**Appendix C** 

**Natural Resources Appendices** 

# **Appendix C**

# **Natural Resources Report Supporting Documentation**

This appendix contains the previous natural resources assessment for the Charleston Mixed Use Development Site, the 2013 wetland delineation report, and agency correspondence that were referenced in Chapter 4.8 Natural Resources. Materials within this appendix consist of following three attachments:

- Attachment A Final Report: Natural Resources Assessment at Charleston, Staten Island
- Attachment B Wetland Delineation Report
- Attachment C Vernal Pool Survey
- Attachment D Agency Correspondence

# ATTACHMENT A

FINAL REPORT: NATURAL RESOURCES ASSESSMENT AT CHARLESTON, STATEN ISLAND

# **Natural Resources Glossary of Terms**

TERM	DEFINITION
Anaerobic	The absence of oxygen.
Desiccate	To dry out.
Emergent	Non-woody, soft-stemmed plants
Game Camera	A camera designed to operate independently
	without a human operator. Game cameras can
	collect photo throughout a 24-hour period
Herptofauna	Reptiles and amphibians
Hydric Soil	A hydric soil is a soil that formed under conditions
	of saturation, flooding, or ponding long enough
	during the growing season to develop anaerobic
	conditions in the upper part.
Lithic	Consisting of or relating to stone or rock.
Red Parent Material	Red colored soils that are usually derived from
	Triassic/Jurassic age lithic materials. Red parent
Cusassianal	materials often obscure hydric features.
Successional	A term to describe a community that is changing relatively quickly as new species replace the
	existing species that were initially established
	after a site is disturbed.
Track Plates	A flat board used to passively obtain animal prints.
Vernal Pool	Vernal pools are intermittently to ephemerally
	ponded, small, shallow depressions usually located
	within an upland forest. They are typically flooded
	in spring or after a heavy rainfall, but are usually
	dry during summer. Many vernal pools are filled
	again in autumn. The substrate is dense leaf litter
	over hydric soils. Vernal pools typically occupy a
	confined basin (i.e., a standing waterbody without a
	flowing outlet), but may have an intermittent stream
	flowing out of it during high water. Since vernal
	pools cannot support fish populations, there is no
	threat of fish predation on amphibian eggs or
	invertebrate larvae (NYNHP, 2013a).

Citation: NYNHP 2013a. Website accessed August 29, 2013 http://www.acris.nynhp.org/guide.php?id=9902&part=3

# **FINAL REPORT:**

# NATURAL RESOURCES ASSESSMENT AT CHARLESTON, STATEN ISLAND (OCTOBER 2007-DECEMBER 2008)

# Prepared for:



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**DRAFT 29 JUNE 2009** 

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#### A. EXECUTIVE SUMMARY

A Natural Resources Assessment was conducted by AKRF at a City-owned project site (approximately 88 arces) in Charleston, Staten Island between October 2007 and December 2008. The primary purposes of this field investigation were to: (1) describe existing natural resources within the boundaries of the project site; (2) identify and document any sensitive species that may be present within the project site; and (3) describe the extent of connectivity between the project site and adjacent natural areas.

Findings include the following:

- FEMA data indicates that most of the project site is outside the 100-year and 500-year floodplain.
- No tidal wetlands were noted within the project site. Freshwater wetlands along, and continuous with, the Englewood Avenue corridor were delineated, including three isolated and three continuous wetland areas. Several potential freshwater wetland areas occurring outside of the Englewood Avenue corridor were noted.
- Upland forest and meadow communities were dominant within the project site. No
  habitat communities listed as rare, special concern, threatened or endangered in New York
  State were observed within the project site. One S1-ranked habitat community, a variant of
  Red Maple-Sweetgum Swamp Forest, occurred within the project site.
- Of approximately 239 plant species observed on the project site, AKRF confirmed eleven S1, S2 and S3 ranked species within the project site.
- The New York State special concern Eastern Box Turtle was observed within the project site. No other state or federally-listed reptiles or amphibians were observed within the project site, although potential habitat may exist for nesting or overwintering Eastern Mud Turtles.
- Of approximately 174 bird species observed at the project site, 10 New York State-listed species were observed. Two of these species, Cooper's Hawk (special concern), Northern Harrier (threatened) and Peregrine Falcon (endangered) were observed during periodic foraging activities within the project site, though no breeding for these three species occured. The remaining species were observed either while in-transit over the site (Common Tern, Osprey) or during brief periods of migratory or wintering seasons (Common Nighthawk, Horned Lark).
- No state or federally-listed mammals were observed on the project site. Reproduction and foraging by White-tailed Deer and Woodchuck was observed on the project site.
- One New York State-listed dragonfly, Comet Darner (S2), was observed on the project site, although habitats that may support populations state-listed species, including the Yellowsided and Bar-winged Skimmer, are present within the project site.

Sensitive areas within the project site, and recommendations on potential future effort required to assess impacts to natural resources as a result of a proposed project, are discussed below.

#### **B. INTRODUCTION**

This report summarizes a natural resources field investigation of several City-owned parcels ("project site") within the Charleston section of Staten Island, New York (Richmond County). On behalf of the NYC Economic Development Corporation (EDC), AKRF, Inc. conducted a five-season natural resources survey of the project site between October 2007 and December 2008. The project site has been proposed as a mixed residential, commercial and recreational development, although no site plan has been advanced for review as of the date of this document. The parameters of this survey were initially described in the Charleston Natural Resources Scope of Work (AKRF 2007) and the Charleston Natural Resources Survey Methodology (AKRF 2008).

The project site is located in proximity to biologically diverse habitat communities, and the presence of several state-listed plant species (including Torrey's Mountain Mint) have been previously documented within the vicinity of the project site. An in-depth examination of natural resources was required to document any sensitive flora, fauna and habitat communities existing within the project site boundary, in conjunction with future efforts to assess potential impacts to natural resources that would occur as a result of proposed site plans.

The primary purposes of this field investigation were to: (1) describe existing natural resources within the boundaries of the project site; (2) identify and document any sensitive species that may be present within the project site; and (3) describe the extent of connectivity between the project site and adjacent natural areas. This final report details the existing conditions of the project site and offers recommendations on sensitive areas present within the project site.

#### C. PROJECT SITE

#### **PROJECT SITE**

The approximately 88 acre project site (Figures 1 and 2) is bounded to the north by Englewood Avenue, to the east and south by Veterans Road West, and to the west by Arthur Kill Road. The project site includes approximately 43.9 acres of NYC Department of Parks and Recreation property (defined by a conservation area and the proposed Fairview Park), in addition to approximately 41 acres of other City-owned property. Site photographs are located in Appendix A.

For the purposes of this study, the project site included several City-owned parcels, including areas slated for conservation under any future plan. The acreages and uses presented below were proposed in a previous site plan (EDC 2007) and were used as an initial template to determine the boundaries of the project site; these uses and dimensions are subject to change pending approval of a proposed site plan design:

- NYC Department of Parks and Recreation property (i.e., the proposed 23 acre Fairview Park and a 20.9 acre conservation area);
- a 10.9 acre site, previously proposed for an NYC Department of Education school site;
- a 12.3 acre site, previously proposed for the construction of affordable senior housing by the NYC Department of Housing;
- 9.7 acres, previously proposed for the construction of a commercial garden center;

- the proposed extension of Englewood Avenue, representing the northern boundary of the project (currently represented by a paved road and an unpaved path); and
- additional road developments to extend south from Englewood Avenue and connect with the existing Bricktown Way.

The project site includes lower elevations to the west and south and is highest at the former Balthazar Kreischer estate (see below). Site topography varies from approximately 50 to 130 feet above sea level (Figure 3).

Several previous examinations of natural resources have occurred within and adjacent to the project site, including the Bricktown Centre at Charleston Final Environmental Impact Statement (Office of the Deputy Mayor for Economic Development and Rebuilding [ODMEDR] 2002), the Bricktown Centre at Charleston Environmental Assessment (ODMEDR 2004) the Charleston Site Vegetation Sampling Report (AKRF 2003), and the Fairview Park Modified EAS (NYCDPR 2005).

#### SITE HISTORY

The project site is located within the Charleston (formerly Kreischerville) section of Staten Island. In terms of the prehistoric period, there is evidence of a Native American presence within the vicinity of the project site prior to European settlement of the project area in the 1600's. Important Paleo-Indian sites have been documented at the Port Mobil site to the north, and archaeological findings on the project site also give credence to this suggestion (ODMEDR 2002). By the 1800's, the project site was divided among several large (<50 acre) lots, and the western portion of the project site was the location of the Balthazar Kreischer estate ("Fairview", Figures 4 and 5), which was constructed in the mid-1800s and destroyed by fire in 1931. Historic aerials and maps indicate the presence of paved and unpaved roads and informal paths and some residential and agricultural structures (e.g., barns) within the project site over the past 150 years.

Between 1854 and 1927, the Kreischer Brick Works was active along the Arthur Kill shoreline to the west. Clay extraction to provide brick-making material for the Kreischer Brick Works was prevalent throughout this portion of Staten Island; it is likely that related land disturbing activities occurred within the project site, including the creation of temporary roads and paths, embankments and excavated areas (Schneider 1977, Trust For Public Land 1986, Rossi et al. undated). Additional land uses of the presently undeveloped habitats within the project site also likely included agriculture, pasture land for livestock and other subsistence-level uses.

Over the past 50 years, residential and commercial structures have been constructed along the paved, western end of Englewood Avenue in the vicinity of Arthur Kill Road, including single family dwellings, a horse stable, parking areas for construction and other vehicle staging, warehouses, commercial buildings, a firing range and other types (AKRF 2000).

Presently, much of the project site is used informally for recreation, including hiking and horseback riding associated with trails from Clay Pit Ponds Park Preserve that enter the project site from the north, and as informal sports fields. An extensive, informally maintained trail system is present throughout the project site; these areas are used primarily for horseback riding, hiking, mountain biking and perhaps infrequently by all-terrain vehicles.

Fire has, and continues, to shape the habitat communities that are present within the project site. A large fire that burned a substantial portion of the project site was documented in the mid 1960's, and evidence of occasional, smaller fires (including one in the southwestern portion of the project site in spring 2009) is also present.

In addition to informal trail clearing that has occurred within the project site, other land clearing activities have occurred within the project site within the past five years. A central, cleared area is present within the north-central portion of the project site, relating to initial site-clearing for the proposed Fairview Park in 2004 [VERIFY DATE]. Due to the discovery of sensitive flora within the project site area (including Torrey's Mountain Mint) and other factors, a Comprehensive Environmental Assessment Statement was required. A subsequent Modified EAS was prepared by NYCDPR for the Fairview Park project in February 2005, although no further development has occurred within the project site since this time [VERIFY STATEMENT].

#### STUDY AREA

Areas beyond the approximately 88-acre project site that were examined during the course of this study are referred to as the "study area." This included developed sites, sites under construction and natural areas.

In termed of developed or under-construction sites, the project site is located immediately north of the Bricktown Centre at Charleston commercial development (ODMEDR 2002 and 2004), which was completed in 2006 [VERIFY DATE], and east of the Tides at Charleston residential development (Rampulla Associates Architects 2005). Presently, an approximately 10 acre parcel along the western boundary of the project site is currently being development as the New York City Transit's Charleston Bus Annex (New York City Transit 2007).

Several distinctive natural areas are present in the vicinity of the project site, some of which form a vegetated corridor linking to the project site (Figure 6). The study area included the following locations, which were visited at least once over the course of the survey period:

- a section of Clay Pit Ponds State Park Preserve and privately owned wooded parcels south of Sharrotts Road and along the northern boundary of the project site;
- residential areas to the west and northwest of the project site along the existing paved portion of Englewood Avenue and Arthur Kill Road;
- a preservation area for Torrey's Mountain Mint (Pycnanthemum torrei) south of Bricktown Centre at Charleston;
- a wooded parcel southeast of Bricktown Centre owned by NYCDPR and private entities;
- a NYC Transit parcel west of the project site for the Charleston Bus Annex; and
- the Arthur Kill shoreline west of the project site.

The above areas were not part of the repeated sampling effort used within the project site, though observations were made to generally describe existing conditions at the sites above where access was permitted.

#### D. METHODS

Repeated sampling for flora and fauna was conducted within thirty 1000-square-foot plots (Figure 7) chosen at random within the project site boundary. Time-restricted searches for

flora and fauna were conducted throughout the remainder of the project site. Incidental observations occurring while in transit through the project site were also recorded.

In order to select sampling plots, a grid system (NAD 1983 State Plane Coordinate System, New York Long Island FIPS 3104 Feet) was applied to the entire project site, dividing it into 1000 square-foot plots. Thirty (30) plots were chosen at random in ArcMap using Hawth's Analysis Tools (http://www.spatialecology.com/htools/overview.php). A stratified-random sampling method (ASTM 2008) was used to select plots with a minimum distance between plots of 100 feet. In February/March 2008, the thirty plot centerpoints were located in the field using a Trimble GeoXT unit and marked at the center and north, south, east and west corners with orange flag stakes clearly marked with each plot's alphanumeric code. A handheld GPS unit (Garmin GPSmap 60CSx) was used to relocate plots on subsequent surveys, and to mark the locations of flora, fauna and depressional wetlands within the project site. The thirty sampling plots were used for all primary vegetation sampling and wildlife surveys. Sampling efforts were focused within the randomly selected plots, and time-restricted searches and incidental observations were also conducted within the entire project site.

Data was recorded on standard data sheets and field notebooks for vegetation surveys, wetlands delineation, bird point counts, wildlife cover and track boards, time-restricted searches and incidental observations. Site conditions (including temperature, precipitation, cloud cover, and wind speed and direction) were recorded at the beginning and end of each survey date. Photographic records of all sensitive species encountered, when photographs were possible, were maintained.

AKRF's survey team consisted of natural resources staff experienced in the identification of flora and fauna expected to occur within the study area, and in wetlands delineation following the United States Army Corps of Engineers (USACE) Wetlands Delineation Manual (USACE 1987). Two person teams conducted the majority of the field observations (with the exception of bird surveys, which were generally conducted by one experienced observer). Seasonal habitat surveys required two teams to cover all sampling plots. NYCDPR's Natural Resources Group (NRG) staff participated in wetlands delineation activity, insect surveys and time-restricted searches.

Preliminary site visits were conducted by a two-person team on 17, 18 and 25 October 2007. These site visits were used to inform the sampling protocol for the full survey, which was conducted on a total of 27 days between February and December 2008, as follows.

# 1. Habitat surveys

Habitat surveys included vegetation surveys at 30 sampling plots, wetlands verification and delineation, and an exhaustive search for rare, special concern, threatened and endangered flora and habitat communities. Four AKRF natural resources staff, working in teams of two, conducted these three to four day surveys in early spring (3-4 March 2008), early summer (18 June – 2 July 2008) and early fall (17 -24 September 2008) to detect seasonal changes in vegetation.

# a. Vegetation/habitat community sampling

Within the 30 sampling plots, vegetation was sampled following methods similar to those described in the Charleston Site Vegetation Sampling report (AKRF 2003). Within

each plot, species from each of four vegetative strata were recorded: canopy (>20 feet), subcanopy (8-20 feet), shrub/vine (woody species from 2-8 feet), and herbaceous/ground cover (all non-woody vegetation). Subsampling within the larger plots allowed for a reasonable description of forest and herbaceous cover (Peet et al. 1998). Three randomly selected 100 square-foot plots within each of the 30 sampling plots were sampled for canopy, subcanopy, and shrub/vine species. An additional six randomly selected 9 square-foot (~1 meter) subplots were sampled for herbaceous species; plots were selected by casting out plot markers on each visit if the site is sufficiently open, or randomly selecting plot locations when ground cover encountered (i.e., greenbrier) was prohibitively dense. From these efforts, habitat community structure could be derived; habitats present on the site follow nomenclature from Edinger et al. (2002 Draft).

# b. Rare, Special Concern, Threatened and Endangered Flora

Numerous sensitive plant species (including *Pycnanthemum torrei*, *Eleocharis obtusa* var. *ovata*, *Eupatorium hyssopifolium* var. *laciniatum*, and several others) were known to occur at or near the project site from previous efforts. During plot sampling work, during time-restricted searches outside of plots, and during transit between plots along transects, a concerted effort was be made to identify all state and federally listed species. Prior to field efforts, survey teams examined diagnostic features of sensitive plant species noted by the NY Natural Heritage Program as potentially existing on either the project site or Clay Pit Ponds State Park Preserve.

#### 2. Wetlands delineation

AKRF natural resources staff members experienced in wetlands ecology identified the location, type, and approximate dimensions of wetlands previously mapped by the National Wetlands Inventory (NWI) and NYSDEC, and noted within Bricktown Centre at Charleston FEIS (2002). In addition, the wetlands along Englewood Avenue were delineated (18 August to 2 October 2008) and clearly flagged in accordance with the US Army Corps of Engineers (USACE) 1987 Delineation Manual. NYCDPR-NRG staff accompanied AKRF field survey teams during two of these surveys in August and October 2008. A licensed surveyor (Control Point Associates, Inc.) was retained by the EDC for surveying and final mapping of the flagged wetland delineations along the proposed Englewood Avenue (Control Point Associates, Inc. 2008).

# 3. Reptile and Amphibian Surveys

In order to describe the diversity of reptile and amphibian activity that may occur on the site, several methods were employed.

#### a. Visual Encounter Survey

Time-constrained searches were conducted within 15 of 30 sampling plots to identify the presence of reptile and amphibian species. We conducted time-constrained searching within each of the selected plots on two non-consecutive spring (22 April and 20 May 2008) and two non-consecutive summer (11 and 23 June 2008) days occurring within 1-3 days of significant rain event (> 0.1 inch). These surveys involved turning cover objects (i.e., rocks, logs, debris) and visually searching for animals. Any animals revealed by these methods were identified to species and photographed when

possible. Turtle nest sites were also documented. Details of the above methods are discussed in 'Multiple Species Inventory and Monitoring Protocol Technical Guide' (Manley et al. 2005).

# b. Nocturnal Auditory Amphibian Counts

Following the evening visual encounter surveys, nocturnal surveys for vocalizing amphibians (see North American Amphibian Monitoring Program protocols for details) were conducted on two non-consecutive spring and summer nights (22 April, 20 May, 10 June, 23 June and 2 July 2008) within 1-3 days of significant rain event (> 0.1 inch).

# c. Aquatic turtle sampling

As described in the EEA, Inc. report 'Bricktown Retail Centre Herpetological Survey for Eastern Mud Turtle (*Kinosternon subrubum*) And Other Incidental Species' (2001), two wetlands within the project site were suggested to support eastern mud turtles or other aquatic turtle species (a small freshwater pond in the southwest portion of the project site and a palustrine forested wetland along the proposed Englewood Avenue). Initial site surveys conducted in October and November 2007 suggested the presence of suitable hydrology in support of these species. However, standing water was not present at suitable levels within these wetland areas after early March, and thus no aquatic turtle traps were used.

#### d. Cover boards

In ten randomly selected plots (see Figure 7 for plots), three cover boards were randomly placed within each 1000 square foot plot boundary and examined each time the plot was visited for the presence of reptiles and amphibians.

# 4. Bird surveys

Point counts are a standardized method used to sample bird populations in order to estimate densities and trends in local areas (Ralph et al. 1995). Point counts on the project site were conducted from the center point of each of the 30 randomly selected sampling plots. These points were monitored over 12 sessions (4 and 18 March, 22 April, 20 May, 10 and 23 June, 2, 16 and 31 July, 21 and 28 August, 18 September, 22 October, 10 November and 29 December 2008). One experienced observer conducted all point counts.

Surveys started 30 minutes before local sunrise and were completed within 4-5 hours; all thirty plots could be sampled during this time. At each point, the observers waited for five minutes, and recorded species, distance from the observer, behavior, and any breeding evidence for all birds seen or heard within a 100 foot radius. Counts were conducted on clear, calm days with little to no precipitation.

# 5. Mammal Surveys

Mammal surveys were conducted concurrently with habitat surveys and wetlands delineation activity (12 total days from March to October 2008). The primary method for mammal detection was visual observation of individuals, tracks, or scat. During habitat surveys, AKRF field teams conducted visual searches of mammals at each sampling plot.

In ten randomly selected plots (see Figure 7), three cover boards and one baited track board (see Carey and Witt (1991) and Raphael et al. (1986) for design) were randomly placed within the 1000-square-foot plot boundary and examined each time the plot is visited.

During night auditory surveys for amphibians (described above), any nocturnal mammal observations were noted, and any incidental mammal observations while in transit within the project site were noted.

#### 6. Insect Surveys

Insect surveys were conducted concurrently with habitat surveys (12 total days from March to October 2008). These surveys focused primarily on visual observation of rare, special concern, threatened and endangered species, particularly those taxa noted by the NYNHP (i.e., odonates, lepidopterans, etc.). During habitat surveys, AKRF field teams conducted visual searches of each sampling plot and noted the occurrence of insect species when encountered. Additionally, all insect taxa noted within sampling plots or along transects were identified to the lowest possible taxonomic level.

# 7. Rare, Special Concern, Threatened and Endangered Fauna

Numerous sensitive wildlife species (Eastern Mud Turtle, Eastern Box Turtle, Yellow-sided Skimmer, Northern Harrier) were known to occur at or near the project site from previous efforts. During plot sampling work, during time-restricted searches outside of plots, and during transit between plots along transects, a concerted effort was be made to identify all state and federally listed species.

#### E. EXISTING CONDITIONS

#### **FLOODPLAINS**

Figure 8 denotes the 100-year and 500-year floodplains in the vicinity of the project site. FEMA data indicates that most of the project site is outside the 100-year and 500-year floodplain. On the southeastern portion of the project site, the 100-year floodplain appears to reach a substantial portion of the Mill Creek watershed as had formerly occurred within the project site. The construction of Bricktown Centre at Charleston has substantially re-engineered this watershed within the project site boundary, and a system of culverts and retaining walls would likely prevent any 100-year or 500-year storm from flooding any built portion of the project site.

#### WETLANDS

#### TIDAL WETLANDS

Figures 9 and 10 indicate tidal wetlands mapped by the US Fish and Wildlife Services National Wetlands Inventory (NWI) and the NYSDEC, respectively. As indicated, there are no tidal wetlands on the project site. Tidal waters of the Arthur Kill are located to the west of the project site.

#### FRESHWATER WETLANDS

Two NWI-mapped freshwater wetlands are indicated within the project site in Figure 9; a saturated, palustrine forested wetland with broad-leaved deciduous vegetation (PFO1B) in the

western portion of the project site, and a permanently flooded palustrine wetland with and unconsolidated bottom (PUBH). Wetlands mapped by the NYSDEC on-site indicate the presence of two wetland systems (AR-11 and AR-27) as existing within the eastern portion of the project site (see Appendix B, Figure B-2). While gaps are shown to exist between these two systems, and recent development has further altered hydrologic flow between wetlands in the Clay Pit Ponds State Park Preserve and the Mill Creek watershed, there appears to be a remnant hydrologic connection within the project site that periodically links wetlands to the north (Clay Pits) and to the south (Mill Creek). This is elaborated upon in the following section, and in the wetlands delineation report provided in Appendix B.

## FRESHWATER WETLANDS DELINEATION

AKRF's wetland inspection targeted the Englewood Avenue corridor, located along the northern boundary of the project site. The wetland inspection extended along Englewood Avenue southwards into the project site a distance of 80 feet. Wetland areas identified within this zone (Wetlands A-D, F and G; Figure 11) were identified and flagged in accordance with the US Army Corps of Engineers' (USACE) Wetland Delineation Methodology (1987). The flagging of the identified wetlands was extended southwards into the project site until positive wetland indicators were no longer present. This resulted in the flagging of several wetland areas beyond the footprint of Englewood Avenue – most notably, the wetland system comprised of Wetlands "C", "D", and "F". This wetland system extends southwards well into the subject parcel following the path of surface drainage tributary to Mill Creek. The other three wetland areas, Wetlands "A", "B", and "G", are located in closer proximity to the mapped portion of Englewood Avenue. The full wetlands report is located in Appendix B.

The wetland delineation effort performed by AKRF flagged only those wetlands contiguous with Englewood Avenue. As part of AKRF's ongoing ecological work onsite, numerous additional wetland areas and potential wetland areas were identified outside of the Englewood Avenue investigation area. These additional wetland areas were not flagged, but are documented in Figure 12. These include one wetland under federal jurisdiction (the permanently flooded, palustrine wetland located on the southwestern portion of the site) and several wet depressions that had suitable hydrology, vegetation (woolgrass, soft rush, etc.) and/or wildlife activity (amphibian breeding activity) during the course of this study.

# **FLORA**

#### **HABITATS**

Figure 13 indicates habitat communities identified within the project site, following terminology found in Edinger et al. (2002 Draft) and relating to a previous habitat community survey conducted for the Fairview Park Modified Environmental Assessment Statement (February 2005). They are as follows:

#### **Native Uplands:**

#### Coastal Oak-Hickory Variant I

This habitat community was prevalent on the eastern edge of the project site within the NYCDPR conservation area. It consists primarily of various oak species (White, Pin, Black, Red and Scarlet) and Mockernut and Pignut hickories from 5-25 inches in diameter at breast height (dbh). Subcanopy trees include Sassafrass, Gray Birch, Black Gum and some sparse Black-jack

Oak saplings. Understory species include Highbush Blueberry and Canada Mayflower. The easternmost edge has a strong American Beech component, with Hay-scented Fern and Roundleaved Pyrola common in the understory. Common Greenbrier has sparsely colonized this habitat community, far less than was apparent in the Fragmented Coastal Oak Variants discussed below. White-tailed Deer activity was prevalent in this area, as was the presence of some forest-breeding birds (Eastern Wood Pewee, Wood Thrush). Cooper's and Red-tailed Hawks were noted foraging within this area on several occasions.

#### Coastal Oak-Hickory Variant II

This habitat was similar in most respects to Variant I, although is now separated from the above habitat area by the eastern entrance to Bricktown Centre at Charleston. As a result, several invasive species (including Japanese Honeysuckle and Asiatic Bittersweet) have colonized the eastern and northern edges of this parcel.

# Fragmented Coastal Oak Variant (>20 years)

This coastal oak forest variant appears to have a more mature component of oaks (White, Pin, Red, Black) in comparison to the other coastal oak communities within the project site. It appears to be a somewhat diverse secondary growth community that may have developed following a 1963 wildfire that removed vegetation from most of the area. Canopy species include mature oaks (White, Pin, Red, Black) and aspens (Big-toothed, Quaking), with Sassafrass, Black Cherry, Black Locust, Eastern Cottonwood and Mulberry in the subcanopy. The entire area is substantially colonized by Common Greenbrier in the understory, from 20-80% through most of the community. Wildlife observed within this community included edge (Eastern Towhee, Northern Cardinal, common Yellowthroat, Indigo Bunting) and forest-breeding bird species (Black-capped Chickadee, Tufted Titmouse, Northern Flicker), White-tailed Deer, Woodchuck, Eastern Gray Squirrel, and numerous other species.

Subsets of this habitat type were also observed within the project site - these included:

# Fragmented Coastal Oak Variant I (<20 years)

This habitat community was most prevalent within the project site, and was similar in most respects to the primary coastal oak variant community, though with an overall younger composition of oak species. Common Greenbrier was a dominant component of the understory within much of this community type, though only occasionally as dense as observed within Variant II. Several "clay barren" areas with a sparse mature oak overstory were observed within this habitat type, and were dominated by ericaceous species, forbs grasses in the understory (various blueberry and goldenrod species, Broom Sedge), a substantial coverage of mosses (including Reindeer Moss) and aspen saplings and young trees. These may represent areas that have been substantially burned during fires in previous years. This habitat was traversed by a system of periodically maintained, informal trails between five and ten feet wide; there appears to be substantial traffic along these paths, mostly as a result of their use as informal horse trails.

# Fragmented Coastal Oak Variant II (<20 years)

This habitat was similar in description to the primary coastal oak variant, but possessed an overall younger composition of oaks, and had 60-100% coverage with Common

Greenbrier within the herbaceous to subcanopy layers. Minimal growth of other herbaceous species was found within this habitat type. The site was fragmented by a Successional Old Field drainage swale/slope formerly used as a golf driving range. Additionally development of the NYCT Charleston Bus Annex had occurred along the northern border of this community.

# Fragmented Coastal Oak Variant III (<10 years)

This habitat was markedly similar to Variant II in terms of species composition and size, although with substantially more Gray Birch (1-5 inches dbh) in the canopy and subcanopy and Common Greenbrier dominant in the understory. This habitat type was located adjacent to Successional Old Field IV, suggesting that previous construction activity may have terminated here. Wildlife observed included principally edge species (Eastern Towhee, Gray Catbird, Northern Cardinal); one Red-eyed Vireo nest was located within this habitat type. Spring Peepers were actively calling both within and north of this habitat type, suggesting that some seasonal wet depressions may be located within the area.

# **Red Maple Sweetgum Swamp Forest Variant**

A drainage swale (Wetland C) with mature Red Maples and Sweetgum (7-20 inches dbh) was observed within the western portion of the NYCDPR conservation area, leading southward from freshwater wetlands (including Sharrott's Pond) to a large culvert and retaining wall of the Bricktown Centre at Charleston development. American Holly, Sassafrass, Black Gum and Pin Oak were also present in the understory, and Arrow-wood, Common Elderberry and numerous herbaceous species were also present. Common Greenbrier coverage within this swale was relatively sparse, although the eastern, western and southern edges were thickly colonized by this species. The northern edge of this swale is marked by the unpaved Englewood Avenue Path; a similar swamp forest and seasonally flooded freshwater wetland was found within NYSDEC property on the northern side of the path. Wildlife species included forest-breeding birds (Downy Woodpecker, Great-crested Flycatcher, American Crow, Blue-Gray Gnatcatcher, Tufted Titmouse), White-tailed Deer, Woodchuck, Spring Peeper and other species.

#### Successional Old Field I

This is the first of several old field areas located in the central part of the project site. While this field has been kept clear for decades for informal recreation (a baseball field, horse riding), similar herbaceous, shrub and young tree species are presently located in all of the central old fields. These sites were cleared in 2005 for the early stages of the Fairview Park development. The majority of plants in this area are grasses and herbaceous species; this part of the central field appears to be maintained informally for horse riding (with various jumps present), and horse grazing activity is also substantial. Characteristic species include common herbaceous and grass species, including Chicory, Pilewort, Broomsedge, Crabgrass spp., Queen Anne's Lace, with pioneering Gray Birch and Black Cherry saplings. A substantial amount of Late-flowering Boneset and small aggregations of Orangegrass was present. This was a common location for wildlife to forage, including Red and Big Brown Bats; Barn, Tree and Northern Rough-winged Swallows; and a substantial number of sparrows during the fall and winter months were present feeding in the field (American Tree Sparrow, Savannah Sparrow, White-throated and White-crowned Sparrows and one Lincoln's Sparrow). Indigo Buntings and Field Sparrows

nested within this portion of the site (~2-3 pairs each). Wetlands A and B were noted in this area within 80 feet south of Englewood Avenue.

#### Successional Old Field II

This comprises the majority of the successional old field habitat within the central clearing area. A substantial population of Late-flowering Boneset exists in the southern portion of this clearing, along with numerous specimens of Hyssop-leaved Boneset, Fringed Boneset, Rough Boneset and Round-leaf Boneset. Broom Sedge, Switchgrass spp. and numerous Solidago species were present in the herb layer, with pioneering shrub and tree species such as Bigtoothed Aspen, Gray Birch, Groundsel Bush and blackberry species. This was also one of the few locations where Tall Reed was observed, growing out of mounds of decayed brush and woody material that appear to be remnants from the clearing of Fairview Park. Indigo Bunting, American Woodcock, Killdeer and other species found in open habitats bred in this area. Wild Turkey may have attempted to nest, as a female flushed from the southeastern corner several times in late April and early May. During migration, numerous areas of standing water were present throughout this site (suggesting that wetlands delineation activity should occur here); shorebirds such as Wilson's Snipe, Least Sandpiper and Solitary Sandpiper were observed along the edges of standing water areas. Under coverboards, White-footed Mouse and Short-tailed Shrew were present, with the former establishing nests under two separate coverboards in mid to late spring 2008. DeKay's Snake and several Spring Peepers were observed in this area, and an Eastern Box Turtle (only one of two individuals observed during this study) was observed dispersing north along the path that formed the eastern edge of the clearing in early July 2008.

# Successional Old Field III

This site was also heavily manipulated during construction of Bricktown Centre – a 2005 aerial image shows exposed sand covering the majority of this former golf driving range. Several groundhog burrows observed in the slope confirmed that fine, white sands of unknown origin underlie this old field. The site is similar in plant community to Old Field I; with a mix of common herbaceous and grass species and some listed species (including Late-Flowering Boneset and at least one specimen of Torrey's Mountain-mint). White-tailed Deer frequently used the area in fall and winter 2007/2008; up two 18 deer were observed foraging and bedding on a single occasion, including yearlings and adult males and females. In June 2008, two young fawns (1-2 weeks old) were observed bedded down along the top of the berm, suggesting that local reproduction by deer populations is occurring. In October 2007, a Northern Harrier (adult female) was observed foraging over this large open area, into the adjacent Charleston Bus Annex site and eastward into the central clearing within the project site. The woodland edge of the old field berm was also heavily used by migrating warblers in the spring (including Kentucky, Mourning and Hooded Warblers and Yellow-breasted Chat) and fall (including Tennessee, Nashville and Blackburnian Warblers).

#### Successional Old Field IV

This area was cleared of all vegetation during the construction of Bricktown Center, and is defined on its southern and eastern borders by a chain-link fence, with Fragmented Coastal Oak Variant III to the north. While it is likely that many of the grasses present were planted for erosion control (principally Fescue spp.), there is a surprising diversity of sensitive herbaceous species present, including Hyssop-leaved Boneset, Fringed Boneset, Late-flowering Boneset

and one specimen of Serrate Round-leaf Boneset. This was also one of only two sites where Torrey's Mountain-mint was located during the course of this study – approximately 22 stems, many of them flowering, were observed along the berm in spring and summer 2008.

#### Non-native Uplands:

# **Exotic Forested Upland I**

These two parcels represent the former grounds of the Balthazar Kreischer Estate, and likely represent naturalized ornamental planting from the estate. The sites are composed of mature Tree-of-Heaven, Royal Paulownia, American Basswood and other species with Chinese Wisteria threaded through the canopy and sub-canopy, some ornamental shrubs (Eastern Sweetshrub, Mock Orange, Deutzia) and an understory of Japanese Knotweed, Common Greenbrier, Japanese Honeysuckle and some native vines and herbaceous species. The two sites are separated by a wide, well maintained path with a horse jump. The ruins of the former estate and various outbuildings, which were razed by fire in 1931, are present throughout these areas. The bricks in these sites were some of the few locations on the project site occupied by Redbacked Salamanders.

# **Exotic Forested Upland II**

Described as "brushy cleared land" in NYCDPR (2005), this area has been colonized by numerous exotic or invasive species (Multiflora Rose, Callery Pear, Chinese Wisteria, Japanese Knotweed) in the intervening years, as well as native sub-canopy, herbaceous and early successional species (Gray Birch, Black Cherry, various Solidago species). It appears that certain invasives, particularly Japanese Knotweed and Multiflora Rose, are beginning to colonize the adjacent Coastal Oak-Hickory Variant woodlands to the south and west; interestingly, there was a substantial amount of browsing activity on young Japanese Knotweed shoots in early summer by White-tailed Deer.

# **Terrestrial Cultural:**

#### Paved Road

This represents the paved portion of Englewood Avenue extending eastward from Arthur Kill Road, terminating in a substantial barrier gate. Single family homes, a horse stable and several automobile and construction-related businesses, some with mowed lawns and ornamental vegetation, is present along the northern edge of Englewood Avenue. Along the south side, a mature hardwood forest (see Fragmented Coastal Oak Variant above) dominated by Red and Black Oak, Sweetgum and other species. Common Greenbrier forms a thick mat in the understory, with 100% coverage in the understory in some areas. Several businesses and a south-directed paved road are located along the south side of Englewood near Arthur Kill Road, with little ornamental vegetation present.

#### Unpaved Path I

This small area is a gravel pad that was likely placed as a staging area for vehicles working on the Fairview Park project. It is a small (200 square foot) unvegetated area immediately north and west of Wetland A.

#### Unpaved Path II

This represents the unbuilt portion of Englewood Avenue, and varies between sandy and loamy soil substrates as it extends eastward from the paved portion of Englewood. As it is fairly narrow along most of its course, and passes along old successional field and hardwood forests, and terminates at a road barrier at Veterans Road West and the parking lot for the West Shore Motel. Several state-listed species (Tall Lespedeza (*L. stuevei*), River Birch) were observed along the edges of the path, as well as numerous native and invasive herbaceous species. Reptiles and amphibians, including painted turtle and red-eared slider, were observed laying eggs within the roadway in early July 2008; several of these nests were preyed upon by raccoons and possibly feral cats within days of egg-laying. This site was also used by reptiles and amphibians in transit heading both north (Eastern Box Turtle) and south (Painted Turtle, Spring Peeper), suggesting that the unbuilt roadway functions as a corridor between Clay Pit Ponds State Park Preserve and the NYCDPR conservation area. This is discussed further in Section E.

#### Roadcut Slope

East of the Home Depot within Bricktown Centre, which was constructed on a large berm, a steep sloping area descends eastward towards a remnant Coastal Oak-Hickory Variant and the area delineated as Wetland F. It consists of a steep slope, along a paved parking lot and access road, which was created by digging during road construction.

# Terrestrial Cultural/Stormwater Retention Pond

This stormwater retention pond was constructed to accept stormwater from the Bricktown Centre parking lots and streets. The pond itself is lined with riprap along the shore. It is present within the NYCDPR conservation area, and has been planted and/or colonized around the edges with mainly native species (Pasture Rose, Red Maple, Sweetgum, Canadian Goldenrod, Virginia Creeper) and is being used by a variety of wildlife (e.g., Green Heron and Mallard nested off of the northern shore.

#### **Urban Vacant Lot**

This site, on the southwestern corner of the study area, is predominantly used as a staging area for construction vehicles for development projects occurring in the vicinity of the project site. It has been colonized by invasive herbaceous species (Mugwort, Japanese Knotweed) and other species. The site appears to be heavily impacted by human use, and few woody species are present.

#### **VEGETATION**

As noted in Table 1, approximately 239 plant species were observed both within plots during detailed vegetation surveys (188 species, 78% of the total observed) and outside of plots during time-restricted searches and incidental observations (51 species, 22% of the total observed). These included 5 fern species, 44 graminoids, 97 herb/forb species, 2 saprophytes, 29 shrub, 51 tree and 10 vine species.

In the canopy, tree species in mature forested uplands varied from principally oak species (White, Red, Black; 10-29 inches in diameter at breast height[dbh]) in the southern and western portion of the Fragmented Coastal Oak Variant habitats, where the most common understory species was Common Greenbrier (14 of 18 plots had 60-100% greenbrier in the herb, shrub and subcanopy layers). Various species of blueberries were also found within these

habitats; in the south central portion of this habitat, several unique "clay barren" habitats were found, with substantial coverage of mosses and lichens (including Reindeer Moss), blueberries and other ericaceous species.

Hickory (Mockernut, Pignut; 3-24 inches dbh) and American Beech (1-29 inches dbh) were largely restricted to the eastern, Coastal Oak-Hickory Variant habitats, where a vastly more open understory community was present, comprised of shrubs (Arrow-wood), ferns (Hayscented), and other shade-tolerant herbaceous and ground cover (Round-leaf Pyrola) species. In both habitats, small numbers of American Chestnut, American Elm and hybrid oaks (Rudkin's Oak) were observed; hybrid oaks are highly likely to occur throughout the forested uplands of the project site (Mike Feller, NYCDPR-NRG, pers. comm.). After a thorough search, however, no habitats meeting the post oak-blackjack oak sand barren criteria were located; only a few Black-jack Oak adults were located, as discussed below.

On the northwestern portion of the site, a remnant population of naturalized ornamental trees (American Basswood, Royal Paulownia), old vines (Chinese Wisteria) with little native understory was present.

As discussed above, the old successional field areas were principally colonized by grasses (*Agrostis* spp., *Panicum* spp.), herbs such as *Solidago* and *Eupatorium* spp., and areas of early successional (mostly native) shrubs and trees (Gray Birch, Sweetgum, Black Cherry, Big-toothed and Quaking Aspen).

Human and domesticated animal-dominated habitats varied in their species composition; in general, however, there were relatively few invasive exotic species colonizing these habitats. In some areas of New York City, cleared fields might be colonized with mainly invasive herbs (Mugwort), vines (Asiatic Bittersweet) and trees (Callery Pear). Site history, soil type and the existing seed bank all have major roles in site colonization following disturbances (either by fire or short-term human activities such as clearing, as exhibited within the central successional old field).

RARE, SPECIAL CONCERN, THREATENED AND ENDANGERED SPECIES

No federally listed flora was observed during this study.

For state or federally listed flora, approximately 52 species have been previously identified in the vicinity of the project site, including Clay Pit Ponds State Park Preserve (Table 6). AKRF confirmed eleven S1, S2 and S3 ranked species within the project site, including the Englewood Avenue corridor. Species of primary concern that were noted during the proposed Fairview Park project (e.g., Torrey's Mountain-mint, Fringed Boneset, etc.) were observed within the project site.

In terms of NY state-listed significant plant communities, both the S1-ranked Post Oak-Blackjack Oak Barrens and the S1-ranked Red Maple-Sweetgum Swamp are known from the adjacent Clay Pit Ponds State Park Preserve area. As noted earlier, no Post Oak-Blackjack Oak Barrens were observed within the project site, although individual Blackjack Oaks were observed in several areas of the project site, and a small stand of these oaks were found in the southern-central portion of the project site. A Red Maple-Sweetgum Swamp Forest variant habitat was present in a narrow corridor within the central portion of the project site.

The following flora listed as rare, special concern, threatened or endangered in New York State was observed on the project site:

American Strawberry-bush *Euonymys americana*. Specimens were located within the Coastal Oak-Hickory Variant habitat only, within two sampling plots.

Torrey's Mountain-mint *Pycnanthemum torrei*. Approximately 23 stems were found in old successional field habitats, including one sampling plot, along the southern and western border of the project site; these areas are closest to the existing Torrey's Mountain-mint conservation area (on Veterans Road at Tyrellan Avenue).

Fringed Boneset *Eupatorium hyssopifolium var. laciniatum*. Roughly 20 specimens were identified within three plots in the southern and central portion of the project site. Another 20-30 specimens were observed in the central successional old field.

Serrate Round-leaf Boneset *Eupatorium rotundifolium var. ovatum.* One specimen was located along the south-central portion of the project site adjacent to Bricktown Centre at Charleston. Other individuals may exist in open areas within the project site.

Round-leaf Boneset *Eupatorium rotundifolium var. rotundifolium*. Three examples were observed outside of plots within the western and central portion of the project site.

Late-flowering Boneset *Eupatorium serotinum*. This species was common in every part of the site not marked by human activity or

Tall Lespedeza *Lespedeza stuevei*. One plant was observed along the eastern end of the unbuilt portion of Englewood Avenue.

