Street. The herbaceous layer is dominated by common reed and hedge bindweed (*Calystegia sepium*). The shrub/sapling layer is dominated by slippery elm (*Ulmus rubra*). The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criterion for wetland vegetation.

Field investigation revealed that the soil in Wetland CB-2 consists of a 3-inch-deep, black (10YR 2/1), loam A horizon. Below this horizon is a 6- to 12-inch-deep, very dark grayish brown (10YR 3/2) fine sandy loam B horizon with many small faint dark brown (7.5YR 3/4) mottles. The C horizon was a 20⁺-inch-deep, dark brown (7.5YR 3/3) coarse sand layer. Hydric soil indicators include the presence of reducing conditions. The primary indicator of wetland hydrology was watermarks on vegetation. Wetland CB-2 is not identified on NWI or NYSDEC wetland maps.

Wetland A-1

Wetland A-1 is a large wetland complex characterized by an estuarine emergent (E2EM5P) community in the Oakwood Beach area, adjacent to Gateway National Recreation Area. The dominant species within the emergent community is common reed with lower densities of jewelweed (*Impatiens capensis*) and bugleweed (*Lycopus americana*).

Soil investigation revealed a 4-inch deep A horizon of black (10YR 2/1) sandy loam. Beneath this layer was a B horizon that extended beyond 18 inches and was comprised of a dark brown (7.5YR 3/2) loamy sand with some distinct, strong brown (7.5YR 4/6) mottles and prominent streaking from organic matter transport. The distinct mottling and organic streaking in the B horizon meet USACE hydric criteria for classification of sandy hydric soils. The adjacent upland plot failed to exhibit organic streaking or distinct mottling below the A horizon and thus failing to meet hydric soil criteria.



Primary indicators of hydrology in the wetland include soil saturation within 12 inches of the soil surface. Additionally, the western area of the wetland appears to be a large slough, with inundation visible in the center and increasing with proximity to the shore. Portions of wetland A-1 are identified on both NWI and NYSDEC wetland maps.

Wetland A-2

Wetland A-2 is an estuarine emergent (E2EM5P) community located southeast of the Oakwood Creek Tide Gate. The herbaceous layer is dominated by a monotypic stand of upright sedge (*Carex stricta*). The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criterion for wetland vegetation.

Field investigation revealed that the soil in Wetland A-2 consists of a 12⁺-inch deep black (10YR 1/1), sandy loam B horizon with many distinct red (2.5YR 5/8) and many distinct gray (10YR 6/1) mottles. Hydric soil indicators observed present evidence of reducing conditions. Primary indicators of wetland hydrology include inundation and saturated soils in the upper 12 inches. Secondary indicators including oxidized root channels in the upper 12 inches of the soil horizon. A portion of this wetland is identified on NWI maps.

Wetland A-3

Wetland A-3 is an estuarine emergent (E2EM5P) community located southeast of the Oakwood Creek Tide Gate. The herbaceous layer is dominated by a monotypic stand of common reed. The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criterion for wetland vegetation.

Field investigation revealed that the soil in Wetland A-3 consists of a 3-inch-deep, black (7.5YR 2.5/1), sandy loam A horizon. Below this horizon is a very dark grayish brown (10YR 3/2), sand B horizon with many faint pale brown (10YR 6/3) and few distinct yellowish red (5YR 4/6) mottles that extends beyond 12 inches. Hydric soil indicators observed present evidence of reducing conditions. Secondary indicators of wetland hydrology include oxidized root channels in the upper 12 inches of the soil horizon and water-stained leaves. A portion of this wetland is identified on NWI and NYSDEC wetland maps.

Wetland A-4

Wetland A-4 is an estuarine emergent (E2EM5P) community with a small associated palustrine forested (PFO1A) component. The herbaceous layer in this large wetland is dominated by a monotypic stand of common reed. The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criterion for wetland vegetation.

Field investigation revealed that the soil in Wetland A-4 consists of a 0.5-inch-deep, black (10YR 2/1), loamy sand A horizon. Below this horizon is a black (2.5Y 2.5/1), loamy sand B horizon with many distinct red (2.5YR 4/7) and few distinct red (2.5YR 5/8) mottles that extends beyond 12 inches. Hydric soil indicators observed present evidence of reducing conditions. Primary indicators of wetland hydrology include inundation and saturated soils in the upper 12



inches. Secondary indicators including oxidized root channels in the upper 12 inches of the soil horizon. This wetland is clearly visible in aerial photographs and is identified on NWI and NYSDEC wetland maps.

Wetland W13

Wetland W13 is a very large estuarine emergent wetland (E2EM5P) bordered on the west by Kissam Avenue, on the north by residences along Tysens Lane and Milton Avenue, and a long the south by a constructed berm along the beach. The eastern boundary is formed by a very dense upland forest behind the Cedar Grove Beach community. This wetland includes a verification of the previously delineated area (2003) and extension (in 2009) of the previously delineated wetland WA-5, which comprises the western border along Kissam Avenue. Common reed is dominant throughout the wetland, with lower densities of jewelweed, chairmaker's bulrush (*Schoenoplectus americanus*), and poison ivy. The composition of hydrophytic species throughout the wetland exceeds 50% and thereby meets USACE criteria for wetland vegetation.

Several examinations of the soils were performed due to the large size of the wetland. Soils at the north side consisted of a 12-inch deep A horizon of black (10YR 2/1) sapric muck overlying a B horizon of black (10YR 2/1) mucky mineral soil. The south side of the wetland appears to have been subjected to a greater amount of past disturbance, and consisted of 2 inches of black (10YR 2/1) mucky mineral soil as the A horizon. The B horizon was observed to be a thin, 0.5-inch layer of dark grey (7.5YR 4/1) silty clay loam overlying a very dark gray (10YR 3/1) sandy loam that extended to auger refusal at 10 inches. Both plots meet USACE hydric soil criteria by exhibiting a chroma of 1 or a histic epipedon.

The primary hydrology indicator throughout the wetland was inundation, which generally ranged from 2 to 6 inches in depth. This wetland is depicted on NWI and NYSDEC wetland maps.

Wetland W15

Wetland W15 is a large estuarine emergent wetland (E2EM5P) that is in close proximity to wetland W13. It is bordered to the north by Roma Avenue and residential development, while the other boundaries are formed by dense upland scrub-shrub and forest vegetation such as tree of heaven, Japanese knotweed, multiflora rose, and black locust. The vegetation within the wetland is dominated by common reed, with a low density of jewelweed and frost grape around the exterior edges. The composition of hydrophytic plant species in this wetland exceeds 50% and thereby meets USACE criteria for wetland vegetation.

Soil examination revealed a 6-inch deep, black (10YR 2/1) A horizon of sapric muck. This is underlain to a depth greater than 18 inches by a black (2.5Y 2.5/1) silty clay loam B horizon. The histic epipedon and chroma of 1 in the B horizon meet USACE criteria for hydric nonsandy soils.

The primary indicator of wetland hydrology is inundation to an average depth of 4 inches. There were no primary or secondary indicators of wetland hydrology in the upland areas. This wetland is identified on NWI and NYSDEC wetland maps. These maps also depict the adjacent areas as



palustrine forested wetlands, although investigation revealed that the surrounding forests lack a sufficient composition of hydrophytes as well as wetland hydrology and therefore fail to meet USACE criteria for designation as federally jurisdictional wetlands.

Wetland W14

Wetland W14 is a small palustrine forested wetland (PFO1E) along the south bank of a stream/drainage channel that passes through a wooded parcel bordered by Midland, Lincoln, and Boundary avenues. The entire parcel appears to have been subject to filling in the past. The wetland is dominated by a variety of species, including red maple (*Acer rubrum*) and slippery elm in the overstory, with northern arrowwood (*Viburnum recognitum*), marshpepper knotweed (*Polygonum hydropiperoides*), and Japanese knotweed. The composition of hydrophytes in this wetland exceeds 50% and thereby meets USACE criteria for wetland vegetation.

The soils in this wetland consist of an 8-inch deep, black (10YR 2/1) sandy clay loam A horizon. The B horizon extends beyond 16 inches and is a very dark gray (10YR 3/1) sandy clay loam with many prominent gray (2.5YR 5/1) mottles. A chroma of 1 with prominent mottling meets USACE hydric criteria for nonsandy soils. The upland soils exhibit a chroma of 3 with no mottling below the A horizon and thereby fail to meet USACE hydric soils criteria for nonsandy soils.

The primary indicators of hydrology observed included saturation within 12 inches of the soil surface as well as drainage patterns throughout the wetland. There were no primary or secondary hydrology indicators observed in the surrounding upland areas.

This wetland is identified on NWI wetland maps, although it is not depicted on NYSDEC wetland maps.

Wetland W10

Wetland W10 is a large palustrine emergent (PEM5E) wetland between Freeborn Street and Nugent Avenue. This wetland is the northmost wetland surveyed along the stream/drainage channel that provides the hydrology for wetlands W9, W8, W7, and WC-1. The boundary between upland and wetland is obvious, having been filled for road construction and residential development. The dominant species within the emergent community is common reed, with a low density of frost grape along the exterior edges. The composition of hydrophytic species in this wetland exceeds 50% and therefore meets USACE criteria for wetland vegetation.

The soils in wetland W10 contain a 7-inch deep, very dark grayish brown (10YR 3/2) sapric muck soil prior to auger refusal. This soil is considered histic and thereby meets USACE hydric criteria for classification as wetland soil.

The primary indicators of wetland hydrology observed included inundation, soil saturation, and drift lines. This wetland is clearly visible in aerial photographs and is identified on NWI and NYSDEC wetland maps.



Wetland W9

Wetland W9 is a palustrine emergent wetland (PEM5E) with a palustrine scrub-shrub (PSS1E) component bordered by Olympia Boulevard and Freeborn Street, and hydrologically connected to wetlands W7 and W10 via culverts. The emergent component is entirely dominated by common reed, with the scrub-shrub community consisting of frost grape, spicebush (*Lindera benzoin*), and poison ivy. The hydrophyte composition within both community types exceeds 50% and therefore meets USACE criteria for wetland vegetation.

Investigation of the soils in wetland W9 revealed a 14-inch deep, black (10YR 2/1) mucky mineral A horizon. Beyond 14 inches was a dark brown (7.5YR 3/2) sand B horizon. This soil exhibits a chroma of 1 at 10 inches in depth, and therefore meets USACE hydric soil criteria.

The primary indicators of hydrology in the wetland were inundation and drift lines. Standing water was observed within 3 feet of Olympia Boulevard. This wetland is clearly visible in aerial photographs and is identified on NWI and NYSDEC wetland maps.

Wetland W7

Wetland W7 is a large palustrine emergent (PEM5E) wetland bordered on the north by Olympia Boulevard the south by Father Capodanno Boulevard, the west by Hunter Avenue, and east by Jefferson Avenue and Graham Boulevard. Abandoned remnants of Jefferson Avenue, Baden Place, and Colony Avenue are visible on aerial imagery, but were included where they were observed to support hydrophytes (i.e., the pavement had deteriorated to a point that allowed for plant growth and the return of wetland hydrology). The vegetation in the wetland was observed to be a nearly monotypic stand of common reed, although low densities of jewelweed, frost grape, and Hercules club (*Aralia spinosa*) did occur. The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criteria for wetland vegetation.

Examination of the soil revealed a 3-inch deep, black (10YR 2/1) sandy clay loam A horizon underlain to a depth of 10 inches by a very dark grayish brown (10YR 3/2) sandy clay loam B horizon that displayed many prominent strong brown (7.5YR 4.6) mottles. Auger refusal at 10 inches was caused by coarse fragments from past road construction. This soil exhibits a matrix chroma of 2 with mottling below the A horizon and thereby meets the USACE criteria for nonsandy wetland soils.

Primary indicators of hydrology in the wetland include soil saturation in the upper 12 inches, and secondary indicators observed were water stained leaves and the FAC neutral test. This wetland is clearly visible in aerial photographs and is identified on NWI and NYSDEC wetland maps.

Wetland W8

Wetland W8 is a palustrine emergent wetland (PEM5E) in close proximity to W7, separated by Jefferson Avenue and Patterson Avenue. This wetland also incorporates open water as an effect of excavation that was part of the New York City Department of Environmental Protection (DEP), Staten Island Bluebelt project. The vegetation is a very dense mix of common reed and



poison ivy, with a low density of sedges and northern arrowhead (*Sagittaria latifolia*) on the banks of the open water. The composition of hydrophytic plant species in this wetland exceeds 50%, thus meeting the USACE criteria for wetland vegetation.

The soils consisted of a 10-inch deep, very dark gray (10YR3/1) sandy clay loam A horizon. Auger refusal was at 10 inches, likely due to past road construction and fill. Although considered problematic, this soil contains a chroma of 1 at ten inches in depth, and therefore meets USACE hydric criteria for nonsandy soils.

The primary indicator of hydrology in the wetland was soil saturation at 4 inches in depth. This wetland is clearly visible in aerial photographs and is identified on NWI wetland maps.

Wetland W5

Wetland W5 is a small palustrine emergent (PEM5E) wetland on the corner of Graham Boulevard and Baden Place. It is dominated by a monotypic stand of common reed. The composition of hydrophytic plant species in the wetland exceed 50% and thereby meets the USACE criteria for wetland vegetation.

Due to its small size and close proximity to roads and residential development, the soil in the wetland is composed entirely of fill material. Auger refusal was at 5 inches in depth, although this soil did contain hydric indicators in the form of a very dark gray (10YR 3/1) sandy loam prior to refusal. The chroma is 1 and thereby meets the criteria for nonsandy, but problematic hydric soils. The adjacent upland soils are also composed of fill, but they lack any hydric indicators such as mottling or low chroma.

The primary indicator of hydrology is inundation throughout the wetland, which meets USACE criteria for wetland hydrology. This wetland is clearly visible in aerial photographs and is included on NWI wetland maps.

Wetland C-1

Wetland C-1 is a large palustrine emergent (PEM5E) community located between Olympia Boulevard and Father Capodanno Boulevard. The herbaceous layer is dominated by a monotypic stand of common reed. The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criterion for wetland vegetation.

Field investigation revealed that the soil in Wetland C-1 consists of a 14-inch-deep, black (10YR 2/1), mucky O_A horizon. Below this horizon is a dark brown (10YR 3/2), clayey sand B horizon with few distinct yellowish red (5YR 5/8) mottles. Hydric soil indicators include the presence of a histosol, evidence of reducing conditions, high organic content in the surface layer in sandy soils, and organic streaking in sandy soils. Primary indicators of wetland hydrology include drainage patterns in the wetland and saturated soils in the upper 12 inches. This wetland is clearly visible in aerial photographs and is identified on NWI and NYSDEC wetland maps.



Wetland W2

Wetland W2 is a palustrine emergent (PEM5E) wetland community dominated by a nearly monotypic stand of common reed, with a very low density of jewelweed along vegetation edges. There are also extensive areas of open water within the wetland, apparently excavated as a part of the DEP Bluebelt project. The composition of hydrophytic plant species within the wetland exceeds 50% and thereby meets the USACE criteria for wetland vegetation.

Upon examination, the soils in wetland W2 were found to consist of a black (10YR 2/1) silt loam A horizon to a depth of 4 inches. Below this was a very dark gray (2.5Y 3/1) sandy clay loam B horizon to 9 inches in depth. Below an abrupt boundary at 9 inches, and extending beyond 18, was a layer of very dark gray (10YR 3/1) sand. No mottling was observed in the subsurface layer, but a chroma of 1 without mottles immediately below the A horizon meets USACE criteria for nonsandy hydric soils.

The primary indicator of hydrology observed was soil saturation within 12 inches of the soil surface. Inundation was also visible in the immediate vicinity of the plot. This wetland is clearly visible in aerial photographs and is identified on NWI and NYSDEC wetland maps.

Wetland W4

Wetland 4 is a small palustrine emergent (PEM5E) wetland south of Hylan Boulevard, dominated by common reed, with low densities of box elder (*Acer nigrum*) and frost grape. The composition of hydrophytic species exceeds 50% and thereby meets USACE criteria for wetland vegetation.

The surface soil layer in this wetland is a 2-inch deep, very dark gray (10YR3/1) silt loam A horizon. The subsurface layer is a black (10YR 2/1) silty clay loam B horizon to 10 inches in depth. A layer of olive brown (2.5Y 4/3) sand extends from 10 to beyond 18 inches. The layer immediately below the A horizon contains a chroma of 1 and thereby meets USACE criteria for nonsandy wetland soils.

The primary indicators of hydrology in this wetland are inundation and soil saturation. Standing water was observed throughout the well-defined wetland and thereby meets USACE criteria for wetland hydrology. This wetland is clearly visible in aerial photographs and is identified on NWI and NYSDEC wetland maps.

Wetland W6

Wetland W6 is a palustrine emergent (PEM5E) wetland south of Hylan Boulevard, hydrologically connected to wetland W3 by a large stream/drainage channel to the west. The dominant vegetation in W6 is common reed, with much lower densities of jewelweed and box elder. This composition of hydrophytes exceeds 50% and thereby meets USACE criteria for wetland vegetation.



Field investigation revealed that the soils are composed of a 3 inch O horizon of black (10YR 2/1) hemic organic matter. This is underlain to a depth of 6 inches by a very dark gray (10YR 3/1) silty loam A horizon. The B horizon extends to auger refusal at 12 inches, and is a black (10YR 2/1) sandy loam. A chroma of 1 and a sulfidic odor upon removal of the soil sample meets the USACE criteria for classification as nonsandy wetland soils.

The primary hydrology indicators observed include inundation and soil saturation. This wetland is clearly visible in aerial photographs and is identified on NWI and NYSDEC wetland maps.

Wetland W3

Wetland W3 is a large palustrine emergent (PEM5E) wetland that incorporates the banks and floodplain of a large stream/drainage channel, with a palustrine scrub-shrub (PSS1E) component. The community is dominated by a monotypic stand of common reed in the interior, with silver maple (*Acer saccharinum*) and gray birch (*Betula populifolia*) shrubs/saplings that increase in density with distance from the stream toward the exterior edges. The composition of hydrophytic species in this wetland exceeds 50% and thereby meets USACE criteria for wetland vegetation.

The soils consist of a 4-inch deep, very dark gray (10YR 3/1) clay loam A horizon in the scrub-shrub community. The subsurface horizon extends beyond 14 inches and is composed of a dark gray (2.5Y 4/1) clay loam B horizon. The emergent community consisted of a very dark gray (10YR 3/1) mucky mineral A horizon that extended beyond 16 inches in depth. Both soils exhibit a chroma of 1 below the A horizon or at 10 inches in depth, and thereby meets USACE criteria for classification as nonsandy wetland soils.

Primary indicators of hydrology found in the wetland community are soil saturation at the surface and drift lines in the form of leaves and stems of common reed that has been deposited throughout the wetland.

This wetland is clearly visible in aerial photographs and is identified on NWI and NYSDEC wetland maps. Note that an area on the north end of W3 appears to have a wetland signature on aerial imagery. Upon field investigation, this area was determined to be upland due to the absence of wetland hydrology and recent soil indicators. This soil appears to have been deposited from dredging operations that have taken place in the past along the nearby channel.

Wetland C-2

Wetland C-2 is a palustrine emergent (PEM5E) community that occupies a small area northeast of Slater Boulevard adjacent to a residential area. The herbaceous layer is dominated by a monotypic stand of common reed. The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criteria for wetland vegetation.

Field investigation revealed a history of prior fill activities in Wetland C-2. Soils consists of a 3-inch-deep, very dark brown (10YR 2/2), fine sandy loam A Horizon. Below this horizon is a brown (10YR 4/3), fine sandy loam B horizon with many faint dark brown (7.5YR 3/4) and few



faint dark gray (10YR 4/1) mottles. Hydric soil indicators include evidence of reducing conditions and organic streaking in sandy soils. The primary indicator of wetland hydrology is drainage patterns in the wetland. Secondary indicators of wetland hydrology include oxidized root channels in the upper 12 inches and water-stained leaves. This wetland is not identified on NWI or NYSDEC wetland maps.

Wetland C-3

Wetland C-3 is a palustrine emergent (PEM5E) community with a small associated palustrine forested (PFO1A) component. This large wetland occupies the area between Seaview Avenue and Slater Boulevard. The herbaceous layer is dominated by a monotypic stand of common reed. The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criteria for wetland vegetation.

Field investigation revealed that the soil in Wetland C-3 consists of a 24-inch-deep, black (2.5Y 2/1), mucky loam O horizon. Hydric soil indicators include the presence of a histosol. Primary indicators of wetland hydrology include drainage patterns in the wetland, saturation in the upper 12 inches, watermarks, drift lines, and sediment deposits. Secondary indicators of wetland hydrology include water-stained leaves. Depth to free water in the soil pit was 2 inches. This wetland is clearly visible in aerial photographs and is identified on NWI and NYSDEC wetland maps.

Wetland W12

Wetland W12 is a palustrine forested wetland (PFO1E) with a common reed dominated palustrine emergent (PEM5C) component. It is bordered by Stobe Avenue to the west, Naughton Avenue to the east, Zoe Street to the north, and Husson Street to the south. The dominant species in this wetland include red maple, spicebush, multiflora rose, small enchanter's nightshade (*Ciraea alpina*), and skunk cabbage (*Symplocarpus foetidus*). The composition of hydrophytic vegetation in this wetland exceeds 50% and thereby meets USACE criteria for wetland vegetation.

The soils consist of an 8-inch deep A horizon of black (10YR 2/1) sandy loam underlain to a depth of 12 inches by a gray (2.5Y 5/1) B horizon of silty clay. A layer of very dark gray (2.5Y 3/1) loamy sand extended from 12 to greater than 16 inches into the B horizon as well. These soils exhibit a chroma of 1 below the A horizon and thereby meet USACE hydric criteria for nonsandy wetland soils.

The primary hydrology indicators observed in the wetland are drainage patterns and sediment deposits. Many rivulets and inundated channels were observed throughout the interior of the wetland. Uplands were filled areas significantly higher in elevation and therefore without primary or secondary indicators of hydrology. This wetland is identified on NWI and NYSDEC wetland maps, although it is not clearly visible on aerial imagery.



Wetland W1

This wetland is within a parcel located northwest of Father Capodanno Boulevard, and northeast of Seaview Avenue. It is behind an athletic field and a part of a greater tract of land that appears to be used for recreation, such as hiking and biking. Wetland W1 is an isolated wetland containing components of both palustrine scrub-shrub (PSS1E) and palustrine emergent (PEM1E) communities. The majority of this wetland extends north outside of the survey boundary, to the adjacent land. The shrub component is dominated by groundsel tree (*Baccharis halmifolia*) and various shrub willows (*Salix spp.*). The emergent component is dominated by switchgrass (*Panicum virgatum*), common reed, and purple loosestrife (*Lythrum salicaria*). The composition of hydrophytic plant species in this wetland exceeds 50% and therefore meets the USACE criterion for hydrophytic vegetation.

Field investigation revealed that the soil in wetland W1 consists of a 5-inch deep A horizon of very dark gray (10YR 3/1) loamy sand. This is underlain to a depth of greater than 15 inches by a dark brown (7.5YR 3/2) B horizon of sand with many distinct brown (7.5YR 4/4) mottles. Hydric soil indicators observed present evidence of reducing conditions and thereby meet USACE criteria for sandy wetland soils.

The primary indicator of hydrology in the wetland is soil saturation within the upper 12 inches of the soil profile. Standing water is also visible throughout much of the wetland. This wetland is identified on NWI and NYSDEC wetland maps.

Wetland E-1

Wetland E-1 is a large palustrine emergent (PEM5F) community with smaller associated PFO1E, PEM5E, and PUBH components. Several portions of Wetland E-1 have been impacted by past fill activities. The herbaceous layer is dominated by common reed and rough goldenrod (*Solidago patula*). The shrub/sapling layer was dominated by black willow (*Salix nigra*). The composition of hydrophytic plant species exceeds 50% and thereby meets the USACE criterion for wetland vegetation.

Field investigation revealed that the soil in Wetland E-1 consists of a 3-inch-deep, black (10YR 2/1), loamy sand A horizon. Below this horizon is a 3 to 8-inch-deep, very dark brown (10YR 2/2) loamy fine sand B₁ horizon with few distinct dark red (2.5YR 3/6) and many distinct strong brown (7.5YR 4/6) mottles. The B₂ horizon is a black (10YR 2/1) loamy sand, extending to a depth greater than 12 inches, with many distinct strong brown (7.5YR 4/6) and many distinct gray (10 YR 6/1) mottles. Hydric soil indicators observed indicate the presence of reducing conditions. Primary indicators of wetland hydrology include areas of inundation, saturation in the upper 12 inches, and watermarks. Secondary indicators of wetland hydrology include oxidized root channels in the upper 12 inches. Depth to free water in the soil pit was 8 inches. This wetland is clearly visible in aerial photographs and is identified on NWI and NYSDEC wetland maps.



4.0 SUMMARY

Wetland delineation surveys were conducted in 2003 and 2009 within an area corresponding to the areas being considered for proposed flood/storm damage reduction measures along the SSSI in the borough of Staten Island, City of New York, Richmond County, New York.

In 2003, a total of 18 wetlands were identified and delineated. Subsequently, additional areas were added to the project for consideration of proposed flood/storm damage reduction measures. Accordingly, in 2009, a supplemental wetland delineation survey was conducted to encompass these new areas and also to verify the wetlands previously delineated in 2003.

The boundaries of the 18 previously identified wetlands were verified or updated during the 2009 survey. In addition, 12 new wetlands were identified in the expanded survey area, and the borders of three (3) previously identified wetlands were extended and mapped beyond the previous survey limits. A total of 30 wetlands occur within the survey limits. The majority of these wetlands are well defined emergent wetlands dominated by common reed. A total of approximately 297.76 acres of wetlands were found to be present in the survey area. Table 2 presents the survey area location, classification, and size of each federal-jurisdictional wetland identified.



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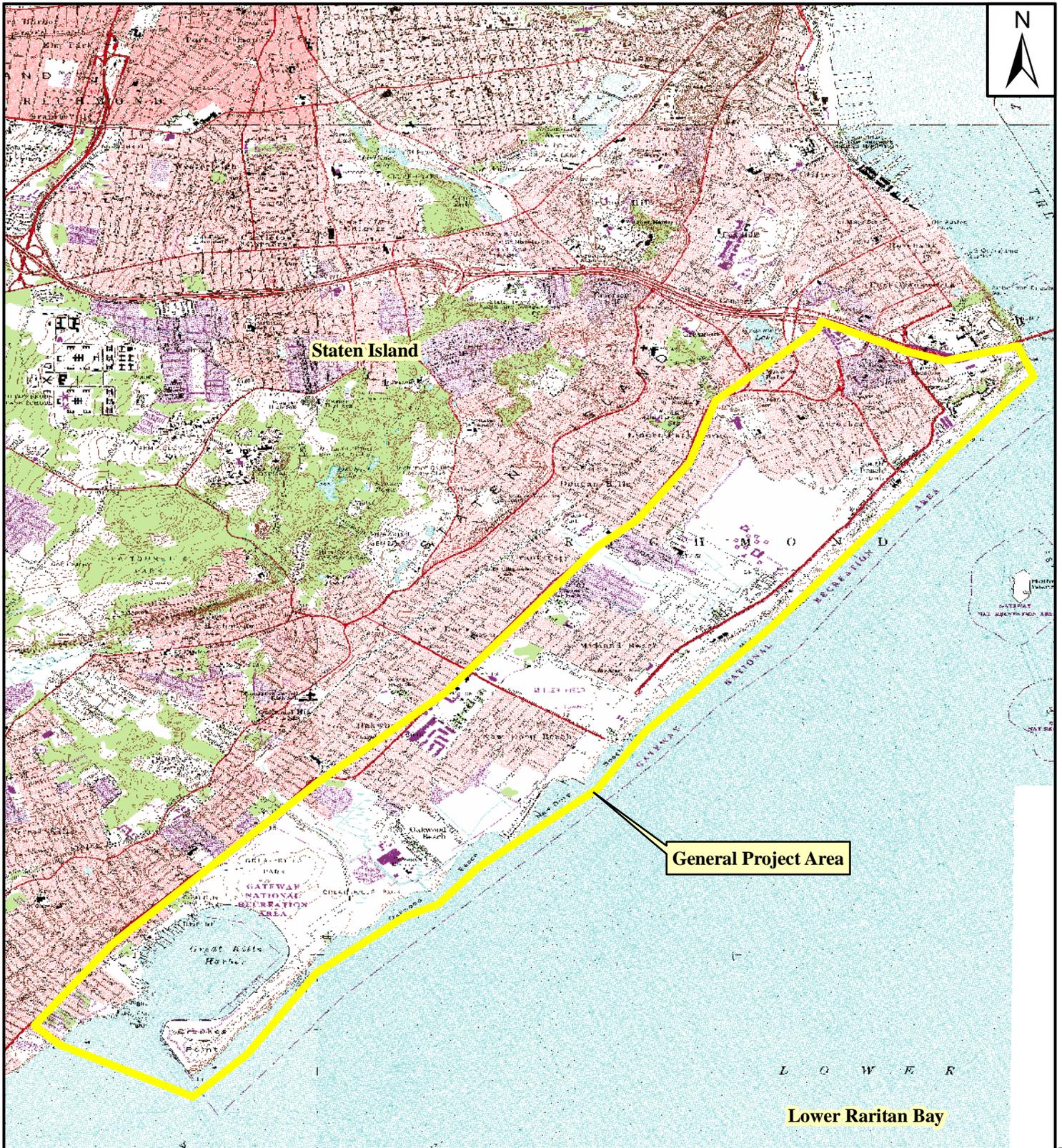


APPENDIX A

FIGURES

Figure 1

General Site Location Map



Project Location

Source: USGS 7.5' Series Topographic Quadrangle; The Narrows, NY-NJ and Arthur Kill, NY-NJ 1966, photorevised 1981.

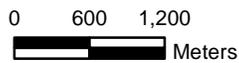


Figure 1. General Site Location Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For:



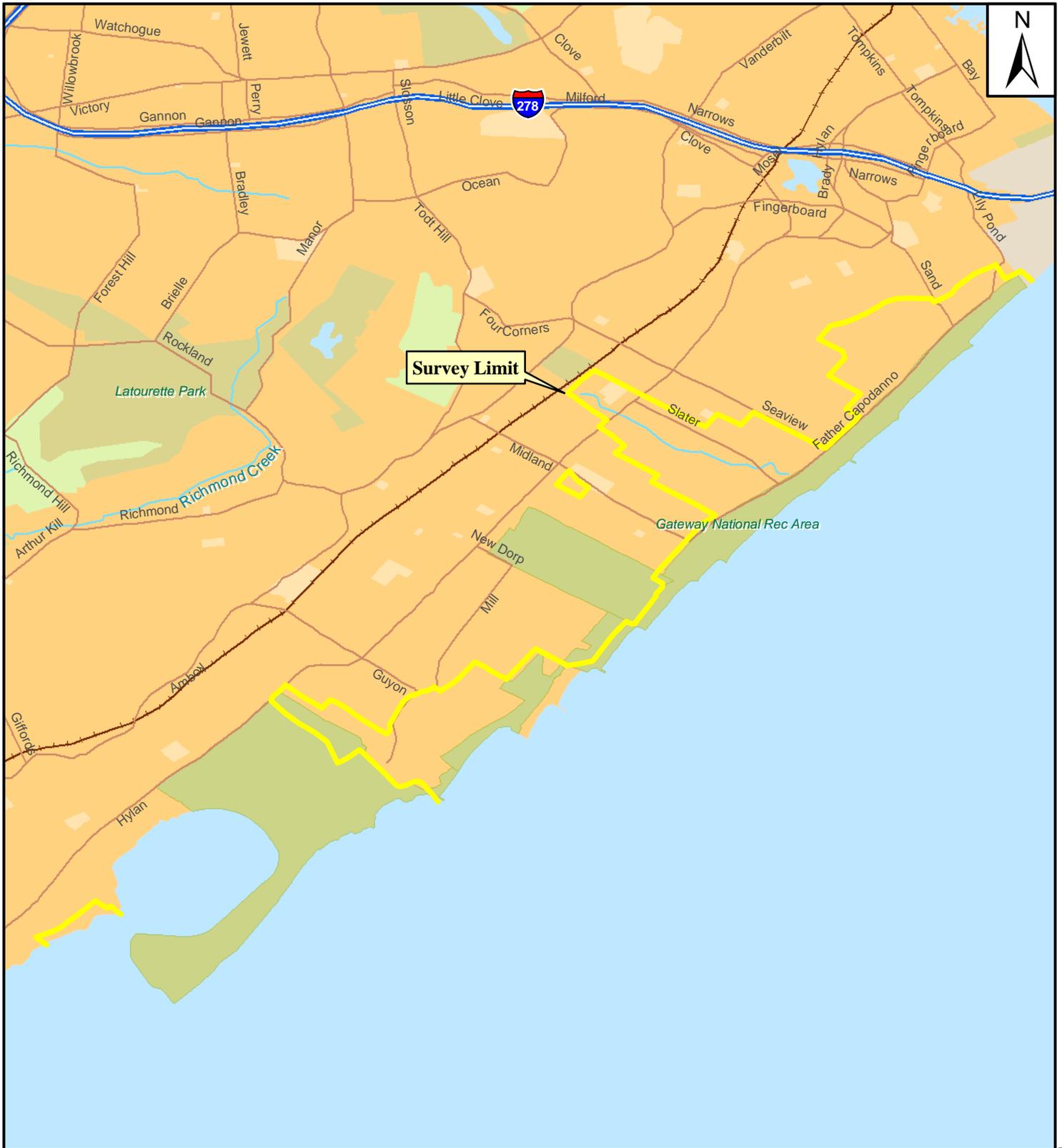
Prepared By:



Date:
8/09

Figure 2

Survey Area Limits



Legend

— Survey Limit

Source: ESRI Data 2008.