The following species were noted in NYNHP agency contact letters for previous examinations within the project area. These include:

Black-jack Oak *Quercus marilandica*. Mature specimens occurred in two plots, and saplings in three additional plots, all within the Fragmented Coastal Oak Variant habitats. No sign of pine barren communities populated by Black-jack and Post oaks were present within the project site.

Rudkin's Oak *Quercus rudkinii* (phellos x marilandica). Noted at two plots within the southeastern portion of the site, within the Coastal Oak-Hickory Variant habitat. Special attention should be paid to the study of potentially rare or unusual hybrid oaks within this project site, both within the conservation area and less accessible (i.e., greenbrier-dominated) coastal oak habitats.

American Chestnut *Castanea dentata*. While several specimens were located on three southeastern plots, *no* flowering specimens were present within the project site, as had been previously observed at the Bricktown Centre at Charleston site (Harrington and Schwanof 2004). The observed new growth southeast of plot K-36 appears to be in the same location as a young flowering individual present on the site in 2004. This individual was removed during construction of the roadway entering Bricktown Centre from the east. This new chestnut growth and other individuals observed (in plots D-35 and O-36) are located within the City's designated conservation area, which is not slated for future development.

Shortleaf Pine *Pinus echinata*. One individual was located near the eastern entrance to Bricktown Centre at Charleston. This specimen appears to have been planted. NYCDPR-NRG noted that this individual was moved prior to construction of Bricktown Centre into the City's designated conservation area, which is not slated for further development.

Virginia Pine *Pinus virginiana*. One mature specimen was located east of the Red Maple-Sweetgum Swamp Variant forest. It was substantially covered with Common Greenbrier, and will likely be permanently damaged if intervening measures are not taken.

Hyssop-leaved Boneset *Eupatorium hyssopifolium var. hyssopifolium*. This species was located within four sampling plots, and in both forested upland and successional old field areas throughout the project site.

American Elm *Ulmus americana*. One specimen showing signs of disease was located on the western portion of the project site near Arthur Kill Road.

Orangegrass *Hypericum gentianoides*. Several populations were observed along paths within the central old field and in the "clay barren" areas within the southern portion of the project site.

Two native fern species present on the site, Cinnamon Fern *Osmunda cinnamomea* and New York Fern *Thelypteris noveboracensis*, are also listed as protected by NYS. They were present within two plots, but were otherwise rarely observed within the project site.

Regarding the above species, further discussed is provided below in Section E "Conclusions and Recommendations." As the precise location of listed species is sensitive information, a map of generally sensitive areas within the project site is presented in this report, focusing on areas where AKRF observed sensitive flora and fauna.

# **FAUNA**

#### REPTILES AND AMPHIBIANS

Figure 14 denotes the date and location of all reptile and amphibian sightings on the project site. Fifteen (15) species of reptiles and amphibians were observed within the project site from Mar-Dec 2008 (Table 2). All individuals were observed during time-restricted searches and incidental observations in upland and wetland habitats; no individuals were located under cover boards. Aquatic trapping effort was proposed as a sampling method for turtles in the Methodology (15 Feb 2008), although this method was not used during this study. The only open water area suitable for such traps (i.e., the pond on the southwestern portion of the site adjacent to plot K-12) was too shallow by early spring for this method to be effective.

Two salamander species (Red-backed Salamander and Northern Two-lined Salamander) were observed within the project site. Red-backed Salamanders were principally observed from May-Oct 2008 under bricks in surrounding ruins of the Balthazar Kreischer's 'Fairview' estate (located on the western edge of the project site). One Northern Two-lined Salamander was observed under wood debris along the shoreline of a pond in the south-western portion of the site.

Of the five frog species observed on the site, Spring Peeper was the most commonly encountered. It was present in wet areas throughout the entire site during spring, and was most often detected by vocalization. Other species included American and Fowler's toads, American Bullfrog and Northern Green Frog.

Four turtle species were observed on the project site, including Snapping Turtle, Eastern Box Turtle, Red-eared Slider and Painted Turtle. Individuals were observed during movement and egg laying. Nesting activity was confirmed for each of the above species; egg laying was most commonly observed along exposed soil trails that are located throughout the site, although one painted turtle was observed constructing a nest within the open area proposed as Fairview Park.

Of the four species of snakes observed on the site, Eastern Gartersnake was the most commonly encountered. DeKay's Brownsnake, Eastern Racer and Milksnake were encountered on one occasion each. No hibernacula or breeding activities were observed within the project site.

Several NY state special concern, threatened and endangered reptiles and amphibian species are known from the vicinity of the project site, including Eastern Mud Turtle (endangered) and Fence Lizard (threatened), Spotted Turtle and Wood Turtle. Eastern Box Turtle (special concern) was observed within the project site (2 occasions) – one moving south from Clay Pit Ponds State Park Preserve into the Fairview Park clearing, the other moving north toward Clay Pits from the central old field area, suggesting some movement to and from the project site. Although no Eastern Mud Turtles were observed within the project site, areas within the conservation area and successional old fields appear to offer suitable foraging and hibernation habitat for this species.

#### **BIRDS**

Over the study period, 174 bird species were noted within the project site during point counts and through incidental observations. Of these, 53 species were probable or confirmed breeders, and an additional 12 species were observed infrequently during the breeding season only (Table 3).

In general, the majority of breeding birds observed on the project site were consistent with those inhabiting forested, edge and open habitats in the NYC area. Notable exceptions included Indigo Bunting (a minimum of four nests within the Fairview Park clearing area), Redeyed Vireo (two confirmed nests in woodland areas) and Field Sparrow (three nests within the Fairview Park clearing area).

No federally listed threatened or endangered species or candidate species were noted within the site. Several NYS listed species were observed within the project site, although no breeding activity was noted. For the following species, AKRF observed foraging activity within and/or flights over the project site during breeding, migratory or winter periods: Peregrine Falcon (endangered), Northern Harrier (threatened), Common Tern (threatened), Sharp-shinned Hawk (special concern), Cooper's Hawk (special concern), Black Skimmer (special concern), Common Nighthawk (special concern), Horned Lark (special concern), and Yellow-breasted Chat (special concern).

Ospreys (special concern) were observed in transit over the site on numerous occasions in early and mid summer; a nest was confirmed in May 2008 on a scuttled barge in the Arthur Kill in the Port Mobil vicinity, suggesting that foraging flights may have been occurring to the Raritan during a portion of the breeding season (Bernick and Craig 2008).

#### **MAMMALS**

Twenty (20) mammal species were observed within the project site from October 2007 to December 2008 (Table 4). These included common species for natural areas in NYC (Eastern Gray Squirrel, Eastern Chipmunk, Eastern Cottontail), feral dogs and cats, and uncommon species for the City (White-tailed Deer) and Staten Island (Striped Skunk, two observations).

Two bat species were observed during evening hours in the spring and summer, Little and Big Brown Bats. Red Bats were identified by observation through binoculars on two occasions in fall 2007/2008. Exposed foundations of the 'Fairview' estate may function as subsurface 'cave' habitat used for shelter by bats, although none were observed entering or exiting them during the survey period.

Breeding activity for White-footed Mouse was noted under cover boards placed in woodland and edge habitats, and Short-tailed Shrew and Eastern Mole were noted on one occasion each under cover boards. Track boards confirmed the presence of common species only, and were most frequently visited by Raccoon and feral cats.

The project site was frequently used by White-tailed Deer, for reproduction (two newborn fawn was observed in June 2008), foraging and shelter. High counts for this species included 18 individuals (7 male, 11 female) on a single date in fall 2008; deer were observed during the majority of site visited throughout the entire study period. Additionally, Woodchuck burrows were observed within 22 of 30 sampling plots, and activity for this species is prevalent throughout the project site.

No federal or state-listed mammals were observed within the project site during the natural resources surveys, although available habitat may exist within the project site to support migrating Indiana Bat.

#### **INSECTS**

Approximately 71 species of insects, primarily lepidopterans (butterflies, moths), odonates (dragonflies, damselflies) and dipterans (flies), were observed within the project site from March-November 2008 (Table 5). Insects were predominantly observed during time-restricted searches or during the course of other surveys, although odonate species were also observed during site visits with Ellen Pehek and Susan Stanley of NYCDPR-NRG in July 2008, including the S2 ranked Comet Darner (*Anax longipes*).

None of the state-listed insect species previously noted at or near the project site were observed during AKRF's survey, including the Bar-winged and Yellow-sided Skimmers and the Tawny Emperor Butterfly. Several wetland and old field locations, however, were observed to support odonates during the summer months after periods of sustained rainfall, and meet the habitat requirements of these listed species.

RARE, SPECIAL CONCERN, THREATENED AND ENDANGERED SPECIES

No federally listed fauna was observed during this study.

The following fauna listed as rare, special concern, threatened or endangered in New York State was observed on the project site, as discussed above.

Reptiles: Eastern Box Turtle (special concern)

Birds: Peregrine Falcon (endangered), Northern Harrier (threatened), Common Tern (threatened), Sharp-shinned Hawk (special concern), Cooper's Hawk (special concern), Black Skimmer (special concern), Common Nighthawk (special concern), Horned Lark (special concern), Osprey (special concern) and Yellow-breasted Chat (special concern).

Comet Darner *Anax longipes*. Although presently unlisted in New York State, one individual of this S2-ranked dragonfly species was observed in early July 2008 in the "permanently flooded" palustrine wetland on the southwestern portion of the project site.

#### F. CONCLUSIONS AND RECOMMENDATIONS

In summary, this study revealed the presence of rare, special concern, threatened and endangered flora and fauna species: 11 plant species (including Torrey's Mountain-mint) and 12 wildlife species (including Eastern Box Turtle).

# DISCUSSION OF SENSITIVE AREAS (FLORA AND FAUNA)

Areas of sensitivity for flora and fauna, as illustrated in Figure 15, are as follows:

1. Sensitive flora and wildlife corridor, Englewood Avenue Unpaved Path:

The connectivity between the project site, particularly the segment of ecological communities, flora and fauna observed within the section of Clay Pit Ponds State Park Preserve to the north of the project site were closely aligned with those within the NYCDPR conservation land within the eastern end of the project site. Reptile and amphibian breeding activity was noted within a seasonally flooded red maple swamp adjacent Englewood Avenue; AKRF observed both northward and southward movement of amphibians between the Clay Pit Ponds State Park Preserve property and the project site in June and July 2008. It is likely that reptiles. amphibians, birds and other wildlife species inhabiting the project site travel through the larger forested and wetland corridor connection to the 260 acre Clay Pit Ponds State Park Preserve. A build-out of Englewood Avenue would likely curtail wildlife movement (and reduce the habitat value of the NYCDPR conservation area for ground-dwelling species. In the worst case, significant mortality due to road crossing may occur; wildlife corridors under roadways are one method to avoid such mortality. Further study of reptile and amphibian populations, using a more rigorous field protocol targeted at NY State listed species, is discussed below. Development plans that preserve the relatively unfragmented corridor between Clay Pits and the NYCDPR conservation area, have benefits for wildlife populations, and for preserving the ecosystem services and biodiversity provided by larger contiguous areas of forested cover.

In addition, several state-listed species (Tall Lespedeza, River Birch) are present within the current unbuilt portion of Englewood Avenue.

2. Sensitive plant species, Successional Old Field II:

As noted about, several state-listed *Eupatorium* species are present within this parcel. Any future project should consider the impacts to the conditions of this unusual meadow habitat; areas that are colonized by largely native species are relatively unique for the New York City.

At the very least, the abiotic and biotic conditions that allow this process to occur should be examined. If development is unavoidable in this area, and segments of the existing landscape cannot be retained in-situ, then efforts to retain plant material and seed stock should be implemented. Additionally, it would be useful to retain any topsoil from this site for use in local restoration projects — as past human use of this site has been relatively light (no known industrial uses of the site that would raise concerns over contamination), this would represent an effective and relatively inexpensive source of soil stock.

3. Sensitive plant species, Red Maple-Sweet Gum Swamp Variant

American Strawberry-bush and Virginia Pine are located in these areas; as this is within the conservation area, no development is planned.

4. Sensitive Plant Species, Coastal Oak-Hickory Variant

American Chestnut and Shortleaf Pine area are located in these areas; as this is within the conservation area, no development is planned.

5. Sensitive plant species, Successional Old Field IV:

Hyssop-leaved Boneset, Fringed Boneset, Late-flowering Boneset, one specimen of Serrate Round-leaf Boneset, and Torrey's Mountain-mint (22 stems, many fruiting) were all located during the course of this study. Consideration should be given to future development plans that avoid construction on this berm; discussion with NYCDPR and NYSDEC should be a precursor to any development plans. If avoidance is untenable, it would be worthwhile to consider these sensitive plant populations into the current Torrey's Mountain Mint conservation plan.

6. Sensitive odonate (dragonfly & damselfly) species, possible USACE jurisdictional wetland:

One S2 ranked dragonfly, the Comet Darner, was observed at this site on a single survey date. Two state listed species, Bar-winged Skimmer and Yellow-sided skimmer, are known from either the project site or the study area — this pond exhibits suitable habitat for these species, and further investigation should be conducted. Odonates and other organisms are sensitive to degradation of water quality and associated vegetative cover. Consideration should be given to provide an adequate buffer in accordance with recent discussions in the PlaNYC report 'New York City's Wetlands: Regulatory Gaps and Other Threats (January 2009)' and the 2007 Wetland Transfer Task Force report.

7. Sensitive Plant Species, Successional Old Field III:

Torrey's Mountain-mint (at least 1 fruiting stem) was located within this area. Consideration should be given to future development plans that avoid construction within this area; discussion with NYCDPR and NYSDEC should be a precursor to any development plans. If avoidance is untenable, it would be worthwhile to consider these sensitive plant populations into the current Torrey's Mountain Mint conservation plan.

A detailed discussion of wetlands on the project site is provided in Appendix B "Charleston Wetlands Report." Additional areas for investigation are noted in Figure 12, and discussed above.

# **ADDITIONAL ACTION ITEMS**

The following action items should be considered for investigation as part of the natural resources impacts assessment of any proposed site plan for the project site.

1. Coordination with USACE on wetland delineations performed within the Englewood Avenue corridor. NYCEDC should request a Jurisdictional Determination (JD) Site Inspection from the USACE to confirm the boundaries of those freshwater wetlands delineated and described in this report. Although a wetlands delineation was conducted within the project site during a previous investigation (Bricktown Centre at Charleston) and field determinations were carried out by the USACE and NYSDEC to clarify the regulatory status of some wetlands within the project site, over nine years have passed since some of these delineations were conducted (EEA 2003), and five years since the most recent correspondence with regulatory agencies (Vollmuth and Brush 2004). Additionally, based on the present effort, wetland boundaries for several depressional wetlands within the Englewood Avenue corridor appear to have changed since they were delineated in 2000, possibly due to the land-clearing activities that occurred within the north-central portion of the project site in previous years. It is also possible that the clearing revealed additional wetlands that were not previously visible within the extremely dense understory vegetation that was present at the time of the prior delineation efforts.

In addition to potential structural changes, recent reports on City wetlands (PlaNYC 2009, Wetlands Transfer Task Force 2007) have focused on maintaining the critical ecological functions of freshwater wetlands within the City, and stressed the importance of detailed, lot-level mapping of the City's wetlands and a review of upland buffer setbacks surrounding the City's freshwater wetlands. A U.S. Supreme Court ruling on wetlands regulations (RAPANOS et ux., et al. v. UNITED STATES, 2006) and subsequent agency guidance in interpreting the ruling has further altered the regulatory definition of "isolated" wetlands that appear to predominate within the project site.

As a result of potential physical changes to wetlands within the Englewood Avenue corridor and a changing regulatory context on City, state and federal levels, coordination with the USACE is recommended. This may also require coordination with NYSDEC, if more precise mapping leads to the state taking jurisdiction over freshwater wetlands parcels beyond those appearing on current wetland maps. NYCDPR-NRG has requested involvement in any wetlands issues involved within the project site, and should be included in any wetlands-related activities. As red-parent material soils are prevalent throughout the project site, additional coordination with the NYC Soil and Water Conservation District's NYC Soil Survey would also be advisable. The NYCSWCD's Staten Island office is currently updating the initial soils map of Staten Island, although the project site had not been examined by the end of this field study (December 2008).

2. Coordination with USACE on wetlands delineation within the remainder of the project site. Only wetlands within the Englewood Avenue Corridor were delineated. Additional wetland areas are present throughout the project site; some occur in isolated depressions or qualify as wetlands based solely on soil parameters specific to red parent material. As such, the USACE may not take jurisdiction of these potential wetland areas. Before proceeding on a lengthy delineation of the entire property, complicated by highly variable

- site conditions, we recommend getting primary input from USACE, and additional input from NYSDEC regarding freshwater wetlands within New York City.
- 3. Contact with NYSDEC-NYNHP and other agencies on sensitive species populations within the project site. Previously published species lists and reports on rare, special concern, threatened and endangered species were used as the basis for known or potential species occurrences at or near the project site during this field effory. Once a proposed site plan has been presented and an impacts assessment is being conducted, it is recommended that: 1) NYSDEC be contacted for up-to-date information on listed species occurrences at or in the vicinity of the project site; 2) official sighting forms for sensitive species documented on the project site are submitted to NYNHP; and 3) the proposed construction of Englewood Avenue, which is situated along the southeastern boundary of Clay Pit Ponds State Park Preserve, is discussed with NYSDEC.
- 4. The preservation area for Torrey's Mountain-mint (*Pycnanthemum torrei*) south of Bricktown Centre at Charleston. Between June and Novermber 2008, the Torrey's Mountain-mint preservation area at Veterans Road West and Tyrellan Avenue was visited on several occasions. From beyond the protective fence, AKRF observed numerous (50+) stems of Torrey's Mountain Mint within this site. A substantial amount of invasive species growth (e.g., Japanese honeysuckle) was observed within the fenced area, partially covering some of the Torrey's Mountain-mint stems. While this did not appear to be greatly inhibiting growth, maintenance of the preservation area may be appropriate during subsequent growing seasons.
- 5. Additional reptile and amphibian surveys. In the present study, reptile and amphibian use of the project site was determined through visual observation during time-restricted searches, incidental observations, and cover board observation. These methods had two major advantages (simplicity and cost-effective effort), and 15 reptile and amphibian species were observed within the project site. While no New York State-endangered Eastern Mud Turtles were observed during these efforts, both foraging and hibernating habitat appeared to be present within the project site. If more in-depth sampling is required to determine the potential use of the project site by Eastern Mud Turtles, trapping during seasonal dispersal events may be an effective method to sample for this species and other reptiles and amphibians. AKRF (2008) described two additional methods to sample reptiles and amphibians, including the use of (1) drift fences to direct organisms into modified funnel traps and (2) pitfall traps to temporarily capture organisms. Efforts to determine the presence of snake hibernacula may also be worthwhile, as several black racer hibernacula have been uncovered during land clearing activities at adjacent sites. It is important to note that such efforts would require additional funding for trap materials and staff to install and operate traps, and licenses for scientific research involving trapping of state-endangered species would be required.
- 6. Preserving native genotypes of relatively "old-growth" oak forests, including hybrid oaks. If a development plan moves forward for this site, it would be of great value to establish a plan involving seed collection and rescue of small to moderately sized specimen trees of single or hybrid ancestry (1-10 inches dbh). Since the Charleston are represents one of the last historic, native coastal oak forests on Staten Island, it would be worthwhile to preserve local genotypic diversity through such a plan.

# CHANGES TO THE PROJECT SITE AND STUDY AREA, OCTOBER 2007 TO THE PRESENT

Several events occurred within the project site and study area that occurred between October 2007 and the present, including the following:

- A parcel on the western boundary of the property was being developed as the NYCT Charleston Bus Annex during the course of the survey period; this site was gated and locked, and surveys within this site were not possible. The site was cleared to bare soil by Mar 2008 and the frames of future structures and perimeter sheet piling was installed as of Dec 2008.
- On the southwestern edge of the site, earth moving activities occurred on adjacent private property formerly used as a driving range at some point between 15 November and 29 December 2008; this earth moving activity covered over a small wet depression with some wetland indicator plants (Juncus effusus, Echinochloa muricata) noted during field surveys on 16 Sep 2008.
- The Arthur Kill shoreline in the vicinity of the project site includes pilings, debris and historic remnants of the former Kreischer Brick Works, areas of *Spartina alterniflora*, and transitional mud and sand banks extending to mudflats along the Arthur Kill. A permit for a stormwater outfall discharging at Allentown Lane for the NYCT Charleston Bus Annex has been recently submitted to NYSDEC.
- At the northern edge of the project site, AKRF field staff noted in late summer 2008 that trees along the southern edge of the paved portion of Englewood Avenue were marked with orange spray paint, and survey flagging and orange spray paint were noted within the Englewood Avenue corridor at the southwest boundary of the adjacent Clay Pits Pond State Park Preserve. AKRF did not learn the purpose of these survey markings, although no tree clearing or construction occurred in these areas as of the final survey date of 29 Dec 2008.
- Between January and May 2009, a fire burned several acres of Fragmented Coastal Oak Variant Forest the southwestern portion of the project site, east of the NYCT Charleston Bus Annex site.

# **G. LITERATURE CITED**

AKRF, Inc. 2000. Charleston Retail Project Site: Phase I Environmental Site Assessment Report. Appendix B: Historical Sanborn Maps and Historical Aerial Photographs. Prepared for the Blumenfeld Development Group, Ltd. February 2000.

AKRF, Inc. 2003. Charleston Site Vegetation Sampling. Submitted to NYCEDC and NYCDEP. March 2003. 56pp.

AKRF, Inc. 2007. Scope of Work for Natural Resource Surveys, Charleston, Staten Island. Presented to NYCEDC on 16 October 2007.

AKRF, Inc. 2008. Methodology for Natural Resources Surveys, Charleston, Staten Island. Presented to NYCEDC on 15 February 2008.

Anzelone, M. 2004. Memo from Marielle Anzelone, NYC Department of Parks and Recreation to Judy Barr, New York City Economic Development Corporation, regarding Torrey's Mountain Mint at Kreischer Hill, Staten Island, NY. March 5, 2004. 2pp.

Control Point Associates, Inc. 2008. Wetlands Delineation Sketch, Charleston Development Project, Englewood Avenue Corridor. October 29, 2008.

EEA, Inc. 2001. Bricktown Retail Centre herpetological survey for Eastern Mud Turtle (Kinosternon subrubrum) and other incidental species. August 2001. 25 pp.

Evans, D.J., P. Novak and T. Weldy. 2002. Rare species and ecological communities of Clay Pit Ponds State Park. Prepared for NYS Office of Parks, Recreation and Historic Preservation. New York Natural Heritage Program. March 29, 2002. 50pp.

Greller, A. 2004. Letter from Dr. Andrew M. Greller, Torrey Botanical Society to Michael Bloomberg, Mayor of The City of New York, regarding Torrey's Mountain Mint at Kreischer Hill, Staten Island, NY. February 13, 2004. 2pp.

Harrington, D. and L. Schwanof. 2004. Memo from Denise Harrington and Laura Schwanof, EEA to John Neill and Ed Applebome, AKRF, Inc. regarding fruiting American chestnut identified on the Bricktown at Charleston Project Site, Staten Island, NY. August 9, 2004. 6pp.

Lyons, T. 2002. Letter from Thomas B. Lyons, NYS Office of Parks, Recreation and Historic Preservation to Jennifer Wallin, AKRF, Inc. regarding inventory information on Clay Pit Ponds State Park Preserve, Staten Island, NY. October 24, 2002. 70pp.

New York City Department of Parks and Recreation – Natural Resources Group. 2004. Draft plan for the preservation and propagation of Torrey's Mountainmint (*Pycnanthemum torrei*) and other associated species found on Kreischer Hill, Staten Island. NY. June 18, 2004. 6pp.

New York City Department of Parks and Recreation. 2005. Fairview Park: Modified Environmental Impact Statement. CEQR No. 04DPR005R. February 2005.

New York City Transit. 2007. Charleston Bus Annex Environmental Assessment.

New York State Department of Environmental Conservation. 2005. Environmental Notice Bulletin regarding Negative Declaration on Fairview Park, Staten Island, NY. Accessed January 18, 2008 from <a href="http://www.dec.ny.gov/enb2005/20050309/not2.html">http://www.dec.ny.gov/enb2005/20050309/not2.html</a>

Office of the Deputy Mayor for Economic Development and Rebuilding. 2002. Bricktown Centre at Charleston, Final Environmental Impact Statement. CEQR No. 96-DME001R. May 16, 2002.

Office of the Deputy Mayor for Economic Development and Rebuilding. 2004. Bricktown Centre at Charleston. Environmental Assessment Statement, Part I. Regarding site plan modification to previously approved project (CEQR No. 96DME001R). Prepared by AKRF, Inc. June 25, 2004. 21pp.

PlaNYC. 2009. New York City wetlands: Regulatory gaps and other threats. City of New York, NY. January 2009. 44pp. Accessed on May 12, 2009 at <a href="http://www.nyc.gov/html/om/pdf/2009/pr050-09.pdf">http://www.nyc.gov/html/om/pdf/2009/pr050-09.pdf</a>

Schneider, G. 1977. A cool and pleasant retreat but a hungry soil: The Clay Pit Pond Area, Staten Island, NY. Staten Island Institute of Arts and Sciences. 36pp.

Trust for Public Land. 1986. Clay Pit Ponds State Park Preserve management plan: Final Environmental Impact Statement. The Office of Parks, Recreation & Historic Preservation, State of New York. 128 pp.

Rampulla Associates Architects. 2005. The Tides at Charleston: Technical Memorandum II. CEQR No. 95DCP058R. September 22, 2005. 18pp.

Rossi, M. and P. Gentile and the Preservation League of Staten Island. Undated. Kreischerville: A walk into the past. A walking tour of Kreischerville/Charleston, Staten Island, New York. Clay Pit Ponds State Park Preserve, NYS Office of Parks, Recreation and Historic Preservation. 11pp.

United States Army Corps of Engineers (USACE) - Environmental Laboratory (1987). Corps of Engineers wetlands delineation manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. NTIS No. AD A176 912.

Young, S. (Ed.). 2008. New York Natural Heritage Program Rare Plant Status Lists, June 2008. New York Natural Heritage Program, Albany, NY. 129pp.



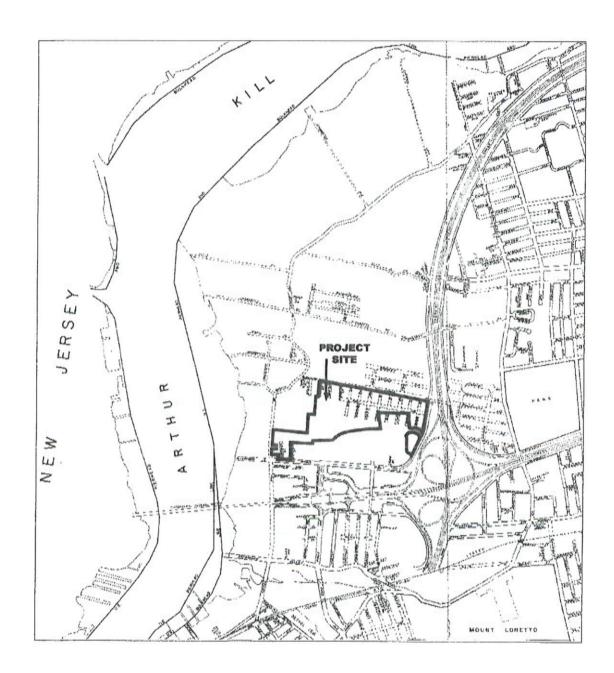


Figure 1: Project site boundary for Charleston Natural Resources Survey and surrounding area, Charleston, Staten Island, NY (Richmond County.) Source: NYC Economic Development Corporation.

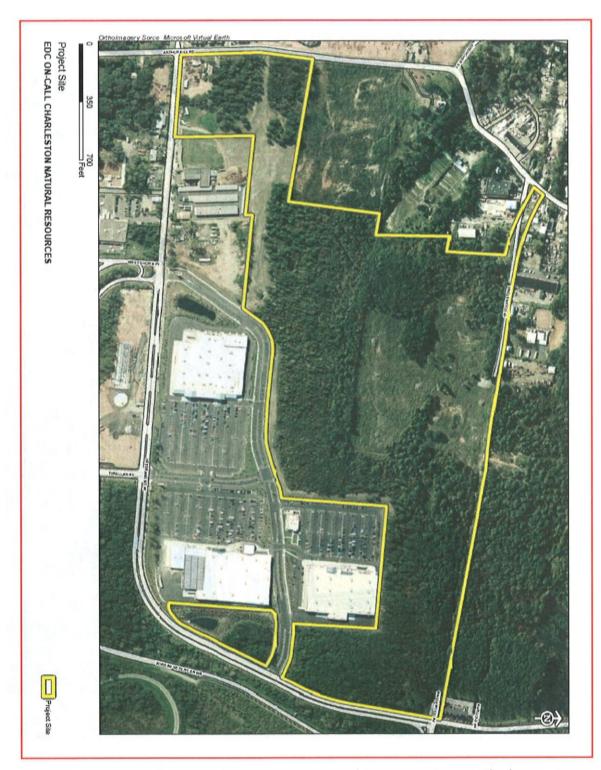


Figure 2: Project site boundary for Charleston Natural Resources Survey, Charleston, Staten Island, NY (Richmond County.)

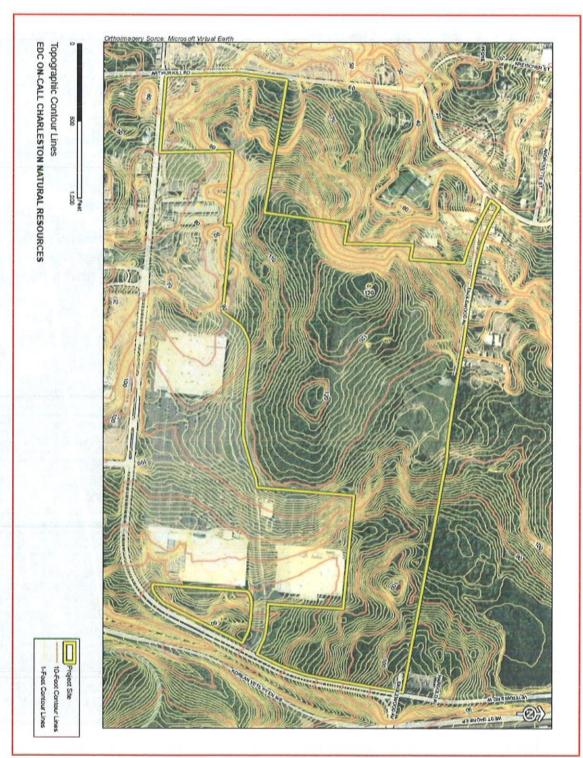


Figure 3: Project site topography.

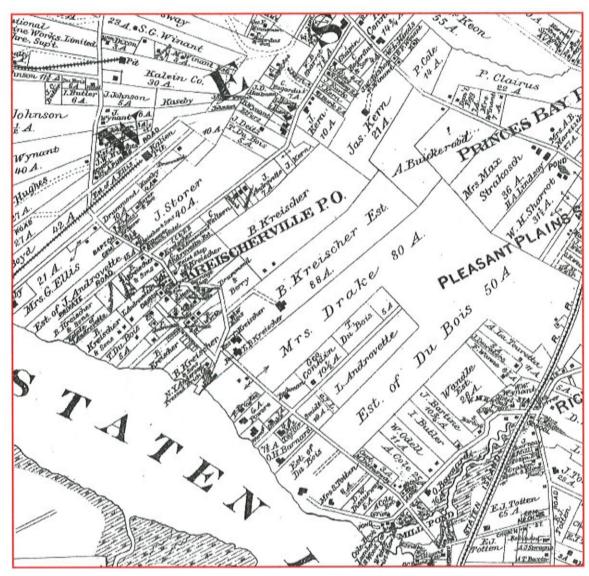


Figure 4: Beers Atlas of Staten Island, Richmond County, New York (1887); detail featuring the Charleston (Kreischerville) area of Staten Island.

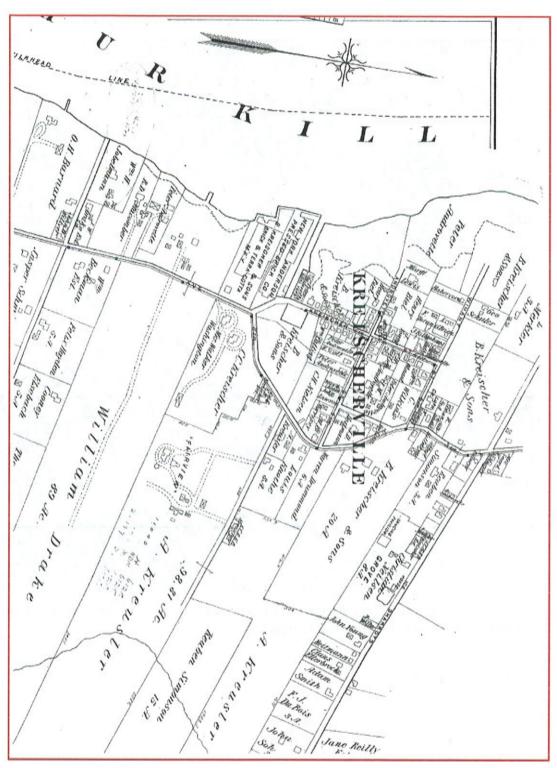


Figure 5: Robinson's Atlas of the City of New York (1898); detail featuring the Charleston (Kreischerville) area of Staten Island. Note the location of the "Fairview" Estate, the foundation of which is still visible within the western portion of the project site.

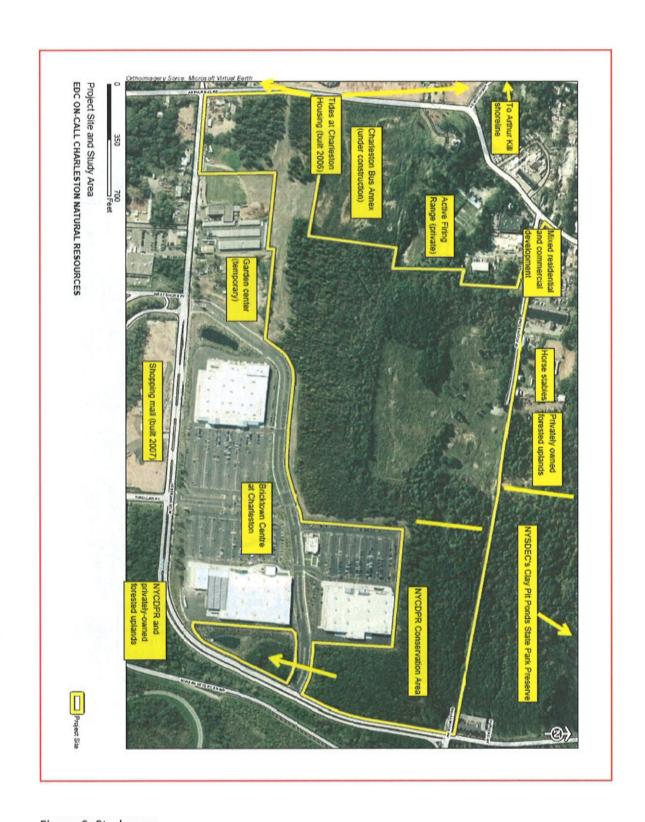


Figure 6: Study area.

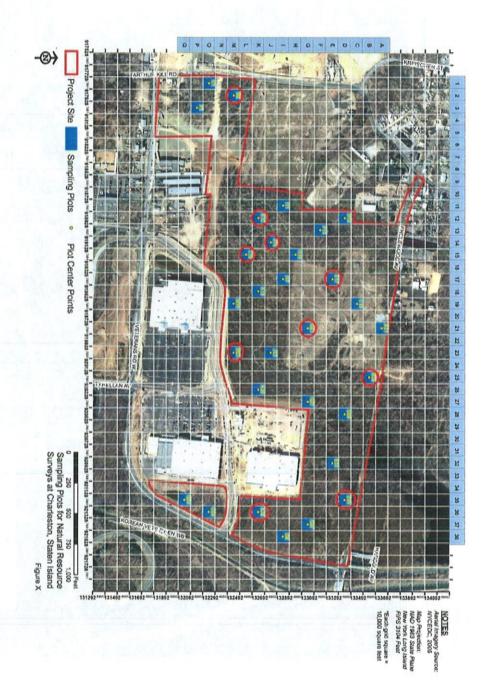


Figure 7: Project site sampling plots (N=30). Circled plots denote those in which cover boards and track boards were placed for fauna surveys.

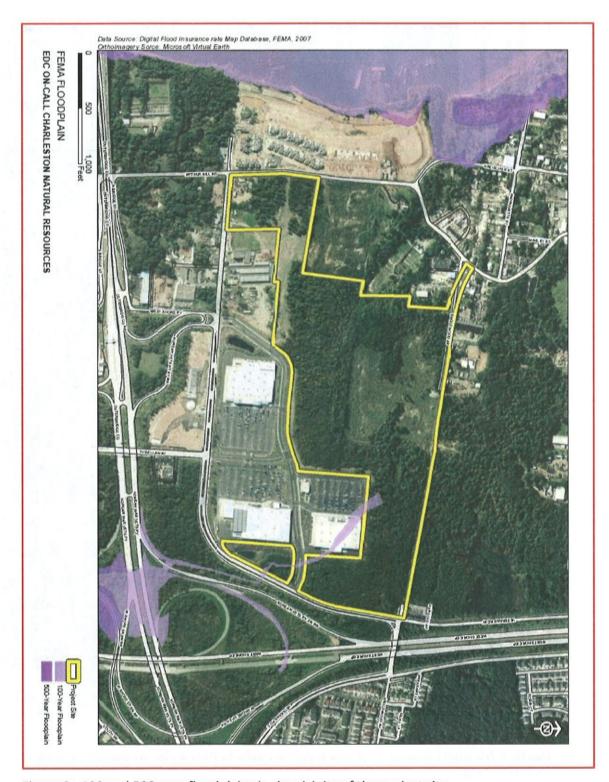


Figure 8: 100 and 500 year floodplains in the vicinity of the project site.

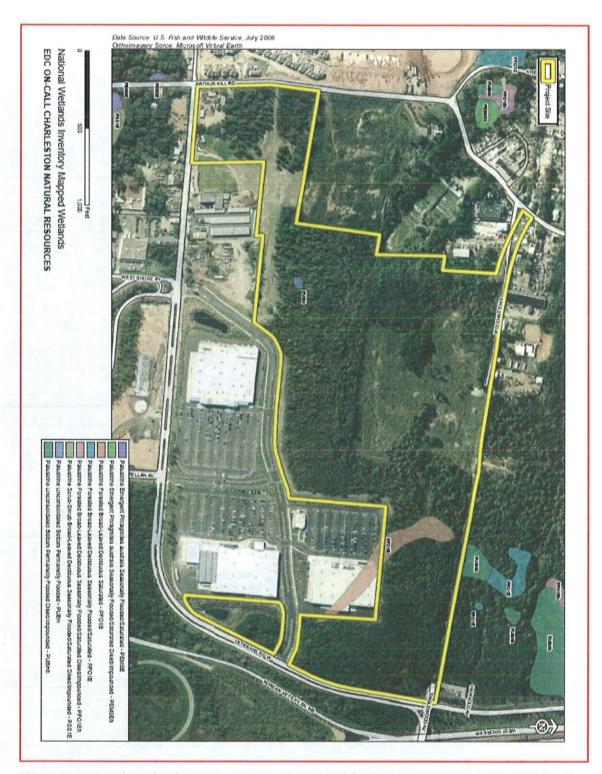


Figure 9: National Wetland Inventory mapped tidal and freshwater wetlands in the vicinity of the project site.

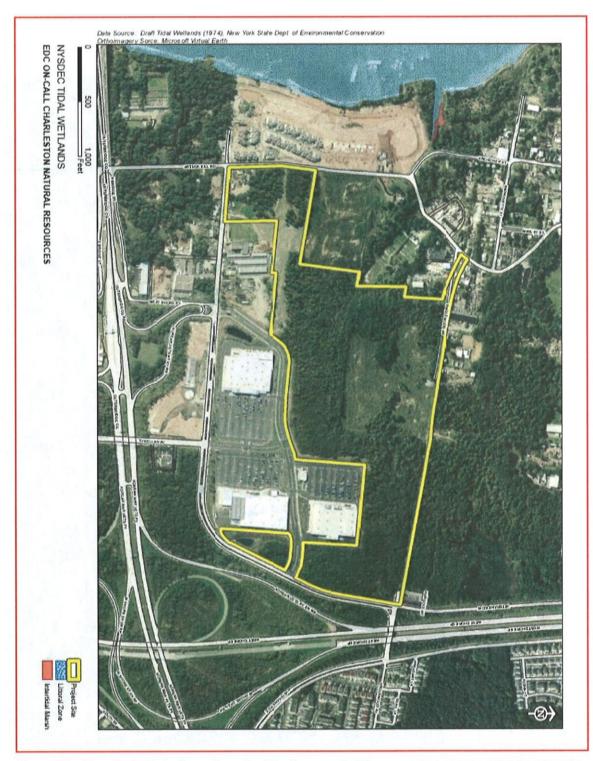


Figure 10: New York State Department of Environmental Conservation mapped tidal wetlands in the vicinity of the project site.

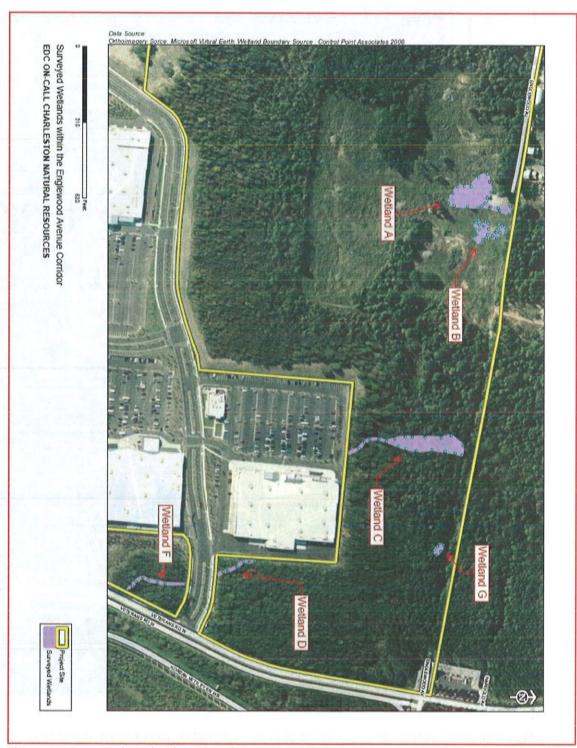


Figure 11: Surveyed wetlands within the Englewood Avenue corridor of the project site. Based on AKRF wetlands delineation survey data and Control Point Associates, Inc. mapping data (10/29/2008).

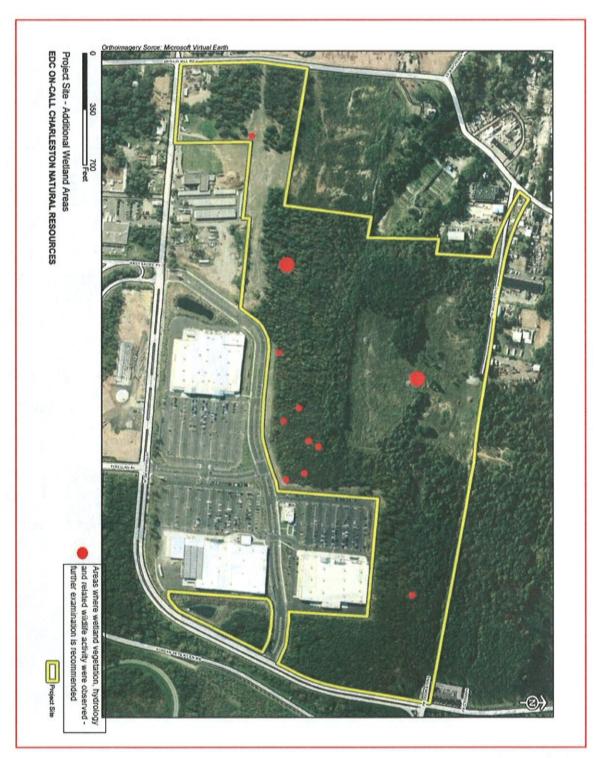


Figure 12: Additional wetlands within the project site. This includes one previously identified jurisdictional wetland and several other locations where evidence of wetland hydrology, vegetation and wildlife activity were present during this study.

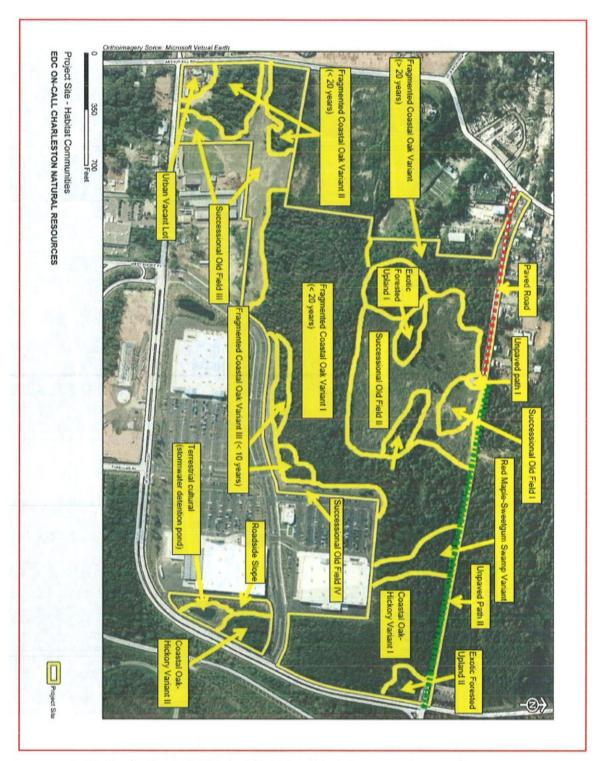


Figure 13: Habitat communities within the project site.

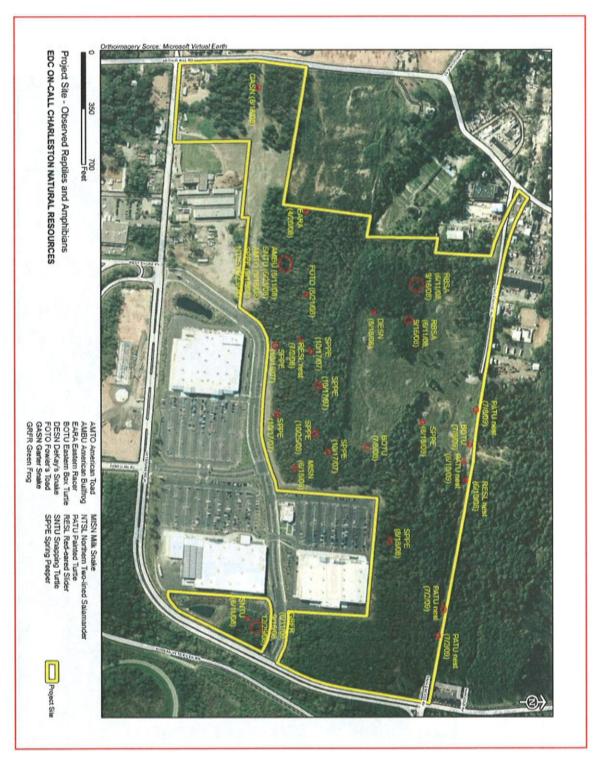


Figure 14: Reptile and amphibian observations located during time-restricted searches and incidental observations at the project site, October 2007 to December 2008.

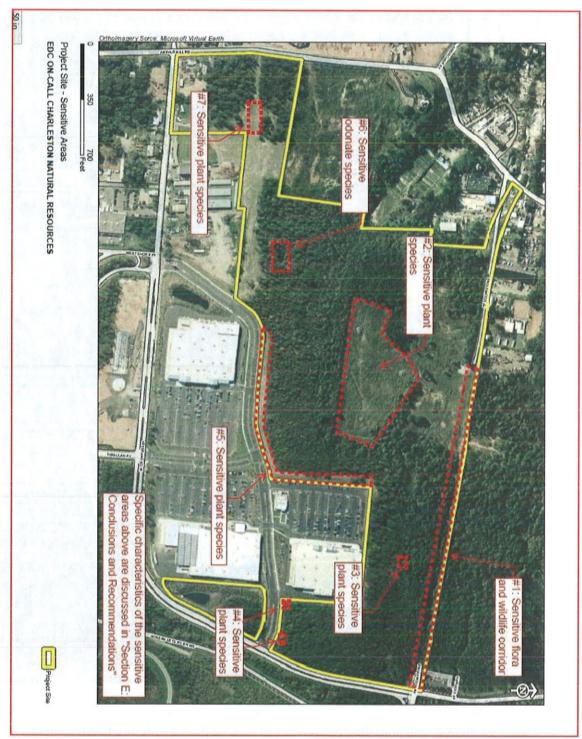


Figure 15: Sensitive areas within the project site. See Section 5 "Conclusions and Recommendations" for further discussion.

**TABLES** 

# Table 1 Plants observed within the project site

Plants observed within the pro-								
Form	Scientific Name	Common Name	Rank	Outside Plots Only	Early Spring Only	Early Summer Only	Early Fall Only	
Fern	Dennstaedtia punctilobula	Hay-scented Fern						
Fern	Onoclea sensibilis	Sensitive Fern		×				
Fern	Osmunda cinnamomea****	Cinnamon Fern	Protected					
Fern	Pteridium aquilinum	Bracken Fern						
	Thelypteris							
Fern	noveboracensis****	New York Fern	Protected	kan karawa maji mmaya na l				
Graminoid	Agrostis capillaris	Colonial Bentgrass		×				
Graminoid	Agrostis gigantea	Redtop						
Graminoid	Agrostis perennans	Upland Bentgrass		×				
Graminoid	Agrostis stolonifera	Creeping Bentgrass						
Graminoid	Aristida oligantha	Prairie Threeawn		×				
Graminoid	Aristida purpurea	Purple Three-awn		×				
Graminoid	Carex annectens	Yellowfruit Sedge		x				
Graminoid	Carex scoparia	Broom Sedge						
Graminoid	Carex stricta	Tussock Sedge						
Graminoid	Carex vulpinoidea	Fox Sedge	termore or temory or	A STANDARD CONTRA	ting messessing	x		
Graminoid	Cynodon dactylon	Bermuda Grass	ASSESSMENT OF THE PROPERTY OF		Angeliana lee an inc	log topperately or the	X	
Graminoid	Cyperus esculentus	Nut Sedge		×				
Graminoid	Cyperus iria	Ricefield Flatsedge		×			ectorial recover	
Graminoid	Cyprus strigosis	Umbrella Sedge						
Graminoid	Dactylis glomerata	Orchardgrass						
Graminoid	Dichanthelium acuminatum	Tapered Rosette Grass						
Graminoid	Dichanthelium clandestinum	Deertongue		×				
Graminoid	Digitaria sanguinalis	Hairy Crabgrass					Х	
Graminoid	Echinochloa crus-galli	Barnyard Grass		×				
Graminoid	Echinochloa walteri	Coast Cockspur Grass		×				
Graminoid	Eleocharis acicularis	Needle Spike-rush						
Graminoid	Eleocharis obtusa	Blunt Spike-rush	100 100 100 100	×		harmengalency a messek		
Graminoid	Eleocharis spp.	Spike-rush spp.			negoti son sanyes			
Graminoid	Festuca rubra	Red Fescue			1	The same was the same		
Graminoid	Festuca spp.	Fescue spp.						
Graminoid	Juncus bufonius	Toad Rush						
Graminoid	Juncus canadensis	Canadian Rush						
Graminoid	Juncus effusus	Soft Rush						
Graminoid	Juncus tenuis	Path rush						
Graminoid	Leersia virginica	White Grass	12 A 16 340 mm 70	×				
Graminoid	Microstegium vimineum	Japanese Stiltgrass		×				
Graminoid	Panicum clandestinum	Deer Tongue Grass						
Graminoid	Panicum spp.	Switchgrass			1944,000,000,000	l-in pougare magnetore		
Graminoid	Panicum virgatum	Switchgrass			escare recessoria			
Graminoid	Phalaris arundinacea	Reed Canarygrass		×				
Graminoid	Phleum pratense	Timothy						
Graminoid	Phragmites australis	Tall Reed		×	10.000			
Graminoid	Poa pratensis	Kentucky Bluegrass					х	
Graminoid	Schizachyrium scoparium	Little Bluestem					Х	
Graminoid	Scirpus atrovirens	Green Bulrush						
Graminoid	Scirpus cyperinus	Wool Grass						
Graminoid	Scirpus microcarpus	Panicled Bulrush		×				
Graminoid	Setaria viridis	Green Foxtail				×		
Graminoid	Typha latifolia	Broadleaf Cattail		×				

11	A	Mhite Cookerest					
Herb/Forb	Ageratina altissima	White Snakeroot			-		, , , , , , , , , , , , , , , , , , ,
Herb/Forb	Aginalis purpurea	Purple False Foxglove					X
Herb/Forb	Alliaria petiolata	Garlic Mustard					
Herb/Forb	Allium ascalonicum	Wild Onion			X		
Herb/Forb	Allium vineale	Wild Garlic			-		-
Herb/Forb	Ambrosia artemisifolia	Ragweed			-		-
Herb/Forb	Anaphalis margaritacea	Pearly Everlasting	the state of the s				-
Herb/Forb	Apocynum cannabinum	Indian Hemp				100	
Herb/Forb	Aralia hispida	Bristly Sarsaparilla				х	
Herb/Forb	Aralia racemosa	American Spikenard					X
Herb/Forb	Artemisia absinthium	Wormwood					
Herb/Forb	Artemisia vulgaris	Mugwort			-		
Herb/Forb	Asclepias syriaca	Common Milkweed					
Herb/Forb	Bidens frondosa	Beggars Ticks			-		
Herb/Forb	Chamaecrista fasciculata	Partridge Pea					
Herb/Forb	Chenopodium album	Lamb's Quarters					
Herb/Forb	Chimaphila maculata	Striped Wintergreen					
Herb/Forb	Cichorium intybus	Chicory					
Herb/Forb	Claytonia virginica	Spring Beauty		×	×		
Herb/Forb	Daucus carota	Queen Anne Lace				the state of the same	
Herb/Forb	Desmodium paniculatum	Panicle-leaved Tick-Trefoil					X
Herb/Forb	Dianthus armeria	Deptford Pink					
Herb/Forb	Erechtites hieracifolia	Pilewort					X
Herb/Forb	Erigeron annuus	Daisy Fleabane					
Herb/Forb	Erythronium americanum	Trout Lily		X			
Herb/Forb	Eupatoriadelphus maculatus	Joe Pye Weed		×			
Herb/Forb	Eupatorium album	White Boneset					
	Eupatorium hyssopifolium						
Herb/Forb	var. hyssopifolium	Hyssop-leaved Boneset					
	Eupatorium hyssopifolium						1
Herb/Forb	var. laciniatum**	Fringed Boneset	G5T4T5/S2				
Herb/Forb	Eupatorium perfoliatum	Common Boneset		×			
Herb/Forb	Eupatorium pilosum	Rough Boneset					
	Eupatorium rotundifolium	Serrate Round-leaf	93300000 2000				
Herb/Forb	var. ovatum*	Boneset	G5T5/S1	×			
	Eupatorium rotundifolium			579			
Herb/Forb	var. rotundifolium*	Round-leaf Boneset	G5T5/SH	×			
Herb/Forb	Eupatorium serotinum*	Late-flowering Boneset	G5/S2S3				
Herb/Forb	Eupatorium sessifolium	Upland Boneset					
Herb/Forb	Euthamia caroliniana	Slenderleaved Goldenrod					
Herb/Forb	Euthamia galetorum	Slender Goldentop		X			
Herb/Forb	Euthamia graminifolia	Lance-leaved Goldenrod					
Herb/Forb	Fragaria vesca	Woodland Strawberry				×	
Herb/Forb	Fragaria virginiana	Virginia Strawberry					
Herb/Forb	Gnaphalium obtusifolium	Sweet Everlasting					
Herb/Forb	Hieracium aurantiacum	Orange Hawkweed		×			
Herb/Forb	Hypericum gentianoides	Orangegrass			100000000000000000000000000000000000000		
Herb/Forb	Lespedeza capitata	Round-headed Bush Clover					
Herb/Forb	Lespedeza stuevei**	Tall Lespedeza	G4?/S2	×			х
Herb/Forb	Linaria canadensis	Blue Toadflax					
Herb/Forb	Lotus corniculatus	Bird's-foot Trefoil					XI FILL OF THE STATE OF THE STA
Herb/Forb	Lysimachia quadrifolia	Whorled Loosestrife				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	× 1000000000000000000000000000000000000
	Maianthemum canadense	Canada Mayflower		×	se a construction of the con-		
Herb/Forb	Tridiantinentalii canaaciise	Contrador Trial House					
Herb/Forb	Maianthemum racemosum	False Solomon's Seal				4 100 100 100 100 100 100 100 100 100 10	

Harb/Earb	Oppothana hisaasia	Common Francis - Driver					
Herb/Forb	Oenothera biennis	Common Evening Primrose		×			
Herb/Forb	Phytolacca americana	American Pokeweed					
Herb/Forb	Pilea pumila	Clearweed					
Herb/Forb	Plantago aristata	Large-bracted Plantain					
Herb/Forb	Plantago lanceolata	English Plantain					
Herb/Forb	Polygonum cespitosum	Oriental Lady's Thumb					X
Herb/Forb	Polygonum cuspidatum	Japanese Knotweed					
Herb/Forb	Polygonum pennsylvanicum	Pink Knotweed		10 100 EV			
Herb/Forb	Polygonum perisicaria	Lady's Thumb	1/11/1		11111	1 (1)	
Herb/Forb	Potentilla canadensis	Dwarf Cinquefoil	CHANGE OF THE	×	1000		
Herb/Forb	Potentilla intermedia	Downy Cinquefoil					
Herb/Forb	Potentilla recta	Sulphur Cinquefoil					
Herb/Forb	Potentilla simplex	Common Cinquefoil			1		
Herb/Forb	Pycnanthemum torrei*	Torrey's Mountain-mint	G2/S1				
Herb/Forb	Pyrola rotundifolia	Roundleaf Pyrola					
Herb/Forb	Rhexia virginica	Handsome Harry		×	×		
Herb/Forb	Rumex crispus	Curled Dock			V-1/2		
Herb/Forb	Rumex obtusifolius	Bitter Dock					
Herb/Forb	Setaria verticillata	Bristly Foxtail					×
Herb/Forb	Sinapis arvensis	Charlock Mustard					
Herb/Forb	Sisyrinchium atlanticum	Eastern Blue-eyed Grass				×	
Herb/Forb	Solanum dulcamara	Bitter Nightshade					
Herb/Forb	Solidago canadensis	Canada Goldenrod	100-1100-1100-100-100		100		×
Herb/Forb	Solidago erecta	Showy Goldenrod					×
Herb/Forb	Solidago hispida	Hairy Goldenrod					×
Herb/Forb	Solidago juncea	Early Goldenrod		×			
Herb/Forb	Solidago nemoralis	Gray Goldenrod			2-90		×
Herb/Forb	Solidago odora	Anise-scented Goldenrod		e de la composición del composición de la composición de la composición de la composición del composición de la composic	and the same		×
Herb/Forb	Solidago puberula	Downy Goldenrod			Ya.		×
Herb/Forb	Solidago rugosa	Wrinkleleaf Goldenrod		111111111	D. 0.1		×
Herb/Forb	Solidago spp.	Goldenrod spp.					
Herb/Forb	Sonchus oleraceus	Common Sow Thistle					
Herb/Forb	Symphyotrichum laeve	Smooth Aster					
	Symphyotrichum novae-						
Herb/Forb	angliae	New England Aster		×			
Herb/Forb	Symphyotrichum pilosum	White Heath Aster					×
8	Symphyotrichum						
Herb/Forb	prenanthoides	Crookedstem Aster		×			
	00 WB 77 B X	Smooth white oldfield					
Herb/Forb	Symphyotrichum racemosum	aster		x		11.11	
Herb/Forb	Taraxacum officinale	Common Dandelion					
Herb/Forb	Trifolium arvense	Rabbit-foot Clover					
Herb/Forb	Trifolium campestre	Field Clover		×			
Herb/Forb	Trifolium hybridum	Alsike Clover		100		7	
Herb/Forb	Trifolium pratense	Red Clover			The first sales to		
Herb/Forb	Trifolium repens	White Clover			and the second	A Charles of the Control	
Herb/Forb	Uvularia perfoliata	Perfoliate Bellwort				×	1 2-5 KW 1 1 2 2 1 2 7 KW
Herb/Forb	Veronica peregrina	Hairy Purslane Speedwell				×	
Herb/Forb	Vicia cracca	Cow Vetch			Low	The state of the s	
Saprophyte	Epifagus virginiana	Beechdrops		x			
Saprophyte	Monotropa uniflora	Indian Pipes					
Shrub	Aralia spinosa	Devil's Walkingstick					
Shrub	Baccharis halimifolia	Groundsel Bush					
Shrub	Berberis thunbergii	Japanese Barberry					

Shrub	Cephalanthus occidentalis	Common Buttonbush		х	T		
Shrub	Deutzia scabra	Fuzzy Pride-of-Rochester				_	
Shrub	Elaeagnus umbellata	Autumn Olive					
Shrub	Euonymus americana*	American Strawberry-bush	G5/S1				
Shrub	Fagus grandifolia	American Beech	G5/31				
Shrub	The state of the s	Forsythia					
	Forsythia spp.  Ilex verticillata						
Shrub		Common Winterberry			-		
Shrub	Lonicera tatarica	Tartarian Honeysuckle		X			
Shrub	Philadephus spp.	Mock Orange		Х			
Shrub	Rhus glabra	Smooth Sumac					
Shrub	Rosa multiflora	Multiflora Rose					
Shrub	Rosa palustris	Pasture Rose				-	
Shrub	Rubus allegheniensis	Blackberry					
Shrub	Rubus flagellaris	Northern Dewberry		X			
Shrub	Rubus hispidus	Bristly Dewberry					
Shrub	Rubus occidentalis	Black Raspberry					
Shrub	Rubus pensilvanicus	Pennsylvania Blackberry		X			
Shrub	Sambucus nigra	Elderberry		х			
Shrub	Vaccinium angustifolium	Late Low Blueberry					
		Common Highbush		- 7			
Shrub	Vaccinium corymbosum	Blueberry				_	
Shrub	Vaccinium fuscatum	Black Highbush Blueberry					
Shrub	Vaccinium pallidum	Early Lowbush Blueberry					
Shrub	Viburnum acerifolium	Maple-leaved Viburnum					
Shrub	Viburnum alnifolium	Hobble Bush					
Shrub	Viburnum dentatum	Southern Arrowwood					
Tree	Acer rubrum	Red Maple					
Tree	Acer saccharinum	Silver maple					×
Tree	Ailanthus altissima	Tree-of-Heaven					
Tree	Albizia julibrissin	Silktree					
Tree	Amelanchier arborea	Downy Juneberry					
Tree	Amelanchier laevis	Smooth Juneberry					
Tree	Amelanchier spp.	Juneberry spp.					
Tree	Betula nigra	River Birch	G5/S3	х			
Tree	Betula populifolia	Gray Birch					
Tree	Carya cordiformis	Bitternut Hickory					×
Tree	Carya spp.	Hickory spp.					
Tree	Carya tomentosa	Mockernut Hickory					
Tree	Castanea dentata	American Chestnut					
Tree	Celtis occidentalis	Common Hackberry					
Tree	llex opaca***	American Holly					
Tree	Juniperus virginiana	Eastern Red Cedar					
Tree	Liquidambar styraciflua	Sweetgum					pe 12 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2
Tree	Morus spp.	Mulberry spp.			0 10-1-2007		×
Tree	Nyssa sylvatica	Black Gum					
Tree	Paulownia tomentosa	Royal Paulownia					
Tree	Photinia pyrifolia	Red Chokeberry					
Tree	Picea glauca	Norway Spruce		х			
Tree	Pinus echinata	Shortleaf Pine	G5/S1	×			
Tree	Pinus rigida	Pitch Pine					
Tree	Pinus strobus	White Pine					
Tree	Pinus sylvestris	Scots Pine					
Tree	Pinus thunbergii	Japanese Black Pine					
Tree	Pinus virginiana	Virginia Pine		×			
Tree	Platanus occidentalis	American Sycamore		×			
				4			

Tree	Populus deltoides	Eastern Cottonwood			
Tree	Populus grandidentata	Big-toothed Aspen			
Tree	Populus tremuloides	Quaking Aspen			
Tree	Prunus serotina	Black Cherry			
Tree	Pyrus calleryana	Callery Pear			
Tree	Quercus alba	White Oak			
Tree	Quercus bicolor	Swamp White Oak			
Tree	Quercus coccinea	Scarlet Oak	х		
Tree	Quercus imbricaria	Shingle Oak			
Tree	Quercus marilandica	Black-jack Oak		17.7	
Tree	Quercus nigra	Black Oak			
Tree	Quercus palustris	Pin Oak			1000-1000-100
Tree	Quercus phellos x marilandica (rudkinii)	Rudkin's Oak			x
Tree	Quercus prinus	Chestnut oak		r man l	direct L
Tree	Quercus rubra	Red Oak			
Tree	Quercus velutina	Black Oak			The state of the s
Tree	Rhus copallina	Winged Sumac		1 1 1	
Tree	Robinia psuedo-acacia	Black Locust			
Tree	Salix bebbiana	Bebb Willow	×		
Tree	Sassafras albidum	Sassafras			
Tree	Tilia americana	American Basswood		1	
Tree	Ulmus americana	American Elm			
Vine	Campsis radicans	Trumpet Creeper			
Vine	Celastrus orbiculatus	Asiatic Bittersweet			
Vine	Lonicera japonica	Japanese Honeysuckle			and the later of t
Vine	Parthenocissus quinquefolia	Virginia Creeper			
Vine	Rhus radicans	Poison Ivy			
Vine	Rubus flagellaris	Prickly Dewberry			
Vine	Smilax glauca	Catbrier			
Vine	Smilax rotundifolia	Common Greebrier			
Vine	Vitis labrusca	Fox Grape			
Vine	Wisteria sinensis	Chinese Wisteria			

Notes: Native plants are protected under Section 9-1503 of the Environmental Conservation Law, which states that it is a violation for any person, anywhere in the state, to pick, pluck, sever, remove, damage by the application of herbicides or defoliants, or carry away, without the consent of the owner, any protected plant. Each protected plant so picked, plucked, severed, removed, damaged or carried away shall constitute a separate violation (Young 2008).

Protected status in NYS: \* = Endangered; \*\*=Threatened; \*\*\*= Exploitably Vulnerable; \*\*\*\*=Native Ferns.

For ranks, see S. Young's New York Rare Plant Status Lists (June 2008).

Sources: Young (2008)

Adults on	Breeding confirmed	
	*	Salamanders
	×	Eastern Red-backed Salamander Plethodon cinereus
×		Northern Two-lined Salamander Eurycea bislineata
	successive and the state of the	Toads and Frogs
	. x	Eastern American Toad Bufo americanus
	×	Fowler's Toad Bufo woodhousii
	×	Spring Peeper Pseudacris crucifer
35 St. 10	×	American Bullfrog Rana catesbeiana
	×	Northern Green Frog Rana clamitans
		Turtles
	×	Snapping Turtle Chelydra serpentina
×		Eastern Box Turtle Terrapene carolina
	x	Red-eared Slider Trachemys scripta
046-025600 100-0	×	Painted Turtle Chrysemys picta
		Snakes
×		DeKay's Brownsnake Storeria dekayi
	×	Eastern Gartersnake Thamnophis sirtalis
×		Eastern Racer Coluber constrictor
×		Milksnake Lampropeltis triangulum

	Breeding	Flyover	within the   Migratory	Winteri
Order ANSERIFOI		riyovei	wingratory	vviiiteii
Family Anatidae — Swans, G			The Market Control of the Control of	
Snow Goose Chen caerulescens	deese, and backs	X	х	×
Atlantic Brant Branta bernicla		X	×	×
Canada Goose B. canadensis *	×	-	×	×
Mute Swan Cygnus olor (I)		×	- '	
Tundra Swan C. columbianus		X	х	
Wood Duck Aix sponsa		13.76		×
Gadwall Anas strepera		х		
American Black Duck A. rubripes		х		
Mallard A. platyrhynchos *	x	11/4 12		
Green-winged Teal A. crecca	10 10 11		х	×
Hooded Merganser Lophodytes cucullatus			х	
Order GALLIFOR	MES	77.11		
Family Phasianidae — Partridges	, Grouse, and Turke	ys		
Ring-necked Pheasant Phasianus colchicus (I) *	×			
Wild Turkey Meleagris gallopavo (I?)*	х			
Order GAVIIFOR	MES			
Family Gaviidae -	- Loons			
Red-throated Loon <i>Gavia stellata</i>		х	x	52220 50
Order PELECANIFO	and the second s	11/11/11/11		11 ( )
Family Phalacrocoracidae	— Cormorants			
Double-crested Cormorant Phalacrocorax auritus		X	×	
Great Cormorant P. carbo		X		X
Order CICONIIFO	The same of the sa			
Family Ardeidae — Bitterns,	Herons, and Allies			
Great Blue Heron Ardea herodias				X
Great Egret A. alba				
Snowy Egret Egretta thula				
Green Heron Butorides virescens *	×	-		
Black-crowned Night-Heron Nycticorax nycticorax Family Threskiornithidae — Ib	ices and Encephills			
Glossy Ibis Plegadis falcinellus	ises and spoonbilis			
Order FALCONIFO	DNAEC			
Family Cathartidae — Am				
Black Vulture Coragyps atratus	crican values	l x	<u> </u>	
Turkey Vulture Cathartes aura		×		
Family Accipitridae —Eagles,	Hawks and Allies			
Osprey Pandion haliaetus	THE VICE WITH THE S	X		
Northern Harrier Circus cyaneus				×
Sharp-shinned Hawk Accipiter striatus			×	×
Cooper's Hawk A. cooperii				
Broad-winged Hawk Buteo platypterus		×	×	
Red-tailed Hawk B. jamaicensis				
Family Falconidae — Caraca	aras and Falcons			
American Kestrel Falco sparverius			×	
Merlin F. columbarius			×	
Peregrine Falcon F. peregrinus		x		×
Order GRUIFORI	MES			
Family Rallidae — Rails, Gall	inules, and Coots			
Tarring Harriage Harry Carr				

American Coot Fulica americana				х
Order CHARADRII	FORMES			
Family Charadriidae	e — Plovers			
Killdeer Charadrius vociferus *	X			
Family Scolopacidae — Sar	ndpipers and Allies			
Spotted Sandpiper Actitis macularius				
Solitary Sandpiper <i>Tringa solitaria</i>			×	
Greater Yellowlegs T. melanoleuca			X	
Semipalmated Sandpiper Calidris pusilla			×	
Least Sandpiper C. minutilla			×	
Wilson's Snipe Gallinago delicata			×	
American Woodcock Scolopax minor *	х			
Family Laridae — Gulls, Te	rns, and Skimmers			
Laughing Gull Leucophaeus atricilla		×		
Ring-billed Gull Larus delawarensis		×		
Herring Gull <i>L. argentatus</i>		×		
Lesser Black-backed Gull <i>L. fuscus</i>				×
Great Black-backed Gull L. marinus				
Common Tern S. hirundo		×		
Forster's Tern <i>S. forsteri</i>		×		
Royal Tern <i>Thalasseus maximus</i>		x	×	
Black Skimmer Rynchops niger		×		
Order COLUMBIF				
Family Columbidae — Pi	geons and Doves	, , ,		
Rock Pigeon <i>Columba livia</i> (I) *	Х			
Mourning Dove Z. macroura *	Х			
Order CUCULIFO				
Family Cuculidae -	- Cuckoos			
Yellow-billed Cuckoo Coccyzus americanus *	X			
Black-billed Cuckoo <i>C. erythropthalmus</i>			×	
Order STRIGIFO				
Family Tytonidae —	- Barn Owls			
Barn Owl Tyto alba				
Family Strigidae — T	Typical Owls			
Eastern Screech-Owl Megascops asio				
Great Horned Owl Bubo virginianus				
Northern Saw-whet Owl A. acadicus	A market and a second		х	
Order CAPRIMULG	THE RESERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO I			
Family Caprimulgidae	— Goatsuckers			
Common Nighthawk Chordeiles minor			X	
Chuck-will's-widow Caprimulgus carolinensis				
Order APODIFO				
Family Apodidae	— Swifts			
Chimney Swift Chaetura pelagica		×		
Family Trochilidae — F	Hummingbirds			
Ruby-throated Hummingbird Archilochus colubris			×	
Order CORACIIF				
Family Alcedinidae –	– Kingfishers			
Belted Kingfisher Megaceryle alcyon				
Order PICIFOR				
Family Picidae — W	oodpeckers			
Red-bellied Woodpecker M. carolinus *	X		×	х
Yellow-bellied Sapsucker S. varius			х	
Downy Woodpecker Picoides pubescens *	X		×	Х
Hairy Woodpecker P. villosus *	X		x	×

Northern Flicker Colaptes auratus *	х			
Order PASSERIFORM	CONTRACTOR OF THE PARTY OF THE			
Family Tyrannidae — Tyrant	Flycatchers			
Eastern Wood-Pewee C. virens *	х			
Yellow-bellied Flycatcher Empidonax flaviventris			×	
Acadian Flycatcher E. virescens			×	
Willow Flycatcher E. traillii *	х			
Least Flycatcher <i>E. minimus</i>			×	
Eastern Phoebe Sayornis phoebe			x	
Great Crested Flycatcher M. crinitus *	х			
Eastern Kingbird T. tyrannus *	X			
Family Vireonidae — \	/ireos			
White-eyed Vireo Vireo griseus *	Х			
Blue-headed Vireo V. solitarius			×	
Warbling Vireo V. gilvus *	×			
Red-eyed Vireo V. olivaceus *	x		×	
Family Corvidae — Jays a	nd Crows			
Blue Jay Cyanocitta cristata *	×		×	×
American Crow Corvus brachyrhynchos *	X	1111		
Fish Crow <i>C. ossifragus</i>			х	х
Family Alaudidae — L	.arks			
Horned Lark Eremophila alpestris			х	
Family Hirundinidae — S	wallows			
Purple Martin <i>Progne subis</i>		×	×	
Tree Swallow Tachycineta bicolor	Maria Cara Cara Cara Cara Cara Cara Cara	x		х
Northern Rough-winged Swallow Stelgidopteryx serripennis		х		
Bank Swallow <i>Riparia riparia</i>		×	×	
Barn Swallow Hirundo rustica *	×	er og treeter høyeret vir		200
Family Paridae — Chickadees	and Titmice			
Black-capped Chickadee Poecile atricapillus *	х			×
Tufted Titmouse Baeolophus bicolor *	×			х
Family Sittidae — Nuth	atches			
Red-breasted Nuthatch Sitta canadensis			×	×
White-breasted Nuthatch S. carolinensis *	х			X
Family Certhiidae — Cro	eepers			
Brown Creeper Certhia americana	17 17 17 17 17		×	
Family Troglodytidae —	Wrens	Les montes		
Carolina Wren Thryothorus Iudovicianus *	×			
House Wren <i>Troglodytes aedon</i> *	х			100000000000000000000000000000000000000
Winter Wren T. troglodytes	A		×	
Family Regulidae — Ki	nglets			
Golden-crowned Kinglet Regulus satrapa			×	×
Ruby-crowned Kinglet R. calendula			×	×
Family Sylviidae — Gnato	catchers			
Blue-gray Gnatcatcher Polioptila caerulea *	×		×	
Family Turdidae — Thr	ushes			
Eastern Bluebird Sialia sialis			×	
Veery Catharus fuscescens			х	
Gray-cheeked Thrush C. minimus			х	
Swainson's Thrush C. ustulatus			×	
Hermit Thrush C. guttatus			×	×
Wood Thrush Hylocichla mustelina *	×		X	
American Robin T. migratorius *	×		×	×
Family Mimidae — Mockingbirds, Th		ies	-	
ranniy wiinidae — wockingbirds, ri				

Northern Mockingbird Mimus polyglottos *	X			×
Brown Thrasher Toxostoma rufum *	×			^
Family Sturnidae				
European Starling Sturnus vulgaris (I) *	— Starrings	Т Т	х	Х
Family Motacillid			^	^
American Pipit Anthus rubescens	ide Tipres	T x T	×	
Family Bombycillida	e — Waxwings			
Cedar Waxwing B. cedrorum *	X	Т	х	×
Family Parulidae — \				
Blue-winged Warbler Vermivora pinus *	l x		×	
Tennessee Warbler V. peregrina			х	
Orange-crowned Warbler V. celata			х	
Nashville Warbler <i>V. ruficapilla</i>			×	
Northern Parula Parula americana			×	
Yellow Warbler Dendroica petechia *	×			
Chestnut-sided Warbler D. pensylvanica			×	
Magnolia Warbler D. magnolia			×	
Cape May Warbler D. tigrina			х	
Black-throated Blue Warbler D. caerulescens			×	
Yellow-rumped Warbler D. coronata			х	х
Black-throated Green Warbler D. virens			х	
Blackburnian Warbler D. fusca			×	
Pine Warbler D. pinus			х	
Prairie Warbler <i>D. discolor</i>			х	
Palm Warbler <i>D. palmarum</i>			x	
Bay-breasted Warbler D. castanea			х	
Blackpoll Warbler D. striata			x	
Black-and-white Warbler Mniotilta varia			x	
American Redstart Setophaga ruticilla *	x		x	
Ovenbird Seiurus aurocapilla			×	
Northern Waterthrush S. noveboracensis			X	
Kentucky Warbler Oporornis formosus			x	
Mourning Warbler O. philadelphia			×	
Common Yellowthroat Geothlypis trichas *	x		х	
Hooded Warbler Wilsonia citrina			×	
Wilson's Warbler W. pusilla			х	
Canada Warbler <i>W. canadensis</i>			x	
Yellow-breasted Chat <i>Icteria virens</i>			×	
Family Thraupida	e - Tanagers			
Scarlet Tanager <i>P. olivacea</i>			х	
Family Emberizida				
Eastern Towhee P. erythrophthalmus *	X			
American Tree Sparrow Spizella arborea				Х
Chipping Sparrow S. passerina			×	
Field Sparrow S. pusilla *	×			X
Savannah Sparrow Passerculus sandwichensis			100	X
Fox Sparrow Passerella iliaca	42		X	X
Song Sparrow Melospiza melodia *	×		X	Х
Lincoln's Sparrow M. lincolnii			×	
Swamp Sparrow M. georgiana			X	
White-throated Sparrow Zonotrichia albicollis			х	X
White-crowned Sparrow Z. leucophrys				X
Dark-eyed Junco Junco hyemalis	achooke and Dunklers	1		Х
Family Cardinalidae — Gro				
Northern Cardinal Cardinalis cardinalis *	X			Х

Rose-breasted Grosbeak Pheucticus Iudovicianus			×	
Indigo Bunting P. cyanea *	х	1000		
Family Icteridae –	- Blackbirds	men pechangopa		
Bobolink Dolichonyx oryzivorus		х	×	
Red-winged Blackbird Agelaius phoeniceus *	х			12 t 10 to 1 t 10 to
Eastern Meadowlark Sturnella magna			×	
Rusty Blackbird Euphagus carolinus			х	
Common Grackle Quiscalus quiscula *	х		×	/
Brown-headed Cowbird Molothrus ater *	X			
Orchard Oriole Icterus spurius				
Baltimore Oriole I. galbula *	X			
Family Fringillidae — Fringillino	e and Cardueline Finche	s		
Purple Finch Carpodacus purpureus		X		×
House Finch C. mexicanus (I) *	x			Х
Common Redpoll Carduelis flammea	101	Ballon.		×
Pine Siskin C. pinus				×
American Goldfinch C. tristis *	X			х
Family Passeridae — Ole	d World Sparrows			, , ,
House Sparrow Passer domesticus (I) *	х		×	X
Total: 174 species	53 species			

Sources: AKRF point counts and incidental observations, October 2007-December 2008.

The state of the s	Breeding confirmed	Adults only
Marsupials		
Virginia Opossum <i>Didelphis virginiana</i>	×	
Shrews and Moles		
Northern Short-tailed Shrew Blarina brevicauda		×
Eastern Mole Scalopus aquaticus		×
Bats		
Little Brown Bat Myotis lucifugus		x
Big Brown Bat Eptesicus fuscus		×
Red Bat Lasiurus borealis		×
Canids		
Feral Dog Canis lupus familiaris		х
Raccoon		
Raccoon Procyon lotor	×	
Mustelids		
Striped Skunk Mephitis mephitis		x
Felids		
Feral Cat <i>Felis catus</i>	×	
Ungulates		
White-tailed Deer Odocoileus virginianus	×	
Rodents		
Eastern Chipmunk Tamias striatus		x
Woodchuck Marmota monax		x
Gray Squirrel Sciurus carolinensis	X	
White-footed Mouse Peromyscus leucopus	x	
Meadow Vole Microtus pennsylvanicus	×	
Muskrat Ondatra zibethicus		x
Norway Rat Rattus norvegicus		х
House Mouse Mus musculus		×
Rabbits and Hares		
Eastern Cottontail Sylvilagus floridanus	×	

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Dragonflies and Dam	selflies	NY State
Green Darner	Anax junius	- IVI State
Comet Darner	Anax longipes	NYS-S2
Azure Bluet	Enallagma aspersum	1113 3
Eastern Pondhawk	Erythemis simplicicollis	
Fragile Forktail	Ischnura posita	
Common Forktail	Ischnura verticalis	
Blue Dasher	Pachydiplax longipennis	
Wandering Globetrotter	Pantala flavescens	
Common Whitetail	Plathemis (Libellula) lydia	
Autumn Meadowhawk	Sympetrum vicinum	
Carolina Saddlebags	Tramea carolina	
Black Saddlebags	Tramea lacerata	
Red Saddlebags	Tramea onusta	
Butterflies and mo		
Viceroy	Limenitis archippus	
Spring Azure	Celastrina neglecta	
Orange Sulphur	Colias eurytheme	
Monarch	Danaus plexippus	
Silver Spotted Skipper	Epargyreus clarus	
Hummingbird Clearwing	Hemaris thysbe	
Grass Skipper (unid)	Hesperlinae	
Gian Leopard Moth	Hypercompe scribonia	
Gypsy Moth	Lymantria dispar	
Eastern Tent Caterpillar Moth	Malacosoma americanum	
Little Wood Satyr	Megisto cymela	
Mourning Cloak	Nymphalis antiopa	
Eastern Tiger Swallowtail	Papilio glaucus	
Black Swallowtail	Papilio polyxenes	
Spicebush Swallowtail	Papilio troilus	
Cloudless Sulphur	Phoebis sennae	
Pearl Crescent	Phyciodes tharos	
Cabbage White	Pieris rapae	1.1
Zabulon Skipper	Poanes zabulon	
Eastern Comma	Polygonia comma	
Question Mark	Polygonia interrogationis	
Wooly Bear	Pyrrharctia isabella	
Large Lace Border	Scopula limboundata	
Painted Lady	Vanessa cardui	
American Lady	Vanessa virginiensis	
Red Admiral	Vanessa atalanta	
Additional speci		
Field Cricket (unid)	Gryllus spp	
Round-headed Katydid (unid)	Amblycorypha spp	
Lone Star Tick	Amblyomma americanum	
Broad Nosed Weevil	Aphrastus taeniata	
Honey Bee	Apis mellifera	
Yellow Garden Spider	Argiope aurantia	
Eastern Boxelder Bug	Boisea trivittata	
Blowfly (unid)	Calliphoridae	
Carpenter Ant	Camponotus chromalodes	-/
Black Carpenter Ant	Camponotus pennsylvanicus	

Lesser Meadow Katydid (unid)	Conocephalus spp	. In the Victorian Control
American Dog Tick	Dermacentor variabilis	
Carolina Grasshopper	Dissosteira carolina	
Crane Fly	Epiphragma solatrix	
Leafhopper	Graphocephala versuta	
Brown Marmorated Stink Bug	Halyomorpha halys	100000000000000000000000000000000000000
Ichneumonid Wasp (unid)	Ichneumonidae	V - 100   100   100   100
Deer Tick	lxodes scapularis	
Leaf-footed Bug (unid)	Leptoglossus spp	
Orchard Orbweaver	Leucauge venusta	
Red-legged Grasshopper	Melanoplus femurrubrum	
Pine Tree Spurthroat Grasshopper	Melanoplus punctulatus	
Large Milkweed Bug	Oncopeltus fasciatus	
Common Woodlouse	Oniscus asellus	
Nursery Web Spider	Pisaurina mira	
European Paper Wasp	Polistes dominula	
Eastern Cicada Killer	Sphecius speciosus	
Chinese Mantid	Tenodera aridifolia sinensis	
Orbweaver Spider (unid)	Tetragnatha spp	
Pygmy Grasshopper	Tetrix subulata	. 1405021
Swamp Cicada	Tibicen tibicen	The state of the state of the
Yellowjacket (unid)	Vespula spp	

Notes:

State Rank: NYS-S2 = imperiled in New York State

Sources:

Time-restricted searches and targeted wetland surveys conducted by AKRF Natural Resources field staff, October 2007-October 2008. Additional field assistance on odonate surveys by Ellen Pehek

and Susan Stanley, NYCDPR-NRG (8 July 2008)

Table 6
Rare, special concern, threatened and endangered species reported to occur in the vicinity of the Charleston, Staten Island project site

	FLORA	STATU
Bristly Sarsaparilla	Aralia hispida	0
White Milkweed	Asclepias variegata	Р
Saltmarsh Aster	Aster subulatus	Р
River Birch	Betula nigra	С
Terrestrial Starwort	Callitriche terrestris	P
Collins' Sedge	Carex collinsii	Р
Slender Spikegrass	Chasmanthium laxum	Р
Dwarf Hawthorn	Crataegus uniflora	Р
Wild Comfrey	Cynoglossum virginianum	Р
Retrorse Flatsedge	Cyperus retrorsus	P
Little-leaf Tick-trefoil	Desmodium ciliare	Р
Smooth Tick-clover	Desmodium laevigatum	Р
Nuttall's Tick-clover	Desmodium nuttallii	Р
Slender crabgrass	Digitaria filiformis	Р
Persimmon	Diospyros virginiana	Р
American Strawberry Bush	Euonymus americanus	0
Fringed Boneset	Eupatorium hyssopifolium var. laciniatum	0
*	Eupatorium rotundifolium var. rotundifolum	
Round-leaved Boneset	Eupatorium rotundifolium var.ovatum	0
Wild Ipecac	Euphorbia ipecacuahae	Р
Soapwort Gentian	Gentiana saponaria	Р
Carolina Cranesbill	Geranium carolinianum	Р
Swamp Pink	Helonias bullata	Р
Flax-leaved Whitetop	Ionactis linariifolius	Р
Wild Potato-vine	Ipomoea pandurata	Р
Scirpus-like Rush	Juncus scirpoides	Р
Bead Pinweed	Lechea pulchella var moniliformis	Р
Pale Duckweed	Lemna valdiviana	Р
Velvety Lespedeza	Lespedeza stuevei	0
Wolf's claw	Lycopodium clavatum	Р
Ground Pine	Lycopodium obscurum	Р
Sweet-bay Magnolia	Magnolia virginiana	Р
Few-flowered Panic Grass	Panicum oligosanthes var oligosanthes	Р
Downy Rattlesnake Plantain	Peramium pubescens	Р
Ground-cherry	Physalis pruinosa	Р
Shortleaf pine	Pinus echinata	С
Virginia Pine	Pinus virginiana	С
Torrey's Mountain-mint	Pycnanthemum torrei	0
Whorled Mountain-mint	Pycnanthemum verticillatum	Р
Round-leaved Pyrola	Pyrola americana	С
Blackjack Oak	Quercus marilandica	С
Willow Oak	Quercus phellos	Р
Sand Blackberry	Rubus cuneifolius	Р
Rose Pink	Sabatia angularis	Р
Hyssop-skullcap	Scutellaria integrifolia	Р
Michaux's Blue-eyed Grass	Sisyrinchium mucronatum	Р
Seaside Goldenrod	Soidago sempervirens	Р
Wild Pink Bean	Strophostyles umbellata	Р
Ohio spiderwort	Tradescantia ohiensis	Р
Virginia spiderwort	Tradescantia virginiana	P

Tiny Blue Curls	Trichostema oblongum	P
Possum-haw	Viburnum nudum	Р
Primrose Violet	Viola primulifolia var primulifolia	P
	FAUNA	
Tawny Emperor Butterfly	Asterocampa clyton	P
Whip-poor-will	Caprimulgus vociferus	Р
Spotted Turtle	Clemmy guttata	Р
Wood Turtle	Clemmys insculpta	Р
Northern Harrier	Circus cyaneus	C (foraging)
Eastern Mud Turtle	Kinosternon subrubrum	Р
Bar-winged Skimmer	Libellula acilena	Р
Yellow-sided Skimmer	Libellula flavida	P
Osprey	Pandion haliaetus	C (flyover)
Fence Lizard	Sceloporus undulatus	Р

Notes: Status is as follows: C = Confirmed during 2007-2008 study; O = Observed during 2007-2008 study, identification pending review by NYNHP; P = Previously observed within the study area; not observed within the project site during his study.