0 2,250 4,500
 Feet

0 550 1,100
 Meters

Figure 2. Survey Limits Location Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

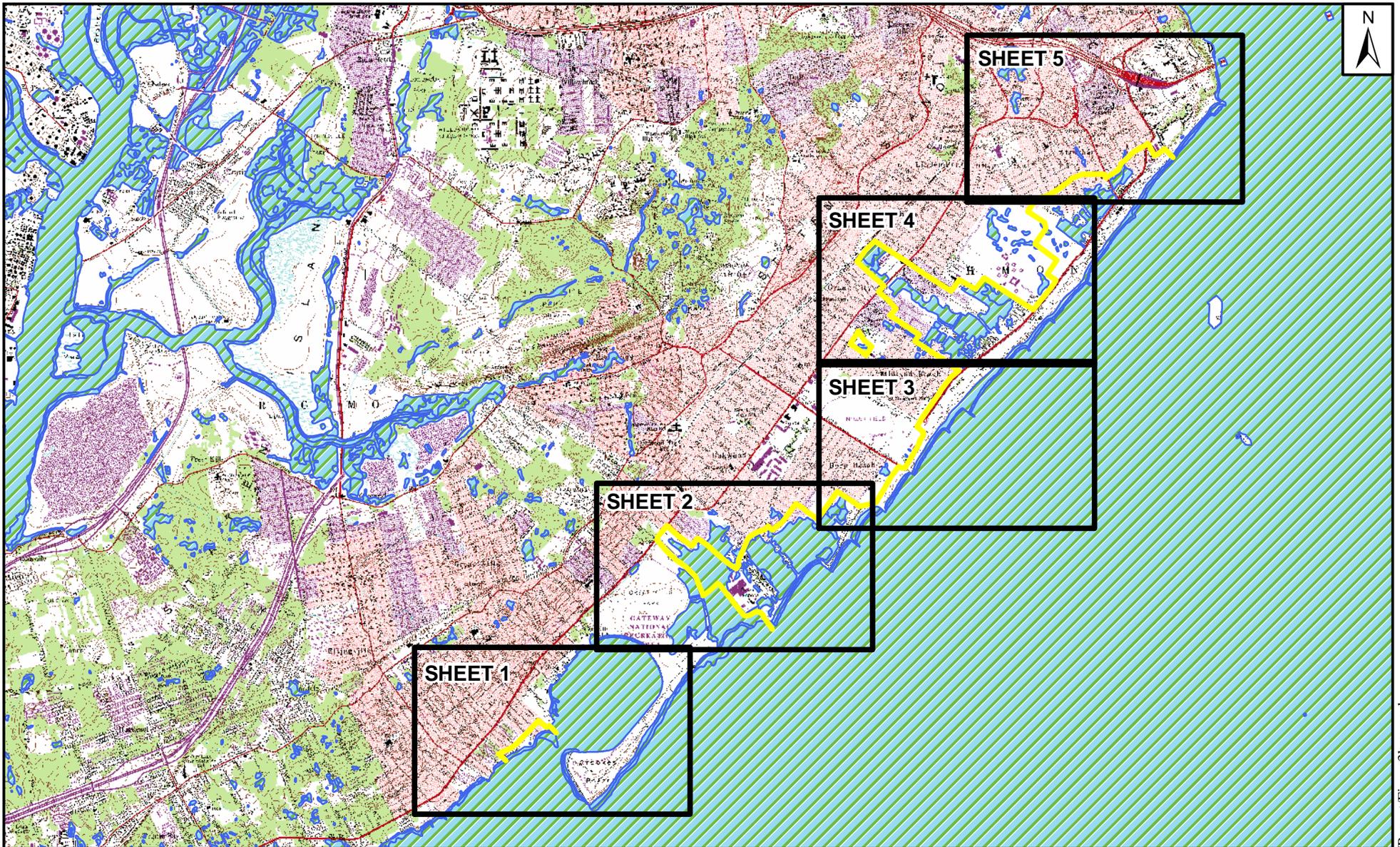
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Prepared By: 

Date: 8/09

Figure 3 (Sheets 1–5)

National Wetland Inventory Maps



Legend

-  NWI Wetland
-  Sheet Boundary
-  Survey Limit

0 2,500 5,000
 Feet

0 600 1,200
 Meters

Source: USGS 7.5' Series Topographic Quadrangle; The Narrows, NY-NJ and Arthur Kill, NY-NJ 1966, photorevised 1981. USFWS-National Wetlands Inventory Data; The Narrows 1994 and Arthur Kill 1995.

Figure 3. NWI Sheet Boundary Key for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

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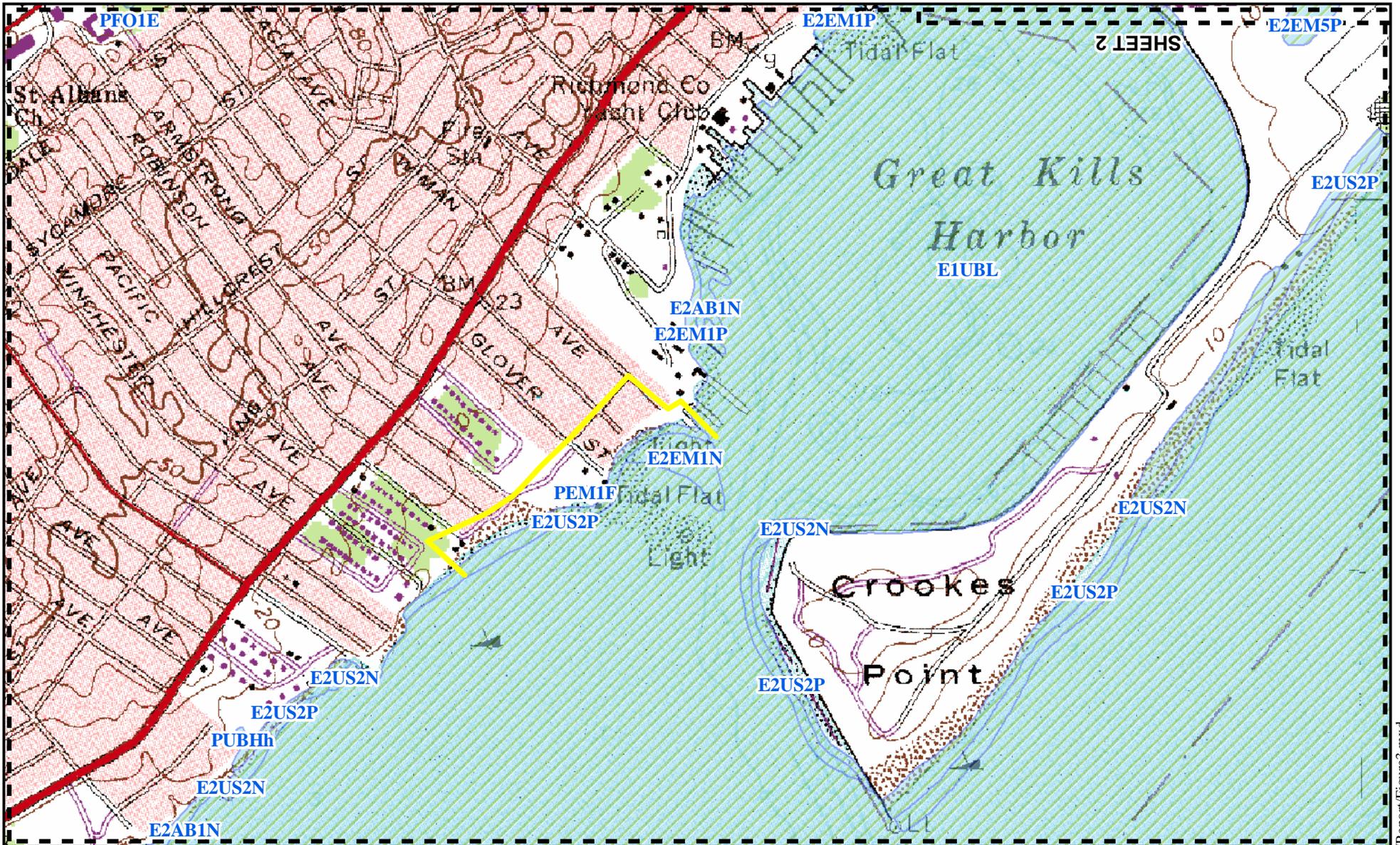
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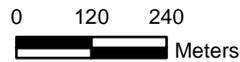
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Legend

-  NWI Wetland
-  Sheet Boundary
-  Survey Limit

Source: USGS 7.5' Series Topographic Quadrangle; The Narrows, NY-NJ and Arthur Kill, NY-NJ 1966, photorevised 1981. USFWS-National Wetlands Inventory Data; The Narrows 1994 and Arthur Kill 1995.



SHEET 1

Figure 3. NWI Location Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

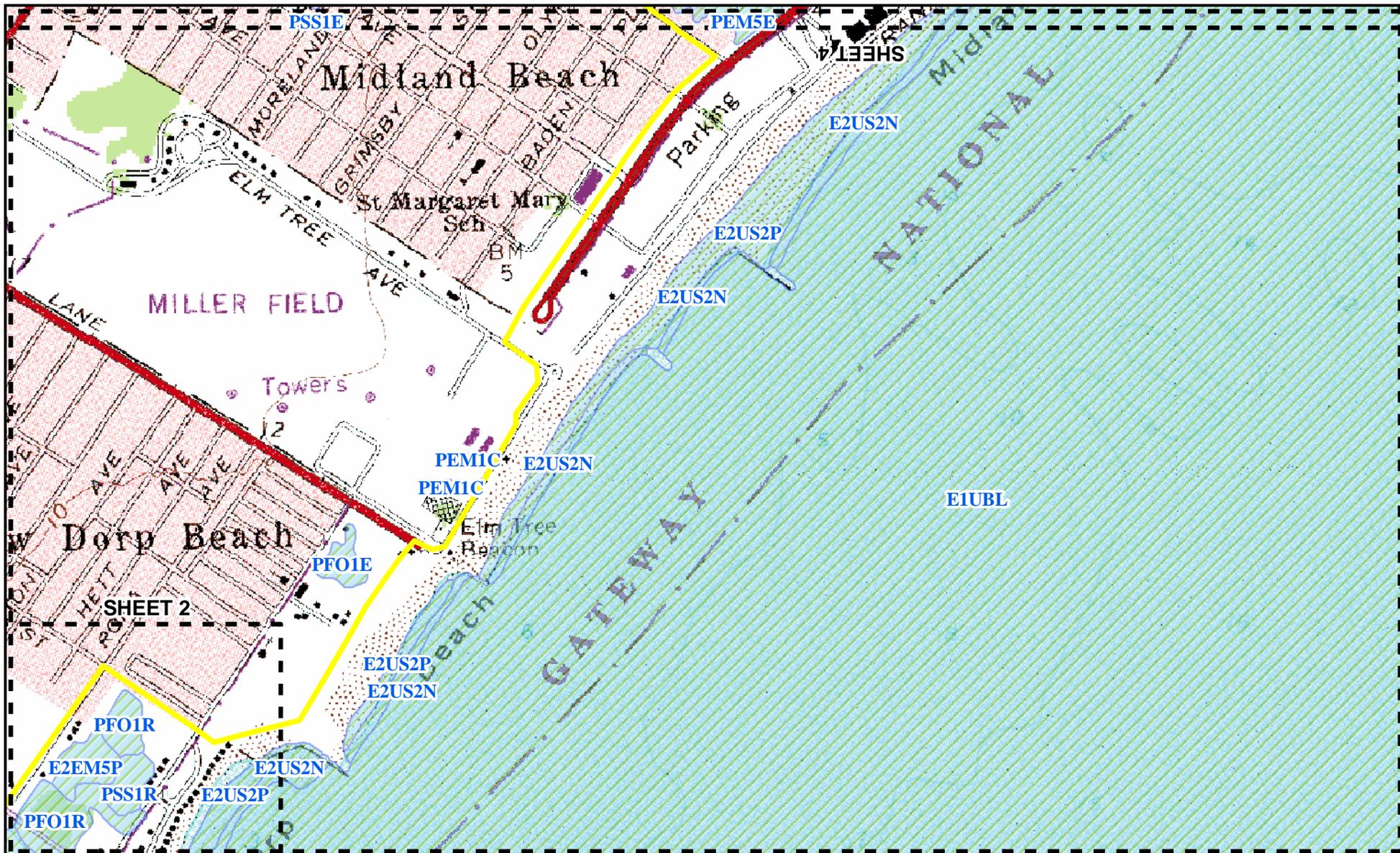
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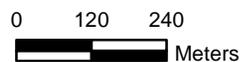
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8/09



Legend

-  NWI Wetland
-  Sheet Boundary
-  Survey Limit

Source: USGS 7.5' Series Topographic Quadrangle; The Narrows, NY-NJ and Arthur Kill, NY-NJ 1966, photorevised 1981. USFWS-National Wetlands Inventory Data; The Narrows 1994 and Arthur Kill 1995.



SHEET 3

Figure 3. NWI Location Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

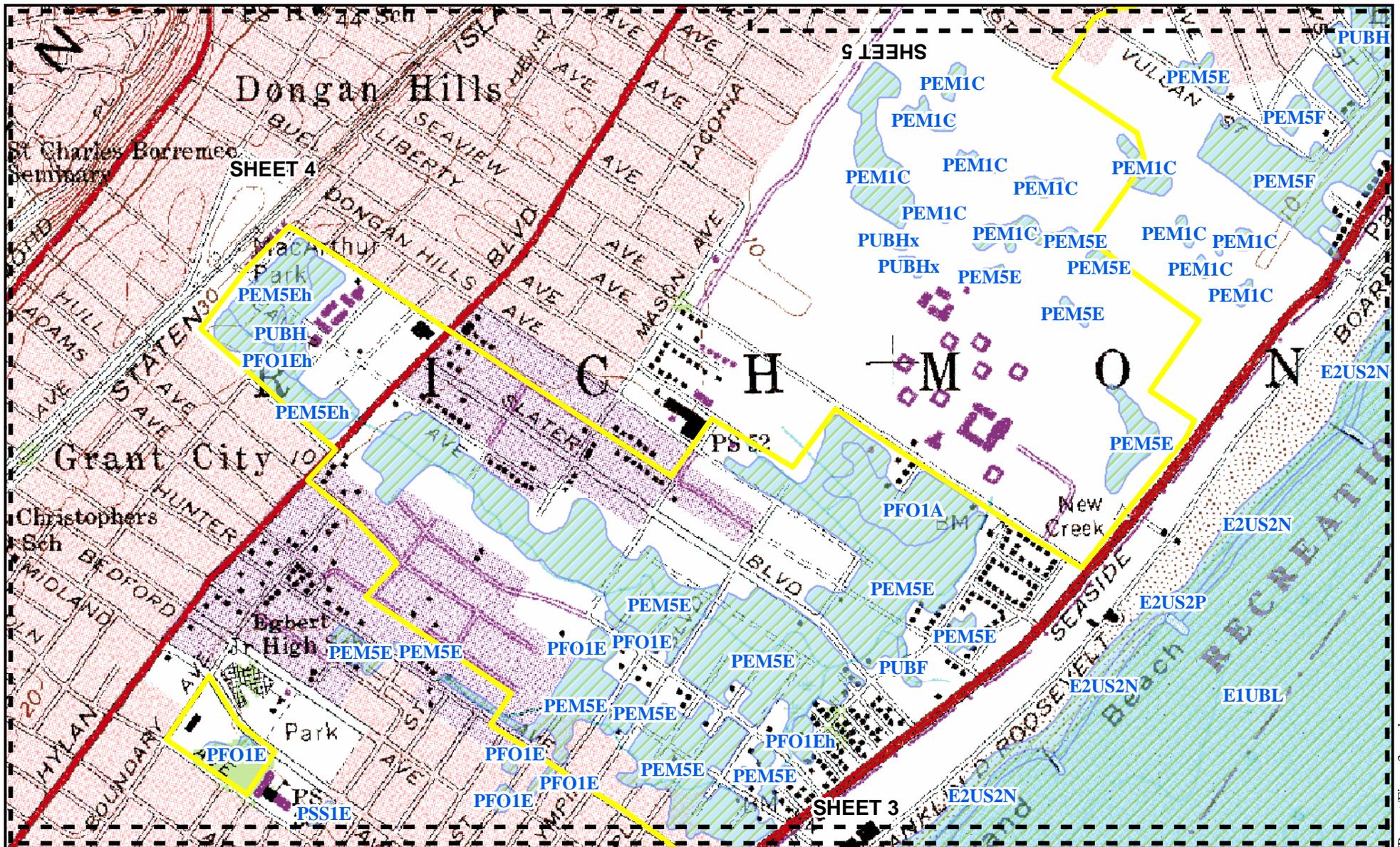
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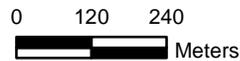
Date:
8/09



Legend

-  NWI Wetland
-  Sheet Boundary
-  Survey Limit

Source: USGS 7.5' Series Topographic Quadrangle; The Narrows, NY-NJ and Arthur Kill, NY-NJ 1966, photorevised 1981. USFWS-National Wetlands Inventory Data; The Narrows 1994 and Arthur Kill 1995.



SHEET 4

Figure 3. NWI Location Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

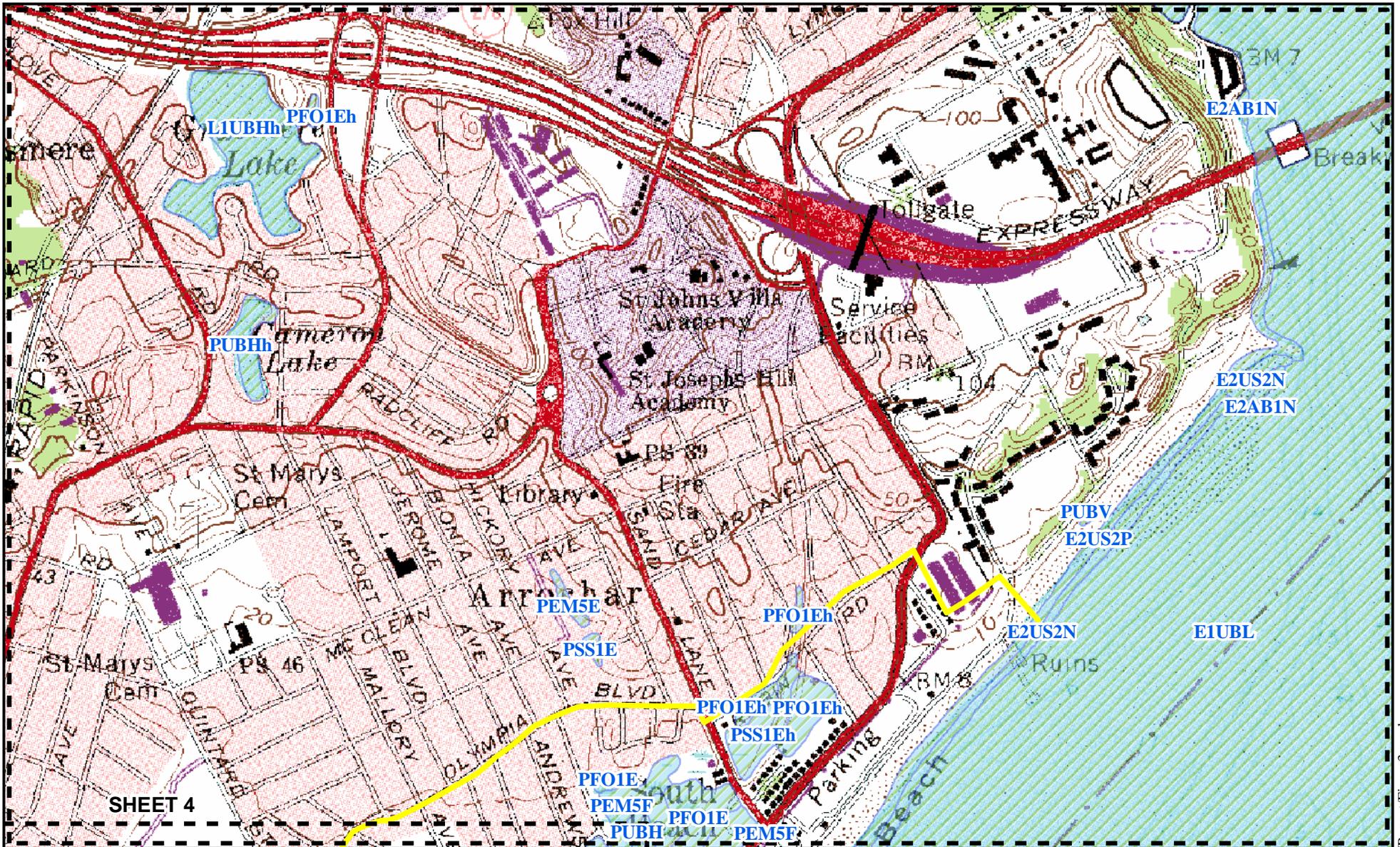
Prepared For:



Prepared By:



Date: 8/09



Legend

-  NWI Wetland
-  Sheet Boundary
-  Survey Limit

Source: USGS 7.5' Series Topographic Quadrangle; The Narrows, NY-NJ and Arthur Kill, NY-NJ 1966, photorevised 1981. USFWS-National Wetlands Inventory Data; The Narrows 1994 and Arthur Kill 1995.

0 500 1,000
 Feet

0 120 240
 Meters



SHEET 5

Figure 3. NWI Location Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For:



Prepared By:



Date:
8/09

Figure 4 (Sheets 1–3)

NY State DEC Freshwater Wetland Maps



Legend

-  NYSDEC Freshwater Wetland
-  Sheet Boundary
-  Survey Limit

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York.

0 2,000 4,000
 Feet

0 480 960
 Meters

Figure 4. NYSDEC Freshwater Wetlands Sheet Boundary Key for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For:



Prepared By:



Date:
8/09



Legend

-  NYSDEC Freshwater Wetland
-  Sheet Boundary
-  Survey Limit

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. NYSDEC-NY State Regulatory Freshwater Wetlands For Richmond County 1990.

0 500 1,000
 Feet

0 120 240
 Meters



SHEET 1

Figure 4. NYSDEC Freshwater Wetlands Location Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

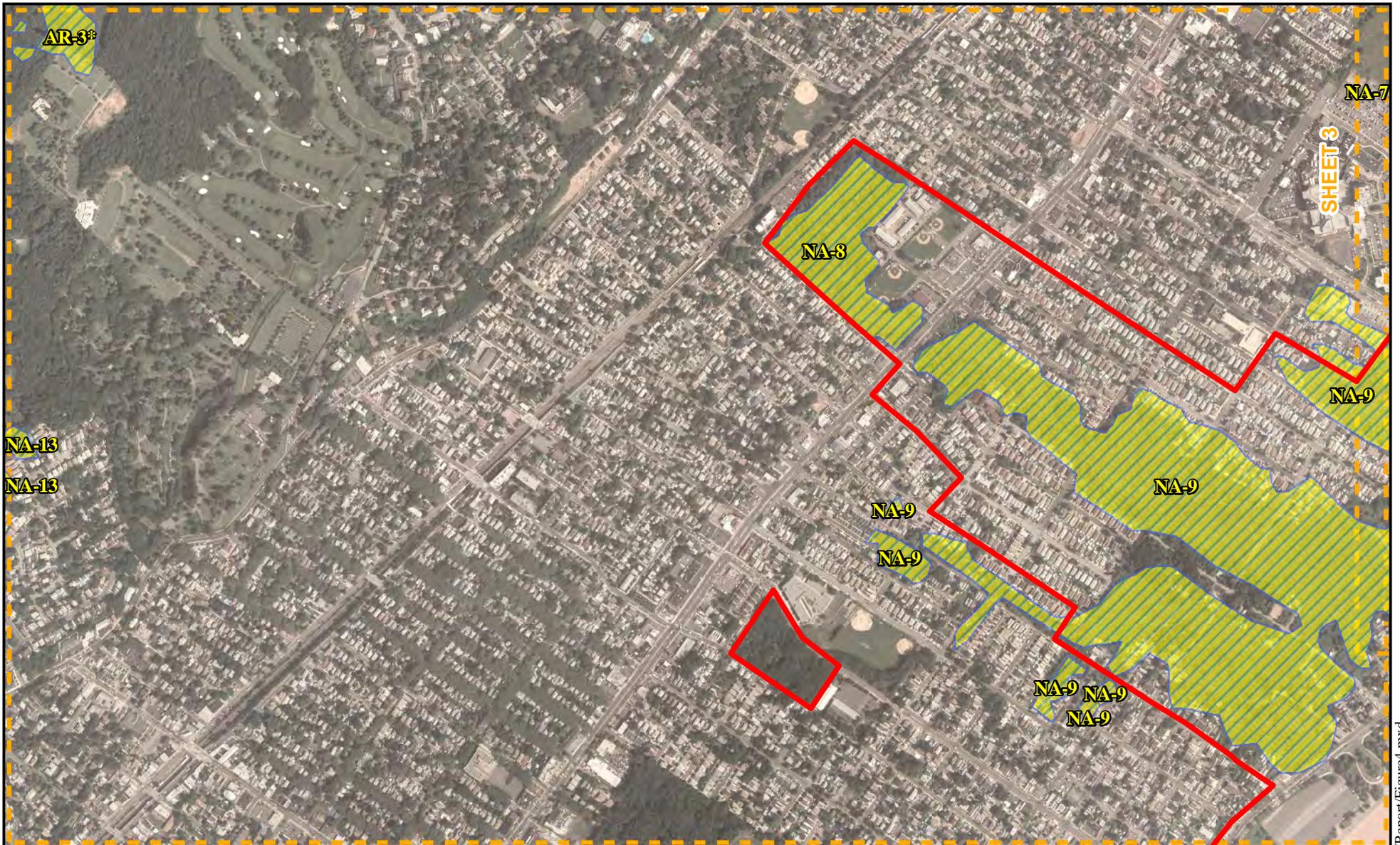
Prepared For:



Prepared By:



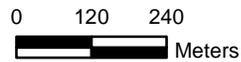
Date:
8/09



Legend

-  NYSDEC Freshwater Wetland
-  Sheet Boundary
-  Survey Limit

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. NYSDEC-NY State Regulatory Freshwater Wetlands For Richmond County 1990.



SHEET 2

Figure 4. NYSDEC Freshwater Wetlands Location Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For:



Prepared By:



Date:
8/09



SHEET 2

Legend

-  NYSDEC Freshwater Wetland
-  Sheet Boundary
-  Survey Limit

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. NYSDEC-NY State Regulatory Freshwater Wetlands For Richmond County 1990.

0 500 1,000
Feet

0 120 240
Meters



SHEET 3

Figure 4. NYSDEC Freshwater Wetlands Location Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For:



Prepared By:



Date:
8/09

Figure 5 (Sheets 1–13)
Delineated Wetland Resources



Legend

-  Sheet Boundaries
-  Survey Limit
-  Delineated Wetlands

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York.



Figure 5. Delineated Wetlands Sheet Boundary Key for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared

For:



Prepared

By:



Date:

8/09



Legend

- Survey Limit
- Surveyed High Tide Line
- Surveyed Rocky Intertidal Zone
- Drainage Ditch
- ▨ Delineated Wetlands
- ▨ Clam Flat
- Sheet Boundaries

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. Wetlands, Tetra Tech June 2009.

SHEET 1

0 150 300

Feet

0 35 70

Meters

N

Figure 5. Delineated Wetlands Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For:

Prepared By: **TETRA TECH**

Date: **8/09**



Legend

- Survey Limit
- Surveyed High Tide Line
- Drainage Ditch
- Delineated Wetlands
- Sheet Boundaries

SHEET 2

0 150 300
 Feet

0 35 70
 Meters



Figure 5. Delineated Wetlands Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For: US Army Corps of Engineers®

Prepared By: TETRA TECH

Date: 8/09

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. Wetlands, Tetra Tech June 2009.



Legend

- Survey Limit
- Surveyed High Tide Line
- Drainage Ditch
- ▧ Delineated Wetlands
- - - Sheet Boundaries

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. Wetlands, Tetra Tech June 2009.

SHEET 3

0 150 300
 Feet

0 35 70
 Meters



Figure 5. Delineated Wetlands Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For: 

Prepared By: 

Date: 8/09



Legend

- Survey Limit
- Surveyed High Tide Line
- Drainage Ditch
- ▧ Delineated Wetlands
- Sheet Boundaries

SHEET 4

0 150 300
 Feet

0 35 70
 Meters



Figure 5. Delineated Wetlands Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For: 

Prepared By: 

Date: 8/09

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. Wetlands, Tetra Tech June 2009.



Legend

- Survey Limit
- Surveyed High Tide Line
- Drainage Ditch
- ▨ Delineated Wetlands
- - - Sheet Boundaries

SHEET 5

0 150 300
 Feet

0 35 70
 Meters



Figure 5. Delineated Wetlands Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For: 

Prepared By: 

Date: 8/09

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. Wetlands, Tetra Tech June 2009.



SHEET 5

SHEET 3

Legend

- Survey Limit
- Surveyed High Tide Line
- Drainage Ditch
- ▨ Delineated Wetlands
- - - Sheet Boundaries

SHEET 6

0 150 300
 Feet

0 35 70
 Meters



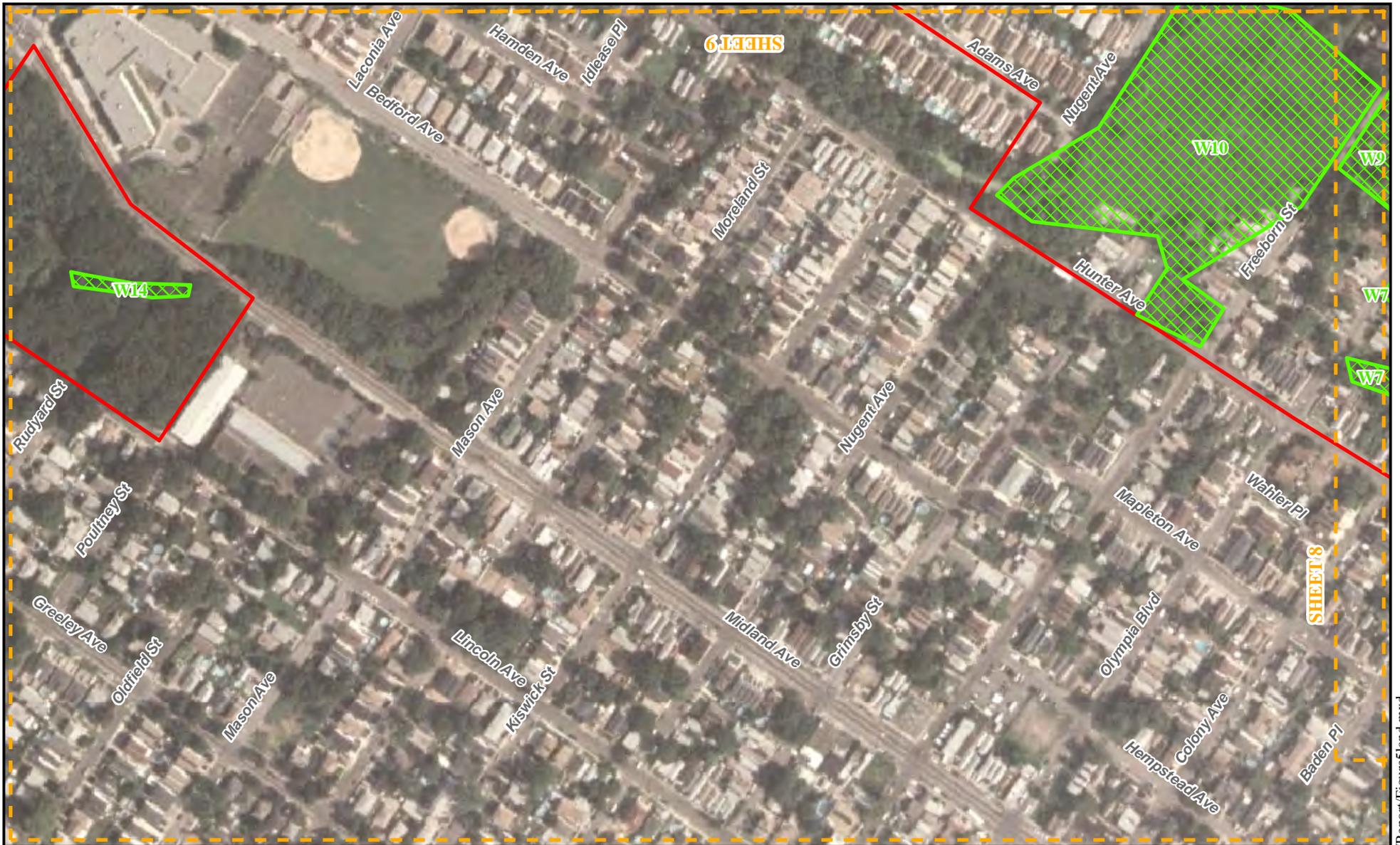
Figure 5. Delineated Wetlands Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For: US Army Corps of Engineers®

Prepared By: TETRA TECH

Date: 8/09

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. Wetlands, Tetra Tech June 2009.



Legend

- Survey Limit
- Surveyed High Tide Line
- Drainage Ditch
- ▨ Delineated Wetlands
- - - Sheet Boundaries

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. Wetlands, Tetra Tech June 2009.