Sources: Information requests from NYNHP regarding rare, special concern, threatened and endangered species in the vicinity of the project site, from the following documents: Bricktown Centre at Charleston FEIS (2002), Fairview Park Modified EAS (2005), Charleston Bus Annex EA (2007). Additional information from Evans, D., P. Novak and T. Weldy. 2002. Rare species and ecological communities of Clay Pit Ponds State Park.

APPENDIX A: PROJECT SITE PHOTOGRAPHS

[TO COME]

APPENDIX B: REPORT ON ENGLEWOOD AVENUE CORRIDOR WETLANDS DELINEATION, AUGUST-OCTOBER 2008

This report pertains to AKRF's wetlands delineation efforts in the Englewood Avenue Corridor of the project site in Charleston, Staten Island. The delineation was conducted by AKRF, with input from NYCDPR-NRG, between August and October 2008. Control Point Associates, Inc. surveyed the flagged boundaries in mid-October 2008, and produced a wetlands delineation sketch on October 29, 2008 (Control Point Associates, Inc. 2008).

#### H. INTRODUCTION:

AKRF's wetland inspection targeted the Englewood Avenue corridor, located along the northern boundary of the Charleston Natural Resources Survey project site. The wetland inspection extended along Englewood Avenue southwards into the project site a distance of 80 feet, as shown in Figure B-1. Wetland areas identified within this zone (Wetlands A-D, F and G) were identified and flagged in accordance with the US Army Corps of Engineers' (USACE) Wetland Delineation Methodology (1987). The flagging of the identified wetlands was extended southwards into the project site until positive wetland indicators were no longer present. This resulted in the flagging of several wetland areas beyond the footprint of Englewood Avenue - most notably, the wetland system comprised of Wetlands "C", "D", and "F". This wetland system extends southwards well into the subject parcel following the path of surface drainage tributary to Mill Creek. The other three wetland areas, Wetlands "A", "B", and "G", are located in closer proximity to the mapped portion of Englewood Avenue. Figures B-2 to B-9 indicate all current National Wetlands Inventory (NWI) and New York State Department of Environmental Conservation (NYSDEC) mapped wetlands at, and in the vicinity of, the project site. USACE Routine Wetland Determination Data Forms for upland and wetland data points are also provided below.

# I. WETLAND AREA DESCRIPTIONS

## WETLAND AREAS A AND B

Wetlands A and B are located within a level portion of the project site that has been maintained in a cleared, open field and successional field condition. Portions of both wetland areas extend into the existing footprint of the dirt path/road within the mapped portion of Englewood Avenue.

#### WETLAND A:

Wetland A is an area of low topography, characterized by a wet depressional area. This area is interrupted at points by small upland pockets; this area was subject to recent clearing for the Fairview Park project, and appears to be maintained as open habitat by the informal recreational uses ongoing within the site (e.g., horseback riding). These small upland pockets are vegetated with successional plant species. In general, the vegetation in this area can be described generally as a wet shrubland; trees are limited to saplings or small trees, and

herbaceous vegetation is prominent. The upland pockets are dominated by gray birch (*Betula populifolia*) (FAC), quaking aspen (*Populus tremuloides*), and pin oak (Quercus palustris). Dominant species in the wet depressional areas include soft rush (*Juncus effusus*), lance-leaved goldenrod (*Euthamia graminifolia*), switch grass (*Panicum virgatum*), and toad rush (*Juncus bufonius*). Associated species include common greenbrier (*Smilax rotundifolia*), late boneset (*Eupatorium serotinum*), hairy boneset (*Eupatorium pilosum*), and tapered rosette grass (*Dichanthelium acuminatum*). Hydric soils are present throughout the area.

## WETLAND B:

Wetland B is located immediately east of Wetland A, and extends from the footprint of Englewood Avenue into an open successional field, portions of which are used currently for horseback riding. It is dominated by herbaceous wetland species (*Scirpus* sp., *Juncus* sp., *Carex* sp.) and shows evidence of surface ponding as observed over several site inspections between May and December 2008. The extent of the cleared area surrounding this wetland was expanded in the recent past (approximately 2002) by the NYC Department of Parks and Recreation for the Fairview Park project.

Wetland B contains vegetated mounds of soil bordering the unbuilt portion of Englewood Avenue. The mounds of soil are remnants of recent earth moving activities that were associated with the preliminary stages of the Fairview Park project, and vegetation is actively grazed by domesticated horses. Currently, this area contains wet depressions dominated by hydrophytic vegetation and hydric soils. Dominant vegetation within the wet depressions are characterized by the obligate species of blunt spike rush (*Eleocharis obtusa*) and FACW/+ species of toad rush (*Juncus bufonius*), coast cockspur grass (*Echinochloa walteri*), and soft rush (*Juncus effusus*). Lance-leaved goldenrod (*Euthamia graminifolia*) and grass that JIM identified (formerly thought to be Poa pratensis) are also present. Although the surface of the soils in these depressions can be characterized as rocky fill, hydric soils are present and display dark manganese concretions at depths below six inches.

Upland areas associated with Wetland B include hyssop-leaved boneset (*Eupatorium hyssopifolium*), lance-leaved goldenrod (*Euthamia graminifolia*), birds-foot trefoil (*Lotus corniculatus*) and English plantain (*Plantago lanceolata*). Soils in the upland area demonstrate a silty loam with some low chroma colors and some mottling, though hydrophytic vegetation and hydrology do not appear to be present.

Hydric soil indicators encompass a larger area than flagged as Wetland B, extending into much of the remaining portions of the cleared area dominated by herbaceous plants. However, evidence of wetland hydrology and vegetation is not uniform throughout the field area. Therefore, the extent of Wetland B was limited by vegetation/hydrology indicators, and flagged in a closed loop (B-1 to B-26). Wetland B was found to be one of a number of discrete wetland areas in the field. Additional wetland areas observed are not contiguous with Wetland B and are located beyond the 80 foot investigation area adjacent to Englewood Avenue. Therefore, the additional wetland areas observed in the field were not included in the delineation of Englewood Avenue wetlands.

### WETLAND AREAS C, D AND F

Wetland Areas C, D, and F appear to constitute one wetland system which conveys surface water flows across Englewood Avenue southwards, through two large culverts and eventually into the Mill Creek watershed.

Wetlands flagged as "C", "D" and F" are mapped by both the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) as shown in Figure B-7, and the New York State Department of Environmental Conservation (NYSDEC) as shown in Figures B-2 and B-4. The NWI classification of this wetland system is "PFO1B — palustrine forested, broad-leaved deciduous, saturated" within its more northerly segment and "R2UBH — riverine, lower perennial, unconsolidated bottom, permanently flooded" within the more linear segments to the south. The New York State wetland identification number for this wetland system is "AR-27".

New York State has also mapped a classified stream within this wetland system. This stream is known as "Mill Creek" and is classified a "Class C" stream (Figure B-6). Mill Creek flows southwards from the project site into Richmond Valley and then westwards eventually tributary to the Arthur Kill tidal river.

Due to the fact that this wetland system is mapped at the Federal and State level, and is a NYSDEC classified stream, AKRF extended the delineation southwards beyond Englewood Avenue. Site inspection confirms that Wetland Areas "C", "D" and "F" form a system of interconnected wetlands that were formerly one uninterrupted stream/wetland complex.

#### DRAINAGE

This wetland system is directly adjacent and appear to be hydrologically connected to the offsite Sharrott's Pond wetland system (NYSDEC Wetland AR-11, Figure B-3) located immediately north of Englewood Avenue within Clay Pit Ponds State Park Preserve. The relationship of the onsite and offsite wetland systems is shown in Figure B-4. Surface flows connecting these wetland systems were evident across the dirt path that now represents Englewood Avenue. As such, the survey drawing prepared for this delineation report indicates that the offsite and onsite wetland systems are contiguous. No wetland flags were placed north of Englewood Avenue within NYSDEC property, as permission was not received for this project.

It appears that surface and subsurface water flows southwards from the offsite Sharrott's Pond wetland, through Wetland Area C, then into a newly-built culvert in the retaining wall of the parking lot serving the Bricktown Centre shopping mall (north of the present Christmas Tree Shops). Formerly, surface drainage proceeded southwards as "Mill Creek" from Wetland Area C through Wetland Area D and Wetland Area F before exiting the project site at Veteran's Parkway. Currently, surface drainage from Wetland C is piped directly to Wetland F; under heavy flow conditions, there is a potential for surface flow to pass along the retaining wall and enter Wetland D. Wetland D also has a large culvert at its southern terminus, which connects southward into Wetland F.

#### WETLAND C:

Wetland Area "C" is a forested wetland dominated by red maple (Acer rubrum) and pin oak (Quercus palustris) with some occurrence of additional facultative species including sweetgum (Liquidambar styraciflua) and elderberry (Sambucus canadensis). It was flagged C-1 to C-20.

#### WETLAND D:

Wetland "D" is a linear wetland feature formerly connected via surface runoff to Wetland "C". This wetland conveys surface water through young oak, sassafras and black gum forest and is mapped by NYSDEC as the classified stream "Mill Creek". Dominant plants within and adjacent to Wetland D include red maple, black gum, greenbrier and pin oak. Construction of the shopping mall appear to have separated this wetland from historic upstream water sources – examination of the retaining wall built as part of the "Christmas Tree Shops" shows no culvert. As mentioned above, periods of heavy flow may contribute water from the north to Wetland D via the retaining wall; it is apparent that positive wetland indicators persist.

It was flagged as a center-line (linear) wetland feature D-1 to D-7. The area exhibiting positive Federal wetland indicators is limited to the drainage feature and its immediate banks – approximately 8' in width.

#### WETLAND F:

Wetland "F" is also a linear wetland feature conveying the flows of "Mill Creek" through the project site as described above. This segment of was flagged F-1 to F-8.

Wetland F is best described as an ephemeral drainage area, and as noted above, appears to have formerly been connected to a larger wetland complex now occupied by a portion of the Bricktown Centre development. This drainage area can be described as having a number of eroded gullies that connect to a larger arterial drainage corridor. The bed of the drainage area contains medium to large sized cobble, sand, and in some areas, the banks are eroded. Standing water is present in a pool located in an area close to the roadway leading to the Bricktown Centre development that bisects the drainage way.

Vegetation in the vicinity of Wetland F and along the drainage way corridor is largely dominated by red maple (Acer rubrum) in the canopy. Black gum (Nyssa sylvatica), sweet gum (Liquidambar styraciflua), big-tooth aspen (Populus grandidentata), and sumac (Rhus sp.) species are also present. In the subcanopy, sassafras (Sassafras albidum) is present. The shrub layer is largely dominated high bush blueberry (Vaccinium corymbosum) and maple-leaf viburnum (Vibrunum acerifolium). Species of juneberry (Amelanchier sp.) are also present. Species in the herbaceous layer include hayscented fern (Dennstaedtia punctilobula), bracken fern (Pteridium aquilinum), blackberry (Rubus allegheniensis), Canada mayflower (Maianthemum canadense), round-leaved pyrola (Pyrola rotundifolia), and seedlings of the abovementioned woody species. Early spring vegetation surveys also show that a spring ephemeral, trout lily (Erythronium americanum), occurs in this area. Roundleaf greenbrier (Smilax rotundifolia) and cat greenbrier (Smilax glauca) is present in both the herbaceous and shrub layers.

#### **WETLAND AREA G**

Wetland G is an isolated depression dominated by pin oak and red maple. It is located in close proximity to Englewood Road, and was flagged G-1 to G-6. It appears to be an ephemeral wet depression that receives surface water seasonally from the surrounding higher ground; there is a substantial amount of debris in the vicinity of this wet depression, suggesting past disturbance and possible excavation.

#### J. SOILS:

The Natural Resources Conservation Service (NRCS) has mapped the following two soil mapping units for the project site:

<u>Western portion of Site – Wetlands A and B</u>: *Wethersfield-Ludlow-Wilbraham complex, 0 to 8 percent slopes* 

Nearly level to gently sloping areas of till plains, relatively undisturbed and mostly wooded; a mixture of well drained, moderately well drained, and poorly drained soils developed in red till; located in Staten Island. The Willbraham Series is designated a Hydric Soil per National Technical Committe for Hydric Soil (NTCHS). Its taxonomy is an "Aquic Dystrochrept".

<u>Eastern portion of Site – Wetlands C, D, F and G</u>: Wethersfield-Ludlow complex, 8 to 15 percent slopes

Strongly sloping to moderately steep areas of till plains and hills, relatively undisturbed and mostly wooded; a mixture of well drained and moderately well drained soils developed in red till; located in Staten Island.

Site inspection confirms these soil types on the project site. Due to the prevalence of red parent material in both of these soil mapping units, AKRF used the test indicator for hydric soils "TF2: Red Parent Material" (Field Indicators of Hydric Soil in the United States, 2006) for several areas — most notably Wetland "C". Past communications with Paul Smith of the NRCS, New York City Field Office, have confirmed the presence of soils derived from red sandstone/siltstone in this region of Staten Island and the likelihood of encountering hydric soil without low chroma colors as a result.

#### Wethersfield series

Parent Material: Dense basal till derived mainly from red sedimentary rocks

Landform: Till plains and hills Depth to Bedrock: Very deep Drainage Class: Well drained

Permeability: Moderately rapid or moderate in the solum; slow or very slow in the dense

substratum

Soil Texture: Silt loam, loam, or sandy loam throughout

Coarse Fragments: 5 to 25 percent rock fragments in the solum; 5 to 35 percent in the

substratum

Range in Soil pH: Extremely acid to mildly alkaline

Hydrologic Soil Group: C

**Typical Soil Profile:** 

A 0 to 3 inches - dark brown (7.5YR 3/2) loam; moderate medium granular structure; friable; 10 percent gravel; strongly acid.

Bw1 3 to 13 inches - reddish brown (5YR 4/4) loam; weak medium subangular blocky structure; friable; 10 percent gravel; strongly acid.

Bw2 13 to 27 inches - dark reddish brown (5YR 3/3) gravelly loam; weak medium subangular blocky structure; friable; 10 percent gravel and 5 percent cobbles; strongly acid.

Cd 27 to 65 inches - reddish brown (2.5YR 4/4) gravelly loam; weak thick platy structure; very firm and brittle; few silt films and black coatings on some plates; 15 percent gravel and 5 percent cobbles; strongly acid.

#### **Ludlow series**

Parent Material: Dense basal till derived mainly from red sedimentary rocks and basalt

Depth to Bedrock: Very deep

Drainage Class: Moderately well drained

Permeability: Moderate in the solum; slow or very slow in the substratum

Soil Texture: Loam or sandy loam in the solum; sandy loam in the substratum where pockets or

thin lenses of loamy sand may be found

Coarse Fragments: 5 to 25 percent in the solum; 5 to 35 percent in the substratum

Range in Soil pH: Very strongly acid to moderately acid

Hydrologic Soil Group: C

#### Typical Soil Profile:

Ap 0 to 8 inches; dark brown (7.5YR 3/2) silt loam; weak coarse granular structure; friable; 8 percent gravel; strongly acid.

Bw1 8 to 20 inches – reddish brown (5YR 4/4) silt loam; weak coarse subangular blocky structure; friable; 10 percent gravel; strongly acid.

Bw2 20 to 26 inches – dark reddish brown (5YR 3/4) silt loam; weak coarse subangular blocky structure; friable; 12 percent gravel; common medium distinct pinkish gray (5YR 6/2) and common medium prominent strong brown (7.5YR 5/8) redoximorphic features; strongly acid.

Cd 26 to 65 inches – dark reddish brown (2.5YR 3/4) gravelly loam; weak thick platy structure; very firm and brittle; thin patchy silt films and black (10YR 2/1) manganese coatings on some plates; 15 percent gravel and 5 percent cobbles; few fine distinct reddish gray (5YR 5/2) redoximorphic features; strongly acid.

#### Wilbraham series

Parent Material: Dense basal till derived mainly from red sedimentary rocks

Landform: Till plains and hills

Depth to Bedrock: Very deep

Drainage Class: Poorly drained

Permeability: Moderate in the solum; slow or very slow in the dense substratum

Soil Texture: Silt loam or loam in the surface; silt loam, loam, or fine sandy loam in the subsoil

and substratum

Coarse Fragments: 5 to 25 percent rock fragments in the solum; 5 to 35 percent in the

substratum

Range in Soil pH: Very strongly acid to moderately acid

Hydrologic Soil Group: D

#### **Typical Soil Profile:**

A 0 to 4 inches - very dark gray (10YR 3/1) silt loam; weak medium granular structure; very friable; 5 percent gravel; strongly acid.

Bw1 4 to 8 inches - dark reddish brown (5YR 3/3) silt loam; weak coarse subangular blocky structure; very friable; common medium prominent pinkish gray (7.5YR 6/2) redoximorphic features; 10 percent gravel; strongly acid.

Bw2 8 to 20 inches - reddish brown (5YR 4/4) silt loam; weak coarse subangular blocky structure; friable; common medium prominent reddish gray (5YR 5/2) redoximorphic features; 10 percent gravel and 3 percent cobbles; strongly acid.

Cd 20 to 65 inches - dark reddish brown (5YR 3/3) gravelly loam; weak thick platy structure; very firm and brittle; silt films and black (10YR 2/1) coatings on some plates; many medium distinct brown (7.5YR 5/2) and dark brown (7.5YR 4/4) redoximorphic features; 20 percent gravel and 5 percent cobbles; strongly acid.

#### K. RECOMMENDATION

It is important to note that the wetland delineation effort performed by AKRF in August to October 2008 flagged only those wetlands contiguous with Englewood Avenue. As part of AKRF's ongoing ecological work onsite, numerous additional wetland areas, and potential wetland areas, have been identified outside of the Englewood Avenue investigation area (See Figure 11 within the final report). These additional wetland areas have not been flagged as part of the 2008 wetlands delineation within the Englewood Avenue Corridor. It is AKRF's recommendation that the NYC Economic Development Corporation (EDC) request a Jurisdictional Determination (JD) Site Inspection from the Army Corps of Engineers (USACE) to confirm the boundaries of those wetlands delineated and described in this report, after which the regulatory status of additional wetlands areas throughout the project can be determined.

Many of these additional wetland areas occur in isolated depressions, or qualify as wetlands based on soil parameters specific to red parent material. Although the USACE has previously noted their intention to take jurisdiction over some of these potential wetland areas (see EEA 2004), before proceeding on a lengthy delineation of the entire property, complicated by highly variable site conditions, we recommend receiving input from the USACE – the one regulatory body with authority for freshwater wetlands within New York City.

**FIGURES** 

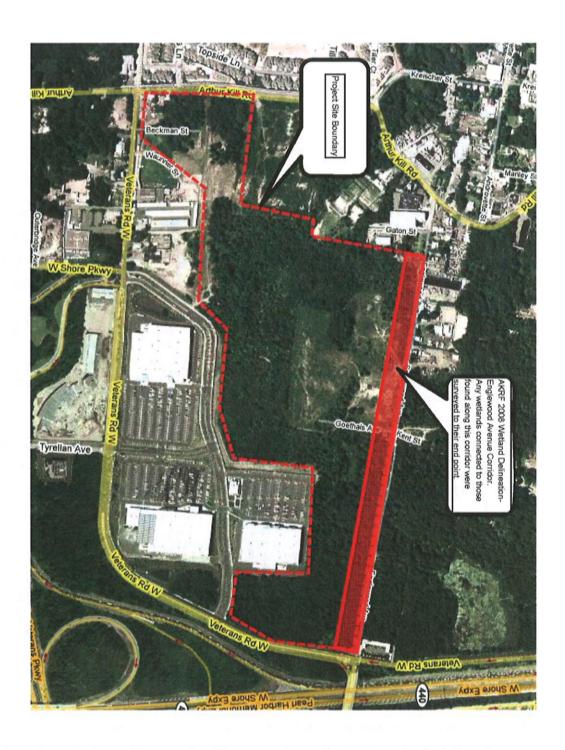


Figure B- 1: Englewood Avenue Corridor – search area for AKRF wetlands delineation

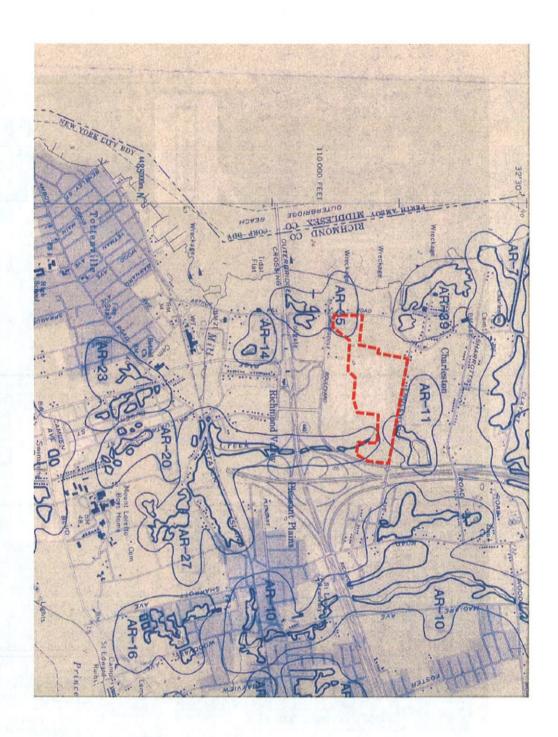


Figure B- 2: NYSDEC wetland areas within the vicinity of the project site.

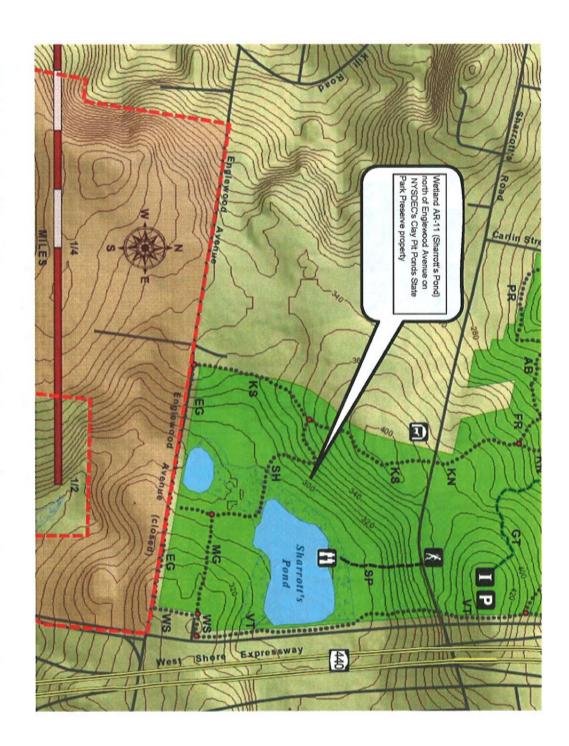


Figure B- 3: Clay Pit Ponds State Park Preserve wetlands, north of project site

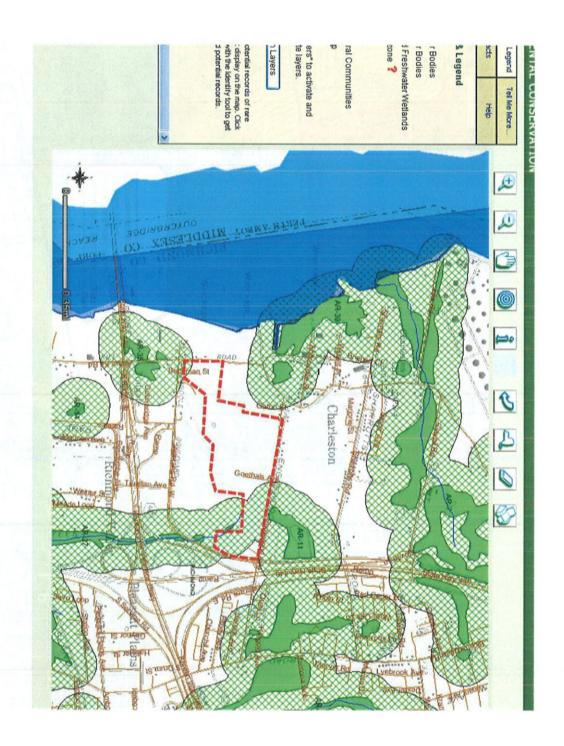


Figure B- 4: NYSDEC wetlands from Environmental Resource Mapper (green area represents the "wetlands check-zone"



Figure B- 5: NYSDEC wetlands over 2002 aerial, prior to construction of Bricktown Centre at Charleston and Tides at Charleston developments

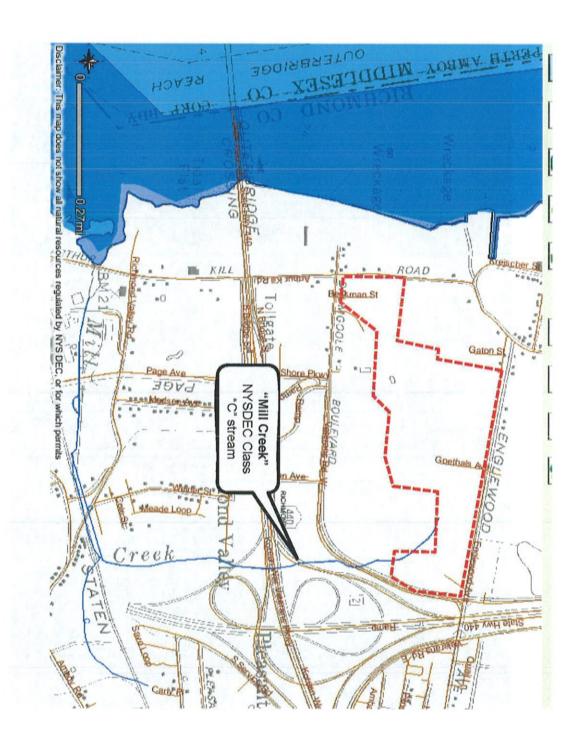


Figure B- 6: NYSDEC wetlands to south of project site, including Mill Creek watershed

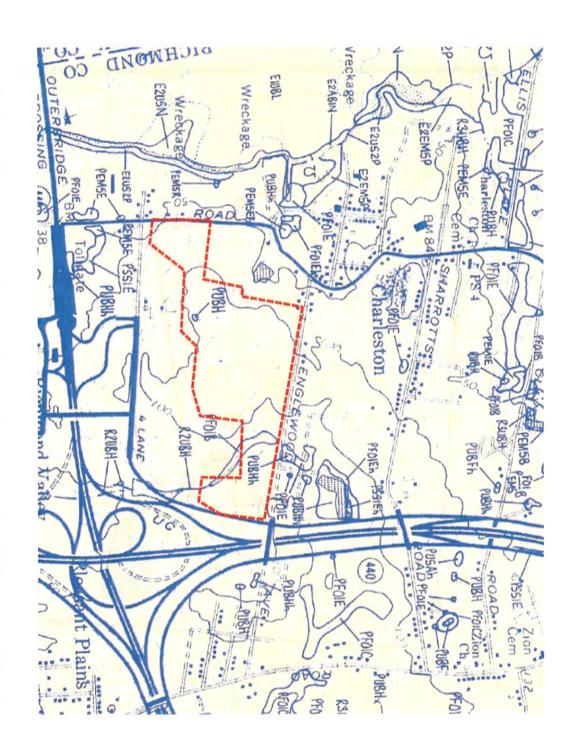


Figure B-7: NWI wetlands in the vicinity of the project site



Figure B- 8: NWI wetlands in the vicinity of the project site

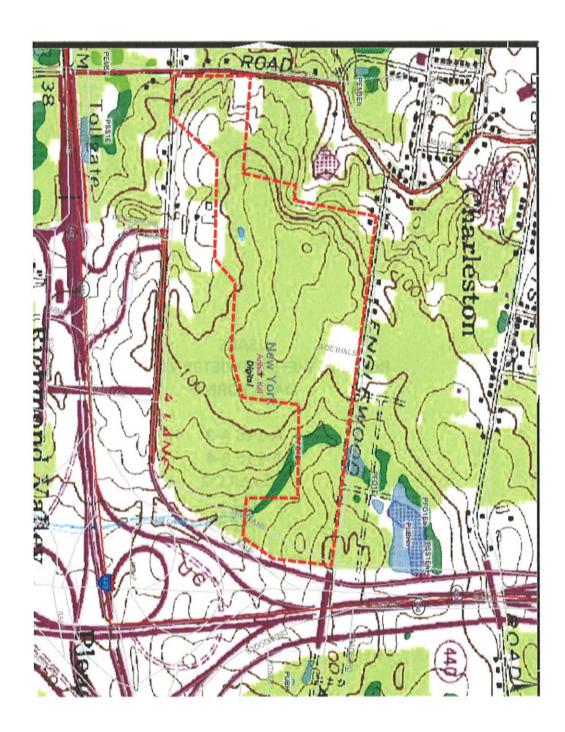


Figure B- 9: Project site topography with NWI wetlands

# USACE ROUTINE WETLAND DETERMINATION DATA FORMS

A-1 to A-3

B-1 to B-4

C-1 and C-2

D-1

F-1

G-1

Project/Site: Charleston, Staten Island (Natu Applicant/Owner: NYC EDC nvestigator: A. Bernick, M. Bright, A. McMal			)	Date: 08.18.08 County: Richmond State: NY		
Do Normal Circumstances exist on the site Is the site significantly disturbed (Atypical S Is the area a potential Problem Area? (If needed, explain on reverse.)		Yes Yes Yes	No No No	Community ID: Transect ID: Plot ID: _(flagge	MARKET VALUE AND A SECOND A	
VEGETATION  Dominant Plant Species Stratum  1. Juncus effusus herb  2. Scirpus cyperinus herb  3. Betula populifolia tree  4.	Indicator FACW+ FACW+ FAC	Domina 6, 7, 8, 9, 10,	nt Plant Species		Indicator	
Percent of Dominant Species that are OBL, FAC\ Remarks: Eupatorium serotinum (FAC-)  HYDROLOGY	W, or FAC (exclu	uding FAC	-): 100			

lap Unit Name Series and Phas		/ethersfield-Ludlow-Wilbr omplex	aham	_ Drainage	Class:	Well dra	ained to poo	rly draine
axonomy (Subg		Aquic to Oxyaquic subgr	roup	Field Obs Confirm N	ervations //apped Type?	Poorly drained	Yes	No
Profile Descri	ption:						Tautura	
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle C (Munsel		Mottle Abund Size/Contras		Texture, Concretion Structure,	etc.
4-10	A	10 YR 4/2 10 YR 4/1	40.3	/D E/0	December 10		Clay	
10-12+	B 10 YR 4/1 10 YR 5/8 B 10 YR 6/1 10 YR 6/8				Loamy			
Sulfuric Aquic N Reducir	pipedon Odor Noisture R ng Condit	ons	9	High 0 Orgar Listed	retions Organic Content nic Streaking in S I on Local Hydric I on National Hyd	Sandy Soils Soils List dric Soils L	3	ndy Soil:
X Gleyed	or Low-C	hroma Colors	9	Other	(Explain in Rem	arks)		

### WETLAND DETERMINATION

Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	Yes Yes Yes	No No No	(Circle)	(Circle) Is this Sampling Point Within a Wetland?	Yes	No
	years. More s			d with some human alteration of the landscap ermine connectivity between Wetland A and		

Project/Site: Charleston, Staten Island (Natural Resources Applicant/Owner: NYC EDC Investigator: A. Bernick, M. Bright, A. McMahon, J. Nash, A.		Date: 08.18.08 County: Richmond State: NY
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes No Yes No Yes No	Community ID: Data Point A-2 Transect ID: Plot ID: (flagged Wetland A)
Dominant Plant Species         Stratum         Indicator           1. Poa pratensis         FACU           2. Panicum virgatum         FAC           3. Daucus carota         NL           4. Eupatorium serotinum         FAC-           5.	9.	
Remarks: Other vegetation:  Potentilla canadensis (NL)  Plantago lanceolata (UPL)  Carex scoparia (FACW)		
HYDROLOGY  Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gauge Aerial Photographs Other No Recorded Data Available  Field Observations: N/A  Depth of Surface Water: (in Depth to Free Water in Pit: (in	Water M Drift Line X Sedimen X Drainag Secondary In X Oxidized X Water-S Local Sc FAC-Ne	cators: ed ed in Upper 12 Inches ⁄larks
Remarks: No hydrology present.	•	

Map Unit Name (Series and Phase):	Wethersfield-Lu complex	dlow-Wilb	raham	_ Drainage C	lass:	Well dra	ined to poorly	drained
Taxonomy (Subgroup):	Aquic to Oxya	iquic subg	roup	Field Obse	rvations apped Type?	Poorly drained	Yes	No
Profile Description:  Depth (Inches) Horizo	Matrix (Munse	Color ell Moist)	Mottle (Munse	Colors III Moist)	Mottle Abund Size/Contras		Texture, Concretions, Structure, et	
Hydric Soil Indicators: Histosol		7		Concre	tions			
Histic Epipedor Sulfuric Odor Aquic Moisture Reducing Cond Gleyed or Low-	Regime ditions -Chroma Colors	. FILL TO	4 INCHES	Organio Listed of	rganic Content c Streaking in S on Local Hydric on National Hyd Explain in Rem	Sandy Soils : Soils List dric Soils Li		y Soils
Sulfuric Odor Aquic Moisture Reducing Cond Gleyed or Low-	Regime ditions -Chroma Colors -KEN – GRAVEL		4 INCHES	Organio Listed of	rganic Content c Streaking in S on Local Hydric on National Hyd	Sandy Soils : Soils List dric Soils Li		y Soils

Applicant/Owner: NY	C EDC	Natural Resources Mahon, J. Nash, A		)	Date: 08.18.08 County: Richmond State: NY
Do Normal Circumstance Is the site significantly dis Is the area a potential Pro (If needed, explain on rev	sturbed (Atypica oblem Area?		Yes Yes Yes	No No No	Community ID: Data Point A-3 Transect ID: Plot ID: (flagged Wetland A)
VEGETATION					
Dominant Plant Species     Juncus effusus     Juncus bufonius     Carex scoparia     Phragmites australis     Panicum virgatum	Stratum herb herb herb herb	FACW FACW FACW FACW FACW	6 7 8 9 10	ant Plant Spe	ocies Stratum Indicator
Percent of Dominant Species Remarks: Other vegetatio Eupatorium serotinum (FAC- Carex scoparia (FACW) Scirpus cyperinus (FACW+) Betula populifolia (FAC) Liquidambar styraciflua (FAC) HYDROLOGY	n: )	ACW, or FAC (exc	cluding FAC	-): 100	
Recorded Data (Descri Stream, Lake, o Aerial Photogra Other No Recorded Data Ava	r Tide Gauge ohs		P	Water Mar Drift Lines	tors: I in Upper 12 Inches rks s
Field Observations: N/A  Depth of Surface Water:  Depth to Free Water in Pit:  Depth to Saturated Soil:		(in (in	.) <u>x</u>	Drainage f econdary Indi Oxidized F Water-Sta Local Soil FAC-Neuti	Patterns in Wetlands licators (2 or more required): Root Channels in Upper 12 Inches ained Leaves Survey Data
Remarks: Standing water ne	ar flag A-5.				

/lap Unit Name Series and Ph		Wethe comple	rsfield-Ludlow-Wilbra ex	aham	Drainage (	Class:	Well dra	ained to poorly	drained
axonomy (Sul	ogroup):	Aqui	c to Oxyaquic subgr	oup	Field Obse	ervations apped Type?	Poorly drained	Yes	No
Profile Desc	cription:		Matrix Color	Mottle C				Texture,	
Depth (Inches) 0-3	Horizo	on	(Munsell Moist)	(Munsell		Mottle Abund Size/Contras		Concretions, Structure, etc Clay loar	
3-10	В		10 YR 6/6	-				Loamy cl	
10-12+	В		10 YR 6/6		6/8 and R 6/1			Loamy cl	-
Sulfur Aquic Reduc		Regim ditions			Organi Listed Listed	etions organic Content or Streaking in S on Local Hydric on National Hyd (Explain in Rema	andy Soils Soils List Iric Soils L	3	y Soils

Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	Yes Yes Yes	No No No	(Circle)	(Circle) Is this Sampling Point Within a Wetland?	Yes	No
Remarks: Wetland point t	taken near wet	land flag /	A-5.			

(1987 COE Wetlands Delineation Manual)

gagaa	A. Bernick, M. Bright, A. McN		AKRF, Inc.		County: Ric State: NY	chmond
	N 40'31'59 W 074'13"54.1					
	umstances exist on the si		Yes	No	Community II	D: Data point B-1
	icantly disturbed (Atypica	Situation)?	Yes	No	Transect ID:	
	tential Problem Area?		Yes	No	Plot ID: _(fla	gged Wetland B area
(If needed, expl	ain on reverse.)					

1. Eleocharis obtusa Herb OBL 6. 2. Juncus bufonius Herb FACW 7. 3. Poa pratensis Herb FACU 8. 4. Echinochloa crus-galli Herb FACU 9. 5. 10.  Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-):  Remarks: Associated species (FAC-), Euthamia graminifolia (FAC), E. hyssopifolium (N/L)	Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
3. Poa pratensis Herb FACU 8. 4. Echinochloa crus-galli Herb FACU 9. 5. 10.  Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-):	Eleocharis obtusa	Herb	OBL	6.		
4. Echinochloa crus-galli Herb FACU 9.  5. 10. 10. Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-):	2. Juncus bufonius	Herb	FACW	7.		. v
5	3. Poa pratensis	Herb	FACU	8.		
Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-):	4. Echinochloa crus-galli	Herb	FACU	9.		
Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-):	5.			10.		
	Descent of Deminent Canalas to	hat are OBL. FA	NOVV, OF FAIL (BX	cluding FAC-).		
			namia graminifoli	a (FAC), E. hyssopifolium (N/L)		
			aamia graminifolia	a (FAC), E. hyssopifolium (N/L)		
			namia graminifolia	a (FAC), E. hyssopifolium (N/L)		

#### HYDROLOGY

Recorded Data (Describe in Remarks):  Stream, Lake, or Tide Gauge  Aerial Photographs  Other  X No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: Inundated Saturated in Upper 12 Inches Water Marks Drift Lines
Field Observations: N/A	X Sediment Deposits Drainage Patterns in Wetlands
Depth of Surface Water: (in.)	Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 Inches X Water-Stained Leaves
Depth to Free Water in Pit: (in.)	Local Soil Survey Data
Depth to Saturated Soil: (in.)	FAC-Neutral Test Other (Explain in Remarks)
Remarks: Vegetation represented and the presence of water stain	ed leaves suggests that water ponds in this wet depressional area.