0 150 300
Feet

0 35 70
Meters



SHEET 7

Figure 5. Delineated Wetlands Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For:



Prepared By:



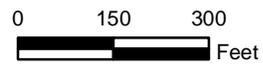
Date:
8/09



Legend

- Survey Limit
- Surveyed High Tide Line
- Drainage Ditch
- ▨ Delineated Wetlands
- Sheet Boundaries

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. Wetlands, Tetra Tech June 2009.



SHEET 8

Figure 5. Delineated Wetlands Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

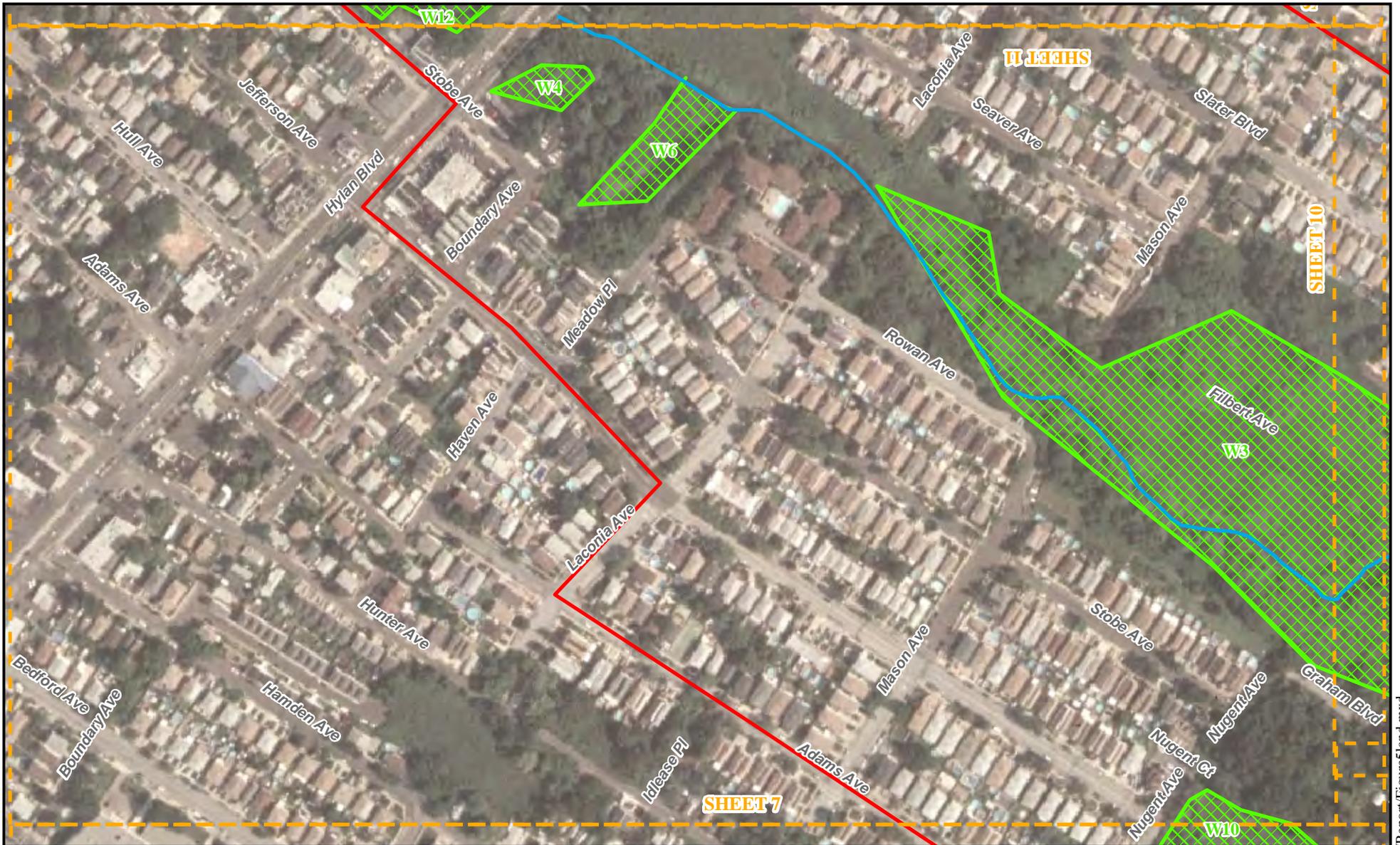
Prepared For:



Prepared By:

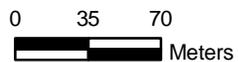
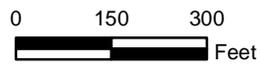


Date:
8/09



Legend

- Survey Limit
- Surveyed High Tide Line
- Drainage Ditch
- ▨ Delineated Wetlands
- - - Sheet Boundaries



Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. Wetlands, Tetra Tech June 2009.

SHEET 9

Figure 5. Delineated Wetlands Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For:



Prepared By:



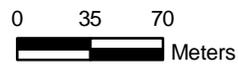
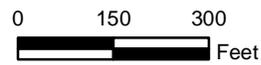
Date:
8/09



Legend

- Survey Limit
- Surveyed High Tide Line
- Drainage Ditch
- ▧ Delineated Wetlands
- Sheet Boundaries

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. Wetlands, Tetra Tech June 2009.



SHEET 10

Figure 5. Delineated Wetlands Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

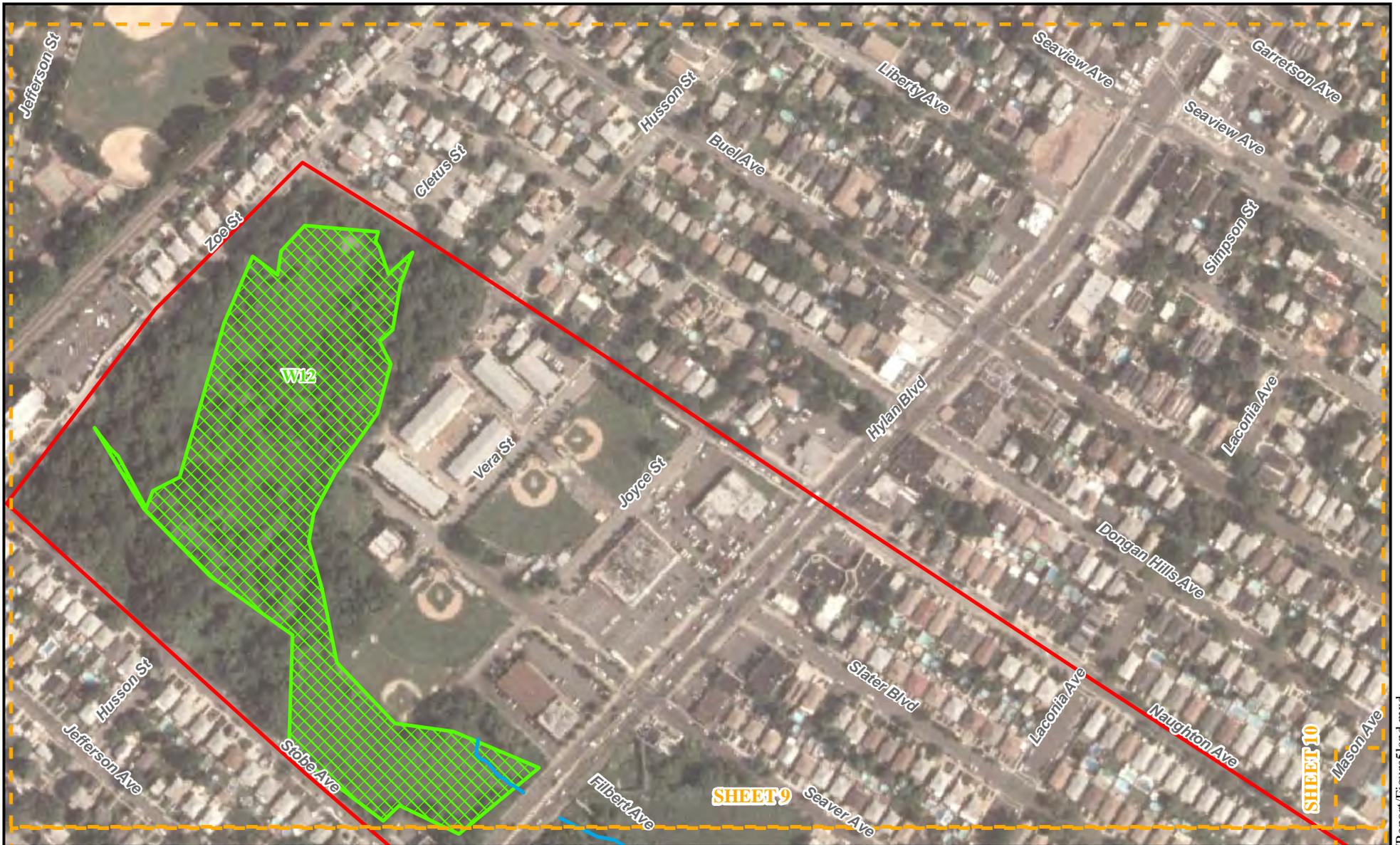
Prepared For:



Prepared By:



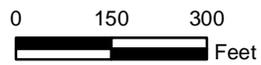
Date:
8/09



Legend

- Survey Limit
- Surveyed High Tide Line
- Drainage Ditch
- ▨ Delineated Wetlands
- - - Sheet Boundaries

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. Wetlands, Tetra Tech June 2009.



SHEET 11

Figure 5. Delineated Wetlands Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For:



Prepared By:



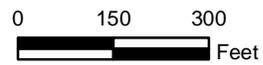
Date:
8/09



Legend

- Survey Limit
- Surveyed High Tide Line
- Drainage Ditch
- ▨ Delineated Wetlands
- - - Sheet Boundaries

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. Wetlands, Tetra Tech June 2009.



SHEET 12

Figure 5. Delineated Wetlands Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For:



Prepared By:



Date:
8/09



Legend

- Survey Limit
- Surveyed High Tide Line
- Drainage Ditch
- ▨ Delineated Wetlands
- - - Sheet Boundaries

Source: USDA/FSA - Aerial Photography Field Office; USDA-FSA-APFO NAIP MrSID Mosaic, for Richmond County, New York. Wetlands, Tetra Tech June 2009.

0 150 300
Feet

0 35 70
Meters

N

SHEET 13

Figure 5. Delineated Wetlands Map for South Shore of Staten Island Storm Damage Reduction Feasibility Study, Richmond County, New York.

Prepared For: 

Prepared By: 

Date: 8/09

APPENDIX B

PHOTOGRAPHIC RECORD

- **Appendix B1: 2009 Survey Photo Log**
- **Appendix B2: 2003 Survey Photo Log**

Appendix B1

2009 Survey Photo Log

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetlands CB-1 and CB-2



Photographer: Lema
Date: 6/25/09
Photo No.: 1
Direction: West

Comments: Wetland CB1
– Verified in 2009



Photographer: Lema
Date: 6/29/09
Photo No.: 2
Direction: East

Comments: Wetland CB2
– Verified in 2009. This portion of the wetland extends into the adjacent forest. The common reed-dominated community is behind the photographer.

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetland A-1 / W11



Photographer: Lema
Date: 6/26/09
Photo No.: 3
Direction: East

Comments: Wetland A-1 /W11 – Upland development is visible in the background.



Photographer: Lema
Date: 6/26/09
Photo No.: 4
Direction: Southeast

Comments: Wetland A-1/ W11 – boundary verified in 2009. Picture shows a levee and tide gate on southeast portion of wetland.

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetlands A-1 / W11 and A-2



Photographer: Lema
Date: 6/26/09
Photo No.: 5
Direction:

Comments: Wetland A-1 /W11 – verified and extended in 2009 to meet the coastline



Photographer: Lema
Date: 6/26/09
Photo No.: 6
Direction:

Comments: Wetland A-2 – verified in 2009, small isolated wetland.

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetlands A-3 and A-4



Photographer: Lema
Date: 6/29/09
Photo No.: 7
Direction:

Comments: Wetland A-3 –
verified in 2009. Separated
from WA-1 by the road
(lower right)



Photographer: Lema
Date: 6/29/09
Photo No.: 8
Direction:

Comments: Wetland A-4 –
verified in 2009. Typical
large common reed
dominated emergent
wetland.

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetland W13 / A5



Photographer: Lema
Date: 7/01/09
Photo No.: 9
Direction: Southeast

Comments: Wetland W13 /A5 – Extensive wetland continues to the trees visible on the horizon.



Photographer: Lema
Date: 7/02/09
Photo No.: 10
Direction: Northwest

Comments: Wetland W13 /A5 – The foreground appears to be an abandoned (upland) road into the wetland.

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetlands W15 and W14



Photographer: Lema
Date: 7/02/09
Photo No.: 11
Direction: South

Comments: Wetland W15—
Foreground is filled and a
maintained residential lawn
community.



Photographer: Lema
Date: 7/01/09
Photo No.: 12
Direction: East

Comments: Wetland W14—
Entire area appears to be a
depository for fill, the
wetland is composed of
many swales and tire ruts.

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetlands W7 and W8



Photographer: Lema
Date: 6/25/09
Photo No.: 13
Direction: Southeast

Comments: Wetland W7 – Upland areas surrounding wetland are composed solely of fill material.



Photographer: Lema
Date: 6/25/09
Photo No.: 14
Direction: South

Comments: Wetland W8 – Separated from W7 by Patterson Ave.

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetlands W9 and W10



Photographer: Lema
Date: 6/25/09
Photo No.: 15
Direction: North

Comments: Wetland W9 – Separated from W7 by Olympia Blvd., and from W10 by Freeborn St.



Photographer: Lema
Date: 6/25/09
Photo No.: 16
Direction: Northeast

Comments: Wetland W10– Photo shows upland (filled) residential yard on the left.

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetlands WC-1 and W5



Photographer: Lema
Date: 6/25/09
Photo No.: 17
Direction:

Comments: Stream running through the greater wetland, WC-1 – verified in 2009.



Photographer: Lema
Date: 6/24/09
Photo No.: 18
Direction: West

Comments: Wetland W5 – All areas surrounding this wetland are filled residential sites.

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetland W3



Photographer: Lema
Date: 6/24/09
Photo No.: 19
Direction: Southwest

Comments: Stream through Wetland W3. Note the extremely dense vegetation surrounding the stream.



Photographer: Lema
Date: 6/24/09
Photo No.: 20
Direction:

Comments: Wetland W3 – Trees in the background are the opposite edge of the wetland.

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Area north of W3 and Wetland W4



Photographer: Lema
Date: 6/24/09
Photo No.: 21
Direction:

Comments: Common reed dominated area north of Wetland W3. This area was determined not to meet wetland criteria. Note mulch fill in foreground.



Photographer: Lema
Date: 6/24/09
Photo No.: 22
Direction: Northeast

Comments: Wetland W4– The wetland edge is composed of a dense mix of common reed and Japanese knotweed.

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetlands W6 and W12



Photographer: Lema
Date: 6/24/09
Photo No.: 23
Direction: Northeast

Comments: Wetland W6 – adjacent to the baseball diamond (background)



Photographer: Lema
Date: 6/30/09
Photo No.: 24
Direction: Northwest

Comments: Wetland W12– Forested wetland flows into wetland W6, but delineated separately in the field.

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetlands W2 and C-2



Photographer: Lema
Date: 6/23/09
Photo No.: 25
Direction: Southeast

Comments: Wetland W2 –
Wetland area is narrow
band of common reed in
the background.



Photographer: Lema
Date: 7/01/09
Photo No.: 26
Direction:

Comments: C-2 – verified
in 2009.

TETRA TECH, INC.

PHOTOGRAPHIC RECORD

Company: US Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetlands C-3 and W1



Photographer: Lema
Date: 6/27/09
Photo No.: 27
Direction: Southeast

Comments: Verification and continuation of wetland C-3. This wetland is well defined and includes the foreground.



Photographer: Lema
Date: 6/23/09
Photo No.: 28
Direction: North

Comments: Wetland W1. Note a combination of scrub/shrub and emergent wetland components.

Appendix B2

2003 Survey Photo Log

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetland A1



Photographer: Garvey
Date: 10/02/03
Photo No.: 1
Direction: W

Comments: View (photo foreground) of Wetland A1 scrub-shrub fringe, which is located around many parts of the upland/wetland interface. Wetland A1 opens up into a large monotypic stand of common reed (visible in photo background).



Photographer: Garvey
Date: 10/02/03
Photo No.: 2
Direction: W

Comments: View of Wetland A1 as it borders the Sewage Treatment Facility at Oakwood Beach.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Levee and tide gate/Wetlands A1, A2, and A3



Photographer: Garvey
Date: 10/02/03
Photo No.: 3
Direction: WNW

Comments: View of the existing levee and tide gate at Oakwood Creek. Wetland A1 extends west from Hylan Boulevard and borders both sides of Oakwood Creek as it flows through the tide gate. Wetlands A2 and A3 are located on either side of the existing levee approximately 235 feet from the tide gate.



Photographer: Garvey
Date: 10/01/03
Photo No.: 4
Direction: SW

Comments: View of Wetland A2.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetland A3/Wetland A4



Photographer: Garvey
Date: 10/01/03
Photo No.: 5
Direction: NW

Comments: View of Wetland A3, which is located in a depression on the opposite side of the levee and is dominated by common reed.



Photographer: Thompson
Date: 10/02/03
Photo No.: 6
Direction: NW

Comments: View over Wetland A4 from an existing levee.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetland A5/Wetland C1



Photographer: Garvey
Date: 10/01/03
Photo No.: 7
Direction: N

Comments: View over Wetland A5. Note the residences clustered along the fringes of the wetland.



Photographer: Thompson
Date: 9/30/03
Photo No.: 8
Direction: NE

Comments: View of a portion of Wetland C1. Note the large monotypic stand of common reed and the residences clustered along the fringes of the wetland.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetland C1/Wetland C2



Photographer: Thompson

Date: 9/30/03

Photo No.: 9

Direction: SE

Comments: View of a creek flowing through a portion of Wetland C1.



Photographer: Thompson

Date: 10/1/03

Photo No.: 10

Direction: NW

Comments: View of Wetland C2. This wetland is located in a small area that has been impacted by foreign fill and is adjacent to a residential area by Slater Avenue and Olympia Boulevard.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetland C1 and C3



Photographer: Thompson
Date: 10/1/03
Photo No.: 11
Direction: SW

Comments:
Representative view of the *Phragmites*-dominated wetland habitat in Wetlands C1 and C3.



Photographer: Thompson
Date: 10/01/03
Photo No.: 12
Direction: SE

Comments: View of an emergent/forested component of Wetland C3 located on the north side of the wetland.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetland C3



Photographer: Thompson
Date: 10/01/03
Photo No.: 13
Direction: NA

Comments: View of the upland/wetland interface of Wetland C3 where fill material extends down to the wetland.



Photographer: Thompson
Date: 10/01/03
Photo No.: 14
Direction: W

Comments: View of the western most point of Wetland C3. A large portion of the wetland has been excavated and fill material has been imported to assist in residential construction.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetland C4/Wetland E1



Photographer: Thompson

Date: 10/3/01

Photo No.: 15

Direction: W

Comments: View of Wetland C4 where it borders Father Capodanno Boulevard.



Photographer: Garvey

Date: 9/29/03

Photo No.: 16

Direction: W

Comments: View of Wetland E1. Note the large monotypic stand of *Phragmites* surrounded by a fringe of scrub-shrub habitat.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetland E1



Photographer: Garvey
Date: 9/30/03
Photo No.: 17
Direction: NA

Comments: View of a skateboard park built by local youth along the western boundary of Wetland E1.



Photographer: Garvey
Date: 9/30/03
Photo No.: 18
Direction: NA

Comments: View of a portion of Wetland E1 where forested and emergent wetland communities meet.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetland CB1/Wetland CB2



Photographer: Fellion
Date: 10/24/03
Photo No.: 19
Direction: W

Comments: View of Wetland CB1 in the Crescent Beach survey area.



Photographer: Fellion
Date: 10/24/03
Photo No.: 20
Direction: NA

Comments: Typical view of wetland vegetation in Wetlands CB1 and CB2.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetland LM1



Photographer: Fellion
Date: 10/24/03
Photo No.: 21
Direction: W

Comments: View of Wetland LM1 beside the Armstrong Outfall.



Photographer: Fellion
Date: 10/24/03
Photo No.: 22
Direction: N

Comments: View of Wetland LM2 dominated by salt-marsh cord grass.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Wetlands LM3, LM4, LM5, and LM6



Photographer: Fellion
Date: 10/24/03
Photo No.: 23
Direction: NE

Comments: View of Wetland LM3. Note the rocky intertidal zone (RI-1) extends to the boundary of this wetland.



Photographer: Fellion
Date: 10/24/03
Photo No.: 24
Direction: SW

Comments: Wetlands LM4 and LM5 are located against the base of the seawall. Wetland LM6 is a very sparse population of salt-marsh cord grass growing in between the rip-rap associated with the old pilings visible in the photo.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Crescent Beach/Clam flat



Photographer: Thompson

Date: 10/3/03

Photo No.: 25

Direction: W

Comments: General view of the residential area located along the seawall at Crescent Beach and the clam flat (CF-1) area.



Photographer: Thompson

Date: 10/3/03

Photo No.: 26

Direction: N

Comments: General view of the residential area by the marina at Crescent Beach and the clam flat (CF-1) area.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Clam flat/Rocky intertidal zone



Photographer: Thompson

Date: 10/3/03

Photo No.: 27

Direction: NA

Comments: Close up view of the clam flat (CF-1) at Crescent Beach.



Photographer: Thompson

Date: 10/3/03

Photo No.: 28

Direction: S

Comments: View of the rocky intertidal zone (RI-1) at Crescent Beach.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Line of Protection-Boardwalk and Promenade



Photographer: Garvey
Date: 10/01/03
Photo No.: 29
Direction: N

Comments:
Representative view of the line of protection survey area along the boardwalk.



Photographer: Garvey
Date: 10/01/03
Photo No.: 30
Direction: N

Comments:
Representative view of the line of protection survey area along the promenade.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Line of Protection-Existing Buried Seawall



Photographer: Garvey

Date: 10/1/03

Photo No.: 31

Direction: N

Comments: Typical view along the existing buried seawall located adjacent to Wetlands A4 and W13/A5.



Photographer: Garvey

Date: 10/01/03

Photo No.: 32

Direction: NE

Comments: Typical view along the coastline near the existing buried seawall located adjacent to Wetland W13/A5.

NORTHERN ECOLOGICAL ASSOCIATES, INC.

PHOTOGRAPHIC RECORD

Company: United States Army Corps of Engineers
Project: South Shore of Staten Island
Feature: Drainage Area B/Drainage Area D



Photographer: Garvey
Date: 10/01/03
Photo No.: 33
Direction: NE

Comments: View of the bungalows along Cedar Grove Beach.

APPENDIX C
FIELD DATA FORMS

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>S. Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Frick</u>	Date: <u>06-23-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>PEM/BS</u> Transect ID: <u>w1</u> Plot ID: <u>wet 1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Baccharis helmitolia</u>	<u>S</u>	<u>FACW</u>	8. _____	_____	_____
3. <u>Salix sp. virginica</u>	<u>S</u>	<u>FACW (est)</u>	9. _____	_____	_____
4. <u>Panicum virgatum</u>	<u>H</u>	<u>FAC</u>	10. _____	_____	_____
5. <u>Rythrum salicaria</u>	<u>H</u>	<u>FACW</u>	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 5/ 100%

Remarks: Phragmites dominant in interson

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: <u>4</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	Remarks: <u>Standing water throughout wetland</u>

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N Finch</u>	Date: <u>06-23-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>UPSS</u> Transect ID: <u>W1</u> Plot ID: <u>UP-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Antennaria vulgaris</u>	<u>H</u>	<u>UPL</u>	7. _____	_____	_____
2. <u>Solidago canadensis</u>	<u>H</u>	<u>FACU</u>	8. _____	_____	_____
3. <u>Polygonum armeria</u>	<u>H</u>	<u>UPL</u>	9. _____	_____	_____
4. <u>Ailanthus altissima</u>	<u>T</u>	<u>NI</u>	10. _____	_____	_____
5. <u>Asclepias syriaca</u>	<u>H</u>	<u>UPL</u>	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 0/5

Remarks: Fails to meet criteria for wetland vegetation

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks:

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-6</u>	<u>A</u>	<u>10YR3/2</u>	_____	_____	<u>Loamy sand</u>
<u>6-6+</u>	<u>B</u>	<u>7.5YR4/1</u>	_____	_____	<u>Loamy sand</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Very sandy- fails to meet hydric soil criteria

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <u>No</u> (Circle) Wetland Hydrology Present? Yes <u>No</u> Hydric Soils Present? Yes <u>No</u>	(Circle) Is this Sampling Point Within a Wetland? Yes <u>No</u>
Sketch:	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore, Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Frick</u>	Date: <u>06-23-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>PEM</u> Transect ID: <u>W2</u> Plot ID: <u>Wet-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Impatiens capensis</u>	<u>H</u>	<u>FACW</u>	8. _____	_____	_____
3. _____	_____	_____	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 2/2 100%

Remarks:

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u> </u> (in.) Depth to Free Water in Pit: <u> 2 </u> (in.) Depth to Saturated Soil: <u> 0 </u> (in.)	Remarks:

TETRA TECH ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-4</u>	<u>A</u>	<u>10YR2/1</u>	<u>-</u>	<u>-</u>	<u>Silt loam</u>
<u>4-9</u>	<u>B</u>	<u>2.5Y3/1</u>	<u>-</u>	<u>-</u>	<u>Sandy clay loam</u>
<u>9-18+</u>	<u>B</u>	<u>10YR3/1</u>	<u>-</u>	<u>-</u>	<u>Sand</u>

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes No (Circle)	(Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes No	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes No
Hydric Soils Present? <input checked="" type="radio"/> Yes No	

Sketch:

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Frich</u>	Date: <u>06-23-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? Yes <input checked="" type="radio"/> No (If needed, explain on reverse)	Community ID: <u>up herb</u> Transect ID: <u>W2</u> Plot ID: <u>UP-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Polygonum cuspidatum</u>	<u>H</u>	<u>FACW-</u>	7. _____	_____	_____
2. <u>Ailanthus altissima</u>	<u>T</u>	<u>NI</u>	8. _____	_____	_____
3. _____	_____	_____	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 0/2

Remarks: Fails to meet criteria for hydrophytic vegetation

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12-inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: _____	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-2</u>	<u>A</u>	<u>10YR3/2</u>	<u>—</u>	<u>—</u>	<u>Sandy clay loam</u>
<u>2-6</u>	<u>B</u>	<u>10YR2/3</u>	<u>—</u>	<u>—</u>	<u>Fill - sand + gravel</u>
<u>6-11</u>	<u>B</u>	<u>10YR3/2</u>	<u>—</u>	<u>—</u>	<u>Sandy clay loam</u>
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>Soil is likely fill. Argon residue at 11 inches</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle) Wetland Hydrology Present? Yes No (Circle) Hydric Soils Present? Yes No (Circle)	(Circle) Is this Sampling Point Within a Wetland? Yes No (Circle)
Sketch:	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Finch</u>	Date: <u>06-24-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse)	Community ID: <u>PSS/PEM</u> Transect ID: <u>W3</u> Plot ID: <u>Wet-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Acer saccharinum</u>	<u>T</u>	<u>FACW</u>	8. _____	_____	_____
3. <u>Betula populifolia</u>	<u>T</u>	<u>FAC</u>	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 3/3 100%

Remarks: Nearly a monotypic stand of P. australis.

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>0</u> (in.)	Remarks:

TETRA TECH
ROUTINE WETLAND DETERMINATION - DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-1</u>	<u>O</u>				<u>Duff</u>
<u>1-4</u>	<u>A</u>	<u>10YR3/1</u>			<u>Clay loam</u>
<u>4-14+</u>	<u>B</u>	<u>2.5Y4/1</u>			<u>Clay loam</u>

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: 10% coarse fragments

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes No (Circle)	(Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes No	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes No
Hydric Soils Present? <input checked="" type="radio"/> Yes No	

Sketch: extension of wet on other side of dympa - Floodplain

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lora, N. F. Moh</u>	Date: <u>06-24-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (A typical Situation)? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Is the area a potential Problem Area? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If needed, explain on reverse)	Community ID: <u>Upharb</u> Transect ID: <u>W3</u> Plot ID: <u>Upl</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Antennaria vulgaris</u>	<u>H</u>	<u>UPL</u>	7. _____	_____	_____
2. _____	_____	_____	8. _____	_____	_____
3. _____	_____	_____	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 0/1

Remarks: Fails to meet criteria for hydrophytic vegetation

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Describe in Remarks):</p> <p style="margin-left: 20px;"><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p style="margin-left: 20px;"><input type="checkbox"/> Aerial Photographs</p> <p style="margin-left: 20px;"><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	
<p>Remarks: <u>Fails to meet criteria for wetland hydrology</u></p>	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>04</u>		<u>10YR3/2</u>	<u>—</u>	<u>—</u>	<u>Sandy loam</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
<input type="checkbox"/>	Histosol	<input type="checkbox"/>	Concretions		
<input type="checkbox"/>	Histic Epipedon	<input type="checkbox"/>	High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/>	Sulfidic Odor	<input type="checkbox"/>	Organic Streaking in Sandy Soils		
<input type="checkbox"/>	Aquic Moisture Regime	<input type="checkbox"/>	Listed on Local Hydric Soils List		
<input type="checkbox"/>	Reducing Conditions	<input type="checkbox"/>	Listed on National Hydric Soils List		
<input type="checkbox"/>	Gleyed or Low-Chroma Colors	<input type="checkbox"/>	Other (Explain in Remarks)		
Remarks: <u>Auger refusal at 4" - area has been filled</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <u>No</u> (Circle) Wetland Hydrology Present? Yes <u>No</u> Hydric Soils Present? Yes <u>No</u>	(Circle) Is this Sampling Point Within a Wetland? Yes <u>No</u>
Sketch:	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lemay, N Finch</u>	Date: <u>06 24 09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>PEM</u> Transect ID: <u>W3</u> Plot ID: <u>Wet-2</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. _____	_____	_____	8. _____	_____	_____
3. _____	_____	_____	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 1/1 100%

Remarks: Monotypic stand of P. australis.

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: <u>6</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	Remarks: <u>Well defined boundary ~ 3' banks</u>

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16+	A	10 YR3/1	-	-	Mucky mima
Hydric Soil Indicators:					
<input checked="" type="checkbox"/>	Histosol	<input type="checkbox"/>	Concretions		
<input type="checkbox"/>	Histic Epipedon	<input type="checkbox"/>	High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/>	Sulfidic Odor	<input type="checkbox"/>	Organic Streaking in Sandy Soils		
<input type="checkbox"/>	Aquic Moisture Regime	<input type="checkbox"/>	Listed on Local Hydric Soils List		
<input type="checkbox"/>	Reducing Conditions	<input type="checkbox"/>	Listed on National Hydric Soils List		
<input checked="" type="checkbox"/>	Gleyed or Low-Chroma Colors	<input type="checkbox"/>	Other (Explain in Remarks)		
Remarks: <u>Soil very mucky - no discernible horizons visible</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes No (Circle)	(Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes No	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes No
Hydric Soils Present? <input checked="" type="radio"/> Yes No	
Sketch:	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lana, N. Fruch</u>	Date: <u>06-24-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? Yes <input checked="" type="radio"/> No (If needed, explain on reverse)	Community ID: <u>sp herb</u> Transect ID: <u>W3</u> Plot ID: <u>up-2</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Antennaria vulgaris</u>	<u>H</u>	<u>UPL</u>	7. _____	_____	_____
2. _____	_____	_____	8. _____	_____	_____
3. _____	_____	_____	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 0/1

Remarks: Filled area - nearly a monoculture of A. vulgaris

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>Fails to meet criteria for wetland hydrology</u>

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Finch</u>	Date: <u>06-24-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> <input checked="" type="radio"/> No Is the area a potential Problem Area? Yes <input type="radio"/> <input checked="" type="radio"/> No (If needed, explain on reverse)	Community ID: <u>PEM</u> Transect ID: <u>W4</u> Plot ID: <u>WET 1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Utrix vulpina</u>	<u>V</u>	<u>FAC</u>	8. _____	_____	_____
3. <u>Acer negundo</u>	<u>T</u>	<u>FAC+</u>	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 3/3 100%

Remarks: Meets criteria for hydrophytic vegetation

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>3</u> (in.) Depth to Free Water in Pit: <u>0</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	
Remarks: <u>obvious boundary</u>	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-2</u>	<u>A</u>	<u>10YR3/1</u>	<u>—</u>	<u>—</u>	<u>Slt/1 loam</u>
<u>2-10</u>	<u>B</u>	<u>10YR2/1</u>	<u>—</u>	<u>—</u>	<u>Silt, clay loam</u>
<u>10-18+</u>	<u>B</u>	<u>2.5Y4/3</u>	<u>—</u>	<u>—</u>	<u>sand</u>
Hydric Soil Indicators:					
_____	Histosol	_____	Concretions		
_____	Histic Epipedon	_____	High Organic Content in Surface Layer in Sandy Soils		
_____	Sulfidic Odor	_____	Organic Streaking in Sandy Soils		
_____	Aquic Moisture Regime	_____	Listed on Local Hydric Soils List		
_____	Reducing Conditions	_____	Listed on National Hydric Soils List		
_____	Gleyed or Low-Chroma Colors	_____	Other (Explain in Remarks)		
Remarks: _____					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes No (Circle) Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes No Hydric Soils Present? <input checked="" type="checkbox"/> Yes No	(Circle) Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes No
Sketch: 	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Finch</u>	Date: <u>06-24-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>up town</u> Transect ID: <u>24</u> Plot ID: <u>up 1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Acer negundo</u>	<u>T</u>	<u>FAC+</u>	7. <u>Parthenocissus quinquefolia</u>	<u>V</u>	<u>FACW</u>
2. <u>Acer platanoides</u>	<u>T</u>	<u>UPL</u>	8. _____	_____	_____
3. <u>Alliaria petiolata</u>	<u>H</u>	<u>UPL</u>	9. _____	_____	_____
4. <u>Lonicera japonica</u>	<u>S</u>	<u>FAC-</u>	10. _____	_____	_____
5. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	11. _____	_____	_____
6. <u>Pennis setosa</u>	<u>T</u>	<u>FACW</u>	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 17 14%