Map Unit Name (Series and Phase)		ersfield-Ludlow-Wilbr llex	aham Drainag	e Class:	Well drained	to poorly drained
Taxonomy (Subgro	up): <u>Aq</u> ı	uic to Oxyaquic subgr		servations Mapped Type?	Yes	No
Profile Description Depth (Inches)   1	on:_ lorizon	Matrix Color (Munsell Moist) 7.5 YR 6/1 7.5 YR 6/1-7/1 10 YR 5/1	Mottle Colors (Munsell Moist) 7.5YR 6/8 7.5YR 6/8-7/1 7.5YR 5/8	Mottle Abund Size/Contras	dance/	xture, ncretions, ucture, etc. ay/Loam ay/Loam ay/Loam
Reducing	edon		High Orga Liste	cretions I Organic Content anic Streaking in S Id on Local Hydric Id on National Hyd IEXPLAIN IN Rem	andy Soils Soils List Iric Soils List	er in Sandy Soils
Remarks:						

#### WETLAND DETERMINATION

Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	Yes Yes Yes	No No No	(Circle)	(Circle) Is this Sampling Point Within a Wetland?	х	Yes	No
				aring activity within the past 5 years). Altho SACE is required on this site as an atypica			

Investigator: A. Bernick,	CEDC M. Bright, A. McN	∕lahon, J. Nash, A	AKRF, Inc.	Area)		County: Richmond State: NY  Community ID: Data Point B- Transect ID:		
Do Normal Circumstance Is the site significantly dis Is the area a potential Pro (If needed, explain on rev	sturbed (Atypica oblem Area?		A11274-774	X No X No No		Transe	ct ID:	Data Point B-2 ed Wetland B)
VEGETATION  Dominant Plant Species	Stratum	Indicator	Domina	ant Plant	t Species		Stratum	Indicator
Juncus effusus	Herb	FACW+	6.		P. A. A. S. S.			
<ol><li>Echinochloa walteri</li></ol>	Herb	FACW+	7.					
3. Eleocharis obtusa	Herb	OBL	8.					
4. Juncus bufonius	Herb	FACW	9. —					_
5			10. —					
Remarks:								
HYDROLOGY								
HYDROLOGY  Recorded Data (Descri	be in Remarks):		Wetlan	d Hydrol	logy Indic	ators:		
					logy Indicators:	ators:		
Recorded Data (Descri	r Tide Gauge				ndicators:	ators:		
Recorded Data (Descri Stream, Lake, o Aerial Photograp Other	r Tide Gauge ohs			rimary In Inund Satur	ndicators: lated rated in U	ators:	ches	
Recorded Data (Descri Stream, Lake, o Aerial Photograp	r Tide Gauge ohs			rimary In Inund Satur Wate	ndicators: lated rated in Up r Marks		ches	
Recorded Data (Descri Stream, Lake, o Aerial Photograp Other	r Tide Gauge ohs		P	rimary In Inund Satur Wate Drift L	ndicators: lated rated in U <sub>l</sub> r Marks Lines	pper 12 Inc	ches	
Recorded Data (Descri Stream, Lake, o Aerial Photograp Other X No Recorded Data Ava	r Tide Gauge ohs			rimary In Inund Satur Wate Drift L Sedin	ndicators: dated rated in Up r Marks Lines ment Depo	pper 12 Ind		
Recorded Data (Descri Stream, Lake, o Aerial Photograp Other X No Recorded Data Ava	r Tide Gauge ohs		P	rimary In Inund Satur Wate Drift L Sedin Drain	ndicators: dated rated in Up or Marks Lines ment Depo	opper 12 Indoorsits erns in Wet	lands	ed):
Recorded Data (Descri Stream, Lake, o Aerial Photogras Other X No Recorded Data Ava	r Tide Gauge ohs	(in	P	rimary In Inund Satur Wate Drift L Sedin Drain econdary	ndicators: dated rated in Up or Marks Lines ment Depo age Patte y Indicato zed Root	osits erns in Wet rs (2 or mc Channels	lands ore require	ed): 12 Inches
Recorded Data (Descri	r Tide Gauge ohs	No.	P	rimary In Inund Satur Wate Drift L Sedin Drain econdary Wate	ndicators: dated rated in Up or Marks Lines ment Depo age Patte y Indicato zed Root or-Stained	osits erns in Wet rs (2 or mo Channels Leaves	lands ore require	ed): 12 Inches
Recorded Data (Descri	r Tide Gauge ohs	(in	P	rimary In Inund Satur Wate Drift L Sedin Drain econdary Oxidii Wate Local	ndicators: dated rated in Up r Marks Lines ment Depo age Patte y Indicato zed Root ir-Stained I Soil Surv	osits erns in Wet rs (2 or mo Channels Leaves vey Data	lands ore require	ed): 2 Inches
Recorded Data (Descri	r Tide Gauge ohs	No.	P	rimary In Inund Satur Wate Drift L Sedin Drain econdary Wate Local FAC-	ndicators: dated rated in Up r Marks Lines ment Depo age Patte y Indicato zed Root r-Stained I Soil Surv- Neutral To	osits erns in Wet rs (2 or mo Channels Leaves vey Data	lands ore require in Upper 1	ed): 12 Inches

Map Unit Name Series and Phase) Faxonomy (Subgro		III M S		_ Drainage _ Field Obs _ Confirm N	- 30200 (c)	Yes	No
Profile Description	on:			NOTE OF STREET	The Parties of Parties	(Filthern)	
Depth (Inches) F	-lorizon	Matrix Color (Munsell Moist)	Mottle C (Munsell		Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, et	
0-3 F	Fill	10 VD E/0	10 VB 6	- 16		Rocky fill	
6-8		10 YR 5/3 10 YR 7/3	10 YR 5			Dark black Maganese concretions	
8-12		10 YR 7/3	10 YR 5	5/8		Dark black Maganese concretions	
Hydric Soil Indicato  Histosol Histic Epip	pedon			High (	retions Organic Content in Surfac	ce Layer in Sand	ly Soils
Histosol Histic Epip Sulfuric O Aquic Moi	pedon			High 0 Organ Listed		oils st	dy Soils
Histosol Histic Epip Sulfuric O Aquic Moi Reducing X Gleyed or  Remarks:	pedon idor isture Regime Conditions Low-Chroma	Colors		High 0 Organ Listed	Organic Content in Surfac nic Streaking in Sandy Sc I on Local Hydric Soils Lis I on National Hydric Soils	oils st	ly Soils
Histosol Histic Epip Sulfuric O Aquic Moi Reducing X Gleyed or Remarks:	pedon idor isture Regime Conditions Low-Chroma	ATION  SS NO  SS NO	(Circle)	High (Organ Listed Listed Other	Organic Content in Surfac nic Streaking in Sandy Sc I on Local Hydric Soils Lis I on National Hydric Soils	oils st List	dy Soils

	CEDC	NY (Natural Resour		Area)	Date: County: State:	08.18.08 Richmo	ond
Do Normal Circumstances Is the site significantly dis Is the area a potential Pro (If needed, explain on rev	turbed (Atypic blem Area?		Yes Yes Yes	X No No X No X	Transec		Data Point B-3
<b>VEGETATION</b>							
Dominant Plant Species  1. Eupatorium serotinum	Stratum Herb	Indicator FAC-	6.	ant Plant Spe	ecies S	tratum	Indicator
Eupatorium     hyssopifolium	Herb	N/A	7.				
Euthamia graminifolia	Herb	FAC	8. —				
4. Lotus corniculatus	Herb	FACU	9				
<ol><li>Plantago lanceolata</li></ol>	Herb	UPL	10.				
HYDROLOGY							
Recorded Data (Describ Stream, Lake, or Aerial Photograp Other X No Recorded Data Avai	Tide Gauge hs			d Hydrology rimary Indica Inundated Saturated Water Ma Drift Lines	itors: I I in Upper 12 Inc irks	hes	
Field Observations: N/A					Patterns in Wet		10.
Depth of Surface Water:		(in.)		_ Oxidized I	licators (2 or mo Root Channels i		
Depth to Free Water in Pit:		(in.)			ained Leaves I Survey Data		
Depth to Saturated Soil:		(in.)		FAC-Neut		s)	
Remarks: No wetland hydrolo	gy indicators pr	esent.					

Map Unit Name (Series and Phase):	7111	Drainag	e Class:		
Taxonomy (Subgroup):		Field Ob	oservations Mapped Type?	Yes	No
Profile Description:	O COME				
Depth (Inches) Horizon 0-5 6-8 8-10	Matrix Color (Munsell Moist) 7.5 YR 5/6 7.5 YR 4/3 7.5 YR 4/4-5/4	Mottle Colors (Munsell Moist) 7.5 YR 4/6 5YR 4/6	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc Silty Loam Silty Loam	
A COLUMN MORNING		Con	cretions		
Histosol Histic Epipedon Sulfuric Odor Aquic Moisture R Reducing Conditi Gleyed or Low-Ci	ons nroma Colors	High Orga Liste	cretions Organic Content in Surfac anic Streaking in Sandy Sc ed on Local Hydric Soils Lis ed on National Hydric Soils er (Explain in Remarks)	oils st	/ Soils
Histic Epipedon Sulfuric Odor Aquic Moisture R Reducing Conditi	ons nroma Colors ators are not present.	High Orga Liste	Organic Content in Surface anic Streaking in Sandy Sc and on Local Hydric Soils Lis and on National Hydric Soils	oils st	y Soils

	n, Staten Island, N C EDC	NY (Natural Resou	rces Study	Area)	Cou	Date: 10.2.08 County: Richmond State: NY  Community ID: Data Point E Transect ID: Plot ID: (flagged Wetland B)		
Do Normal Circumstance			Yes Yes	No No			Data Point B-4	
Is the site significantly dis Is the area a potential Pr (If needed, explain on rev VEGETATION	oblem Area?	ar Ortuationy:	Yes	No	Plot		Wetland B)	
Is the area a potential Pr (If needed, explain on rev VEGETATION	oblem Area?	Indicator	Yes	No	# B00			
Is the area a potential Pr (If needed, explain on rev VEGETATION	oblem Area? verse.)	50. 300 (statistical) page 16 (st	Yes		ies	ID: (flagged	Wetland B)  Indicator FAC	
Is the area a potential Pr (If needed, explain on rev VEGETATION Dominant Plant Species	oblem Area? verse.)  Stratum	Indicator	Yes	No ant Plant Spec	ies	ID: (flagged	Indicator	
Is the area a potential Pr (If needed, explain on rev VEGETATION  Dominant Plant Species  1. Cyperus iria	oblem Area? verse.)  Stratum Herb	Indicator FACW	Yes	No ant Plant Spec	ies	ID: (flagged	Indicator	
Is the area a potential Proceeding (If needed, explain on reconstruction)  VEGETATION  Dominant Plant Species  1. Cyperus iria 2. Juncus bufonius	Stratum Herb Herb	Indicator FACW FACW	Dominion 6.	No ant Plant Spec	ies	ID: (flagged	Indicator	

Remarks: The grasses Aristida oligantha (NL) and Agrostis capillaris (NO) and Eupatorium serotinum (FAC-) are found in open areas on the edge of wetland B, slightly drier than wetter portions. Eleocharis obtusa (OBL), Scirpus cyperinus (FACW+), Juncus effusus (FACW+) and Scirpus cyperinus (FACW+) were seen in earlier visits (summer 2008) within the wettest portions of Wetland B. Adjacent woods w/ gray birch, highbush blueberry, black gum, slender leaved goldenrod, pin oak, but appear to lack suitable hydrology.

#### **HYDROLOGY**

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

Map Unit Name (Series and Ph		ersfield-Ludlow-Wilbr lex	aham	Drainage C	Dlass:	Well dra	ained to poorly o	drained
Taxonomy (Sul		ic to Oxyaquic		Field Obse	ervations	Poorly drained		1
				Confirm M	apped Type?	1503473 (03) 1452 (3)	Yes	No
Profile Desc	cription:						1 <del>122</del> 1050 (8100 (103)	
Depth (Inches) 0-2	Horizon		Mottle Co (Munsell none		Mottle Abund Size/Contras		Texture, Concretions, Structure, etc. Clay loam	
2-6	_A	7.5YR 5/1	7.5YR 5	/6	20%	clay loam		
7-12+	A2	7.5YR 5/1	7.5YR 5	/6	30%	-	Clay loam	
							-	
X Sulfur Aquic X Reduc X Gleye				Organi Listed		andy Soils Soils List Iric Soils L		<sup>,</sup> Soils
Remarks:								
Meets Field Ind	licator "F3: Dep	leted Matrix".						
predominance clearing for Fai	of hydrophytic v rview Park proje	roma/high value thro vegetation. It is suspe ect) has exposed a no et "TF2: Red Parent N	cted that reg early gleyed	grading of the	e field in previou	us years (~	~2004/2005, dui	ring

#### **WETLAND DETERMINATION**

Hydrophytic

Vegetation Present? Yes Wetland Hydrology		No	(Circle)			
Present?	Yes	No		(Circle)	Programme	
Hydric Soils Present?	Yes	No		Is this Sampling Point Within a Wetland?	Yes	No
Remarks: Wetland flag northwest corner, partiall				I land extends around soil/mulch piles in cente ood Drive.	er of open fi	eld, in

NOTE: Additional areas of the open field and adjacent woods to the south may meet USACE wetland definition. However, these additional areas were not contiguous within the Englewood Avenue Corridor. These additional potential wetland areas must be investigated as part of land-use actions on remaining portions of the Charleston Natural Resources Study Area.

Applicant/Owner: N	C EDC	NY (Natural Resou		Area)	Date: 8.13.08 County: Richmonds State: NY	ond
Do Normal Circumstance Is the site significantly di Is the area a potential Pi (If needed, explain on re	sturbed (Atypic oblem Area?		Yes Yes Yes	No No No	Community ID: _ Transect ID: _ Plot ID: _(flagged	Data Point C-1
VEGETATION						
Dominant Plant Species  1. Red Maple (Acer	Stratum tree	Indicator FAC	Domina 6,	ant Plant Species	Stratum	Indicator
2. Pin oak (Quercus	tree	FACW	7. —			-
palustris White grass (Leersia virginica)	herb	FACW	8.			
4. Sweetgum (Liquidambar styraciflua)	tree	FAC	9.			
5.			10.			
HYDROLOGY						
Recorded Data (Descr Stream, Lake, of Aerial Photogra Other No Recorded Data Ava	or Tide Gauge phs		0.000	d Hydrology Indica imary Indicators: Inundated Saturated in Up Water Marks Drift Lines		
Field Observations:			X	Drainage Patte	sits rns in Wetlands rs (2 or more required	D:
Depth of Surface Water:	-	(in	<u>X</u>	Oxidized Root ( Water-Stained	Channels in Upper 12 Leaves	
Depth to Free Water in Pit:  Depth to Saturated Soil:		(in		Local Soil Surv FAC-Neutral Te Other (Explain	est	
Remarks: Little herbaceous	vegetation. Sedi	ment deposits and	d roots expo	sed attest to frequ	ent surface flow as si	heet runoff.

Map Unit Name (Series and Pha		Vethersfield-Ludlow-Wilbra complex	aham	Drainage	Class:	Well dra	ained to poorly	drained
Taxonomy (Sub	ogroup):	Aquic and Oxyaquic sub	group	roup Field Observations Confirm Mapped Type?		Poorly drained Yes		No
Profile Desc	ription:				парроц Туро.		1100	
Depth (Inches)	Horizor	Matrix Color (Munsell Moist) 5YR 4/6	Mottle C	PERSONAL PROPERTY.	Mottle Abund Size/Contras		Texture, Concretions, Structure, et	
6-8	В	7.5YR 6/4					Silty loam	
8-10	В	5YR 5/3	5YR 4/6	3	20%		Silty loam	
11-14	B2	7YR 3/2	4/6		20%		Silty loam	
X Reduc Gleyer Remarks:	iol Epipedon ic Odor Moisture I bing Condi d or Low-C		Wethersfie	High of Organ Listed Listed X Other	retions Organic Content nic Streaking in S I on Local Hydric I on National Hyd (Explain in Remaind Wilbraham so	andy Soils Soils List ric Soils L arks)	s .ist ped in dense b	asal till
with hydrologic	soil group	either C or D. Wilbraham is designated as a hydric s	and Ludlov	w are both A	Aquic Dystrudepts	. Wethers	field is an Oxy	aquic

#### WETLAND DETERMINATION

Hydrophytic Vegetation Present? Wetland Hydrology Present?	Yes	No No	(Circle)	(Circle)		
Hydric Soils Present?	Yes	No		Is this Sampling Point Within a Wetland?	Yes	No
Remarks: Wetland Flagg	ed C1-C20. W	etland ma	pped by NV	VI (PFO1B and R2UBH) and by NYSDEC as	AR-27.	

# DATA FORM ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

Applicant/Owner: NY	C EDC	NY (Natural Resou j, 31' 57.5"; 74 deg		County: Richmo		ond	
Do Normal Circumstance Is the site significantly dis Is the area a potential Pro (If needed, explain on rev	sturbed (Atypic oblem Area?	Yes Yes Yes	No No No	Transec		Data Point C-2	
VEGETATION							
Dominant Plant Species  1. Red Maple (Acer rubrum)	Stratum tree	Indicator FAC	Domina 6.	nt Plant Speci	ies S	tratum	Indicator
Pin oak (Quercus palustris)	tree	FACW	7.				
White grass (Leersia virginica)	herb	FACW	8.				
4			9.				
Percent of Dominant Species Remarks: Buttressed root Sambucus nigra): FACW-; re eature reaches retaining wa	ting noted. As w ed maple (Acer i Il of shopping ma	retland descends s rubrum): FAC; and all - formerly conne	outhwards, i joe pye wee	t becomes a li ed (Eupatoriad and "D", as he	lelphus fistulos adwaters of M	us): FAC\ ill Creek.	W. Linear water At southern
Percent of Dominant Species Remarks: Buttressed root (Sambucus nigra): FACW-; refeature reaches retaining wal erminus, a substantial culve Wetland F. Overland flow m.	ting noted. As w ed maple (Acer i Il of shopping ma rt opening is pre	vetland descends se rubrum): FAC; and all - formerly conne sent, which diverts	outhwards, i joe pye wee cted to wetla flow undern	t becomes a li ed (Eupatoriad and "D", as he leath the Brick	lelphus fistulos adwaters of M	us): FAC\ ill Creek.	W. Linear water At southern
Percent of Dominant Species Remarks: Buttressed root Sambucus nigra): FACW-; releature reaches retaining wal	ting noted. As wed maple (Acer ill of shopping mart opening is preay pass along rebe in Remarks): r Tide Gauge	vetland descends so rubrum): FAC; and all - formerly conne sent, which diverts staining wall and to	outhwards, i joe pye wee icted to wetla flow undern wards Wetla	t becomes a list (Eupatoriad and "D", as he seath the Brick and D.  Hydrology Insimary Indicato Inundated Saturated in Water Mark	lelphus fistulos eadwaters of M ktown Centre s dicators: ors:	us): FACI ill Creek. A hopping a	W. Linear water At southern
Percent of Dominant Species Remarks: Buttressed root (Sambucus nigra): FACW-; re feature reaches retaining wa rerminus, a substantial culve Wetland F. Overland flow m.  HYDROLOGY  Recorded Data (Descrii Stream, Lake, of Aerial Photograp Other	ting noted. As wed maple (Acer ill of shopping mart opening is preay pass along rebe in Remarks): r Tide Gauge	vetland descends so rubrum): FAC; and all - formerly conne sent, which diverts staining wall and to	outhwards, i joe pye wee icted to wetla flow undern wards Wetland Pr	t becomes a lied (Eupatoriad and "D", as he leath the Brick and D.  d Hydrology Insimary Indicato Inundated Saturated in Water Mark Drift Lines Sediment D Drainage Pa	delphus fistulos eadwaters of M etown Centre s dicators: ors: n Upper 12 Inc. es	nus): FACI ill Creek. A hopping a hes	W. Linear water At southern irea to the area o
Percent of Dominant Species Remarks: Buttressed root (Sambucus nigra): FACW-; reature reaches retaining wal erminus, a substantial culve (Netland F. Overland flow m.  HYDROLOGY  Recorded Data (Descrii Stream, Lake, or Aerial Photogram Other No Recorded Data Ava  Field Observations:	ting noted. As wed maple (Acer ill of shopping mart opening is preay pass along rebe in Remarks): r Tide Gauge	vetland descends so rubrum): FAC; and all - formerly conne sent, which diverts staining wall and to	wetland  Wetland  Pr  X  X  X  See  X	t becomes a list (Eupatoriad and "D", as he seath the Brick and D.  d Hydrology Insimary Indicato Inundated Saturated in Water Mark Drift Lines Sediment D Drainage Patecondary Indic Oxidized Ro	dicators:  Deposits atterns in Wetlestors (2 or mooot Channels in	hes  ands  re require	W. Linear water At southern area to the area or
Percent of Dominant Species Remarks: Buttressed root (Sambucus nigra): FACW-; re feature reaches retaining wall terminus, a substantial culve (Wetland F. Overland flow m.  HYDROLOGY  Recorded Data (Descrii Stream, Lake, of Aerial Photogram Other No Recorded Data Ava	ting noted. As wed maple (Acer ill of shopping mart opening is preay pass along rebe in Remarks): r Tide Gauge	vetland descends serubrum): FAC; and all - formerly connersent, which diverts etaining wall and to	wetland  Wetland  Pr  X  X  X  X	t becomes a list (Eupatoriad and "D", as he seath the Brick and D.  d Hydrology Insimary Indicato Inundated Saturated in Water Mark Drift Lines Sediment D Drainage Patecondary Indic Oxidized Ro	dicators:  Deposits atterns in Wetleators (2 or mooot Channels in Medicators (2 or moo	hes  ands  re require	W. Linear water At southern area to the area or

Map Unit Name Wethersfield-Ludlow-Wilbraham complex				Drainage Class:		Well drained to poorly drained		
Taxonomy (Subgroup):				Field Observations		Poorly drained		
				Confirm Ma	pped Type?		Yes	No
Profile Description	n:						***	
	rizon	Matrix Color (Munsell Moist)	Mottle Co (Munsell	0.077 (0.077 (d. 1990)	Mottle Abund Size/Contrast		Texture, Concretions Structure, et	#/h
0-2 A 2-6 B		5YR 4/3	5YR 5/8		10%		Cille La sus	
7-10 B		5YR 4/3 5YR 4/3	5YR 4/6 5YR 4/6		20%	<del></del> :	Silty loam Silty loam	
10-15 B2		7YR 3/2	4/6		20%		Sandy loam	loam
Histosol Histic Epipe Sulfuric Ode Aquic Moist X Reducing C Gleyed or L	or ure Regime	Colors		Organic Listed or Listed or	ions ganic Content i Streaking in S n Local Hydric n National Hyd xplain in Rema	andy Soils Soils List ric Soils L	3	dy Soils
Remarks: Meets Field Indicator	s "TF2: Red	Parent Material".						
Wethersfield, Ludlow Drainage class for th Wilbraham and Ludlo hydric soil by the NTo	ese soil type w are both /	s ranges from well	drained to p	oorly drained	I, with hydrolog	ic soil gro	up either C or	D.
Upland fringe where	smilax domi	nant (40deg, 31' 55	5.5"; 74deg,	13' 44.7") ext	nibits 5YR 4/3 t	hroughou	t, no mottling.	
Second soil pit at dat	a point: 40d	eg, 31' 57.5"; 74de	g, 13' 43.0".					

### WETLAND DETERMINATION

Hydrophytic Vegetation F Wetland Hyd Present? Hydric Soils	Present? drology	Yes Yes	No No No	(Circle)	(Circle) Is this Sampling Point Within a Wetland?	Yes	No
Remarks:	Wetland flag	ged C1 to C20	. Wetland	mapped by	NWI (PFO1B and R2UBH) and by NYSDEC	as AR-27.	

Investigator: _J.Nash (Da		Date: 8.13.08 County: Richmond State: NY				
Do Normal Circumstance Is the site significantly di Is the area a potential Pr (If needed, explain on re	sturbed (Atypica oblem Area?		Yes	10 10	Community ID: Transect ID:	
VEGETATION	Otto to the	testestes	L possinent Di		Otentum	to disolor
Oominant Plant Species  1. Red maple (Acer	Stratum	FAC FAC	Dominant Pla 6.	ant Species	Stratum	Indicator
zubrum) 2. Pin oak (Quercus palustris)	tree	FACW	7.			
3. Black gum (Nyssa sylvatica)	tree	FAC	8.			
Greenbriar (Smilax rotundifolia)	vine	FAC	9.			_
5.			10.			
tream control to the east o	west.					
HYDROLOGY	ir west.					
	ibe in Remarks); or Tide Gauge phs		Primary —— Inu —— Sa —— X Wa	Irology Indicate / Indicators: undated turated in Uppater Marks fft Lines		
Recorded Data (Description Stream, Lake, of Aerial Photogra Other  No Recorded Data Ava	ibe in Remarks); or Tide Gauge phs		Primary Inu Sa X Wa X Dri X Se Dra	y Indicators: indated turated in Upp ater Marks ift Lines diment Depos ainage Patterr	per 12 Inches sits ns in Wetlands	d).
HYDROLOGY  Recorded Data (Description of the property of the p	ibe in Remarks); or Tide Gauge phs	(in	Primary Inu Sa X Wa X Dri X Se Dra Second X Ox	y Indicators: undated turated in Upp ater Marks ift Lines diment Depos ainage Pattern lary Indicators	oer 12 Inches hits ns in Wetlands (2 or more require hannels in Upper 1	
HYDROLOGY  Recorded Data (Description of Surface Water:  Other  No Recorded Data Available of Surface Water:	ibe in Remarks); or Tide Gauge phs	(in	Primary	y Indicators: undated turated in Upp ater Marks iff Lines diment Depos ainage Pattern lary Indicators idized Root Ci	oer 12 Inches  iits  as in Wetlands  (2 or more require hannels in Upper 1: eaves y Data	
HYDROLOGY  Recorded Data (Description of Suream, Lake, of Aerial Photogra Other No Recorded Data Avanta Depth of Surface Water:  Depth to Free Water in Pit:	ibe in Remarks); or Tide Gauge phs	122	Primary	y Indicators: undated turated in Upp ater Marks iff Lines diment Depos ainage Pattern lary Indicators idized Root Ci ater-Stained Le cal Soil Surve	per 12 Inches  its  ns in Wetlands (2 or more require hannels in Upper 1: eaves y Data	
Recorded Data (Descri Stream, Lake, o Aerial Photogra Other	ibe in Remarks); or Tide Gauge phs	(in	Primary	y Indicators: undated turated in Upp ater Marks iff Lines diment Depos ainage Pattern lary Indicators idized Root Cl ater-Stained Le cal Soil Survey C-Neutral Tes	per 12 Inches  its  ns in Wetlands (2 or more require hannels in Upper 1: eaves y Data	

Map Unit Name Wethersfield-Ludlow-Wilbraham complex					Drainage Class:		Well drained to poorly drained		
Taxonomy (Sul	Aqu bgroup):	Field Observations  Confirm Mapped Type?		Poorly drained		No			
				Confirm	иарреа Туре?		Yes	No	
Profile Desc	cription:						Texture,		
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Co (Munsell	1.70/TH (2.107) V	Mottle Abund Size/Contras		Concretions, Structure, etc		
0-3	A	5YR 5/6	5YR 4/4		10%		Clay loam		
4-8	A	5YR 4/2	5YR 3/4	to 4/6	20%		clay loam		
8-10	В	5YR 4/2 to 4/3	5YR 5/6		20%		Silty loam		
10+	B2	7YR 4/3					Sandy loam		
Sulfui Aquic X Redu				High Organ Listed Listed	retions Organic Content nic Streaking in S d on Local Hydric d on National Hyd (Explain in Rem	Sandy Soil Soils List Iric Soils L	s	y Soils	
Wethersfield, L Drainage class	udlow and Wilb for these soil ty Ludlow are bo	ed Parent Material". F raham soils develope pes ranges from well th Aquic Dystrudepts.	ed in dense to	oasal till de ooorly drair	rived mainly from ned, with hydrolo	gic soil gro	oup either C or	D. ed as a	
WETLAND	D DETERMI	NATION							

Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	Yes Yes Yes	No No No	(Circle)	(Circle) Is this Sampling Point Within a Wetland?	Yes	No
Remarks: Wetland flagg	ed D1 to D7 a	s a linear	wetland fea	ature. Wetland mapped by NWI and by NYSI	DEC as AR-	27.

# DATA FORM ROUTINE WETLAND DETERMINATION

Applicant/Owner: NY	n, Staten Island, NY YCEDC k, M. Bright, A. McM			rea)	Date: 08.18.08 County: Richmond State: NY	
Do Normal Circumstance Is the site significantly di Is the area a potential Pr (If needed, explain on re	isturbed (Atypical roblem Area?		Yes X Yes Yes	No X No X No X	Community ID: _Da Transect ID: Plot ID: _(flagged W	ata Point F-1 /etland F)
VEGETATION						
Dominant Plant Species  1. Acer rubrum	Stratum Canopy/ Sub/canop	FAC	Dominar 6.	nt Plant Specie	Stratum	Indicator
2. Sassafras albidum	Sub- canopy	FACU-	7.			
3. Vaccinium corymbosum	shrub	FACW-	8.			
4. Viburnum dentatum 5.	Shrub	FAC	9. —			
HYDROLOGY			_			
Recorded Data (Descri	or Tide Gauge aphs			Hydrology Ind mary Indicators Inundated Saturated in Water Marks Drift Lines	s: Upper 12 Inches	
Field Observations: N/A		960	X X Sec	condary Indica	tterns in Wetlands itors (2 or more required):	
Depth of Surface Water:		(in	x	Oxidized Roo	ot Channels in Upper 12 Inc ed Leaves	ches
Depth to Free Water in Pit:		1117	FAC-Neutral Test			
AND AND THE PROPERTY OF THE PR		(in	<u>.</u> _			

### SOILS

Profile Description:   Depth (Inches)   Horizon   Horizon   C2   A   5YR 4/3   5YR 4/6   C3   C4   C4   C4   C4   C4   C4   C4	ained
Depth (Inches)         Horizon         Matrix Color (Munsell Moist)         Mottle Colors (Munsell Moist)         Mottle Abundance/ Size/Contrast         Texture, Concretions, Structure, etc.           0-2         A         5YR 4/3         5YR 5/8         10%           2-6         B         5YR 4/3         5YR 4/6         Silty loam           7-10         B         5YR 4/3         5YR 4/6         20%         Silty loam	No
2-6         B         5YR 4/3         5YR 4/6         Silty loam           7-10         B         5YR 4/3         5YR 4/6         20%         Silty loam	
7-10 B 5YR 4/3 5YR 4/6 20% Silty loam	_
	_
	am
Hydric Soil Indicators:  Histosol Histic Epipedon Sulfuric Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors  Concretions High Organic Content in Surface Layer in Sandy Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)	Soils
X Gleyed or Low-Chroma Colors Other (Explain in Remarks)	
Remarks:	

### WETLAND DETERMINATION

Vegetation Present? Wetland Hydrology	Yes	No	(Circle)			
Present?	Yes	No		(Circle)		
Hydric Soils Present?	Yes	No		Is this Sampling Point Within a Wetland?	Yes	No
Remarke: Anneare to be	connected to	the areas	of Metlands	C and D via culverts – see Data Forms for I	Data Pointe	C-2

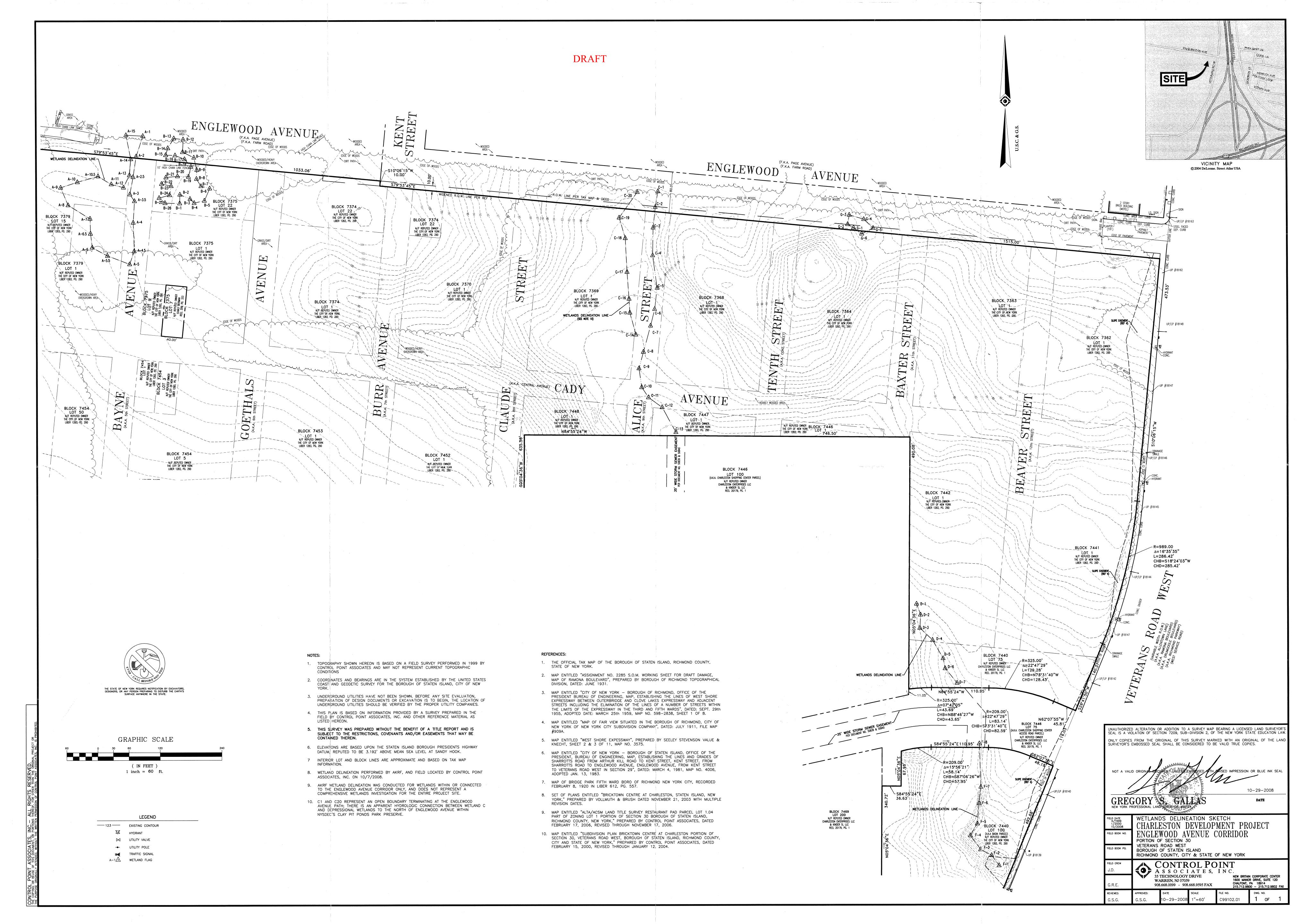
### **DATA FORM** ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

Applicant/Owner: NY	n, Staten Island, N YC EDC Data Point: 40 deg		Date: 8.13.08 County: Richmond State: NY				
Do Normal Circumstance Is the site significantly die Is the area a potential Pr (If needed, explain on re	isturbed (Atypic roblem Area?		Yes Yes Yes	No No No	Community ID: Transect ID: Plot ID: (flagge	Data Point G-1 ed Wetland Area G)	
VEGETATION							
Dominant Plant Species  1. Red Maple (Acer rubrum)	Stratum Tree	Indicator FAC	6.	ant Plant Species	Stratum	Indicator	
Pin oak (Quercus palustris)	Tree	FACW	7.				
Hay-scented fern     (Dennstaedtia     punctilobula)	Herb	NL	8.				
4	(	-	9. —				
0.	1	-					
HADBOLOGA							
HYDROLOGY			Т				
Recorded Data (Descri				d Hydrology Indic rimary Indicators:			
Aerial Photogra				Inundated			
Other No Recorded Data Ava	ailable		<u> </u>	<ul><li>Saturated in U</li><li>Water Marks</li></ul>	Jpper 12 Inches		
			<b>」</b>	Drift Lines			
Field Observations:				Sediment Dep Drainage Patte	oosits erns in Wetlands		
Depth of Surface Water:	-	(in	n.) X	econdary Indicate	ors (2 or more require t Channels in Upper 1		
Depth to Free Water in Pit:		(in	and the same of th	Local Soil Surv FAC-Neutral T	vey Data		
Depth to Saturated Soil:		(in	1.)	Other (Explain	NOTES STATE OF THE PROPERTY OF		
Remarks: Small, wet depres fill/excavation.	sion 3 meters so	uth of unpaved pa	th along the	mapped Englew	ood Avenue corridor,	with evidence of pas	

#### SOILS

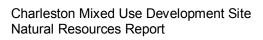
Map Unit Name (Series and Phase):	Wethersfield-Ludlow-Wilbra complex	iham Drainage	Class:	Well dra	ained to poo	rly drained
Taxonomy (Subgroup):			Field Observations  Confirm Mapped Type?		Poorly drained	
Profile Description:  Depth (Inches) 0-3 3-8 7-10	Matrix Color (Munsell Moist) 7.5 YR 6/1 7.5 YR 6/1-7/1 10 YR 5/1	Mottle Colors (Munsell Moist) 7.5YR 6/8 7.5YR 6/8-7/1 7.5YR 5/8	Mottle Abunc Size/Contras		Texture, Concretion Structure, Clay/Loar Clay/Loar	etc. m m
Hydric Soil Indicators:  Histosol Histic Epipedor Sulfuric Odor Aquic Moisture Reducing Cond X Gleyed or Low	Regime	High Orga Listed	retions Organic Content nic Streaking in S d on Local Hydric d on National Hyd r (Explain in Rem	andy Soils Soils List Iric Soils L	3	ndy Soils
rocks. Drainage class for D. Wilbraham and Ludlo	Ludlow and Wilbraham soils or these soil types ranges from the sould be sould be soil by the NTCHS. Meets TF	om well drained to poo strudepts. Wethersfield	rly drained, with hid is a mesic Oxya	ydrologic	soil group e	ither C or
WETLAND DETE	RMINATION					

Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	Yes Yes Yes	No No No	(Circle)	(Circle) Is this Sampling Point Within a Wetland?	Yes	No
Remarks: Flagged wetlar	nd "G", number	red G1 to (	G6 in a clos	ed loop.		



#### ATTACHMENT B

WETLAND DELINEATION REPORT



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# Charleston Mixed Use Development Site Wetland Delineation Report

**July 2013** 



**Prepared For** 

**New York City Economic Development Corporation** 

Prepared by



November 7, 2012 20 Exchange Place

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#### 1.0 Introduction

#### 1.1 Purpose of Study

The purpose of this investigation was to provide data regarding an identification of the extent of US Army Corps of Engineers (Corps) jurisdiction ("waters of the United States") for the Charleston Mixed-Use Development Site in Staten Island (Richmond County), New York (**Figure C-1**). The wetland delineation was performed as part of a larger site-wide investigation for the project proposed by the New York City Economic Development Corporation (EDC).

The determination of the extent of waters of the United States was conducted in accordance with the requirements of the Corps wetlands delineation method contained in the 1987 *Corps of Engineers Wetlands Delineation Manual* (1987). As per the guidelines set forth in the 1987 Manual, a 'routine' wetland delineation was conducted in July 2012. Also, adjacent to the project site, there are areas mapped by New York State Department of Environmental Conservation's (NYSDEC) as jurisdictional wetlands. The NYSDEC investigated these wetlands and confirmed their delineation in December 2012.

#### 1.1 Site Identification

The Development Area is located in southwest Staten Island. The area is bordered to the west by Arthur Kill Road and commercial developments, to the south by commercial developments and Bricktown Way/Mohr Street. The east border of the area consists of parking lots associated with a shopping center, although the northeast portion of the area borders an environmental Conservation Area (part of the Project Area). The northern portion of the Development Area is bordered by Englewood Avenue. In the extreme northeast portion of the Development Area, the area encompasses a small dirt road (hereafter referred to as the corridor road) that separates the Conservation Area to the south and Clay Pit Ponds State Park Preserve to the north.

The Development Area is generally wooded, with several open grassy areas. No permanent surface water features occur in the area; although the remnants of two man-made reflecting ponds occur in the area. Mill Creek a north-south flowing waterbody occurs in the Conservation Area.

#### 1.2 Regulatory Agency Mapped Wetlands

Preliminary investigations to determine the extent of freshwater wetlands in the area included review of the following:

- USFWS National Wetlands Inventory (NWI) Online Mapper; and
- NYSDEC Regulatory Freshwater Wetlands Maps.

#### 1.3.1 National Wetland Inventory Maps

National Wetland Inventory (NWI) maps, prepared by the US Fish and Wildlife Service (USFWS), show the approximate configuration, location, and type of wetlands found within a given area of coverage. The NWI maps are prepared primarily by conventional aerial photo interpretation (stereoscopic analysis) of high-altitude aerial photography (1:80,000 black and white). The map notes state:

"... there is a margin of error inherent in the use of the aerial photographs. Thus, a detailed, on-the-ground and historical analysis of a single site may result in a revision of the wetland boundaries established through photographic interpretation... No attempt was made to define the limits of proprietary jurisdiction of any federal, state or local government..."

The *User Notes for National Wetlands Inventory Maps* (US Department of the Interior, 1994) caution: "Maps should therefore be used to locate the presence of wetlands and <u>not</u> [emphasis added] to identify precise boundaries between wetlands and uplands."

Because the NWI maps are limited in precision by their scale (1:24,000) and the identification method used, the boundaries of wetlands shown on the NWI maps need to be more precisely determined in the field. Commonly, small wetland areas, and, less frequently, large wetland areas are not shown on NWI maps.

As per the USFWS' National Wetland Inventory online mapper, two palustrine wetlands occur on or adjacent to the Development Area (**Figure C-2**). Palustrine wetlands include all non-tidal wetlands that are dominated by trees, shrubs, persistent emergent, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 percent Cowardin et. al., 1979).

The wetland polygons mapped on and/or immediately adjacent to the area are as the following:

- PFO1B Palustrine Forested, broad-leafed deciduous, Saturated
- PUBH Palustrine Unconsolidated Bottom, Permanently Flooded.

#### 1.3.2 New York State Wetland Maps

#### 1.3.2.1 NYSDEC Tidal Wetland Maps

The NYSDEC has mapped tidal wetlands adjacent to the tidal waters of the Atlantic Ocean, as portions of the Hudson River. New York State tidal wetland maps are based on aerial photography taken in 1974. Each tidal wetland map is given a six digit code that corresponds to its geographical position. The maps that cover the relevant portions of Staten Island's west shore were reviewed to determine the extent of mapped tidal wetlands within the project area. No tidal wetlands occur within and/or adjacent to the Development Area.

MANLEY ST Regional Location ANDROVETTE ST Clay Pit Ponds State Park Preserve 440 Kreischer House Existing Conservation WEST SHORE EXPY The Tides MTA Bus Annex MOHR ST (PRIVATE) **Bricktown Centre** VETERANS RD W WEST SHORE PY TYRELLAN AV South Shore Commons Legend **Project Site** Charleston Mixed-Use **A=COM** Conservation Area Project Area Location Development Development Area **Building Footprint** 

Figure C-1
Project Site Location

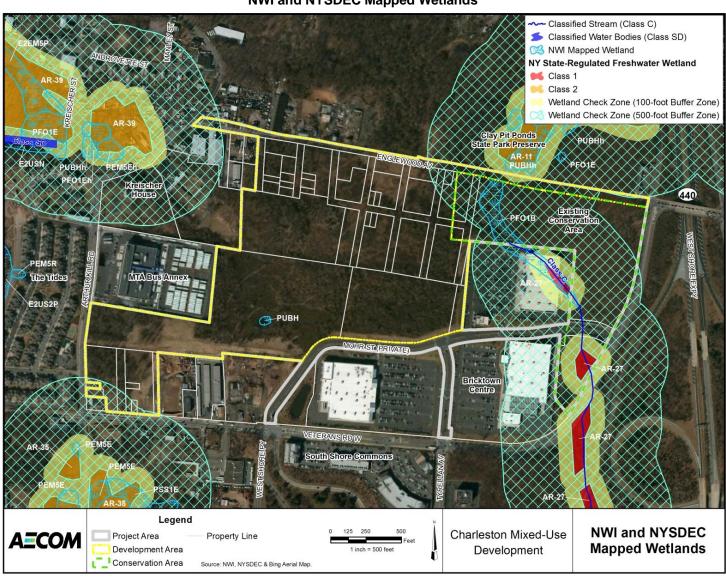


Figure C-2
NWI and NYSDEC Mapped Wetlands

#### 1.3.2.2 NYSDEC Freshwater Wetlands

NYSDEC regulates certain activities that occur in freshwater wetlands that are 12.4 ac (5 ha) or greater in size, or of significant local importance. NYSDEC classifies these significant local wetlands as Class I through IV, depending on their ecological value. Class I wetlands are the most valuable as they may provide habitat for threatened and endangered species, or are the source of or are adjacent to drinking water sources. Only two NYSDEC classified freshwater wetlands were identified near the Development Area:

- Wetland AR-11 is a Class II wetland located along Englewood Avenue in the northeast portion of the Development Area.
- Wetland AR-27 is a Class I wetland located along Mill Creek south of the corridor road where Englewood Avenue is to be extended eastward to Veterans Road West.

Delineated Wetlands B and C (see next chapter) identify the boundaries of Wetland AR-11and AR-27 in and near the corridor road. The wetland delineation was field reviewed by NYSDEC in September 2012 and approved by NYSDEC in a letter dated December 5, 2012.

#### 1.4 Topography, Geology, and Soils

#### 1.4.1 Topography

Elevations in the area vary between 38 and 127 feet above mean sea level (AMSL). The highest elevations occur in the west-central portions of the Development Area. Most slopes in the area are less than 2 percent; although steep slopes are encountered along the periphery of the area. Evidence of previous earthmoving activities is present in the area. Artificially created reflecting ponds, temporary roadways, pathways, etc. were documented in the area.

#### 1.4.2 Geology

The geology of the Development Area is largely dominated by materials deposited during the last Ice Age. During the last Ice Age, the southern boundary of the glacier is represented by the terminal moraine, a line of undulating hills with minor steep slopes. The moraine crosses through Staten Island. After deglaciation, the moraine was covered by glacial till depositions — a layer of loose unconsolidated, poorly sorted material. No outcrops of bedrock were observed on site.

#### 1.4.3 Soils

The New York City Reconnaissance Soil Survey was reviewed to determine the mapped soils within the site. Review of the soil survey indicates that four mapped soil series occur on site (**Figure C-3**).

Foresthills-Greenbelt-Pavement & buildings complex, 0 to 8 percent slopes: Nearly level to gently sloping areas that have been filled with natural soil materials; a mixture of anthropogenic soils that vary in depth of fill, with more than 15 percent impervious pavement and buildings covering the surface. This soil type was mapped only on a small portion of the southern boundary of the Development Area.

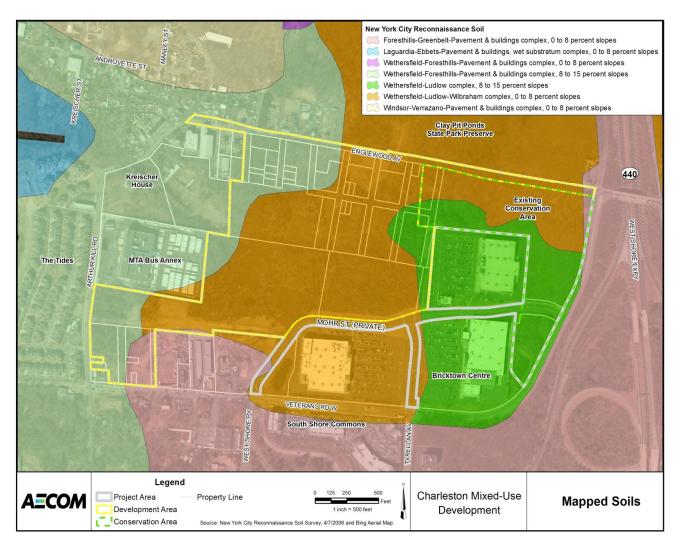
Wethersfield-Foresthills-Pavement & buildings complex, 8 to 15 percent slopes: Strongly sloping areas of till plains and hills that have been partially filled for residential use and cemeteries; a mixture of red till soils and anthropogenic soils, with more than 15 percent impervious pavement and buildings covering the surface; located in Staten Island. This soil series was mapped as occurring in the northwest and west portion of the Development Area.

Wethersfield-Ludlow complex, 8 to 15 percent slopes: Strongly sloping to moderately steep areas of till plains and hills, relatively undisturbed and mostly wooded; a mixture of well drained and moderately well drained soils developed in red till; located in Staten Island. This soil type was mapped only along the eastern boundary of the Development Area.

Wethersfield-Ludlow-Wilbraham complex, 0 to 8 percent slopes: Nearly level to gently sloping areas of till plains, relatively undisturbed and mostly wooded; a mixture of well drained, moderately well drained, and poorly drained soils developed in red till; located in Staten Island. This soil type occurs throughout the overwhelming majority of the Development Area.

A wide variety of soil types were observed in the Development Area (e.g., silty sand, silty clay loam, clay, etc.). Immediately north of the site is Clay Pit Ponds State Park Preserve, a site of former clay excavation for brick and earthen wares. As the name suggests, the soils in the area can have a high clay content. During the wetland delineation (See subchapter 3.2), soil texture and color varied considerably. Soils had high clay content and were influenced by red parent material. Often the wetlands formed in low depressions that allowed for the collection and retention of rainwater.

Figure C-3 Mapped Soils



#### 2.0 Wetlands Delineation

The Corps regulates "waters of the United States", pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344) (hereinafter referred to as Section 404). The term "waters of the United States" includes navigable lakes, rivers, streams, tributaries to navigable waters, all waters which are subject to the ebb and flow of the tide, interstate waters and tributaries. Waters of the United States also include wetlands adjacent to any of the above and <u>all</u> other waters of the US not identified above, such as isolated wetlands and lakes, intermittent streams and other waters, the destruction of which could affect interstate or foreign commerce.

The interpretation of interstate commerce is broad and extends to waters that are presently used, or have been used in the past, or may be susceptible for use by interstate or foreign travelers for recreation, waters from which fish or shellfish are or could be taken and sold in interstate commerce or foreign commerce, waters which are or could be used by industries in interstate commerce and waters which are or could be used by migratory birds or waterfowl. While the determination of wetlands is the focus of this report, it must be emphasized that waters in general are subject to regulation, since in all likelihood such waters would be considered "waters of the United States."

The Corps (Federal Register 1982) and the US Environmental Protection Agency (Federal Register 1980) jointly define wetlands as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

From this definition of wetlands, the Corps developed a three-parameter method to evaluate areas of land for the existence of wetlands, based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. This method is described in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Federal Manual). Generally, an area must exhibit all three parameters in order to be considered a jurisdictional wetland. A detailed field sampling methodology was developed and published in the Federal Manual, based on the following definitions of the three parameters:

<u>Hydrophytic Vegetation</u> - The sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present.

<u>Hydric Soil</u> - A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation.

<u>Wetland Hydrology</u> - Encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively.

A detailed description of these three parameters is provided in the following sections.

### 2.1 Hydrophytic Vegetation

Hydrophytic vegetation is adapted to life in permanently or periodically inundated or saturated soils. There are five main plant indicator status categories, based on the plant species' frequency of occurrence in wetlands:

 Obligate wetland plants (OBL) occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but may also occur rarely (estimated probability <1 percent) in nonwetland areas;

- Facultative wetland plants (FACW) usually occur in wetlands (estimated probability >67-99 percent), but occasionally are found in nonwetlands (estimated probability 1-33 percent);
- Facultative plants (FAC) are equally likely to occur in wetlands or nonwetlands (estimated probability 33-67 percent);
- Facultative upland plants (FACU) usually occur in nonwetlands (estimated probability >67-99 percent), but occasionally are found in wetlands (estimated probability 1-<33 percent); and
- Upland plants (UPL) occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in nonwetlands.

The three facultative categories are subdivided by "+" and "-" modifiers. FAC+ species, for example, have a greater probability of occurring in wetlands than FAC species, while FAC- species have a lower estimated probability of occurring in wetlands than FAC species.

An area is considered to have hydrophytic vegetation when, under normal circumstances, more than 50 percent of the dominant species are OBL, FACW, or FAC species. For this report a specific species indicator status was based upon the "United State Department of Agriculture's Natural Resource Conservation Services Plant Data Base, 2003." Additional indicators of wetland vegetation include:

- Observation of plant species growing in areas of prolonged inundation and/or soil saturation;
- Morphological adaptations;
- Information from technical literature;
- · Physiological adaptations; and
- Reproductive adaptations.

The dominant species in the plant community at the site were determined and categorized as to their likelyhood to occur in wetlands (e.g., OBL, FACW, etc.).

Observation points were selected to be representative of the plant communities present in the wetland and adjacent upland area. At each observation point, dominant plant species were identified and their relative abundance was estimated. Dominant plant species were recorded for each of the observation points. The criteria used to determine dominance were basal area and/or estimated percent areal cover for trees, and percent areal cover for saplings/shrubs, herbs, and vines.

#### 2.2 Hydric Soils

Indicators of hydric soils can be placed into two categories: 1) soil series and phases on the national and state hydric soils lists; and 2) field indicators of hydric soils. In addition, direct evidence can be used such as the observation of ponding, flooding and saturation, taking into account factors such as the time of year and likely duration. Direct evidence may be the only indication in newly developing soils or in areas of recent change. The US Department of Agriculture (USDA), Soil Conservation Service (SCS), in conjunction with the National Technical Committee for Hydric Soils has developed national and state lists of hydric soils (NTCHS, 1991).

The Federal Manual has identified that the presence of any one of the following field identifiable factors may indicate that hydric soils are present:

**Organic Soils** contain a high amount of organic matter and water content;

**Histic Epipedon** is a layer of a mineral hydric soil between 8 to 16 inches in depth at or near the surface that is saturated for 30 consecutive days or more in most years and contains a minimum of 20 percent of organic matter when no clay is present or a minimum of 30 percent of organic matter when 60 percent or greater clay is present;

**Sulfidic materials** in mineral soils emit an odor of rotten eggs. The odor is produced by the presence of hydrogen sulfide. These odors are present in permanently saturated water logged soils with sulfidic material only a few inches from the soil surface. Sulfides are produced only in a reducing environment;

**Aquic or peraquic moisture regimes** in soils that are almost completely free of dissolved oxygen due to the presence and/or saturation of groundwater at the soil surface i.e., soils of tidal marshes and soils of closed, landlocked depressions that are fed by permanent streams;

**Reducing soil conditions** (e.g. black anoxic soil) occur when soils have been saturated for long or very long durations of time;

**Gleyed, low chroma or low chroma mottled soils** refer to the coloration of hydric soils. The colors of various soil components are often the most diagnostic indicator of soils. Gleyed soils or gray-colored soils develop when anaerobic conditions result in pronounced chemical reduction of iron, manganese, and other elements, thereby producing a gray soil colors. Mottled means "marked with spots of contrasting color." Soils that have brightly colored mottles and a low matrix chroma are indicative of a fluctuating water table;

**Iron and/or manganese concretions** less than 0.07 in (2 mm) in diameter occurring within 3 in (7.5 cm) of the surface are evidence that the soil is saturated for long periods near the surface; and

Coarse textured soils with:

- a) High organic matter content in the surface horizon,
- b) Dark vertical streaking of subsurface horizons by organic matter; and/or
- c) Wet spodosols.

Detailed investigations were made at each observation point to determine if hydric soils were present. Soil pits were dug to depths ranging from 11 in to 20 in. The field analysis included the evaluation of soil colors, stratification and textures. In addition, particular attention was also given to those properties that identify soils as hydric. At a depth of 10 inches, the soil color was analyzed (using the Munsell color chart). The use of the color chart is employed to determine the chroma of the soil. The presence of gleyed or mottled soil coloring below a depth of 10 inchesor the A horizon (whichever is shallower) indicates the presence of hydric conditions. Additional soil investigations were made between observation points as necessary to assist in locating the wetland/upland boundary.

#### 2.3 Hydrology

Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively. The Federal Manual discusses hydrology in terms of a percent of the growing season when an area is wet. Generally speaking, areas which are seasonally inundated and/or saturated to the surface for more than 12.5 percent of the growing season are wetlands. Areas saturated to the surface between 5 percent and 12 percent of the growing season are sometimes wetlands and sometimes uplands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands. The length of time an area is wet for the hydrology criterion is based on consecutive days during the growing season.

The hydrology parameter may be quite evident (i.e., overbank flooding), or it can be difficult to observe. In contrast to the vegetation and soil parameters, the hydrology parameter has much more spatial and temporal variation, making the determination of wetland boundaries generally impracticable on the basis of the hydrology parameter alone. Hydrologic indicators are useful in confirming that a site with hydrophytic vegetation and hydric soils still exhibits hydrological conditions typically associated with such vegetation and soils.

Hydrologic indicators associated with wetlands can be based on recorded data and/or field data. Recorded data can be obtained from tide gauges, stream gauges, flood predictions, historical data (i.e., aerial photographs and soil surveys) and piezometers. Field data include the following characteristics:

- Visual observation of inundation;
- Visual observation of soil saturation;
- Water marks;
- Drift lines;
- · Sediment deposits;
- Surface scouring; and,
- · Wetland drainage patterns.

In addition, the March 1992 guidance issued by the Office of the Chief of Engineers allows use of two or more secondary indicators, including: oxidized root channels; water-stained leaves; local soil survey data; the FAC-neutral test; and "other" (to be explained by the delineator).

The presence or absence of wetland hydrology was assessed at each observation point and at several additional points along each of the wetland boundaries. Any evidence of hydrological modifications was noted. Features observed include inundation, depth to saturated soil, matted and stained leaf litter, drift lines, buttressed tree trunks, shallow rooting, surface scour and sediment deposition.

#### 2.4 US Army Corps of Engineers Jurisdiction

The Corps has federal jurisdiction of tidal wetlands pursuant to Section 10 of the Rivers and Harbors Act (hereinafter referred to as Section 10). Section 10 was enacted March 3, 1899 (33 USC 403). Section 10 prohibits the unauthorized obstruction or alteration of any navigable water of the United States. Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

As defined in 33 CFR 329.12(a)(2), in coastal areas, the shoreward limits of the Corps' jurisdiction under Section 10 extends to the line on the shore reached by the plane of the mean (average) high water. Jurisdiction extends to the edge of all US tidal waterbodies, even though portions of the waterbody may be extremely shallow, or obstructed by shoals, vegetation, or other barriers. Marshlands and similar areas are thus considered "navigable in law", but only so far as these areas are subject to inundation by the mean high waters.

As defined in 33 CFR 328.4(b), under Section 404 of the Clean Water Act (hereinafter referred to as Section 404), the landward limit of the Corps' jurisdiction in tidal waters extends to the high tide line. The term "high tide line" means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm (33 CFR 328.3(d)). When adjacent non-tidal waters of the US are present, the Corps' jurisdiction under Section 404 extends to beyond the line of spring high tide line (SHTL).

#### 3.0 Results and Discussion

#### 3.1 Identified Species

**Table C-1** below identifies the species that were identified in the wetlands and uplands during the wetland delineation. The table identifies the species per vegetative strata and provides the wetland indicator status. Plants and their indicator status were identified per the United States Department of Agriculture (USDA) Plants Database (USDA, 2012).

Table C-1
Species Identified in the Area

Strata	Common Name	Scientific Name	Indicator
Т	Red maple	Acer rubrum	FAC
Т	River birch	Betula nigra	FACW
Т	Gray birch	Betula populifolia	FAC
Т	Green ash	Fraxinus pennsylvanica	FACW
Т	Sweetgum	Liquidambar styraciflua	FAC
Т	Cottonwood	Populus deltoides	FAC
Т	Pin oak	Quercus palustris	FACW
Т	Willow	Salix sp.	NI
Т	Sassafras	Sassafras albidum	FACU-
S/S	Baccharis	Baccharis halmnifolia	FACW
S/S	Buttonbush	Cephalanthus occidentalis	OBL
S/S	Russian olive	Elaeagnus angustifolia	FACU
S/S	Lowbush blueberry	Vaccinium angustifolium	FACW-
S/S	Highbush blueberry	Vaccinium corymbosum	FACW-
S/S	Southern arrowwood	Viburnum dentatum	FAC
V	Virginia creeper	Parthenocissus quinquefolia	FACU
V	Fox grape	Vitis labrusca	FACU
V	Wisteria	Wisteria sp.	NIS
Н	Red top grass	Agrostis gigantea	NI
Н	Water plantain	Alisma subcordatum	OBL
Н	Dogbane	Apocynum androsaemifolium	NL
Н	Mugwort	Artemisia vulgaris	NL
Н	Brome	Bromus sp.	NIS
Н	Broom sedge	Carex scoparia	FACW
Н	Wool grass	Cirpus cyperinus	FACW+
Н	Umbrella sedge	Cyperus	NL
Н	Water purslane	Didiplis diandra	OBL
Н	Spikerush	Eleocharis obtusa	OBL
Н	Fuscue grass	Gramineae Family	NIS
Н	Timothy grass	Gramineae Family	NIS
Н	Canadian rush	Juncus canadensis	FACW
Н	Soft rush	Juncus effusus	FACW+
Н	Path rush	Juncus tenuis	FAC-
Н	Rice cutgrass	Leersia oryzoides	OBL
Н	Birdfoot trefoil	Lotus corniculatus	FACU
Н	Common reed	Phragmites australis	FACW
Н	Reed canary grass	Phalaris arundinacea	FACW+
Н	English plantain	Plantago major	NL

Strata	Common Name	Scientific Name	Indicator			
Н	Pennsylvania smartweed	Polygonum pensylvanicum L	FACW			
Н	Curly dock	Rumex crispus	FACU			
Н	Bull rush	Scirpus atrovirens	OBL			
Н	Green Brier	Smilax rotundifoloa	FAC			
Н	Canada goldenrod	Solidago canadensis	FACU			
Н	Rough leaf goldenrod	Solidago rugosa	FAC			
Н	Goldenrod	Solidago sp.	NIS			
Н	Slender leaf goldenrod	Solidago tenuifolia	FAC			
H/V	Poison ivy	Toxicodendron radicans	FAC			
Notes: T – tree,	1.0.000					

#### **Delineated Wetlands**

Larger wetlands on site are labeled as wetlands A through HA are Wetlands that start with the letter "N" Are very small parcels that often formed within the tire ruts and other small depression within on onsite trails and access ways. Many of the wetlands on site were delineated under atypical conditions due to previous anthropogenic disturbance and/or the presence of red parent material in the soils.

Many of the delineated wetlands are less than 0.01 acres in size. **Table C-2** identifies each wetland's acreage and species that were identified in each wetland and the surrounding upland. **Figure C-4** identifies the locations of the delineated wetlands on site. Wetland Data Sheets are provided in **Attachment C-1**.

Preliminary NYSDEC and USACE Jurisdictional Wetland Preliminary USACE Jurisdictional Wetland Preliminary Non-Jurisdictional Wetland Wetland Modifier 440 Kirefscher House Existing Conservation Area The Tides MOHRIST (PRIVATE) Bricktown Centre Legend **Delineated** Charleston Mixed-Use **AECOM** Project Area Property Line Wetlands Development Area Development 1 inch = 500 feet Conservation Area Source: Bing Aerial Map.

Figure C-4
Delineated Wetlands

Table 2
Species Identified in Wetland and Upland Observation Points

Wetland	Acreage	Species Identified in Wetland	Species in Adjacent Upland
A	0.136	rice cut grass Pennsylvania smartweed water purslane	sassafras pin oak grey birch smilax
B*	0.239	red maple sweet gum pin oak river birch green brier	green brier goldenrod
C*	0.239	red maple green ash Pennsylvania smartweed	green brier goldenrod
D	0.024	soft rush common reed flat top goldenrod umbrella sedge spike rush path rush	Canada goldenrod path rush grasses slender leaf goldenrod broom sedge flat top goldenrod
E	0.126	soft rush water purslane path rush slender leaf goldenrod rough stem goldenrod spike rush plantain common reed	English plantain red top clover grasses path rush birdsfoot trefoil chicory
F	0.030	green brier gray birch pin oak highbush blueberry	green brier pin oak gray birch
G	0.017	gray birch pin oak highbush blueberry slender leafed goldenrod dark green bulrush	gray birch greenbrier low bush blueberry grasses (Andropogon sp.) path rush
Н	0.035	soft rush common reed wool grass path rush willow	brome mugwort cottonwood seedlings
НА	0.006	soft rush common reed wool grass path rush flat top goldenrod	mugwort brome flat top goldenrod cottonwood (seedlings)
NA**	0.040	pin oak green brier arrowwood soft rush willow	pin oak maple green brier
NB	0.009	smilax pin oak soft rush arrowwood	grasses goldenrod mugwort

Wetland	Acreage	Species Identified in Wetland	Species in Adjacent Upland
		willow	
NC	0.009	poison ivy Pennsylvania smartweed smilax pin oak	wisteria Virginia creeper smilax pin oak
ND	0.004	soft rush common reed	grasses goldenrod mugwort
NE	0.002	curly dock soft rush broom sedge	grasses Canada goldenrod
NF	0.004	soft rush common reed spike rush	gray birch goldenrod mugwort
NG	0.008	pin oak red top soft rush	pin oak green brier grases
NH	0.018	rough stem goldenrod lance leaf goldenrod umbrella sedge sweetgum (seedlings) wool grass gray birch sedges spike rush red top green brier common reed	gray birch green brier path rush lance leaf goldenrod broom sedge cinquefoil
NI**	0.008	arrowood highbush blueberry willow pin oak aspen button bush green brier	path rush green brier goldenrods
NJ	0.009	umbrella sedge common reed soft rush spike rush	smilax sumac
NK	0.005	spike rush umbrella sedge	path rush
NL	0.002	soft rush spike rush umbrella sedge path rush	path rush Canada goldenrod grasses
NM	0.023	soft rush umbrella sedge spike rush slender leaf goldenrod sycamore	smilax gray birch slender leaf goldenrod rough stemmed goldenrod
NN	0.008	soft rush spike rush	plantain grasses
NO	0.036	soft rush wool grass goldenrods	English plantain red top clover grasses path rush birdsfoot trefoil gray birch

Wetland	Acreage	Species Identified in Wetland	Species in Adjacent Upland
NP**	0.007	soft rush	path rush
NQ**	0.007	dark green bulrush path rush	path rush solidago sp grasses.
NR	0.007	gray birch soft rush goldenrod woolgrass	grey birch path rush
NS	0.011	dark green bulrush wool grass soft rush common reed	
NT	0.007	greenbrier gray birch pin oak	greenbrier gray birch sassafras
NU	0.004	wool grass soft rush goldenrod	path rush
NV	0.002	dark green bulrush soft rush	path rush
NW	0.017	soft rush dog bane reed canary grass wool grass common reed	brome path rush timothy grass goldenrod

Bold text indicates dominant species

Notes: Wetland continues outside of the project area.

Wetland A- Wetland is located within a man-made pond (Photo 1). The wetland is dominated by rice cutgrass and Pennsylvania smartweed. Soils consisted of matrix colors of 7.5YR4/1 and 2.5Y5/2 with mottles of 10YR5/2 present at a depth of 5-12 inches. Additionally, oxidized rhizospheres were present from 10-15 inches. Texture was mainly silty sand. Indicators of hydrology consisted of evidence of a high water table, saturation, and the presence of oxidized rhizospheres on living roots.

Wetland B – Wetland is located at the south edge of a NYSDEC-regulated wetland located in Clay Pits Pond Park (Photo 2). Wetland boundary is demarcated by increase in elevation associated with a road embankment. Wetland B is dominated by red maple, sweetgum, pin oak, river birch, and smilax. Soils consisted of matrix color 2.5YR3/1, 3/4, and 4/2, as well as 7.5YR5/6 at deepest depths (16+ inches). Redoximorphic features of 2.5YR3/4 were only present from 7 to 16 inches. Texture was generally a loam or sandy loam. Red parent material was evident throughout the profile. Indicators of wetland hydrology included saturation at 2 inches, water table present at 16 inches, sparsely vegetated concave surface, as well at micro-topographic relief, and meeting the FAC-Neutral Test criteria. The transition area for the NYSDEC regulated freshwater wetland designated as AR-11 extends along the northern side of Englewood Avenue but does not extend into the Project Area according to the NYSDEC freshwater wetlands map for the Arthur Kill Quadrangle.

Wetland C – The wetland line demarcates the northern line of a NYSDEC-regulated wetland in the Conservation Area (Photo 3). This wetland is dominated by red maple and green ash. Sporadically in the wetland, small patches of Pennsylvania smartweed are present. The soil profile consisted of a matrix that varied with depth and included 7.5YR3/3, 2.5YR4/3, 5YR4/3, 4/2, and 3/2. Redoximorphic features were present at depths of 5-17 inches. Texture was primarily a silt loam. The presence of red parent material

<sup>\*</sup>Species identified for a portion of the wetland line adjacent to road embankment.

<sup>\*\*</sup> At the time of the delineation, the wetland consisted of over 85 percent bare saturated ground. The wetland was located in an access trail or road and vegetation only grew along the edge of the wetlands

was evident throughout the profile. Indicators of wetland hydrology present included saturation at 2 inches, sparsely vegetated concave surface, water-stained leaves and micro-topographic relief.

Wetland D – This wetland is a small depression at the base of a slope dominated by soft rush and wool grass and a small narrow linear drainage way dominated by common reed (Photo 4). The soil profile revealed matrix colors that varied from 10YR4/1, 7.5YR5/6, to 7.5YR4/4 at increasing depth. Redoximorphic features were present at depths of 2 through 12 inches. Soil texture was silty clay loam throughout. Oxidized rhizospheres were present within the first 2 inches. Indicators of wetland hydrology included micro-topographic relief, a positive FAC-Neutral Test, as well as the presence of oxidized rhizospheres on living roots.

Wetland E – Wetland is a large emergent wetland located adjacent to a horse pasture (Photo 5). The wetland is dominated by soft rush. Other species included spike rush, common reed Pennsylvania smartweed, water purslane, and goldenrods. Soil matrix color varied between 7.5YR3/2, 4/1 and 5/1. Redoximorphic features were present from 2 to 14 inches. Soil texture was silty clay loam throughout. Indicators of wetland hydrology included water-stained leaves, oxidized rhizospheres on living roots, surface soil cracks, and drainage patterns.

Wetland F – Located within the wooded portion of the site, this wetland is dominated by dense growths of smilax, which covers approximately 95 percent of the wetland (Photo 6). Other species in the wetland include gray birch, pin oak, and high bush blueberry. The soil profile consisted of matrix colors that varied between 10YR2/1, 4/1, and 7.5YR5/1. Redoximorphic features were present from 1 to 16 inches. Soil texture was generally a silt loam or silty clay loam. Soils were saturated in the upper 10 inches and water stained leaves.

Wetland G – Small wetland associated with depression in a horse trail (Photo 7). Dominant vegetation is pin oak, grey birch, and highbush blueberry. The soil profile consisted of matrix colors varying between 7.5YR4/3, 4/4, and 5/3. Redoximorphic features were present throughout the profile. Texture was silt loam throughout. Indicators of wetland hydrology included surface water present at 1-2 inches, water-stained leaves, and drainage patterns.

Wetland H – Wetland is located within a man-made drainage feature (Photo 8). Wetland is dominated by soft rush and common reed. The soil profile consisted of matrix colors of 10YR3/2, 5YR3/2, and 7.5YR3/6. Redoximorphic features were present from 6 to 16 inches. Soil texture was generally a silt loam. Red parent material was evident throughout. Indicators of wetland hydrology included the presence of water-stained leaves, drainage patterns, and micro-topographic relief.

Wetland HA – Wetland is located within the same man-made drainage feature as wetland H (Photo 8). Wetland is dominated by soft rush and common reed. The soil profile within the wetland consisted of matrix colors of 5YR3/2 and 7.5YR3/2. Redoxiporphic features were present beyond 6 inches. The soil texture was silt loam with gravel and red parent material. Indicators of wetland hydrology included microtopographic relief as well as a positive FAC-Neutral Test.

Wetland NA – Wetland is located within the remnants of an old gravel road (Photo 9). Wetland is very sparsely vegetated with pin oak, smilax, arrowwood, soft rush, and willow.

Wetland NB – This wetland consists of a low area in a former drainage way (Photo 10). Wetland vegetated and dominated by smilax, soft rush and poison ivy.

Wetland NC – Wetland is a small depression located in the corner of a junction of two onsite roads (Photo 11). Wetland is sparsely vegetated with Pennsylvania smartweed and smilax. The wetland is surrounded by large coniferous trees.

Wetland ND – Wetland is a small roadside drainage swale dominated by soft rush and common reed (Photo 12).

Wetland NE – Wetland is a small pit receiving runoff from an adjacent dirt road, wetland is sparsely vegetated with soft rush (photo 13).

Wetland NF – Wetland is a small depression within an on-site path dominated by soft rush (Photo 14).

Wetland NG – Located at the base of a slope, the wetland is confined by tire ruts and dominated by pin oak, Canada rush and soft rush (Photo 15).

Wetland NH – The wetland is an isolated depression located with a successional wooded area (Photo 16). The wetland is dominated by rough leaf goldenrod, arrowwood, umbrella sedge, and gray birch.

Wetland NI – Wetland is a bare depression ringed by arrowwood, highbush blueberry, willow, pin oak buttonbush, and smilax (photo 17).

Wetland NJ – Wetland is a small depression that is largely unvegetated. Observed species included umbrella sedge, common reed, soft rush, and spikerush (Photo 18).

Wetlands NK, NL, NM, NN, and NO occur in a parcel of land that is now a horse pasture. The site has been historically graded and cleared. Soils within the parcel vary considerably from 7.5YR 4/4 silty sands to 10YR 6/1 clays. These wetlands typically formed in shallow depressions.

Wetland NK – Wetland is a small depression within and access trail dominated by spikerush (Photo 19)

Wetland NL – Wetland consists of several tire ruts within a field. The wetland is dominated by soft rush, umbrella sedge, and slender leaf goldenrod (Photo 20).

Wetland NM – Located within the middle of a horse pasture, wetland NM is an emergent wetland dominated by soft rush, spike rush, slender leaf goldenrod and path rush (Photo 21).

Wetland NN – This is a small isolated wetland within a small depression adjacent to a horse pasture. The wetland was vegetated with soft rush and Pennsylvania smartweed (Photo 22).

Wetland NO – Wetland NO is similar to wetland E. The wetlands are separated by a small rise. No hydrologic connection between wetland NO and Wetland E was observed (Photo 23).

Wetland NP - This wetland is a small depression within a horse trail. Wetland sparsely vegetated with soft rush (Photo 24).

Wetland NQ – Wetland consists of tire ruts within a horse trail. Wetland sparsely vegetated with dark green bulrush (Photo 25).

Wetland NR – This isolated wetland is located in an access way. Wetland vegetated with gray birch, wool grass, and soft rush (Photo 26).

Wetland NS – Wetland largely consists of a series of deep ruts in access trail dominated by dark green bull rush, wool grass, soft rush, and common reed (Photo 27).

Wetland NT – Wetland is a small linear depression within a wooded area on site. Dominant vegetation included pin oak, gray birch, and smilax (Photo 28).

Wetland NU – Wetland NU is a small depression in an access trail delineated with only five wetland flags. Dominant vegetation was wool grass and soft rush (Photo 29).

Wetland NW - Wetland consists of a confined depression and is dominated by soft rush, dog bane, and reed canary grass (Photo 30).

# **AECOM**

#### PHOTOGRAPHIC LOG

Photo No.

Date: July, 2012

Description:

Wetland A – a man made pond that is periodically flooded with up to one foot of water.



Photo No. 2

Date: July, 2012

Description:

Wetland B – A forested wetland parcel located in Clay Pit Ponds State Park Preserve.



#### PHOTOGRAPHIC LOG

Photo No.

Date: July, 2012

#### Description:

Wetland C – The wetland is located just south of Wetland B. A forested wetland in the Conservation Area.



Photo No.

4

Date: July, 2012

### Description:

Wetland D – An emergent wetland located in a field in the northern portion of the Development Area.



## **AECOM**

#### PHOTOGRAPHIC LOG

Photo No.

Date: July, 2012

Description:

Wetland E – A large emergent wetland located in the northern portion of the Development Area. The wetland is approximately one foot lower in elevation than the surrounding uplands.



Photo No. 6

Date: July, 2012

#### Description:

Wetland F – Located in the central portion of the Development Area, the emergent wetland was created by surface by drainage impounded by the presence of small berm and hummocks less than two feet in elevation.



#### PHOTOGRAPHIC LOG

Photo No.

Date: July, 2012

Description:

Wetland G – Immediately south of the Wetland F, Wetland G largely consists of a depressional area within an unofficial internal path.



Photo No. Date: December, 2012

Description:

Wetlands H and HA
– located within a
rip-rap lined
drainage easement.
Wetland H and HA
are two
discontinuous
depressions
dominated by
hydrophytic
vegetation.



### PHOTOGRAPHIC LOG

Photo No. Date: December, 2012

Description:

Wetland NA – Located in a former access road, Wetland A is a shallow depression in the center of the roadway.



### PHOTOGRAPHIC LOG

Photo Date: No. December, 10 2012

Description:

Wetland NB – is shallow confined depression within and immediately adjacent to an onsite access way.



#### PHOTOGRAPHIC LOG

Photo No. 11

Date: July, 2012

Description:

Wetland NC – Small isolated depression located at the intersection of two onsite trails.



Photo No. 12

Date: July, 2012

Description:

Wetland ND is a small depression located adjacent to an onsite access way.



# **AECOM**

#### PHOTOGRAPHIC LOG

Photo No. 13

Date: July, 2012

Description:

Wetland NE – The wetland is within a small confined trench. The red line approximates the wetland boundaries.



Photo No. 14 Date: July, 2012

Description:

Wetland NF – small isolated depression within a former access road.



# **AECOM**

### PHOTOGRAPHIC LOG

Photo No. 15

Date: July, 2012

Description:

Wetland NG – small depression located between an onsite horse trail and a small wooded slope.



Photo No. 16

Date: July, 2012

Description:

Wetland NHisolated depression within a former access road.



# **A=COM**

### PHOTOGRAPHIC LOG

Photo No. 17

Date: July, 2012

Description:

Wetland NI – isolated depression located at the junction of two onsite trails.



Photo No. 18

Date: July, 2012

Description:

Wetland NJ – remnants of a small man-made reflecting pond.



## PHOTOGRAPHIC LOG

Photo No. 19

Date: July, 2012

Description:

Wetland NK – A small depression in an on-site trail. The red line in the photograph identifies the approximate boundaries of the wetland.



Photo No. 20

Date: July, 2012

Description:

Wetland NL – small isolated depression.



## PHOTOGRAPHIC LOG

Photo No. 21

Date: July, 2012

Description:

Wetland NM - small emergent wetland confined by an artificial berm.



Photo No. 22

Date: July, 2012

Description:

Wetland NN – small emergent wetland located within an isolated depression.



# **A=COM**

## PHOTOGRAPHIC LOG

Photo No. 23

Date: July, 2012

Description:

Wetland NO – Confined emergent wetland located south of Wetland E. Wetlands are separated by a berm.



Photo No. 24

Date: July, 2012

Description:

Wetland NP wetland consists of a wet depression within an onsite trail.



## PHOTOGRAPHIC LOG

Photo No. 25

Date: July, 2012

Description:

Wetland NQ – wetland consists of a wet depression within an onsite trail (wetland is similar to Wetland NP).



Photo No. 26

Date: July, 2012

Description:

Wetland NR – a small depressional wetland located in an onsite access road.



## PHOTOGRAPHIC LOG

Photo No. 27

Date: July, 2012

Description:

Wetland NS wetland is confined within the depression of an onsite trail and an artificially created berm.



Photo No. 28

Date: July, 2012

Description:

Wetland NT – A small depressional wetland located between the hummocks of several trees.



## PHOTOGRAPHIC LOG

Photo No. 29

Date: July, 2012

Description:

Wetland NU – Wetland is a small depression within a ditch adjacent to an onsite trail.



Photo No. 30

Date: July, 2012

## Description:

Wetland NW – Wetland dominated with common reed and soft rush. Wetland is an isolated depression at the base of a slope.



#### 3.2 Jurisdictional Determination

In January 2013, AECOM met with officials form the USACE for a jurisdictional determination of the delineated wetland lines. AECOM is currently awaiting the official correspondence from USACE; however, it is anticipated only Wetlands B, C, H, and HA will be determined as jurisdictional wetlands.

In September 2012, AECOM personnel met with an official from the NYSDEC for an inspection of the delineated wetland lines on site. In written correspondence, the NYSDEC indicated that Wetlands B and C are regulated by the state.

#### 4.0 References

Cowardin, Lewis M., Virginia Carter, Francis C. Golet, and Edward T. La Roe. December 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31, U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C.

Department of the Army, Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual.* Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, MS.

Federal Register. 1980. "40 CFR Part 230: Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged of Fill Material, "Vol 45, No. 249, pp. 85352-85353, US Government Printing Office, Washington D.C.

Federal Register. 1982. "Title 33: Navigation and Navigable Waters: Chapter II, Regulatory Programs of the Corps of Engineers, "Vol 47, No. 138, P. 31810, US Government Printing Office, Washington, D.C.

Munsell Color. 1975. Munsell Soil Color Charts. Baltimore, Maryland.

NYSDEC. 2006. Website accessed to obtain information on tidal wetland categories <a href="http://www.dec.state.ny.us/website/dfwmr/marine/twcat.htm">http://www.dec.state.ny.us/website/dfwmr/marine/twcat.htm</a>

National Resource Conservation Survey. Website accessed October 2006 to obtain soil data for Staten Island. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

National Technical Committee for Hydric Soils. 1991. *Hydric Soils of the United States*, (3rd edition). Misc. Publ. No. 1491. USDA. Soil Conservation Service. Washington, D.C.

US Department of Agriculture (USDA). 2012. United State Department of Agriculture's Natural Resource Conservation Services Plant Data Base (<a href="http://plants.usda.gov/">http://plants.usda.gov/</a>).

## **Attachment C-1**

**Wetland Data Sheets** 

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Project/Site: Charleston Mixed Use Development City/C	County: Staten Island, Richmond Sampling Date: 7/10/12
Applicant/Owner: NYCEDC	State: NY Sampling Point: A
Investigator(s): J. Rollino/M. Smith Section	
	lief (concave, convex, none): Flat land Slope (%):
	Long: Datum:
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex	
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation, Soil, or Hydrology significantly disturb	
Are Vegetation, Soil, or Hydrology naturally problem	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing san	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?         YesX	Is the Sampled Area within a Wetland? YesX No  If yes, optional Wetland Site ID:
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leave	
xHigh Water Table (A2)Aquatic Fauna (B13)xSaturation (A3)Marl Deposits (B15)	
Water Marks (B1) Hydrogen Sulfide Od	
	res on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduce	
Algal Mat or Crust (B4) Recent Iron Reduction	
Iron Deposits (B5) Thin Muck Surface (	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Re	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes NoX _ Depth (inches):	
Water Table Present? Yes X No Depth (inches): 10	
Saturation Present? Yes X No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? Yes x No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	
Tromano.	