Remarks: Heavily invaded system - fails to meet criteria for wetland vegetation

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>Fails to meet criteria for wetland hydrology</u>

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-7.</u>	<u>A</u>	<u>10YR 2/1</u>	<u>—</u>	<u>—</u>	<u>loam</u>
<u>7-18+</u>	<u>B₁</u>	<u>10YR 3/3</u>	<u>—</u>	<u>—</u>	<u>sand</u>
	<u>B₂</u>	<u>7.5YR 3/4</u>	<u>✓</u>	<u>—</u>	<u>sand</u>
Hydric Soil Indicators:					
<input type="checkbox"/>	Histosol	<input type="checkbox"/>	Concretions		
<input type="checkbox"/>	Histic Epipedon	<input type="checkbox"/>	High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/>	Sulfidic Odor	<input type="checkbox"/>	Organic Streaking in Sandy Soils		
<input type="checkbox"/>	Aquic Moisture Regime	<input type="checkbox"/>	Listed on Local Hydric Soils List		
<input type="checkbox"/>	Reducing Conditions	<input type="checkbox"/>	Listed on National Hydric Soils List		
<input type="checkbox"/>	Gleyed or Low-Chroma Colors	<input type="checkbox"/>	Other (Explain in Remarks)		
Remarks: <u>Fails to meet criteria for hydric soils</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <u>No</u> (Circle) Wetland Hydrology Present? Yes <u>No</u> Hydric Soils Present? Yes <u>No</u>	(Circle) Is this Sampling Point Within a Wetland? Yes <u>No</u>
Sketch:	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Finch</u>	Date: <u>06-24-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input checked="" type="radio"/> No <input type="radio"/> (If needed, explain on reverse)	Community ID: <u>DEM</u> Transect ID: <u>W5</u> Plot ID: <u>wet-1</u>

VEGETATION

Dominant Plant Species Stratum Indicator	Dominant Plant Species Stratum Indicator
1. <u>Phragmites australis</u> <u>H</u> <u>FACW</u>	7. _____
2. _____	8. _____
3. _____	9. _____
4. _____	10. _____
5. _____	11. _____
6. _____	12. _____
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). <u>1/1 100%</u>	
Remarks: <u>Monotypic stand of P. australis</u>	

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>3</u> (in.) Depth to Free Water in Pit: <u>0</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	
Remarks: <u>Standing water throughout</u>	

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>South Shore Staten Island</u>	Date: <u>06-24-09</u>
Applicant/Owner: <u>USACE</u>	County: <u>Richmond</u>
Investigator: <u>E. Lema, N. Finch</u>	State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>up herb</u> Transect ID: <u>W5</u> Plot ID: <u>UP-1</u>
Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Poa pratensis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Morus alba</u>	<u>T</u>	<u>UPL</u>	8. _____	_____	_____
3. <u>Taraxacum officinale</u>	<u>H</u>	<u>FACW-</u>	9. _____	_____	_____
4. <u>Plantago major</u>	<u>H</u>	<u>FACW</u>	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 0%

Remarks: Herbaceous lawn species - fails to meet hydrophytic criteria

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: <u>Fails to meet criteria for wetland hydrology</u>	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lamm, J. Thayer</u>	Date: <u>06-24-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? Yes <input checked="" type="radio"/> No <input type="radio"/> Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>PEM</u> Transect ID: <u>W6</u> Plot ID: <u>Wet1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Impatiens capensis</u>	<u>H</u>	<u>FACW</u>	8. _____	_____	_____
3. <u>Acer Negundo</u>	<u>T</u>	<u>FAC+</u>	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 3/3 100%

Remarks: 90% P. australis

HYDROLOGY

<p>___ Recorded Data (Describe in Remarks):</p> <p style="padding-left: 20px;">___ Stream, Lake, or Tide Gauge</p> <p style="padding-left: 20px;">___ Aerial Photographs</p> <p style="padding-left: 20px;">___ Other</p> <p>___ No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> Inundated</p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p style="padding-left: 20px;">___ Water Marks</p> <p style="padding-left: 20px;">___ Drift Lines</p> <p style="padding-left: 20px;">___ Sediment Deposits</p> <p style="padding-left: 20px;">___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p style="padding-left: 20px;">___ Oxidized Root Channels in Upper 12 inches</p> <p style="padding-left: 20px;">___ Water-Stained Leaves</p> <p style="padding-left: 20px;">___ Local Soil Survey Data</p> <p style="padding-left: 20px;">___ FAC-Neutral Test</p> <p style="padding-left: 20px;">___ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>3</u> (in.)</p> <p>Depth to Free Water in Pit: <u>0</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	<p>Remarks: <u>Standing water visible throughout wetland</u></p>

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	O	10YR 2/1	—	—	Organic
3-6	A	10YR 3/1	—	—	Silt loam
6-12	B	10YR 2/1	—	—	Sandy loam
Hydric Soil Indicators:					
	<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions		
	<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils		
	<input checked="" type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils		
	<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List		
	<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List		
	<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)		
Remarks: Auger refusal at 12"					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes No (Circle)	(Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes No	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes No
Hydric Soils Present? <input checked="" type="radio"/> Yes No	
Sketch:	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore of Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Fitch</u>	Date: <u>06-24-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>v For</u> Transect ID: <u>W6</u> Plot ID: <u>v p 1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Robinia pseudoacacia</u>	<u>T</u>	<u>FACU-</u>	7. _____	_____	_____
2. <u>Acer negundo</u>	<u>T</u>	<u>FAC+</u>	8. _____	_____	_____
3. <u>Polygonum cuspidatum</u>	<u>H</u>	<u>FACU-</u>	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): vs 33%

Remarks: Fails to meet criteria for wetland vegetation

HYDROLOGY

 Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available 	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>Fails to meet criteria for wetland hydrology</u>

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-9</u>	<u>A</u>	<u>10YR2/2</u>	<u>—</u>	<u>—</u>	<u>Sandy loam</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Hydric Soil Indicators:					
_____ Histosol		_____ Concretions			
_____ Histic Epipedon		_____ High Organic Content in Surface Layer in Sandy Soils			
_____ Sulfidic Odor		_____ Organic Streaking in Sandy Soils			
_____ Aquic Moisture Regime		_____ Listed on Local Hydric Soils List			
_____ Reducing Conditions		_____ Listed on National Hydric Soils List			
_____ Gleyed or Low-Chroma Colors		_____ Other (Explain in Remarks)			
Remarks: <u>Auger refusal at 9" - fails to meet criteria for hydric soils.</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <u>No</u> (Circle) Wetland Hydrology Present? Yes <u>No</u> Hydric Soils Present? Yes <u>No</u>	(Circle) Is this Sampling Point Within a Wetland? Yes <u>No</u>
Sketch:	

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>South Shore, Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lemay, N. Finch</u>	Date: <u>06-25-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>PEM</u> Transect ID: <u>W7</u> Plot ID: <u>wet-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Impatiens capensis</u>	<u>H</u>	<u>FACW</u>	8. _____	_____	_____
3. <u>Vitis vulpina</u>	<u>V</u>	<u>FAC</u>	9. _____	_____	_____
4. <u>Aralia sp. moso</u>	<u>S</u>	<u>FAC</u>	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 4/4 100%

Remarks: Vegetation nearly a monotypic stand of Phragmites

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input checked="" type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input checked="" type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>0</u> (in.)	Remarks:

TETRA TECH ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-3</u>	<u>A</u>	<u>10YR2/1</u>	<u>-</u>	<u>-</u>	<u>Sandy clay loam</u>
<u>3-10</u>	<u>B</u>	<u>10YR3/2</u>	<u>7.5YR4/6</u>	<u>Many / prominent</u>	<u>Sandy clay loam</u>
<u>10+</u>	<u>refusal</u>	_____	_____	_____	<u>coarse fragments</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)

Remarks: <u>Soil likely disturbed in part by road construction and hydrant installation.</u>
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WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	(Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	

Sketch:

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Finch</u>	Date: <u>06-25-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>Up Forest</u> Transect ID: <u>10/7</u> Plot ID: <u>UP-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Populus grandidentata</u>	<u>T</u>	<u>FACU-</u>	7. <u>Alliaria petiolata</u>	<u>H</u>	<u>UPL</u>
2. <u>Lonicera japonica</u>	<u>S</u>	<u>FAC-</u>	8. _____	_____	_____
3. <u>Rosa multiflora</u>	<u>S</u>	<u>FACU</u>	9. _____	_____	_____
4. <u>Prunus serotina</u>	<u>S</u>	<u>FACU</u>	10. _____	_____	_____
5. <u>Convolvulus arvensis</u>	<u>H</u>	<u>UPL</u>	11. _____	_____	_____
6. <u>Aralia spmosen</u>	<u>S</u>	<u>FAC</u>	12. _____	_____	_____
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).			<u>14</u> <u>14%</u>		
Remarks: <u>Understory dominated by invasives</u>					

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: <u>No hydrology indicators present</u>	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-8</u>	<u>A</u>	<u>7.5YR3/3</u>	<u>—</u>	<u>—</u>	<u>Sandy Loam</u>
Hydric Soil Indicators:					
_____ Histosol		_____ Concretions			
_____ Histic Epipedon		_____ High Organic Content in Surface Layer in Sandy Soils			
_____ Sulfidic Odor		_____ Organic Streaking in Sandy Soils			
_____ Aquic Moisture Regime		_____ Listed on Local Hydric Soils List			
_____ Reducing Conditions		_____ Listed on National Hydric Soils List			
_____ Gleyed or Low-Chroma Colors		_____ Other (Explain in Remarks)			
Remarks: <u>Fails to meet minimum criteria for hydric soils</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <u>No</u> (Circle)	(Circle)
Wetland Hydrology Present? Yes <u>No</u>	Is this Sampling Point Within a Wetland? Yes <u>No</u>
Hydric Soils Present? Yes <u>No</u>	
Sketch:	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore / Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Finch</u>	Date: <u>06-25-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>PEM</u> Transect ID: <u>W8</u> Plot ID: <u>WCT1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Toxicodendron radicans</u>	<u>✓</u>	<u>FAC</u>	8. _____	_____	_____
3. _____	_____	_____	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 1/2 100%

Remarks: Extremely dense thicket of Phragmites and poison ivy

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>4</u> (in.)	Remarks: <u>Slightly drier than surrounding areas</u>

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>South Shore Station Island</u>	Date: <u>08-25-09</u>
Applicant/Owner: <u>USACE</u>	County: <u>Richmond</u>
Investigator: <u>E. Lema, N. Finch</u>	State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>PEM/PS5</u>
Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/>	Transect ID: <u>W9</u>
Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Plot ID: <u>Wet 1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Vitis vulpina</u>	<u>V</u>	<u>FAC</u>	8. _____	_____	_____
3. <u>Lonicera bonzonii</u>	<u>S</u>	<u>FACW</u>	9. _____	_____	_____
4. <u>Toxicodendron radicans</u>	<u>V</u>	<u>FAC</u>	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/4 100%

Remarks: Phragmites monoculture in interior, shrubs on western edge

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide-Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>1</u> (in.)</p> <p>Depth to Free Water in Pit: <u>0</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	
<p>Remarks: <u>Wetland inundated < 3' from pavement</u></p>	

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>South Shore Staten Island</u>	Date: <u>06-25-09</u>
Applicant/Owner: <u>USACE</u>	County: <u>Richmond</u>
Investigator: <u>E. Lema, N. Finch</u>	State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>UPSS</u>
Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/>	Transect ID: <u>W9</u>
Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Plot ID: <u>UP-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Morus rubra</u>	<u>T</u>	<u>FACU</u>	7. <u>Poa sp.</u>	<u>H</u>	<u>?</u>
2. <u>Rosa multiflora</u>	<u>S</u>	<u>FACU</u>	8. _____	_____	_____
3. <u>Lonicera japonica</u>	<u>S</u>	<u>FAC-</u>	9. _____	_____	_____
4. <u>Convolvulus arvensis</u>	<u>H</u>	<u>UPL</u>	10. _____	_____	_____
5. <u>Artemisia vulgaris</u>	<u>H</u>	<u>UPL</u>	11. _____	_____	_____
6. <u>Polygonum cuspidatum</u>	<u>H</u>	<u>FACU-</u>	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0%

Remarks: Old field species, very dense.

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: <u>Fails to meet criteria for wetland hydrology.</u>	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-2</u>	<u>A</u>	<u>10YR3/3</u>	<u>-</u>	<u>-</u>	<u>Sand loam</u>
<u>2-5</u>	<u>B</u>	<u>10YR3/6</u>	<u>-</u>	<u>-</u>	<u>Sand loam</u>
<u>5-9</u>	<u>B</u>	<u>10YR2/2</u>	<u>-</u>	<u>-</u>	<u>Sandy clay loam</u>
Hydric Soil Indicators:					
_____ Histosol		_____ Concretions		_____ High Organic Content in Surface Layer in Sandy Soils	
_____ Histic Epipedon		_____ Organic Streaking in Sandy Soils		_____ Listed on Local Hydric Soils List	
_____ Sulfidic Odor		_____ Listed on National Hydric Soils List		_____ Other (Explain in Remarks)	
_____ Aquic Moisture Regime					
_____ Reducing Conditions					
_____ Gleyed or Low-Chroma Colors					
Remarks: <u>Fails to meet criteria for hydric soils</u> <u>Auger refusal at 9"</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <u>No</u> (Circle)	(Circle)
Wetland Hydrology Present? Yes <u>No</u>	Is this Sampling Point Within a Wetland? Yes <u>No</u>
Hydric Soils Present? Yes <u>No</u>	
Sketch:	

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>South Shore Station Island</u>	Date: <u>06-25-09</u>
Applicant/Owner: <u>USACE</u>	County: <u>Richmond</u>
Investigator: <u>E. Lema, N. Finch</u>	State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>PEM</u>
Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/>	Transect ID: <u>W10</u>
Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Plot ID: <u>wet-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Vitis vulpina</u>	<u>V</u>	<u>FAC</u>	8. _____	_____	_____
3. _____	_____	_____	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 2/2 100%

Remarks: Phragmites monoculture in interior

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>4</u> (in.) Depth to Free Water in Pit: <u>0</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	
Remarks: <u>Entirely inundated, obvious boundary</u>	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Frick</u>	Date: <u>06-25-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>up herb</u> Transect ID: <u>W10</u> Plot ID: <u>UP-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Plantago major</u>	<u>H</u>	<u>FACU</u>	7. _____	_____	_____
2. <u>Glechoma hederacea</u>	<u>H</u>	<u>FACU</u>	8. _____	_____	_____
3. <u>Poa pratensis</u>	<u>H</u>	<u>FACU</u>	9. _____	_____	_____
4. <u>Taraxacum officinale</u>	<u>H</u>	<u>FACU-</u>	10. _____	_____	_____
5. <u>Tribolium repens</u>	<u>H</u>	<u>FACU-</u>	11. _____	_____	_____
6. <u>Elymus repens</u>	<u>H</u>	<u>FACU-</u>	12. _____	_____	_____
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-):			<u>0/6</u>		
Remarks: <u>Lawn species</u>					

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No-Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: <u>Fails to meet criteria for wetland hydrology</u>	

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>South Shore Staten Island</u>	Date: <u>06-26-09</u>
Applicant/Owner: <u>USACE</u>	County: <u>Richmond</u>
Investigator: <u>E. Lema, N. Finch</u>	State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>E2EM</u>
Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/>	Transect ID: <u>w11</u>
Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Plot ID: <u>wet-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Impatiens capensis</u>	<u>H</u>	<u>FACW</u>	8. _____	_____	_____
3. <u>Lycopus americanus</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 3/3 100%

Remarks:

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input checked="" type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>8</u> (in.)	Remarks: <u>Area is a large slough - standing water observed in interior.</u>

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>South Shore / Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Frick</u>	Date: <u>06-26-09</u> County: _____ State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? Yes <input checked="" type="radio"/> No (If needed, explain on reverse)	Community ID: <u>up forest</u> Transect ID: <u>W11</u> Plot ID: <u>UP-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Morus rubra</u>	<u>T</u>	<u>FACU</u>	7. _____	_____	_____
2. <u>Lonicera japonica</u>	<u>S</u>	<u>FAC-</u>	8. _____	_____	_____
3. <u>Celastrus orbiculata</u>	<u>V</u>	<u>UPL</u>	9. _____	_____	_____
4. <u>Rhus copallinum</u>	<u>S</u>	<u>NI</u>	10. _____	_____	_____
5. <u>Artemisia vulgaris</u>	<u>H</u>	<u>UPL</u>	11. _____	_____	_____
6. <u>Rosa multiflora</u>	<u>S</u>	<u>FACU</u>	12. _____	_____	_____
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-):			<u>0/6</u>		
Remarks: <u>Heavily invaded riparian area</u>					