20 foot	Absolute			Dominance Test worksheet:	
ree Stratum (Plot size: 30 feet )		Species?		Number of Dominant Species	
				That Are OBL, FACW, or FAC:	(A)
				Total Number of Dominant	
				Species Across All Strata: 1	(B)
				Percent of Dominant Species  That Are ORL FACW or FAC:  100	
				That Are OBL, FACW, or FAC:	(A/B
				Prevalence Index worksheet:	
				Total % Cover of: Multiply b	<u>ру:</u>
		= Total Cove	er	OBL species x 1 =	
apling/Shrub Stratum (Plot size: 15 feet )				FACW species x 2 =	
· · · · · · · · · · · · · · · · · · ·				FAC species x 3 =	
				FACU species x 4 =	
				UPL species x 5 =	
				Column Totals: (A)	(B)
				Prevalence Index = B/A =	
				Hydrophytic Vegetation Indicators:	
				1 - Rapid Test for Hydrophytic Vegetati	on
				X 2 - Dominance Test is >50%	
E foot		= Total Cove	er	3 - Prevalence Index is ≤3.0 <sup>1</sup>	
erb Stratum (Plot size: 5 feet )		_	0.01	4 - Morphological Adaptations <sup>1</sup> (Provide	e supporting
Leersia oryzoides	80	D	OBL	data in Remarks or on a separate sl	neet)
Polygonum pennsylcanicum	10	N	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (E	Explain)
Ludwigia palustris	1	N	OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrol	
				be present, unless disturbed or problematic	-
				Definitions of Vegetation Strata:	
				Tree – Woody plants 3 in. (7.6 cm) or more at breast height (DBH), regardless of height	
				Sapling/shrub – Woody plants less than 3 and greater than or equal to 3.28 ft (1 m) ta	
)				<b>Herb</b> – All herbaceous (non-woody) plants, reg	
1.				size, and woody plants less than 3.28 ft tall.	
2				<b>Woody vines</b> – All woody vines greater than 3. height.	28 ft in
	91	= Total Cove	er		
/oody Vine Stratum (Plot size:)					
				Hydrophytic	
				Vegetation Present? Yes X No	
		= Total Cove			
Remarks: (Include photo numbers here or on a separate	sheet )				

Matrix			dox Features	1 . 2		
Color (moist)	<u>%</u>	Color (moist)	% Type	Loc <sup>2</sup>	Texture	Remarks
7.5YR4/1					Sariuy Siit	
2.5Y5/2	_ 90	10YR5/2	10	M	silty sand	
2.5Y5/2	90	10YR5/2	10	M	silty sand	oxidized rhizospheres present
7.5YR4/1	100				silty sand	oxidized rhizospheres presen
Indicators:	pletion, RM				Indicators fo	PL=Pore Lining, M=Matrix.  or Problematic Hydric Soils <sup>3</sup> :  ck (A10) (LRR K, L, MLRA 149B)
pipedon (A2) stic (A3) sn Sulfide (A4) d Layers (A5) d Below Dark Surfacerk Surface (A12) ducky Mineral (S1) dedox (S5) Matrix (S6) rface (S7) (LRR R,	MLRA 149	MLRA 149  Thin Dark Su Loamy Mucky Loamy Gleye X Depleted Mat Redox Dark S Depleted Dar Redox Depre	ob)  rface (S9) (LRR R, y Mineral (F1) (LRR d Matrix (F2) trix (F3) Surface (F6) ck Surface (F7) essions (F8)	MLRA 149B)	Coast Pr 5 cm Mu Dark Sur Polyvalue Thin Dar Iron-Man Piedmon Mesic Sp Red Pare Very Sha	airie Redox (A16) (LRR K, L, R) cky Peat or Peat (S3) (LRR K, L, R) face (S7) (LRR K, L, M) e Below Surface (S8) (LRR K, L) k Surface (S9) (LRR K, L) ganese Masses (F12) (LRR K, L, R) at Floodplain Soils (F19) (MLRA 149B) bodic (TA6) (MLRA 144A, 145, 149B) ent Material (F21) allow Dark Surface (TF12) xplain in Remarks)
						V
ches):		•			Hydric Soil P	resent? Yes X No
	2.5Y5/2  7.5YR4/1  7.5YR4/1  2.5YR4/1  2.5YR4/	2.5Y5/2 90  7.5YR4/1 100  7.5YR4/1 100  Description, D=Depletion, RM Indicators:  (A1) Dipedon (A2) Stic (A3) In Sulfide (A4) If Layers (A5) If Below Dark Surface (A11) Birk Surface (A12) Bucky Mineral (S1) Bileyed Matrix (S4) Biledox (S5) Matrix (S6) Efface (S7) (LRR R, MLRA 149) If hydrophytic vegetation and ward Layer (if observed):	2.5Y5/2 90 10YR5/2  7.5YR4/1 100  Dencentration, D=Depletion, RM=Reduced Matrix, Indicators:  (A1) Polyvalue Be MLRA 1498  Below Dark Surface (A11) Depleted Mark Surface (A12) Redox Dark Surface (A12) Redox Dark Suledox (S5) Matrix (S6) rface (S7) (LRR R, MLRA 149B)  In yer (if observed):	2.5Y5/2 90 10YR5/2 10  7.5YR4/1 100  2.5Y5/2 90 10YR5/2 10  2.5Y5/2 10  2.5Y5/2 90 10YR5/2 10  2.5Y5/2 1	2.5Y5/2 90 10YR5/2 10 M  7.5YR4/1 100  7.5YR4/1 100  Dencentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Indicators:  (A1)	2.5Y5/2   90   10YR5/2   10   M   silty sand

Project/Site: Charleston Mixed Use D	evelopment	_ City/County: State	en Island, Richmond	Sampling Date: 7/9/12
Applicant/Owner: NYCEDC			State: NY	Sampling Point: A (upland)
Investigator(s): J. Rollino/M. Smith		Section, Township,	Range: Charleston	
Landform (hillslope, terrace, etc.):			-	Slope (%):
Subregion (LRR or MLRA): MLRA 149E				
Soil Map Unit Name: Whethersfield-Luc				
Are climatic / hydrologic conditions on the			No (If no, explain in	Remarks.)
Are Vegetation, Soil, or F	-lydrology significan	tly disturbed?	Are "Normal Circumstances" إ	present? Yes <u>x</u> N <u>o</u>
Are Vegetation, Soil, or H	lydrology naturally	problematic? (	(If needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS – At	tach site map showii	ng sampling poi	nt locations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present?	Yes <u>x</u> No Yes No x	Is the Sam within a We	-	No x
Wetland Hydrology Present?	Yes No x	If yes, optio	nal Wetland Site ID:	
HYDROLOGY				
Wetland Hydrology Indicators:				ators (minimum of two required)
Primary Indicators (minimum of one is r			Surface Soil	
Surface Water (A1)	Water-Staine		Drainage Pa	
High Water Table (A2)	Aquatic Faur		Moss Trim L	
Saturation (A3)	Marl Deposit			Water Table (C2)
Water Marks (B1)	Hydrogen Su		Crayfish Bur	rows (C8) sible on Aerial Imagery (C9)
Sediment Deposits (B2) Drift Deposits (B3)		zospheres on Living F Reduced Iron (C4)		Stressed Plants (D1)
Algal Mat or Crust (B4)		Reduction in Tilled So		Position (D2)
Iron Deposits (B5)	Thin Muck S		Shallow Aqu	
Inundation Visible on Aerial Image				aphic Relief (D4)
Sparsely Vegetated Concave Surfa		,	FAC-Neutral	, ,
Field Observations:				
Surface Water Present? Yes	No <u>x</u> Depth (inch	hes):		
Water Table Present? Yes	No <u>x</u> Depth (inch	hes):		
	No <u>x</u> Depth (incl	hes):	Wetland Hydrology Preser	nt? Yes No x
(includes capillary fringe)  Describe Recorded Data (stream gauge	e. monitoring well. aerial ph	otos, previous inspect	tions), if available:	
33	J 1, 11 1		· · · · /,	
Remarks:				

## **VEGETATION –** Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant In Species?	dicator Status	Dominance Test worksh	
. Sassafras albidum	15	D	FACU	Number of Dominant Sper That Are OBL, FACW, or	
. Quercus palustris	10	D	FACW		
s. Betual populifolia				Total Number of Dominan Species Across All Strata:	
				Percent of Dominant Spec	rine
5					FAC: <u>75</u> (A/B
5					
_				Prevalence Index works	
′. <u> </u>				Total % Cover of:	
	35	= Total Cov	er	OBL species	
Sapling/Shrub Stratum (Plot size: 15'				FAC species	
				FACU species	
)				UPL species	
l					(A) (B)
i					
5				Prevalence Index =	B/A =
S				Hydrophytic Vegetation	Indicators:
				1 - Rapid Test for Hyd	
		= Total Cover		x 2 - Dominance Test	
Herb Stratum (Plot size:5' )				3 - Prevalence Index	
I,				data in Remarks o	aptations¹ (Provide supportino r on a separate sheet)
2.				Problematic Hydrophy	• • •
3				<sup>1</sup> Indicators of hydric soil a	nd wetland hydrology must
4				be present, unless disturb	
				Definitions of Vegetation	n Strata:
5					
S				at breast height (DBH), re	(7.6 cm) or more in diameter gardless of height.
7				Sapling/shrub – Woody p	
3				and greater than or equal	
9				Herb - All herbaceous (non	-woody) plants, regardless of
10				size, and woody plants less t	
11				<b>Woody vines</b> – All woody v	ines greater than 3.28 ft in
12				height.	B
		= Total Cover			
Noody Vine Stratum (Plot size:15' )					
. Smilax rotundifolia	50	<u>D</u> <u>F</u>	AC		
2.				Hydrophytic Vegetation	
3				Present? Yes_	x No
4					
	50	= Total Cov	er		
			-		

SOIL Sampling Point: A (upland)

Profile Desc	ription: (Describe	to the de	oth needed to document	the indicator o	r confirm	the absence	of indicators.)
Depth	Matrix		Redox Fea	atures			
(inches)	Color (moist)	%		6 Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-6	7.5YR3/2	100				Loam	
6-12	10YR4/4	100				Loam	
12+							Auger refusal, unidentified odor.
	-						
				<u> </u>			
							<del></del>
		<del></del>					
<sup>1</sup> Type: C=Co	oncentration, D=Dep	letion, RM	=Reduced Matrix, MS=Ma	sked Sand Gra	ins.	<sup>2</sup> Location	: PL=Pore Lining, M=Matrix.
Hydric Soil I						Indicators	for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Polyvalue Below Sur	face (S8) (LRR	R,	2 cm l	Muck (A10) ( <b>LRR K, L, MLRA 149B</b> )
	pipedon (A2)		MLRA 149B)				Prairie Redox (A16) ( <b>LRR K, L, R</b> )
Black Hi			Thin Dark Surface (S				Mucky Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4) I Layers (A5)		Loamy Mucky Minera Loamy Gleyed Matrix		<b>L</b> )		Surface (S7) ( <b>LRR K, L, M</b> ) alue Below Surface (S8) ( <b>LRR K, L</b> )
	Below Dark Surfac	e (A11)	Depleted Matrix (F3			-	Dark Surface (S9) (LRR K, L)
	ark Surface (A12)	,	Redox Dark Surface				langanese Masses (F12) (LRR K, L, R)
Sandy M	lucky Mineral (S1)		Depleted Dark Surface			Piedm	ont Floodplain Soils (F19) ( <b>MLRA 149B</b> )
-	sleyed Matrix (S4)		Redox Depressions (	(F8)			Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> )
-	ledox (S5)						arent Material (F21)
	Matrix (S6) rface (S7) ( <b>LRR R, I</b>	MI DA 140	D)			-	Shallow Dark Surface (TF12) (Explain in Remarks)
Daik Sui	ilace (37) (LKK K, I	VILNA 143	<b>b</b> )			Other	(Explain in Remarks)
			etland hydrology must be p	oresent, unless	disturbed	or problemation	э.
Restrictive I	_ayer (if observed)	:					
Type:							V
Depth (inc	ches):					Hydric Soil	Present? Yes No_X
Remarks:							

Project/Site: Charleston Mixed Use Development City/Coun	ty: Staten Island, Richmond Sampling Date: 7/10/12
Applicant/Owner: NYCEDC	State: NY Sampling Point: B
Investigator(s): _J. Rollino/M. Smith Section, T	ownship, Range: Charleston
Landform (hillslope, terrace, etc.): Local relief (	
Subregion (LRR or MLRA): MLRA 149B Lat:	
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _	<del></del>
Are Vegetation, Soil, or Hydrology significantly disturbed	
Are Vegetation, Soilx , or Hydrology naturally problematic	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampli	ng point locations, transects, important features, etc.
Hydric Soil Present?  Yes X  No  wi	the Sampled Area thin a Wetland? Yes X No yes, optional Wetland Site ID:
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (B	
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
x Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (0	
Sediment Deposits (B2) Oxidized Rhizospheres or Drift Deposits (B3) Presence of Reduced Iro	
Algal Mat or Crust (B4) Recent Iron Reduction in	
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remark	<del></del>
x Sparsely Vegetated Concave Surface (B8)	x FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes NoX Depth (inches):	
Water Table Present? Yes X No Depth (inches): 16	
Saturation Present? Yes X No 2 Depth (inches):	Wetland Hydrology Present? Yes x No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous)	us inspections), if available:
	, ,
Remarks:	

00 ()	Absolute	Dominant	Indicator	Dominance Test worksheet:	-
Tree Stratum (Plot size: 30 feet )		Species?	Status	Number of Dominant Species	_
1. Acer rubrum	<u>35</u>	D	FAC	That Are OBL, FACW, or FAC: _	
2. Liquidambar styraciflua	25	D	FAC	Total Number of Dominant	
3. Betula nigra	5	N	FACW	Species Across All Strata:	2(E
4				Percent of Dominant Species	
5				That Are OBL, FACW, or FAC:	100(A
6					
				Prevalence Index worksheet:	
7	G E			Total % Cover of:	
		= Total Cov	er	OBL species x 1 =	
Sapling/Shrub Stratum (Plot size: 15 feet )				FACW species x 2 =	
1				FAC species x 3 =	
2				FACU species x 4 =	
3				UPL species x 5 =	
4				Column Totals: (A)	
5				Prevalence Index = B/A =	
				Hydrophytic Vegetation Indicator	re:
6				1 - Rapid Test for Hydrophytic	
7				X 2 - Dominance Test is >50%	vegetation
		= Total Cov	er	3 - Prevalence Index is ≤3.0 <sup>1</sup>	
Herb Stratum (Plot size: 5 feet )				4 - Morphological Adaptations <sup>1</sup>	(Provide suppo
1				data in Remarks or on a se	parate sheet)
2				Problematic Hydrophytic Vege	tation¹ (Explain)
3				<sup>1</sup> Indicators of hydric soil and wetlar	nd hydrology mu
				be present, unless disturbed or pro	
4				Definitions of Vegetation Strata:	
5				_	
6				Tree – Woody plants 3 in. (7.6 cm) at breast height (DBH), regardless	
7					-
8				Sapling/shrub – Woody plants les and greater than or equal to 3.28 ft	
9					
10				<b>Herb</b> – All herbaceous (non-woody) p size, and woody plants less than 3.28 f	, ,
11					
12				<b>Woody vines</b> – All woody vines greate height.	er than 3.28 ft in
		= Total Cov		neight.	
		- Total Cov	EI		
Woody Vine Stratum (Plot size:)  Smilax rotundifolia	2	N.I	E40		
1. Sitiliax fotuliuliolia		N	<u>FAC</u>	Hydrophytic	
2				Vegetation	
3				Present? Yes X	No
4					
	2	= Total Cov	er		
Remarks: (Include photo numbers here or on a separate	sheet.)				
,	,				

SOIL			

(inches)	Matrix			ox Features	4 2		
(inches)	Color (moist)	%	Color (moist)	%Type	Loc <sup>2</sup>	Texture	Remarks
0-2	2.5YR3/1	100				organic	
2-7	2.5YR3/4	100				sandy loan	า
7-16	2.5YR4/2	60	2.5YR3/4	40	M	loam	
16+	7.5YR5/6	100		. <u> </u>		silty sand	saturated
				·			
				· ———			
				·			
				·			
				·			
<sup>'</sup> Type: C=Co Hydric Soil I		oletion, RM	=Reduced Matrix, M	IS=Masked Sand	Grains.		PL=Pore Lining, M=Matrix. or Problematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Belo	ow Surface (S8) (L	RR R.		uck (A10) (LRR K, L, MLRA 149B)
<del></del> '	pipedon (A2)		MLRA 149E		<b>-</b>		rairie Redox (A16) ( <b>LRR K, L, R</b> )
Black His				ace (S9) (LRR R,			ucky Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4) I Layers (A5)		Loamy Mucky Loamy Gleyed	Mineral (F1) (LRR	(K, L)		rface (S7) ( <b>LRR K, L, M</b> ) ue Below Surface (S8) ( <b>LRR K, L</b> )
	Below Dark Surfac	ce (A11)	x Depleted Mat			-	Dark Surface (S9) (LRR K, L)
	rk Surface (A12)		Redox Dark St				nganese Masses (F12) (LRR K, L, R)
	lucky Mineral (S1)		Depleted Dark				nt Floodplain Soils (F19) (MLRA 149B)
	edox (S5)		Redox Depres	SIONS (FO)			podic (TA6) ( <b>MLRA 144A, 145, 149B</b> ) arent Material (F21)
	Matrix (S6)						allow Dark Surface (TF12)
Dark Sur	face (S7) (LRR R,	MLRA 149	<b>B</b> )			Other (E	Explain in Remarks)
<sup>3</sup> Indicators of	hydrophytic vegeta	ation and w	etland hydrology mu	st be present, unle	ess disturbed	or problematic.	
	ayer (if observed)			·			
							<b>Y</b>
Type:						Hydric Soil F	Present? Yes X No No
Depth (inc	ches):		•			•	
Depth (inc	ches):		<u>-</u>				
Depth (inc	ches):		<del>.</del>			1 -	
Depth (inc	ches):						
Depth (inc	ches):		·				
Depth (inc	ches):					, ,	
Depth (inc	ches):					1 *	
Depth (inc	ches):					,	
Depth (inc	ches):						
Depth (inc	ches):						
	ches):					,	
Depth (inc	ches):						
Depth (inc	ches):						
Depth (inc	ches):						
Depth (inc	ches):						

Sampling Point: \_\_

Project/Site: Charleston Mixed Use Development	City/Co	unty: Richmond	July 2012 Sampling Date:
Applicant/Owner: NYCEDC		State:	Sampling Point: B Upland
Investigator(s): Rollino J		ı, Township, Range:	
Landform (hillslope, terrace, etc.):	Local relie	f (concave, convex, none):	<2 Slope (%):
Subregion (LRR or MLRA): MLRA 149B Soil Map Unit Name: Whethersfield-Ludlow-Wilbrah	am Compley	NIW/ class	n/a
Are climatic / hydrologic conditions on the site typic			
Are Vegetation, Soil, or Hydrology _	significantly disturbe	ed? Are "Normal Circumstances	" present? Yes No_^
Are Vegetation, Soilx, or Hydrology _	naturally problemati	ic? (If needed, explain any answ	wers in Remarks.)
SUMMARY OF FINDINGS – Attach site	e map showing samp	oling point locations, transec	ts, important features, etc.
Hydrophytic Vegetation Present? Yes	X No	Is the Sampled Area	v
	No X	within a Wetland? Yes	No <sup>X</sup>
	X	If yes, optional Wetland Site ID:	
Remarks: (Explain alternative procedures here o			
Upland is a road embankment. Vergetation ha	is FAC species, no evidenci	e of nydrology.	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Ind	icators (minimum of two required)
Primary Indicators (minimum of one is required; c	heck all that apply)	Surface So	oil Cracks (B6)
Surface Water (A1)	Water-Stained Leaves	(B9) Drainage F	Patterns (B10)
High Water Table (A2)	Aquatic Fauna (B13)	Moss Trim	Lines (B16)
Saturation (A3)	Marl Deposits (B15)	Dry-Seaso	n Water Table (C2)
Water Marks (B1)	Hydrogen Sulfide Odor	(C1) Crayfish B	urrows (C8)
Sediment Deposits (B2)	Oxidized Rhizospheres		Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Presence of Reduced I		Stressed Plants (D1)
Algal Mat or Crust (B4)	Recent Iron Reduction		ic Position (D2)
Iron Deposits (B5)	Thin Muck Surface (C7	· —	
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Rema	· · · · · · · · · · · · · · · · · · ·	graphic Relief (D4)
Sparsely Vegetated Concave Surface (B8)		FAC-Neuti	ral Test (D5)
Field Observations:	Y 5 " " ' \		
Surface Water Present? Yes No	Depth (inches):		
Water Table Present? Yes No	x Depth (inches): x Depth (inches): Depth (inches):		Y
Saturation Present? Yes No (includes capillary fringe)	Depth (inches):	Wetland Hydrology Pres	ent? Yes No <sup>X</sup>
Describe Recorded Data (stream gauge, monitori	ng well, aerial photos, previ	ous inspections), if available:	
Remarks:			
Remarks.			

## **VEGETATION** – Use scientific names of plants.

te Dominant Species?  D  N  = Total Cov  = Total Cov	Status FACU FACU- FACU- Ver FACU FACU-	Dominance Test worksheet:         Number of Dominant Species       2       (A)         Total Number of Dominant Species Across All Strata:       4       (B)         Percent of Dominant Species That Are OBL, FACW, or FAC:       50       (A/B)         Prevalence Index worksheet:         Total % Cover of:       Multiply by:         OBL species       x 1 =         FACW species       x 2 =         FAC species       x 3 =         FACU species       x 4 =         UPL species       x 5 =         Column Totals:       (A)       (B)         Prevalence Index = B/A =         Hydrophytic Vegetation Indicators:         1 - Rapid Test for Hydrophytic Vegetation         X 2 - Dominance Test is >50%         3 - Prevalence Index is ≤3.0¹         4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)         Problematic Hydrophytic Vegetation¹ (Explain)         ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Total Cov	FACU FACU- FACU FACU FACU	That Are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)  Prevalence Index worksheet: Multiply by: OBL species x 1 = FACW species x 2 = FAC species x 3 = FACU species x 4 = UPL species x 4 = UPL species x 5 = Column Totals: (A) (B)  Prevalence Index = B/A = (A) (B)  Prevalence Index is ≥50% 3 - Prevalence Index is ≥3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
= Total Cov	recu-	Total Number of Dominant Species Across All Strata:
= Total Cov	/er /er FACU	Species Across All Strata:
= Total Cov	/er  FACU	That Are OBL, FACW, or FAC:
= Total Cov	/er  FACU	That Are OBL, FACW, or FAC: (A/B  Prevalence Index worksheet:
= Total Cov	/er  FACU	Total % Cover of:  OBL species
= Total Cov	rer	Total % Cover of: Multiply by:  OBL species
= Total Cov	rer	OBL species
= Total Cov	rer	FACW species
= Total Cov	/er FACU	FAC species
= Total Cov	/er FACU	FACU species x 4 =
= Total Cov	/er FACU	UPL species x 5 = (A) (B)  Prevalence Index = B/A =  Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation x 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
= Total Cov	FACU	Column Totals:
= Total Cov	FACU	Prevalence Index = B/A =  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supportindata in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
= Total Cov	FACU	Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supportin data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
= Total Cov	FACU	1 - Rapid Test for Hydrophytic Vegetation     2 - Dominance Test is >50%     3 - Prevalence Index is ≤3.0¹     4 - Morphological Adaptations¹ (Provide supportin data in Remarks or on a separate sheet)     Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
_ = Total Cov	FACU	
D	FACU	3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supportind data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
		4 - Morphological Adaptations¹ (Provide supportin data in Remarks or on a separate sheet)     Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
		data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
		be present, unless disturbed or problematic.
		D (1 14) (1) (1) (1)
		Definitions of Vegetation Strata:
		Tree – Woody plants 3 in. (7.6 cm) or more in diamete at breast height (DBH), regardless of height.
	<del>-</del>	Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
		<b>Herb</b> – All herbaceous (non-woody) plants, regardless of
		size, and woody plants less than 3.28 ft tall.
	· ——	<b>Woody vines</b> – All woody vines greater than 3.28 ft in
- Total Co	/or	height.
= 10(a) 00	/CI	
D	FAC	
		Hydrophytic
		Vegetation   Present?   Yes X   No
_		
= Total Co	/er	
	D	_ = Total Cover D

Sampling Point: B upland

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Redox Features Depth Matrix Type<sup>1</sup> Loc<sup>2</sup> Color (moist) Texture (inches) 0-2 5YR 3/3 silt loam w/ organic material w/ gravel -historic fill 2-11 Silty sand 5YR 3/4 11-14 Sandy loam 2.5YR <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils<sup>3</sup>: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, \_\_\_ 2 cm Muck (A10) (LRR K, L, MLRA 149B) \_\_\_ Histic Epipedon (A2) Coast Prairie Redox (A16) (LRR K, L, R) MLRA 149B) \_\_\_ Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) \_\_\_ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) \_ Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) \_\_\_ Dark Surface (S7) (LRR K, L, M) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L) Depleted Below Dark Surface (A11) \_\_\_ Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Thick Dark Surface (A12) \_\_\_ Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) \_\_\_ Redox Depressions (F8) \_\_ Sandy Gleyed Matrix (S4) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) \_\_\_ Sandy Redox (S5) X Red Parent Material (F21) Stripped Matrix (S6) Very Shallow Dark Surface (TF12) \_\_\_ Dark Surface (S7) (LRR R, MLRA 149B) \_\_\_ Other (Explain in Remarks) <sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches):\_\_ Hydric Soil Present? Yes\_ No X Remarks:

Project/Site: Charleston Mixed Use Development	City/County: Staten Island, Richmond Sampling Date: 7/9/12
Applicant/Owner: NYCEDC	State: NY Sampling Point: C
Investigator(s): J. Rollino/M. Smith	Section, Township, Range: <u>Charleston</u>
- · · · ·	Local relief (concave, convex, none): Flat land Slope (%):
	Long: Datum:
	NWI classification: PFO1
Are climatic / hydrologic conditions on the site typical for this time	
Are Vegetation, Soil, or Hydrology signification	
Are Vegetation, Soil _x , or Hydrology natura	lly problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map show	ring sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?         Yes _ x No           Hydric Soil Present?         Yes _ x No           Wetland Hydrology Present?         Yes _ x No	Is the Sampled Area within a Wetland?  Yes x No  If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that ap	
	ained Leaves (B9) Drainage Patterns (B10)
High Water Table (A2)  Aquatic Fa	
X Saturation (A3) Marl Dep	
	Sulfide Odor (C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized R	thizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
	of Reduced Iron (C4) Stunted or Stressed Plants (D1)
	n Reduction in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck	
	lain in Remarks) <u>X</u> Microtopographic Relief (D4)
X Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (in	•
Water Table Present?  Yes No _x Depth (ir Saturation Present?  Yes x No Depth (ir	
Saturation Present? Yes x No Depth (i (includes capillary fringe)	nches): 2 Wetland Hydrology Present? Yes <u>x</u> No
Describe Recorded Data (stream gauge, monitoring well, aerial p	photos, previous inspections), if available:
Remarks:	

<b>VEGETATION -</b>	معا ا	eciontific	namee	of plants
VEGETATION -	use	scieniiiic	names	or biants.

	S.			Sampling Point: <u>C</u>			
Tree Stratum (Plot size:30)	Absolute % Cover	Dominant Indicator Species? Status	Dominance Test worksh				
1. Acer rubrum	40	D FAC	Number of Dominant Spec That Are OBL, FACW, or				
2. Fraxinus pennsylvanica	5	N FACW					
3			Total Number of Dominan Species Across All Strata:				
1			Percent of Dominant Spec	ripe			
5			That Are OBL, FACW, or				
3							
_			Prevalence Index works				
7			Total % Cover of:				
Dealing (Obserts Obserts on API	45	= Total Cover	OBL species				
Sapling/Shrub Stratum (Plot size: 15' )			FAC species				
l.			FACU species				
2.			UPL species				
3				(A) (B)			
i							
5			Prevalence Index =	B/A =			
5			Hydrophytic Vegetation	Indicators:			
7	_		1 - Rapid Test for Hyd	• •			
		= Total Cover	x 2 - Dominance Test				
Herb Stratum (Plot size: 5' )			3 - Prevalence Index				
1			data in Remarks o	aptations¹ (Provide supporting r on a separate sheet)			
2			Problematic Hydrophy	ytic Vegetation¹ (Explain)			
3			<sup>1</sup> Indicators of hydric soil a be present, unless disturb	nd wetland hydrology must ed or problematic.			
45			Definitions of Vegetation	n Strata:			
3			Tree - Woody plants 3 in	(7.6 cm) or more in diameter			
7			at breast height (DBH), re				
3			Sapling/shrub – Woody p				
9			and greater than or equal	to 3.28 ft (1 m) tall.			
10.				-woody) plants, regardless of			
11			size, and woody plants less t	han 3.28 ft tall.			
			Woody vines – All woody v	ines greater than 3.28 ft in			
12	_		height.				
		= Total Cover					
Noody Vine Stratum (Plot size:15' )							
I			Hydrophytic				
2	_		Vegetation				
3			Present? Yes _	x No			
4							
		= Total Cover					

SOIL Sampling Point: C

Profile Desc	ription: (Describe	e to the de	pth needed to docu	ıment the i	ndicator	or confirn	m the absence of indicators.)	
Depth (inches)	Matrix Color (moist)	%	Color (moist)	ox Feature: %	<u>Type<sup>1</sup></u>	_Loc <sup>2</sup>	Texture Remarks	
0-1	7.5YR3/3	100					Loam	
1-5	2.5YR4/3	60	10YR3/4(15%), 2	.5YR3/1(15	% <u>)                                    </u>	M	Silty sand	
<u>5-12</u>	5YR4/3	80	2.5YR3/4	2 0		M	Silt loam	
12-17	5YR4/2	60	5YR4/4	4 0	C	M	Silt loam	
17+	5YR3/2	80	5YR4/4	2 0	<u>C</u>	M	Silt loam	
				-				
				-				
								,
<sup>1</sup> Type: C=Ce	oncentration, D=De	pletion, RN	/=Reduced Matrix, N	//S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.	
Hydric Soil		<u>,                                      </u>	,			-	Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histosol	(A1) pipedon (A2)		Polyvalue Belo MLRA 149		(S8) ( <b>LRF</b>	RR,	<ul> <li>2 cm Muck (A10) (LRR K, L, MLRA 149B)</li> <li>Coast Prairie Redox (A16) (LRR K, L, R)</li> </ul>	)
-	stic (A3)		Thin Dark Sur	,	.RR R, MI	-RA 149B		R)
	en Sulfide (A4)		Loamy Mucky			, <b>L</b> )	Dark Surface (S7) (LRR K, L, M)	
	d Layers (A5) d Below Dark Surfa	ce (A11)	Loamy Gleyed Depleted Matr		)		<ul><li>Polyvalue Below Surface (S8) (LRR K, L)</li><li>Thin Dark Surface (S9) (LRR K, L)</li></ul>	
	ark Surface (A12)		Redox Dark S	, ,	·_\		Iron-Manganese Masses (F12) (LRR K, L,	
	Mucky Mineral (S1) Gleyed Matrix (S4)		Depleted Dark Redox Depres		7)		<ul><li>Piedmont Floodplain Soils (F19) (MLRA 1-</li><li>Mesic Spodic (TA6) (MLRA 144A, 145, 14</li></ul>	-
	Redox (S5)		<u></u>	( )			x Red Parent Material (F21)	/
	Matrix (S6) rface (S7) ( <b>LRR R,</b>	MLRA 149	<b>9B</b> )				<ul><li>Very Shallow Dark Surface (TF12)</li><li>Other (Explain in Remarks)</li></ul>	
<sup>3</sup> Indicators o	f hydrophytic veget	ation and v	vetland hydrology mu	ust be prese	ent, unless	disturbed	d or problematic.	
	Layer (if observed	):						
Type:	ahaa):		_				Hydric Soil Present? Yes x No	
Depth (inc							Hydric Soil Present? Yes x No	_
rtemants.								

Project/Site: Charleston Mixed	Use Development		City/C	County: Rich	nmond		Sampling Date:_	July 2012
Applicant/Owner: NYCEDC						State:		
								·
Landform (hillslope, terrace, etc	c.):		Local reli	ief (concave.	convex. nor	ne):	Slor	<2 ne (%):
Subregion (LRR or MLRA): ML								
							n/o	1
Soil Map Unit Name: Whethers								
Are climatic / hydrologic conditi			-					
Are Vegetation, Soil	, or Hydrology	/ sign	ificantly distur	bed?	Are "Normal	Circumstances" p	resent? Yes X	No
Are Vegetation, Soil	x, or Hydrology	/natu	rally problema	atic? (	(If needed, e	explain any answe	rs in Remarks.)	
SUMMARY OF FINDING	GS – Attach si	te map sh	owing san	npling poi	nt locatio	ons, transects	, important fe	atures, etc.
Hydrophytic Vegetation Prese	ent? Yes	x No		Is the Samp	pled Area		v	
Hydric Soil Present?		No	Х	within a We	etland?	Yes	No <sup>X</sup>	
Wetland Hydrology Present?		No	X	If ves. option	nal Wetland	Site ID:		
Remarks: (Explain alternative			ate report )	, , , , , , ,				
LIVEROLOGY								
HYDROLOGY Wetland Hydrology Indicate						Coondan/India	tora (minimum of	two required)
Wetland Hydrology Indicato		ماء الميام ماء	4			Secondary Indica		<u>two required)</u>
Primary Indicators (minimum	of one is required;			- (DO)		Surface Soil	, ,	
Surface Water (A1)			Stained Leaves (B9) Drainage Patterns (B10)  C Fauna (B13) Moss Trim Lines (B16)					
<ul><li>High Water Table (A2)</li><li>Saturation (A3)</li></ul>								
Water Marks (B1)			Deposits (B15) Dry-Season Water Table (C2)  ogen Sulfide Odor (C1) Crayfish Burrows (C8)					
Sediment Deposits (B2)			Dxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imag				agery (C9)	
Drift Deposits (B3)							tressed Plants (D1	
Algal Mat or Crust (B4)			Recent Iron Reduction in Tilled Soils (C6)					
Iron Deposits (B5)		· · · · · · · · · · · · · · · · · · ·	Thin Muck Surface (C7)			Shallow Aquitard (D3)		
Inundation Visible on Aer	ial Imagery (B7)	Other (I				phic Relief (D4)		
Sparsely Vegetated Cond	cave Surface (B8)					FAC-Neutral	Test (D5)	
Field Observations:								
Surface Water Present?	Yes No _	x Depth	(inches):					
Water Table Present?	Yes No _ Yes No _ Yes No _	^ Depth	(inches):					
Saturation Present? (includes capillary fringe)	Yes No _	x Depth	(inches):		Wetland H	lydrology Presen	t? Yes	No <sup>X</sup>
Describe Recorded Data (stre	eam gauge, monito	ring well, aeri	ial photos, pre	vious inspect	tions), if ava	ilable:		
Remarks:								

<b>GETATION</b> – Use scientific names of pla	ants.			Sampli	ng Point:	
ee Stratum (Plot size:30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:		
Acer rubra	70	D	FAC	Number of Dominant Species	2	(4)
Sassafras	40	D	FACU	That Are OBL, FACW, or FAC:		_ (A)
Prunus serotina	25	N	FAC	Total Number of Dominant Species Across All Strata:	4	_ (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC:	50	_ (A/B
				Prevalence Index worksheet:		
				Total % Cover of:	Multiply by:	
	100+	= Total Cov	er	OBL species x	1 =	
ppling/Shrub Stratum (Plot size: 100 sq ft	)			FACW species x		
no trees	_/			FAC species x		
				FACU species x	4 =	
				UPL species x	5 =	
				Column Totals: (A	A)	(B)
				Prevalence Index = B/A =		
				Hydrophytic Vegetation Indica	ntors:	
				1 - Rapid Test for Hydrophy		
				x 2 - Dominance Test is >50%	_	
4		= Total Cov	er	3 - Prevalence Index is ≤3.0	) <sup>1</sup>	
erb Stratum (Plot size: 1 m ) Glechoma hedercea	2	D	FACU	4 - Morphological Adaptation data in Remarks or on a	ns¹ (Provide su	pporting
				Problematic Hydrophytic Ve	•	•
				<sup>1</sup> Indicators of hydric soil and wet be present, unless disturbed or p		must
				Definitions of Vegetation Strat	ta:	
				Tree – Woody plants 3 in. (7.6 c at breast height (DBH), regardle	,	liamete
				Sapling/shrub – Woody plants and greater than or equal to 3.2		ЭВН
				Herb – All herbaceous (non-woody	` ,	ess of
·				size, and woody plants less than 3.2		
				Woody vines – All woody vines gr height.	eater than 3.28 ft	in
	2	= Total Cov	er	<u> </u>		
oody Vine Stratum (Plot size: 10 sq ft ) Smilax rotundifolia	10	D	FAC			
				Hydrophytic		
				Vegetation		

10

= Total Cover

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: C

Depth	Matrix	pth needed to document the indicate Redox Features	or or commi	in the absence of indicators.)
(inches)	Color (moist) %	Color (moist) % Type	e <sup>1</sup> Loc <sup>2</sup>	Texture Remarks
0-3	7.5YR 3/2			silt loam w/ organic material
3-12	7.5YR 3/3			sandy silt
Depth of r	efusal			
		·		
				-
		·		
			<u> </u>	
		·		
		M=Reduced Matrix, MS=Masked Sand	Grains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.
Hydric Soil I Histosol		Polyvaluo Polow Surface (SS) (	I DD D	Indicators for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B)
	pipedon (A2)	Polyvalue Below Surface (S8) (I MLRA 149B)	LNN N,	Coast Prairie Redox (A16) (LRR K, L, R)
Black Hi		Thin Dark Surface (S9) (LRR R,	, MLRA 149B	
	n Sulfide (A4)	Loamy Mucky Mineral (F1) (LRI	₹ K, L)	Dark Surface (S7) (LRR K, L, M)
	l Layers (A5) d Below Dark Surface (A11)	<ul><li>Loamy Gleyed Matrix (F2)</li><li>Depleted Matrix (F3)</li></ul>		<ul><li>Polyvalue Below Surface (S8) (LRR K, L)</li><li>Thin Dark Surface (S9) (LRR K, L)</li></ul>
	ark Surface (A12)	Redox Dark Surface (F6)		Iron-Manganese Masses (F12) (LRR K, L, R)
	lucky Mineral (S1)	Depleted Dark Surface (F7)		Piedmont Floodplain Soils (F19) (MLRA 149E
	eleyed Matrix (S4) edox (S5)	Redox Depressions (F8)		Mesic Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> ) X Red Parent Material (F21)
-	Matrix (S6)			Very Shallow Dark Surface (TF12)
	rface (S7) (LRR R, MLRA 149	<b>3</b> B)		Other (Explain in Remarks)
<sup>3</sup> Indicators of	f hydrophytic vegetation and w	vetland hydrology must be present, un	less disturbed	d or problematic.
	_ayer (if observed):			
Type:		_		
Depth (inc	ches):	_		Hydric Soil Present? Yes No _X
Remarks:				

Project/Site: Charleston Mixed Use Development City/County:	Staten Island, Richmond Sampling Date: 7/10/12
Applicant/Owner: NYCEDC	State: NY Sampling Point: D
Investigator(s): <u>J. Rollino/M. Smith</u> Section, Town	nship, Range: Charleston
Landform (hillslope, terrace, etc.): Local relief (cond	cave, convex, none): Flat land Slope (%):
Subregion (LRR or MLRA): MLRA 149B Lat:	
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <u>x</u>	
• , , , ,	Are "Normal Circumstances" present? Yes x No
Are Vegetation, Soil , or Hydrology naturally problematic?	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling	point locations, transects, important features, etc.
Hydric Soil Present?  Yes X  No  within	Sampled Area a Wetland? Yes X No optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
Wetland D is a Palustrine Emergent and Scrub-Shrub complex wetland. Hydric so	il indicators problematic/red parent material.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (B9)	Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)
Sediment Deposits (B2) X Oxidized Rhizospheres on Liv	
Drift Deposits (B3) Presence of Reduced Iron (C	
Algal Mat or Crust (B4) Recent Iron Reduction in Tille	
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks)	x Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	_x FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No _X Depth (inches):	
Water Table Present? Yes NoX Depth (inches):  Saturation Present? Yes NoX Depth (inches):	Wetland Hydrology Present? Yes x No
(includes capillary fringe)	Wetland Hydrology Present? Yes <u>x</u> No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous in	spections), if available:
Remarks:	
Tomano.	

<b>EGETATION</b> – Use scientific names of plants				Sampling Point: D
Free Stratum (Plot size: 30 feet )	% Cover	Dominant Species?	Status	Dominance Test worksheet:  Number of Dominant Species That Are OBL, FACW, or FAC:  (A)
2. 3				Total Number of Dominant Species Across All Strata:1 (B)
i 5				Percent of Dominant Species That Are OBL, FACW, or FAC:100 (A/B
5				Prevalence Index worksheet:
		= Total Cov		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 feet )				FACW species x 2 =
l				FAC species x 3 =
2				FACU species x 4 =
				UPL species x 5 =
3				Column Totals: (A) (B)
l 5				Prevalence Index = B/A =
5				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
7				X 2 - Dominance Test is >50%
5 foot		= Total Cov	er	3 - Prevalence Index is ≤3.0 <sup>1</sup>
Herb Stratum (Plot size: 5 feet )  Juncus effusus	72	D	OBL	4 - Morphological Adaptations (Provide supportin data in Remarks or on a separate sheet)
Phragmites australis	5	Ν	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Carex scoparia	5	N	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Eleocharis obtusa	15		OBL	be present, unless disturbed or problematic.
Juncus tenis	3		FAC	Definitions of Vegetation Strata:
S				Tree – Woody plants 3 in. (7.6 cm) or more in diamete at breast height (DBH), regardless of height.
3				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
)  0				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
11 2.				Woody vines – All woody vines greater than 3.28 ft in height.
	100	= Total Cov		nergit.
Noody Vine Stratum (Plot size: 15 feet )		Total Cov	C.	
2				Hydrophytic Vegetation
				Present? Yes X No
3				
		= Total Cov		

SOIL	Sampling Point: _	D	
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators	)		

Depth (inches)	Matrix Color (moist)	%	Redo Color (moist)	x Feature %	<u>s</u> _ Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks
(inches) 0-2	Color (moist) 10YR4/1		COIOI (IIIOISI)	70	<u>i ype</u>	LUC	·
	-	100	7.5\\D5.(2				silty clay loam with Oxidized root chan
2-5	7.5YR5/6		7.5YR5/2	30	D	<u>M</u>	silty clay loam
5-12	7.5YR4/4	70	7.5YR4/2	30	D	M	silty clay loam
		-					
Type: C=Co	oncentration. D=Dec	letion. RM	=Reduced Matrix, M	S=Masked	d Sand Gra	ains.	Location: PL=Pore Lining, M=Matrix.
lydric Soil I		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		<u>uouo</u>			Indicators for Problematic Hydric Soils <sup>3</sup> :
Black Hi Hydroge Stratified Depleted Thick Da Sandy M Sandy R Sandy R Stripped Dark Sui	en Sulfide (A4) Id Layers (A5) Id Below Dark Surface Ark Surface (A12) If Mucky Mineral (S1) Idedox (S5) Matrix (S6) Ifface (S7) (LRR R, I	MLRA 149	MLRA 149B  Thin Dark Surfa Loamy Mucky N Loamy Gleyed Depleted Matrix Redox Dark Su Depleted Dark Su Redox Depress B)	ace (S9) (I Mineral (F Matrix (F2 (F3) rface (F6) Surface (F6) sions (F8)	1) ( <b>LRR K</b> ?) <del>-</del> 7)	, L)	Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L) Piedmont Floodplain Soils (F19) (MLRA 1 Mesic Spodic (TA6) (MLRA 144A, 145, 14 X Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
	_ayer (if observed)						
Type:			-				
Depth (inc	ches):		_				Hydric Soil Present? Yes X No

Project/Site: Charleston Mix	ed Use Developme	nt City/C	ounty: Staten Island, Rich	mond S	Sampling Date: 7/9/12
Applicant/Owner: NYCEDC				State: NY	_Sampling Point: _D (upland)
Investigator(s): J. Rollino/M. S	smith	Sectio	n, Township, Range: Char	leston	
Landform (hillslope, terrace, etc			·		
Subregion (LRR or MLRA): MI					
Soil Map Unit Name: Whether					
Are climatic / hydrologic condition		-			
Are Vegetation, Soil				ircumstances" pro	esent? Yes <u>x</u> No
Are Vegetation, Soil	, or Hydrology	naturally problems	atic? (If needed, exp	olain any answers	in Remarks.)
SUMMARY OF FINDING	3S – Attach sit	e map showing san	pling point location	s, transects,	important features, etc
Hydrophytic Vegetation Prese	ent? Yes	No x	Is the Sampled Area		
Hydric Soil Present?	·	No x	within a Wetland?	Yes	_ No x
Wetland Hydrology Present?		No x	If yes, optional Wetland S	ite ID:	
Remarks: (Explain alternative	procedures here c	or in a separate report.)		<u> </u>	
HYDROLOGY					
Wetland Hydrology Indicato	rs:		<u>s</u>	econdary Indicate	ors (minimum of two required)
Primary Indicators (minimum	of one is required; of	check all that apply)		Surface Soil C	cracks (B6)
Surface Water (A1)		Water-Stained Leave	s (B9)	Drainage Patte	erns (B10)
High Water Table (A2)		Aquatic Fauna (B13)	<u>-</u>	Moss Trim Lin	es (B16)
Saturation (A3)		Marl Deposits (B15)	_		Vater Table (C2)
Water Marks (B1)		Hydrogen Sulfide Od		Crayfish Burro	
Sediment Deposits (B2)		Oxidized Rhizosphere			ible on Aerial Imagery (C9)
Drift Deposits (B3) Algal Mat or Crust (B4)		<ul><li>Presence of Reduced</li><li>Recent Iron Reduction</li></ul>		<ul><li>Stunted or Street</li><li>Geomorphic P</li></ul>	essed Plants (D1)
Iron Deposits (B5)		Thin Muck Surface (C		Shallow Aquita	
Inundation Visible on Aer	ial Imagery (B7)	Other (Explain in Rer			phic Relief (D4)
Sparsely Vegetated Cond			, <u> </u>	FAC-Neutral T	, ,
Field Observations:					
Surface Water Present?	Yes No	x Depth (inches):			
Water Table Present?	Yes No _	x Depth (inches):			
Saturation Present?	Yes No _	x Depth (inches):	Wetland Hyd	drology Present	? Yes No x
(includes capillary fringe)  Describe Recorded Data (stre	am gauge, monitor	ring well, aerial photos, pre	vious inspections), if availa	ble:	
(***	3.13.7	<b>3</b> - , , , , , , , , , , , , , , , , , ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
Remarks:					

## **VEGETATION –** Use scientific names of plants.

	Dominant Species?	Status	Dominance Test workshe Number of Dominant Speci That Are OBL, FACW, or F.	es		
				\		
			Total Number of Dominant			
			Species Across All Strata:	4 (B)		
			Percent of Dominant Speci			
			That Are OBL, FACW, or F.	AC: <u>50</u> (A/E		
			Prevalence Index worksh	eet:		
			Total % Cover of:	Multiply by:		
	= Total Cov	er	OBL species			
			· ·			
			·			
			Column Totals. 100	(//) (L		
			Prevalence Index = E	B/A = 3.15		
			Hydrophytic Vegetation II	ndicators:		
			1 - Rapid Test for Hydr			
= Total Cover			2 - Dominance Test is >50%			
			3 - Prevalence Index is ≤3.0 <sup>1</sup>			
20	D	FAC	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)			
25	D	FACW	Problematic Hydrophyt	ic Vegetation <sup>1</sup> (Explain)		
25	D	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must			
5	<u>N</u>	FAC	be present, unless disturbe	d or problematic.		
5	N	FACW	Definitions of Vegetation	Strata:		
			<b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.			
			Sapling/shrub – Woody pl			
			and greater than or equal to	o 3.28 ft (1 m) tall.		
			Herb – All herbaceous (non-v			
				nes greater than 3.28 ft in		
100	= Total	Cover	6			
			Hydrophytic			
			Present? Yes	No x		
_	= Total Cov	er				
	20 25 25 5 5 20	= Total Cov  = Total Cov  20 D  25 D  5 N  5 N  20 D	20 D FAC  25 D FACU  25 D FACU  5 N FAC  5 N FACW  20 D FACU  100 = Total Cover	Prevalence Index worksh Total % Cover of: OBL species FACW species 30 FAC species 45 UPL species Column Totals: 100 Prevalence Index = E Hydrophytic Vegetation II — 1 - Rapid Test for Hydr — 2 - Dominance Test is — 3 - Prevalence Index is — 4 - Morphological Adag data in Remarks or — Problematic Hydrophyt  5 N FAC  5 N FACW Definitions of Vegetation Tree – Woody plants 3 in. (at breast height (DBH), reg Sapling/shrub – Woody pl and greater than or equal to Herb – All herbaceous (non-vsize, and woody plants less the woody vinheight.  100 = Total Cover  Provalence Index worksh Total % Cover of: OBL species FACW species 30 FAC yes 45 UPL species Column Totals: 100 — 1 - Rapid Test for Hydr — 2 - Dominance Test is — 4 - Morphological Adag data in Remarks or — Problematic Hydrophytic be present, unless disturbe Definitions of Vegetation Tree – Woody plants 3 in. (at breast height (DBH), reg Sapling/shrub – Woody plants less the woody vinheight.  Herb – All herbaceous (non-vsize, and woody plants less the woody vinheight.		