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: <u>Fails to meet criteria for wetland hydrology</u>	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-6</u>	<u>A</u>	<u>10YR3/2</u>	<u>—</u>	<u>—</u>	<u>Loamy sand</u>
<u>6-16+</u>	<u>B</u>	<u>7.5YR3/3</u>	<u>—</u>	<u>—</u>	<u>Loamy sand</u>
Hydric Soil Indicators:					
<input type="checkbox"/>	Histosol	<input type="checkbox"/>	Concretions		
<input type="checkbox"/>	Histic Epipedon	<input type="checkbox"/>	High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/>	Sulfidic Odor	<input type="checkbox"/>	Organic Streaking in Sandy Soils		
<input type="checkbox"/>	Aquic Moisture Regime	<input type="checkbox"/>	Listed on Local Hydric Soils List		
<input type="checkbox"/>	Reducing Conditions	<input type="checkbox"/>	Listed on National Hydric Soils List		
<input type="checkbox"/>	Gleyed or Low-Chroma Colors	<input type="checkbox"/>	Other (Explain in Remarks)		
Remarks: <u>Fails to meet hydric soil criteria</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <u>No</u> (Circle)	(Circle)
Wetland Hydrology Present? Yes <u>No</u>	Is this Sampling Point Within a Wetland? Yes <u>No</u>
Hydric Soils Present? Yes <u>No</u>	
Sketch:	

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>South Shore Station Island</u>	Date: <u>06-30-09</u>
Applicant/Owner: <u>USACE</u>	County: <u>Richmond</u>
Investigator: <u>E. Lema, N. Finch</u>	State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>PFO</u>
Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/>	Transect ID: <u>W12</u>
Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Plot ID: <u>Wet1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Acer rubrum</u>	<u>T</u>	<u>FAC</u>	7. _____	_____	_____
2. <u>Lindera benzoin</u>	<u>S</u>	<u>FACW</u>	8. _____	_____	_____
3. <u>Rosa multiflora</u>	<u>S</u>	<u>FACU</u>	9. _____	_____	_____
4. <u>Circaea alpina</u>	<u>H</u>	<u>FACW</u>	10. _____	_____	_____
5. <u>Symphoricarpos foetidus</u>	<u>H</u>	<u>OBL</u>	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-):			<u>4/5</u>	<u>80%</u>	_____
Remarks:					

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: <u>10</u> (in.) Depth to Saturated Soil: <u>6</u> (in.)	
Remarks: <u>Appears to be frequently inundated.</u>	

TETRA TECH ROUTINE WETLAND DETERMINATION - DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-8</u>	<u>A</u>	<u>10YR 2/1</u>	<u>-</u>	<u>-</u>	<u>Sandy loam</u>
<u>8-12</u>	<u>B</u>	<u>2.5Y 2.5/1</u>	<u>-</u>	<u>-</u>	<u>Silty clay</u>
<u>12-16+</u>	<u>B</u>	<u>2.5Y 3/1</u>	<u>-</u>	<u>-</u>	<u>loamy sand</u>
Hydric Soil Indicators:					
<input type="checkbox"/>	Histosol	<input type="checkbox"/>	Concretions		
<input type="checkbox"/>	Histic Epipedon	<input type="checkbox"/>	High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/>	Sulfidic Odor	<input type="checkbox"/>	Organic Streaking in Sandy Soils		
<input type="checkbox"/>	Aquic Moisture Regime	<input type="checkbox"/>	Listed on Local Hydric Soils List		
<input type="checkbox"/>	Reducing Conditions	<input type="checkbox"/>	Listed on National Hydric Soils List		
<input checked="" type="checkbox"/>	Gleyed or Low-Chroma Colors	<input type="checkbox"/>	Other (Explain in Remarks)		
Remarks: <u>Possible sedimentation due to construction activities upstream</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	(Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Sketch:	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Finch</u>	Date: <u>06-30-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>U1a</u> Transect ID: <u>W12</u> Plot ID: <u>UP-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>A. lanthornii</u>	<u>T</u>	<u>NI</u>	7. _____	_____	_____
2. <u>Rosa multiflora</u>	<u>S</u>	<u>FACW</u>	8. _____	_____	_____
3. <u>Viola sp</u>	<u>H</u>	<u>?</u>	9. _____	_____	_____
4. <u>Celastrum orbiculatus</u>	<u>V</u>	<u>UPL</u>	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 94

Remarks:

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks:

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-9</u>	<u>A</u>	<u>7.5YR5/3</u>	<u>—</u>	<u>—</u>	<u>Sand loam</u>
<u>9-16+</u>	<u>B</u>	<u>10YR2/2</u>	<u>—</u>	<u>—</u>	<u>loam</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <u>No</u> (Circle) Wetland Hydrology Present? Yes <u>No</u> Hydric Soils Present? Yes <u>No</u>	(Circle) Is this Sampling Point Within a Wetland? Yes <u>No</u>
Sketch:	

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>South Shore Station Island</u>	Date: <u>07-01-09</u>
Applicant/Owner: <u>USACE</u>	County: <u>Richmond</u>
Investigator: <u>E. Lema, N. Finch</u>	State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>PEM</u>
Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/>	Transect ID: <u>W13</u>
Is the area a potential Problem Area? (If needed, explain on reverse) Yes <input type="radio"/> No <input checked="" type="radio"/>	Plot ID: <u>wet-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Impatiens capensis</u>	<u>H</u>	<u>FACW</u>	8. _____	_____	_____
3. _____	_____	_____	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 2/2 100%

Remarks: Nearly a monotypic stand of phragmites

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>6</u> (in.) Depth to Free Water in Pit: <u>0</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	Remarks: <u>Steep bank from road into wetland.</u>

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Finch</u>	Date: <u>07-02-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>P2EM</u> Transect ID: <u>W13-</u> Plot ID: <u>wet2</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Schoenoplectus americanus</u>	<u>H</u>	<u>OBL</u>	8. _____	_____	_____
3. <u>Toxicodendron radicans</u>	<u>V</u>	<u>FAC</u>	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 3/3 100%

Remarks: Nearly a monotypic stand of phragmites

HYDROLOGY

 Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available 	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>2</u> (in.) Depth to Free Water in Pit: <u>0</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	Remarks: <u>Inundated immediately off of the paved upland</u>

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	A	10YR2/1	—	—	Mucky mineral
2-2.5	B	7.5YR4/1	—	—	Silty clay loam
2.5-10	B	10YR3/1	—	—	Sandy loam
					- 20% coarse fragments

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: *Auger refusal at 10". Narrow B horizon very distinct. Likely filled in past for road construction through current wetland*

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	(Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	

Sketch: *unable to obtain an upland plot - all adjacent areas paved or riprap.*

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Finck</u>	Date: <u>07-01-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>UFOR</u> Transect ID: <u>W13</u> Plot ID: <u>UP-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Ailanthus altissima</u>	<u>T</u>	<u>FACU</u>	7. _____	_____	_____
2. <u>Prunus virginiana</u>	<u>S</u>	<u>FACU</u>	8. _____	_____	_____
3. <u>Toxicodendron radicans</u>	<u>V</u>	<u>FAC</u>	9. _____	_____	_____
4. <u>Parthenocissus quinquefolia</u>	<u>V</u>	<u>FACU</u>	10. _____	_____	_____
5. <u>Antennaria vulgaris</u>	<u>H</u>	<u>UPL</u>	11. _____	_____	_____
6. <u>Glechoma hederacea</u>	<u>H</u>	<u>FACU</u>	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 1/6 16%

Remarks: Edge community between road and wetland.

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Describe in Remarks):</p> <p style="margin-left: 20px;"><input type="checkbox"/> Stream, Lake, or Tide-Gauge</p> <p style="margin-left: 20px;"><input type="checkbox"/> Aerial Photographs</p> <p style="margin-left: 20px;"><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p style="margin-left: 20px;"><input type="checkbox"/> Inundated</p> <p style="margin-left: 20px;"><input type="checkbox"/> Saturated in Upper 12 inches</p> <p style="margin-left: 20px;"><input type="checkbox"/> Water Marks</p> <p style="margin-left: 20px;"><input type="checkbox"/> Drift Lines</p> <p style="margin-left: 20px;"><input type="checkbox"/> Sediment Deposits</p> <p style="margin-left: 20px;"><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p style="margin-left: 20px;"><input type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p style="margin-left: 20px;"><input type="checkbox"/> Water-Stained Leaves</p> <p style="margin-left: 20px;"><input type="checkbox"/> Local Soil Survey Data</p> <p style="margin-left: 20px;"><input type="checkbox"/> FAC-Neutral Test</p> <p style="margin-left: 20px;"><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	<p>Remarks: <u>Fails to meet hydrology criteria</u></p>

TETRA TECH ROUTINE WETLAND DETERMINATION - DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-4</u>	<u>A</u>	<u>10YR2/2</u>	<u>-</u>	<u>-</u>	<u>Endy loam</u>
<u>4-9</u>	<u>B</u>	<u>10YR3/3</u>	<u>-</u>	<u>-</u>	<u>Sandy loam</u>
<u>9-11</u>	<u>B</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>Gravel</u>
Hydric Soil Indicators:					
<input type="checkbox"/>	Histosol	<input type="checkbox"/>	Concretions		
<input type="checkbox"/>	Histic Epipedon	<input type="checkbox"/>	High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/>	Sulfidic Odor	<input type="checkbox"/>	Organic Streaking in Sandy Soils		
<input type="checkbox"/>	Aquic Moisture Regime	<input type="checkbox"/>	Listed on Local Hydric Soils List		
<input type="checkbox"/>	Reducing Conditions	<input type="checkbox"/>	Listed on National Hydric Soils List		
<input type="checkbox"/>	Gleyed or Low-Chroma Colors	<input type="checkbox"/>	Other (Explain in Remarks)		
Remarks: <u>Fails to meet hydric soils criteria.</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> (Circle) Wetland Hydrology Present? Yes <input checked="" type="radio"/> Hydric Soils Present? Yes <input checked="" type="radio"/>	(Circle) Is this Sampling Point Within a Wetland? Yes <input checked="" type="radio"/>
Sketch:	

TETRA TECH
ROUTINE WETLAND DETERMINATION - DATA FORM

Project/Site: <u>South Shore Staten Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Finch</u>	Date: <u>07-01-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>PFO</u> Transect ID: <u>W14</u> Plot ID: <u>Wet 1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Acer rubrum</u>	<u>T</u>	<u>FAC</u>	7. _____	_____	_____
2. <u>Ulmus rubra</u>	<u>T</u>	<u>FAC</u>	8. _____	_____	_____
3. <u>Viburnum recognitum</u>	<u>S</u>	<u>FACW</u>	9. _____	_____	_____
4. <u>Polygonum hydropiper</u>	<u>H</u>	<u>OBL</u>	10. _____	_____	_____
5. <u>Polygonum cuspidatum</u>	<u>H</u>	<u>FACV</u>	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 45 80%

Remarks: Floodplain wetland along south bank of stream

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide-Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: <u>4</u> (in.)</p>	<p>Remarks:</p>

TETRA TECH ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	10YR2/1			Sandy clay loam
8-16	B	2.5YR3/1	Many iron nodules	2.5YR5/1	Sandy clay loam
Hydric Soil Indicators:					
<input type="checkbox"/>	Histosol	<input type="checkbox"/>	Concretions		
<input type="checkbox"/>	Histic Epipedon	<input type="checkbox"/>	High Organic Content in Surface Layer in Sandy Soils		
<input type="checkbox"/>	Sulfidic Odor	<input type="checkbox"/>	Organic Streaking in Sandy Soils		
<input type="checkbox"/>	Aquic Moisture Regime	<input type="checkbox"/>	Listed on Local Hydric Soils List		
<input type="checkbox"/>	Reducing Conditions	<input type="checkbox"/>	Listed on National Hydric Soils List		
<input type="checkbox"/>	Gleyed or Low-Chroma Colors	<input type="checkbox"/>	Other (Explain in Remarks)		
Remarks: <u>Area may have been filled in past. mounds visible</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes No (Circle)	(Circle)
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes No
Hydric Soils Present? <input checked="" type="checkbox"/> Yes No	
Sketch:	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Station Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lena N. Finch</u>	Date: <u>07-01-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>UFOR</u> Transect ID: <u>W14</u> Plot ID: <u>up-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Quercus alba</u>	<u>T</u>	<u>FACU-</u>	7. _____	_____	_____
2. <u>Quercus rubra</u>	<u>T</u>	<u>FACU-</u>	8. _____	_____	_____
3. <u>Polygonum crispatum</u>	<u>H</u>	<u>FACU</u>	9. _____	_____	_____
4. <u>Athyrium Filix-Femina</u>	<u>H</u>	<u>FAC</u>	10. _____	_____	_____
5. <u>Rosmariniflora</u>	<u>S</u>	<u>FACU</u>	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 1/5 20%

Remarks: Under-story heavily invaded

HYDROLOGY

 ___ Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge ___ Aerial Photographs ___ Other ___ No Recorded Data Available 	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated ___ Saturated in Upper 12 inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ___ Oxidized Root Channels in Upper 12 inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>Fails to meet criteria for wetland hydrology</u>

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not Available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-2</u>	<u>A</u>	<u>10YR2/2</u>	<u>-</u>	<u>-</u>	<u>partly organic</u>
<u>2-9</u>	<u>A</u>	<u>10YR2/2</u>	<u>-</u>	<u>-</u>	<u>silty loam</u>
<u>9-18+</u>	<u>B</u>	<u>7.5YR4/3</u>	<u>-</u>	<u>-</u>	<u>clay loam</u>
Hydric Soil Indicators:					
	<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions		
	<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils		
	<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils		
	<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List		
	<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List		
	<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)		
Remarks: <u>Fails to meet hydric soil criteria</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <u>No</u> (Circle) Wetland Hydrology Present? Yes <u>No</u> Hydric Soils Present? Yes <u>No</u>	(Circle) Is this Sampling Point Within a Wetland? Yes <u>No</u>
Sketch:	

**TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM**

Project/Site: <u>South Shore Station Island</u>	Date: <u>07-02-09</u>
Applicant/Owner: <u>USACE</u>	County: <u>Richmond</u>
Investigator: <u>E. Lema, M. Finch</u>	State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>PEM</u>
Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/>	Transect ID: <u>W15</u>
Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Plot ID: <u>wet-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phragmites australis</u>	<u>H</u>	<u>FACW</u>	7. _____	_____	_____
2. <u>Impatiens capensis</u>	<u>H</u>	<u>FACW</u>	8. _____	_____	_____
3. _____	_____	_____	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 2/2 100%

Remarks: Typical phragmites dominated wetland

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>4</u> (in.)</p> <p>Depth to Free Water in Pit: <u>0</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	
<p>Remarks: <u>Inundated immediately off of property boundary</u></p>	

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

Project/Site: <u>South Shore Station Island</u> Applicant/Owner: <u>USACE</u> Investigator: <u>E. Lema, N. Finch</u>	Date: <u>07-02-09</u> County: <u>Richmond</u> State: <u>NY</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (A typical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse)	Community ID: <u>up 606</u> Transect ID: <u>W15</u> Plot ID: <u>up-1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Polygonum cuspidatum</u>	<u>H</u>	<u>FACU</u>	7. _____	_____	_____
2. <u>Taraxacum officinale</u>	<u>H</u>	<u>FACU</u>	8. _____	_____	_____
3. <u>Tribolium repens</u>	<u>H</u>	<u>FACU-</u>	9. _____	_____	_____
4. <u>Meibomia auctorum</u>	<u>H</u>	<u>UPL</u>	10. _____	_____	_____
5. <u>Plantago major</u>	<u>H</u>	<u>FACU</u>	11. _____	_____	_____
6. _____	_____	_____	12. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 0/5

Remarks: Main field bordering residential property

HYDROLOGY

 Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No-Recorded Data Available 	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>Fails to meet hydrology criteria</u>

TETRA TECH
ROUTINE WETLAND DETERMINATION – DATA FORM

SOILS

Map Unit Name (Series and Phase): <u>Not available</u>		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-5</u>	<u>A</u>	<u>10YR3/2</u>	<u>-</u>	<u>-</u>	<u>Sandy clay loam</u>
<u>5-8</u>	<u>B</u>	<u>7.5YR4/4</u>	<u>-</u>	<u>-</u>	<u>Sandy clay</u>
<u>8-8</u>	<u>B</u>	<u>10YR 2/2</u>	<u>-</u>	<u>-</u>	<u>Sandy clay</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)

Remarks: Auger refusal at 8". Fails to meet hydric soil criteria.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <u>No</u> (Circle) Wetland Hydrology Present? Yes <u>No</u> Hydric Soils Present? Yes <u>No</u>	(Circle) Is this Sampling Point Within a Wetland? Yes <u>No</u>
Sketch:	