SOIL Sampling Point: D (upland)

Profile Desc	cription: (Describe	to the de	pth needed to docu	ment the i	ndicator	or confirm	the absence of indicators.)		
Depth	Matrix	%		ox Features	S Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks		
(inches) 0-2	Color (moist) 10YR5/2	100	Color (moist)	%	туре	LOC	Texture Remarks  Silty clay loam		
2-4	10YR5/3	95	10YR4/6	5		M	Silty clay loam		
4-8	7.5YR4/4	45	7.5YR5/8	40	С	M	Silty clay loam with red parent material increasing with		
			2.5YR4/6	1 5		M	depth		
8-13	2.5YR4/6	60	2.5YR5/2	40	D	М	Silty clay loam		
13+							auger refusal		
		_							
		_							
	-								
<sup>1</sup> Type: C=C Hydric Soil		pletion, RI	M=Reduced Matrix, M	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Indicators for Problematic Hydric Soils <sup>3</sup> :		
Histosol			Polyvalue Belo	w Surface	(S8) ( <b>LRF</b>	RR,	2 cm Muck (A10) (LRR K, L, MLRA 149B)		
Histic E	pipedon (A2)		MLRA 149B	3)			Coast Prairie Redox (A16) (LRR K, L, R)		
	istic (A3) en Sulfide (A4)		Thin Dark Surfa				5 cm Mucky Peat or Peat (S3) (LRR K, L, R) Dark Surface (S7) (LRR K, L, M)		
	d Layers (A5)		Loamy Gleyed			, <b>-</b> )	Polyvalue Below Surface (S8) (LRR K, L)		
	d Below Dark Surfac	ce (A11)	Depleted Matri	x (F3)			Thin Dark Surface (S9) (LRR K, L)		
	ark Surface (A12)		Redox Dark Su	. ,	7)		Iron-Manganese Masses (F12) (LRR K, L, R)		
	Mucky Mineral (S1) Bleyed Matrix (S4)		Depleted Dark Redox Depress		7)		Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
-	Redox (S5)		<u> </u>	0.0.10 (1. 0)			x Red Parent Material (F21)		
Stripped Matrix (S6)					Very Shallow Dark Surface (TF12)				
Dark Su	rface (S7) (LRR R,	MLRA 14	9B)				Other (Explain in Remarks)		
			wetland hydrology mu	st be prese	ent, unless	disturbed	or problematic.		
Type:	Layer (if observed)	):							
	ches):		<del>-</del>				Hydric Soil Present? Yes No _x		
Remarks:							,		

Project/Site: Charleston Mix	ed Use Developme	ent City/C	County: Staten	Island, Richmond	Sampling Date: 7/11/12
Applicant/Owner: NYCEDC_				State: NY	Sampling Point: _E
Investigator(s): J. Rollino/M. S	Smith				
= ::				_	Slope (%):
					Datum:
Soil Map Unit Name: Whether					
Are climatic / hydrologic conditi		-			
Are Vegetation, Soil				·	present? Yes x No
Are Vegetation, Soil	, or Hydrology	naturally problem	natic? (If	needed, explain any answe	rs in Remarks.)
SUMMARY OF FINDING	GS – Attach si	te map showing sar	mpling point	t locations, transects	s, important features, etc.
Hydrophytic Vegetation Prese Hydric Soil Present? Wetland Hydrology Present?	Yes _	x No	Is the Sample within a Wet		
Remarks: (Explain alternative	<u> </u>		ir yes, optiona	ai Wetiand Site ID:	_
HYDROLOGY					
Wetland Hydrology Indicato	ors:			Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum	of one is required;	check all that apply)		<u>x</u> Surface So	il Cracks (B6)
Surface Water (A1)		x Water-Stained Leav	res (B9)	<u>x</u> Drainage Pa	atterns (B10)
High Water Table (A2)					
Saturation (A3) Marl Deposits (B15) Dry-Season Water Table (C2)					
Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)					
Sediment Deposits (B2) X Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (					
Drift Deposits (B3)		Presence of Reduce			tressed Plants (D1)
Algal Mat or Crust (B4)		Recent Iron Reduction			Position (D2)
Iron Deposits (B5)	(D-7)	Thin Muck Surface (		Shallow Aqu	
Inundation Visible on Aer		Other (Explain in Re	emarks)	· -	aphic Relief (D4)
Sparsely Vegetated Cond	cave Surface (B8)			FAC-Neutral	Test (D5)
Field Observations: Surface Water Present?	Voc. No.	V Donth (inches): M	Not at plat		
Water Table Present?	Yes No _ Yes No _		· ·		
Saturation Present?	Yes No _			Wetland Hydrology Preser	nt? Yes I No
(includes capillary fringe)			·	, ,,	It: 165 1 NO
Describe Recorded Data (stre	am gauge, monito	ring well, aerial photos, pro	evious inspectio	ons), if available:	
Remarks:					
					ļ

	Absolute	Dominant I	Indicator	
<u>Tree Stratum</u> (Plot size: <u>30 feet</u> )		Species?		Dominance Test worksheet:
1				Number of Dominant Species That Are OBL, FACW, or FAC:1 (A)
				That Are OBL, I AGW, OI I AC(A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC:100 (A/B)
6			ŀ	Description on the description of
7				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
		= Total Cove	er	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 feet )				FACW species x 2 =
1				FAC species x 3 =
2				FACU species x 4 =
3				UPL species x 5 =
				Column Totals: (A) (B)
4				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
7				X 2 - Dominance Test is >50%
		= Total Cove	er	3 - Prevalence Index is ≤3.0 <sup>1</sup>
Herb Stratum (Plot size: 5 feet )	0.4	D	OBL	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
1. Juncus effusus				data in Remarks or on a separate sheet)
2. Juncus tenuis		<u>N</u>	FAC	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
3. Solidago rugosa		N	<u>FAC</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
4. Euthania gramnifolia	2	N	FAC	be present, unless disturbed or problematic.
5. Eleocharis obtusa	2	N	OBL	Definitions of Vegetation Strata:
0 Di "	1	N	FACV	Tree – Woody plants 3 in. (7.6 cm) or more in diameter
Phragmites australis     Persicaria pennsylcanica		N	FACW	
		N	OBL	Sapling/shrub – Woody plants less than 3 in. DBH
8. Altisma subcordatum			OBL	and greater than or equal to 3.28 ft (1 m) tall.
9. <u>Lidwigia palustris</u>	5	N	OBL	<b>Herb</b> – All herbaceous (non-woody) plants, regardless of
10				size, and woody plants less than 3.28 ft tall.
11				Woody vines – All woody vines greater than 3.28 ft in
12				height.
	100	= Total Cove	er	
Woody Vine Stratum (Plot size: 15 feet )				
1				Hydrophytic
2				Vegetation
3				Present? Yes L No
4				
		= Total Cove	er	
Remarks: (Include photo numbers here or on a separate	sheet.)			

SOII			
<b>~</b> ( )	$\overline{}$	-	
	•	( )	

Sampling Point: \_\_\_\_E

Color (moist)	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   Total Company	
6-10 7.5YR4/1 90 7.5YR5/6 50 C M silty clay loam  10-14 7.5YR5/1 50 M silty clay loam  10-14 8.1Ycat loam  10-14 8.1	<u>sent</u>
10-14 7.5YR5/1 50 7.5YR5/6 50 C M silty clay loam    Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   ^2Location: PL=Pore Lining, M=Matrix.   Hydric Soil Indicators:   Indicators for Problematic Hydric Soils   Indicators for Problematic Hydric Soils   Loany Muck   Loany Mu	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.    Coation: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soil Indicators: Indicators for Problematic Hydric Soil Soil Indicators for Problematic Hydric Soil Plack Histic Soil Indicators (S8) (LRR R, L, MLRA 149B)	
Hydric Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Correct (A12) Depleted Dark Surface (F7) Dark Surface (S9) Dark Surface (S9) Dark Surface (F7) Dark Surface (A144A, 14A, 14A, 14A, 14A, 14A, 14A, 14A	
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA MLRA 149B)  Black Histic Epipedon (A2)  Histic Epipedon (A2)  Black Histic (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A11)  Redox Dark Surface (F6)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S4)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, MLRA 149B)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, MLRA 149B)  And Care Thin Dark Surface (TF12)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 14 Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  And Care Thin Dark Surface (TF12)  Poepth (inches):  Depth (inches):  Hydric Soil Present? Yes X Notes (Care Tains Number 2)  Maker Coll Present? Yes X Notes (Care Tains Number 2)  Maker Care Muck (A10) (LRR K, L, MLRA 149B)  And Care Muck (A10) (LRR K, L, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, MLRA 149B)  Dark Surface (A12)  Polyvalue Below Surface (S9) (LRR K, L)  Dark Surface (A12)  Redox Dark Surface (F6)  Redox Dark Surface (F6)  Redox Dark Surface (F7)  Redox Dark Surface (F7)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)	
Hydric Soil Indicators:  Histosol (A1)  Histosol (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, MLRA 149B)  Black Histic (A3)  Histoson Sulfide (A4)  Loamy Mucky Mineral (F1) (LRR K, L)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, MLRA 149B)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, MLRA 149B)  Thindicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes X Nc	
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA MLRA 149B)  Black Histic Epipedon (A2)  Histic Epipedon (A2)  Black Histic (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A11)  Redox Dark Surface (F6)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S4)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, MLRA 149B)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, MLRA 149B)  And Care Thin Dark Surface (TF12)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 14 Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  And Care Thin Dark Surface (TF12)  Poepth (inches):  Depth (inches):  Hydric Soil Present? Yes X Notes (Care Tains Number 2)  Maker Coll Present? Yes X Notes (Care Tains Number 2)  Maker Care Muck (A10) (LRR K, L, MLRA 149B)  And Care Muck (A10) (LRR K, L, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, MLRA 149B)  Dark Surface (A12)  Polyvalue Below Surface (S9) (LRR K, L)  Dark Surface (A12)  Redox Dark Surface (F6)  Redox Dark Surface (F6)  Redox Dark Surface (F7)  Redox Dark Surface (F7)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)	
Hydric Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA MLRA 149B) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L MLRA 149B) Histic Epipedon (A2) MLRA 149B) Stratified Layers (A3) Loamy Mucky Mineral (F1) (LRR K, L) Loamy Mucky Mineral (F1) (LRR K, L) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Below Surface (S8) (LRR L) Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Below Surface (S8) (LRR L) Polyvalue Below Surface (S9) (LRR L, M) Surface (S9) (LRR L, L) Polyvalue Below Surface (S8) (LRR L) Polyvalue Below Surface (S8) (LRR L) Polyvalue Below Surface (S9) (LRR L,	
Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA MLRA 149B) Coast Prairie Redox (A16) (LRR K, L MLRA MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L) Depleted Below Dark Surface (A11) Depleted Dark Surface (F6) Iron-Manganese Masses (F12) (LRR Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 144A, 14 Sandy Redox (S5) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S5) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Red	
Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L MLRA Histic Epipedon (A2) MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR L) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLR Sandy Redox (S5) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S5) (LRR R, MLRA 149B) Pother (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Present? Yes X Nother (Iron-Manganese) Nother (Explain in Remarks)	
Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA MLRA 149B) Coast Prairie Redox (A16) (LRR K, L MLRA MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L) Depleted Below Dark Surface (A11) Depleted Dark Surface (F6) Iron-Manganese Masses (F12) (LRR Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 144A, 14 Sandy Redox (S5) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S5) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Red	
Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA MLRA 149B) Coast Prairie Redox (A16) (LRR K, L MLRA MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L) Depleted Below Dark Surface (A11) Depleted Dark Surface (F6) Iron-Manganese Masses (F12) (LRR Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 144A, 14 Sandy Redox (S5) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S5) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S7) (LRR R, MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Red	
Histosol (A1)	
Histic Epipedon (A2)  Black Histic (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Bandy Mucky Mineral (S1)  Depleted Dark Surface (A12)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7)  Chark R, L, M  Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Red Parent Material (F21)  Mestratified Layers (A5)  Depleted Dark Surface (F6)  Sandy Mucky Mineral (S1)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, MLRA 149B)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type:  Depth (inches):  Depth (inches):  Hydric Soil Present? Yes X Notes (A16) (LRR K, L)  Som Mucky Mineral (P1) (LRR K, L)  Dark Surface (S7) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L)  Som Mucky Peat or Peat (S3) (LRR K, L)  Dark Surface (S7) (LRR K, L, M)  Thin Dark Surface (S7) (LRR K, L, M)  Thin Dark Surface (S9) (LRR K, L, M)  Thin Dark Surface (S9) (LRR K, L, M)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
Black Histic (A3)	
Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR Depleted Below Dark Surface (A11) X Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Thick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (ML Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes X Notering	
Thick Dark Surface (A12)	<b>K</b> , <b>L</b> )
Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (ML Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Other (Explain in Remarks) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Other (Explain in Remarks) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Very Shallow Dark Surface (TF12) Principle (F12) Very Shallow Dark Surface (TF12) Very Shallow Dark Surface	KIR
Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 14 Sandy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, MLRA 149B) Other (Explain in Remarks)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (if observed):	
Stripped Matrix (S6) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, MLRA 149B) Other (Explain in Remarks)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes X No	
Dark Surface (S7) (LRR R, MLRA 149B) Other (Explain in Remarks)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes X No.	
Restrictive Layer (if observed):           Type:	
Type:	
Depth (inches): Hydric Soil Present? Yes X No	
	_
REMAINS:	o

Project/Site: Charleston Mix	ed Use Developme	nt City/C	ounty: Staten Island, Richi	mond S	Sampling Date: 7/1	1/12
Applicant/Owner: NYCEDC			:	State: NY	_Sampling Point: _	E (upland)
Investigator(s): J. Rollino/M. S	Smith	Sectio	n, Township, Range: <u>Charl</u>	leston		
Landform (hillslope, terrace, etc	c.):	Local reli	ef (concave, convex, none)	: Flat land	Slope	(%):
Subregion (LRR or MLRA): M						
Soil Map Unit Name: Whether	ersfield-Ludlow-Wilb	raham Complex	· y	NWI classifica	n/a	
Are climatic / hydrologic conditi						
		-			esent? Yes	No X
Are Vegetation, Soil						INO
Are Vegetation, Soil	, or Hydrology	naturally problems	atic? (if needed, exp	olain any answers	in Remarks.)	
SUMMARY OF FINDING	GS – Attach sit	e map showing sam	pling point locations	s, transects,	important feat	tures, etc.
Hydrophytic Vegetation Prese	ant? Vec	No x	Is the Sampled Area			
Hydric Soil Present?	<u></u>	No x	within a Wetland?	Yes	_ No x	
Wetland Hydrology Present?		No x	If yes, optional Wetland Si	ite ID:		
Remarks: (Explain alternative			, , , , , , , , , , , , , , , , , , , ,			
Soils around wetland have b	een modified histor	ically.				
		-				
LIVEROLOGY						
HYDROLOGY Wetland Hydrology Indicator	ore:		9,	econdary Indicate	ors (minimum of tw	o required)
		shook all that apply)				<u>o requirea)</u>
Primary Indicators (minimum	or one is required, t			_ Surface Soil C		
Surface Water (A1)		Water-Stained Leave	. ,	_ Drainage Patte		
<ul><li>High Water Table (A2)</li><li>Saturation (A3)</li></ul>		<ul><li>Aquatic Fauna (B13)</li><li>Marl Deposits (B15)</li></ul>	_	_ Moss Trim Lin		
Water Marks (B1)		Hydrogen Sulfide Od	or (C1)	_ Crayfish Burro	/ater Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizosphere		-	ible on Aerial Imag	ery (C9)
Drift Deposits (B3)		Presence of Reduced			essed Plants (D1)	0.7 (00)
Algal Mat or Crust (B4)		Recent Iron Reductio		_ Geomorphic P		
Iron Deposits (B5)		Thin Muck Surface (C		Shallow Aquita		
Inundation Visible on Aer	ial Imagery (B7)	Other (Explain in Rer		_ Microtopograp	hic Relief (D4)	
Sparsely Vegetated Cond	cave Surface (B8)		_	_ FAC-Neutral T	est (D5)	
Field Observations:						
Surface Water Present?	Yes No _	x Depth (inches):				
Water Table Present?	Yes No _	x Depth (inches):				
Saturation Present?	Yes No _	x Depth (inches):	Wetland Hyd	drology Present	? Yes	No x
(includes capillary fringe)  Describe Recorded Data (stre	eam gauge monitor	ing well aerial photos pre	vious inspections) if availal	ble:		
20000 1 1000.000 20.00 (00	rani gaage, memer	g, dona. potoo, p	mode mepodueme,, maraman			
Remarks:						

				ı	
Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksh	
- · · · · · · · · · · · · · · · · · · ·	_			Number of Dominant Spec That Are OBL, FACW, or I	
				Total Number of Dominan	<b>.</b>
				Species Across All Strata:	
·				Percent of Dominant Spec	ies
i <u> </u>				That Are OBL, FACW, or I	FAC: <u>33</u> (A/E
i				Prevalence Index works	neet:
-				Total % Cover of:	
		= Total Co	ver	OBL species	
apling/Shrub Stratum (Plot size: 15'				FACW species 37	x 2 = <u>74</u>
				FAC species	
				FACU species <u>53</u>	
				UPL species	
				Column rotals. 90	(A) <u>286</u> (B)
				Prevalence Index =	B/A = 3.17
				Hydrophytic Vegetation	Indicators:
				1 - Rapid Test for Hyd	· · ·
		= Total Co		2 - Dominance Test is	
lerb Stratum (Plot size: 5' )				3 - Prevalence Index i	
. Plantago lanceolata	25	D	FACU	data in Remarks o	ptations <sup>1</sup> (Provide supportin r on a separate sheet)
. Agrostis gigantea	35	D	FACW	Problematic Hydrophy	tic Vegetation <sup>1</sup> (Explain)
3. Trifolium repens	25	D	FACU		nd wetland hydrology must
. Juncus tenuis	2	N	FAC	be present, unless disturb	ed or problematic.
. Lotus corniculatis	2	<u>N</u>	FACU	Definitions of Vegetation	Strata:
S. Cichorium intybus				Tree – Woody plants 3 in. at breast height (DBH), re	(7.6 cm) or more in diamete gardless of height.
				Sapling/shrub – Woody p	
				and greater than or equal	to 3.28 ft (1 m) tall.
0.					woody) plants, regardless of
1				size, and woody plants less the	
2				<b>Woody vines</b> – All woody vineight.	ines greater than 3.28 ft in
	90	= Total C	Cover		
Voody Vine Stratum (Plot size:15')					
·					
-				Hydrophytic	
				Vegetation Present? Yes _	No x
i.					
		= Total Co	ver		

SOIL Sampling Point: <u>E (upland)</u>

Profile Desc	ription: (Describe t	to the depth	needed to docur	nent the ir	ndicator	or confirm	the absence of	f indicato	rs.)		
Depth	Matrix		Redo	x Features							
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remar	ks	
0+	Auger refusal, grave	el substrate	highly compact								
	ragor roradar, grave	<u> </u>	riigiiiy compact								
1 <sub>T-112</sub> C-Can		tion DM-Da	aluna di Matrico MC-	-Maaliad C	Sand Chair		<del>2</del> 1	N -Dana Liv	nina NA-N	- Audio	
Type: C=Con Hydric Soil In	centration, D=Depled	tion, Rivi=Re	educed Matrix, MS=	=iviasked S	and Grair	1S.	Location: F				
Histosol (A	A1)	_	 Polyvalue Below	Surface (S	88) (L <b>RR I</b>	₹.	2 cm Muc	k (A10) (L	RR K. L. I	/ILRA 149B)	
	pedon (A2)		MLRA 149B)		, ( <u> </u>	-,				RR K, L, R)	
Black Hist		_	Thin Dark Surfac	e (S9) ( <b>LR</b>	R R. MLR	A 149B)				(LRR K, L, R)	
	Sulfide (A4)	-	Loamy Mucky Mi					ace (S7) (I			
	_ayers (A5)	_	Loamy Gleyed M		(=::::, =	-,				(LRR K, L)	
	Below Dark Surface (	(Δ11)	Depleted Matrix (					Surface (			
	Surface (A12)	_	Redox Dark Surfa							) (LRR K, L, R)	
	cky Mineral (S1)	_	Depleted Dark Sun					-		9) ( <b>MLRA 149B</b> )	١
-	eyed Matrix (S4)	_	Redox Depression		'					9) (MERA 149B) 14A, 145, 149B)	
Sandy Re			Nedox Depressio	113 (1 0)				nt Material		147, 143, 1430)	
Stripped N								llow Dark S	, ,	E12)	
	ace (S7) (LRR R, ML	RA 149R)						plain in Re		12)	
	hydrophytic vegetation		and hydrology must	he nresen	nt unless (	disturbed o		piairi ir rec	marks)		
	ayer (if observed):		and riyurology must	be presen	it, unicos (		or problematic.				
Type: grave	-										
Depth (inche							Hydric Soil Pi	resent?	Yes	No x	
											-
Remarks:											
rtomanto.											

Project/Site: Charleston Mixed Use Development City/C	County: Staten Island, Richmond Sampling Date: 7/11/12
Applicant/Owner: NYCEDC	State: NY Sampling Point: F
Investigator(s): J. Rollino/R. Wang Section	on, Township, Range: Charleston
	lief (concave, convex, none): Flat land Slope (%):
Subregion (LRR or MLRA): MLRA 149B Lat:	
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex	NW/ classification: wetland not mapped
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation, Soil, or Hydrology significantly disturbed.	
Are Vegetation, Soil, or Hydrology naturally problem	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing san	mpling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?         YesX	Is the Sampled Area within a Wetland?  If yes, optional Wetland Site ID:
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)x Water-Stained Leav	es (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15)	
Water Marks (B1) Hydrogen Sulfide Oc	
Sediment Deposits (B2) Oxidized Rhizospher	
Drift Deposits (B3) Presence of Reduce	
Algal Mat or Crust (B4) Recent Iron Reduction	
Iron Deposits (B5) Thin Muck Surface (Imagery (B7) Other (Explain in Reserved)	
Sparsely Vegetated Concave Surface (B8)	<u>x</u> FAC-Neutral Test (D5)
Field Observations:	<u> </u>
Surface Water Present? Yes No x Depth (inches):	
Water Table Present? Yes No _x Depth (inches):	
Saturation Present? Yes No x Depth (inches):	Wetland Hydrology Present? Yes x No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections) if available:
besonder recorded bata (offedin gauge, monitoring well, dental photos, pro	strodo inopositorio), il dvalidato.
Remarks:	

VECETATION _	Lise scientific names	of plante

<b>EGETATION</b> – Use scientific names of plants						
Tree Stratum (Plot size: 30 feet )	Absolute % Cover	Dominant Species?		Dominance Test worksh		
Betula populifolia	20	D	FAC	Number of Dominant Spe That Are OBL, FACW, or		(A)
Quercus palustris	20	D	FACW			(* ',
				Total Number of Dominar Species Across All Strata		(B)
				Percent of Dominant Spe	cias	
				That Are OBL, FACW, or		(A/B
				Prevalence Index works		
	40	= Total Co		Total % Cover of:  OBL species		
apling/Shrub Stratum (Plot size: 15 feet )		- Total Co	VCI	FACW species		
Vaccinium corymbosym	5	Б	FACIAL	FAC species		
		_ <u>D</u>		FACU species		
<u> </u>				UPL species	x 5 =	
				Column Totals:	(A)	(B)
				Prevalence Index =	: R/Δ =	
·						
				Hydrophytic Vegetation		
				1 - Rapid Test for Hy _x 2 - Dominance Test		on
	5	= Total Co	over	3 - Prevalence Index		
lerb Stratum (Plot size:)				4 - Morphological Ad		supporting
				data in Remarks of	or on a separate sh	eet)
		-		Problematic Hydroph	ytic Vegetation <sup>1</sup> (E	xplain)
l				<sup>1</sup> Indicators of hydric soil a		
				be present, unless disturb	ped or problematic.	
·				Definitions of Vegetatio	n Strata:	
<u> </u>				Tree – Woody plants 3 in		
· -				at breast height (DBH), re	egardless of height.	
				Sapling/shrub – Woody		
				and greater than or equal	to 3.28 ft (1 m) tal	l.
0.				<b>Herb</b> – All herbaceous (nor		ardless of
1				size, and woody plants less		
2.				Woody vines – All woody	vines greater than 3.2	8 ft in
		= Total Co		height.		
Voody Vine Stratum (Plot size: 15 feet )	-	- 10tai 00	VCI			
Smilax rotundifolia	95	D	<b>FAC</b>			
			FAC	Hydrophytic		
				Vegetation	y No	
				Present? Tes	x No	
`						
	95	= Total Co	ver			

SOIL Sampling Point: F

Depth	Matrix			x Features	<u>s</u> _ 1	. 2	<b>-</b> .		
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type <sup>1</sup>	Loc	<u>Texture</u>	Remarks	
0-1	10YR2/1	100					oganic mater	ial	
1-12	10YR4/1	80	10YR4/6	20	<u>C</u>	M	silt loam		
12-16	7.5YR5/1	65	7.5YR4/4	35	С	М	silty clay loa	ım	
						IVI			
		_							
		_							
	oncentration, D=Dep	oletion, RM	=Reduced Matrix, M	S=Masked	Sand Gra	ains.		PL=Pore Lining, M=Matrix. for Problematic Hydric Soil	
Histosol			Polyvalue Belo	w Surface	(S9) (I <b>D</b> I	<b>.</b> .		uck (A10) ( <b>LRR K, L, MLRA</b>	
	pipedon (A2)		MLRA 149B		(36) ( <b>LKI</b>	х κ,		Prairie Redox (A16) ( <b>LRR K</b> ,	
	istic (A3)		Thin Dark Surfa	•	RR R, MI	LRA 149B)		ucky Peat or Peat (S3) ( <b>LRR</b>	
Hydroge	en Sulfide (A4)		Loamy Mucky I			., L)	Dark Su	urface (S7) (LRR K, L, M)	
	d Layers (A5)		Loamy Gleyed		)		-	ue Below Surface (S8) (LRR	K, L)
	d Below Dark Surface	ce (A11)	x Depleted Matrix					ark Surface (S9) (LRR K, L)	. K I D)
	ark Surface (A12) Mucky Mineral (S1)		Redox Dark Su Depleted Dark		7)			inganese Masses (F12) ( <b>LRI</b> int Floodplain Soils (F19) ( <b>M</b> I	
	Gleyed Matrix (S4)		Redox Depress		,			Spodic (TA6) ( <b>MLRA 144A, 1</b>	
	Redox (S5)		Redox Depress	) (1 O)				rent Material (F21)	140, 1400)
	d Matrix (S6)							nallow Dark Surface (TF12)	
	ırface (S7) ( <b>LRR R,</b> I	MLRA 149	<b>B</b> )				-	Explain in Remarks)	
			etland hydrology mu	st be prese	nt, unless	s disturbed	or problematic.		
	Layer (if observed)	:							
Type:	ah a a \.						Undain Cail I	Dunnan42 Van u	NI-
Depth (in	cnes):		:				Hydric Soil I	Present? Yes x	No
Remarks:									

Applicant/Owner: NYCEDC State: NY Sampling Point: F (upland) Investigator(s): J. Rollino/M. Smith Section, Township, Range: Charleston  Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):  Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum: n/a  Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a  Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)  Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)  SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.
Investigator(s): _J. Rollino/M. Smith Section, Township, Range: _Charleston Local relief (concave, convex, none): _Flat land Slope (%): Subregion (LRR or MLRA): _MLRA 149B Lat: Long: Datum: NWI classification: NWI classification: Are climatic / hydrologic conditions on the site typical for this time of year? Yesx No (If no, explain in Remarks.)  Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yesx No Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%): Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum: NWI classification: NWI classification: NWI classification: NWI classification: Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)  Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No (If needed, explain any answers in Remarks.)
Subregion (LRR or MLRA): MLRA 149B Lat: Long: Datum:  Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex  Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)  Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yesx No (If needed, explain any answers in Remarks.)
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex  Are climatic / hydrologic conditions on the site typical for this time of year? Yes _ x _ No_ (If no, explain in Remarks.)  Are Vegetation, Soil, or Hydrology significantly disturbed?  Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _ x No (If no, explain in Remarks.)  Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes _ x No (If needed, explain any answers in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yesx No
Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?  Yes No Hydric Soil Present?  Yes No x  Is the Sampled Area within a Wetland?  Yes No x
Wetland Hydrology Present? Yes No x If yes, optional Wetland Site ID:
HYDROLOGY
Wetland Hydrology Indicators:  Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)  Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13) Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15) Dry-Season Water Table (C2) Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)
Valet Marks (B1) Hydrogen Suinte Odor (C1) Craylish Burrows (C3) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Ordinate Deposits (D2)
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7) Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8) FAC-Neutral Test (D5)
Field Observations:
Surface Water Present? Yes Nox Depth (inches):
Water Table Present? Yes No _x Depth (inches):
Saturation Present? Yes No _x Depth (inches):  Wetland Hydrology Present? Yes No x  (includes capillary fringe)
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Remarks:

				_		
Tree Stratum (Plot size:30' )	Absolute <u>% Cover</u>	Dominant Species?		Dominance Test worksh		
. Quercus palustris	20	D	FACW	Number of Dominant Spec That Are OBL, FACW, or I		
Betula populifolia		D	FAC			
				Total Number of Dominan Species Across All Strata:		
				·	, ,	
				Percent of Dominant Spec That Are OBL, FACW, or I		
				Prevalence Index works		
				Total % Cover of:		
	30	= Total C	over	OBL species		
apling/Shrub Stratum (Plot size: 15'				FACW species		
				FACULARISIS		
				FACU species		
	_			UPL species		
				Column Totals.	(A) (B)	
				Prevalence Index =	B/A =	
				Hydrophytic Vegetation	Indicators:	
				1 - Rapid Test for Hyd		
				x 2 - Dominance Test		
		= Total Cov	ei	3 - Prevalence Index is ≤3.0 <sup>1</sup>		
lerb Stratum (Plot size:5' )				4 - Morphological Ada	ptations <sup>1</sup> (Provide supporting on a separate sheet)	
				Problematic Hydrophy	• • • • • • • • • • • • • • • • • • • •	
3				be present, unless disturb	nd wetland hydrology must ed or problematic.	
l <u>.                                    </u>				Definitions of Vegetation	Strata:	
5						
i <u>.                                    </u>				Tree – Woody plants 3 in. at breast height (DBH), re	(7.6 cm) or more in diameter gardless of height.	
<u>.                                    </u>				Sapling/shrub – Woody p	lants less than 3 in DBH	
				and greater than or equal		
· 0.					woody) plants, regardless of	
1				size, and woody plants less the	nan 3.28 II tall.	
2				Woody vines – All woody v	ines greater than 3.28 ft in	
2		= Total Cove		height.		
Manada Vina Otastana (Districta 45)		- Total Cove	<b>5</b> 1			
Voody Vine Stratum (Plot size: 15' )	•	_				
. Smilax rotundifolia			FAC	Hydrophytic		
				Vegetation		
3				Present? Yes _	x No	
l						
	80	= Total C	over			

SOIL Sampling Point: F (upland)

Profile Desc	ription: (Describe to	the dep	th needed to docu	ment the i	indicator o	or confirm	n the absence of ind	icators.)	
Depth	Matrix			x Feature	<u>s</u> 1	. 2		_	
(inches)	Color (moist)	%	Color (moist)	Color (moist) % Type <sup>1</sup> Loc <sup>2</sup>		<u>Texture</u>	Rema	rks	
0-16	7.5YR5/3	100					silt loam		
16-18	7.5YR5/1	80	7.5YR5/6	20	<u> </u>	M	silt clay loam		
· ———									
Type: C=Cor Hydric Soil In	centration, D=Depleti	on, RM=F	Reduced Matrix, MS	=Masked :	Sand Grain	ns.	<sup>2</sup> Location: PL=P Indicators for Pro	•	
Black Hist Hydrogen Stratified I Depleted I Thick Darl Sandy Mu Sandy Gle Sandy Re Stripped I Dark Surfa	oedon (A2) ic (A3) Sulfide (A4) Layers (A5) Below Dark Surface (A2) cky Mineral (S1) eyed Matrix (S4) dox (S5) Matrix (S6) ace (S7) (LRR R, MLI	RA 149B)	Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8)		Dark Surface ( Polyvalue Belo Thin Dark Surface) Iron-Mangane Piedmont Floo Mesic Spodic Red Parent Mangane Very Shallow I Other (Explain	Redox (A16) (I eat or Peat (S: S7) (LRR K, I bw Surface (S8) ace (S9) (LRF se Masses (F1 dplain Soils (F (TA6) (MLRA aterial (F21) Dark Surface (	LRR K, L, R) (3) (LRR K, L, R) (4) (5) (LRR K, L) (7) (8) (LRR K, L) (12) (LRR K, L, R) (5) (MLRA 149B) (144A, 145, 149B)		
Type:	20):						Hydric Soil Preser	12 Vaa	No. v
Depth (inche	es). 						Hydric Soil Presei	itr res	No <u>x</u>
Remarks:									

Project/Site: Charleston Mix	ed Use Develo	pment	City/	County: State	en Island, Richmond	S	ampling Date: 7/1	1/12
Applicant/Owner: NYCEDC					State:	: NY	Sampling Point: _	G
Investigator(s): J. Rollino/R.W	ang		Section	on, Township,	Range: Charleston			
Landform (hillslope, terrace, etc	_				=		Slope	(%):
Subregion (LRR or MLRA): MI								
O JAM LL JAM AND MAIN I	_NA 143D	Lal			Long.		wetland not n	napped
Soil Map Unit Name: Whether								
Are climatic / hydrologic condition			-					
Are Vegetation, Soil	, or Hydrol	logy	significantly dist	urbed?	Are "Normal Circums	stances" pre	sent? Yes x	N <u>o</u>
Are Vegetation, Soil	, or Hydrol	logy	naturally probler	matic?	(If needed, explain a	ny answers	in Remarks.)	
SUMMARY OF FINDING	3S – Attach	site map	showing sa	mpling poi	nt locations, tra	ansects, i	mportant feat	tures, etc.
Hydrophytic Vegetation Prese Hydric Soil Present? Wetland Hydrology Present?	Ye	es <u>x</u> es <u>x</u>	No No No	Is the Sam within a W	etland? Y	es <u>x</u>		
Remarks: (Explain alternative				If yes, option	onal Wetland Site ID:			
HYDROLOGY								
Wetland Hydrology Indicato	rs:				Second	lary Indicator	rs (minimum of tw	o required)
Primary Indicators (minimum	of one is requir	ed; check all	that apply)		Sur	rface Soil Cr	acks (B6)	
x Surface Water (A1		<u>x</u> Wa	iter-Stained Leav	es (B	<u>x</u> Dra	inage Patter	rns (B10)	
High Water Table (A2)			uatic Fauna (B13			ss Trim Line		
Saturation (A3)			rl Deposits (B15		Dry	/-Season Wa	ater Table (C2)	
Water Marks (B1)			drogen Sulfide O			ayfish Burrov		
Sediment Deposits (B2)			idized Rhizosphe				ole on Aerial Imag	ery (C9)
Drift Deposits (B3)			esence of Reduc				ssed Plants (D1)	
Algal Mat or Crust (B4)			cent Iron Reduct			omorphic Po		
Iron Deposits (B5)			in Muck Surface			allow Aquita		
Inundation Visible on Aer			ner (Explain in Re	emarks)			nic Relief (D4)	
Sparsely Vegetated Cond	ave Surface (E	38)			FA	C-Neutral Te	est (D5)	
Field Observations:	V	Na F	Samth (imahaa). 1	. 0"				
Surface Water Present? Water Table Present?	Yes x		Depth (inches): 1					
Saturation Present?	Yes x		Depth (inches): : Depth (inches): :		Wetland Hydrolog	ny Procent?	Voc Y	No
(includes capillary fringe)	169 <u>x</u>	NO L	Deptit (inches).	Suriace	wetiand Hydrolog	gy Fresent:	les <u>X</u>	NO
Describe Recorded Data (stre	am gauge, mo	nitoring well,	aerial photos, p	revious inspec	tions), if available:			
Remarks:	_							
remarks.								

<b>VEGETATION -</b>	Lloo	coiontific	namaa	of plants
VEGETATION -	use	scientific	names	oi biants.

<b>/EGETATION –</b> Use scientific names of plants	Sampling Point: <u>G</u>			
<u>Tree Stratum</u> (Plot size: <u>30 feet</u> )	Absolute % Cover	Dominant Indicator Species? Status	Dominance Test worksneet:	
1. Quercus palustris	40	D FACW	Number of Dominant Species That Are OBL, FACW, or FAC:5 (A)	
2. Betula populifolia	30	D FAC	Total Number of Dominant	
3			Species Across All Strata:5 (B)	
4			Percent of Dominant Species	
5			That Are OBL, FACW, or FAC: 100 (A/E	
6			Prevalence Index worksheet:	
7			- Total % Cover of: Multiply by:	
	70	= Total Cover	OBL species x 1 =	
Sapling/Shrub Stratum (Plot size: 15 Feet )			FACW species x 2 =	
1. Vaccinium corymbosum	20	D FACV	/ FAC species x 3 =	
<u>.</u> 2.			FACU species x 4 =	
3			UPL species x 5 =	
1.			Column Totals: (A) (B)	
5.			Prevalence Index = B/A =	
6			Hydrophytic Vegetation Indicators:	
7			1 - Rapid Test for Hydrophytic Vegetation	
·· <u> </u>	20		x 2 - Dominance Test is >50%	
Harb Stratum (Diat size: E foot )		- Total Cover	3 - Prevalence Index is ≤3.0 <sup>1</sup>	
Herb Stratum (Plot size: <u>5 feet</u> )  1. Scirpus atrovierens	5	D OBL	4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)	
2. Euthamia gramnifolia			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
3			Indicators of hydric soil and wetland hydrology must	
4			be present, unless disturbed or problematic.	
5			Definitions of Vegetation Strata:	
6			Tree – Woody plants 3 in. (7.6 cm) or more in diamete	
7			at breast height (DRH), regardless of height	
8.			Sapling/shrub – Woody plants less than 3 in. DBH	
9			and greater than or equal to 3.28 ft (1 m) tall.	
10.			<b>Herb</b> – All herbaceous (non-woody) plants, regardless of	
11			size, and woody plants less than 3.28 ft tall.	
12.			Woody vines – All woody vines greater than 3.28 ft in height.	
	10	= Total Cover	- neight.	
Woody Vine Stratum (Plot size:)		10101 00101		
1				
			Hydrophytic	
2 3.			<ul><li>Vegetation</li><li>Present? Yes x No</li></ul>	
			-	
4		= Total Cover	-	
		= Total Cover		

SOIL Sampling Point: <u>G</u>

Profile Desc	cription: (Describe	to the de	oth needed to docu	ment the i	ndicator	or confirm	the absence	of indicators.)
Depth	Matrix			x Feature	<u>s</u> .			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-3	7.5YR4/3	40	7.5YR4/1	30	D	M	silt loam	
			7.5YR4/6	20	C	M		
			2.5YR4/6	10	С	М		red parent material
3-7	7.5YR4/4	70	7.5YR5/3	30	D	M	silt loam	
7-17	7.5YR5/3	60	7.5YR4/6	40	C	M	silt loam	Increasing amounts of red parent
								material (2.5YR4/6) present
								throughout the profile.
Type: C=C Hydric Soil		oletion, RM	=Reduced Matrix, M	S=Masked	Sand Gr	ains.		: PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Belo	w Surface	(S8) ( <b>LRF</b>	R.		Muck (A10) ( <b>LRR K, L, MLRA 149B</b> )
	pipedon (A2)		MLRA 149B		()(	,		Prairie Redox (A16) ( <b>LRR K, L, R</b> )
	istic (A3)		Thin Dark Surfa				5 cm N	Mucky Peat or Peat (S3) (LRR K, L, R)
	en Sulfide (A4)		Loamy Mucky I			, L)		Surface (S7) (LRR K, L, M)
	d Layers (A5)	(* ( 4 )	Loamy Gleyed		2)			llue Below Surface (S8) (LRR K, L)
	d Below Dark Surfac	ce (A11)	Depleted Matri					ark Surface (S9) (LRR K, L)
	ark Surface (A12)		Redox Dark Su	, ,				anganese Masses (F12) ( <b>LRR K, L, R</b> )
	Mucky Mineral (S1)		Depleted Dark Redox Depress		7)			ont Floodplain Soils (F19) (MLRA 149B)
	Gleyed Matrix (S4) Redox (S5)		Redox Depress	SIONS (FO)				Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> ) arent Material (F21)
-	Matrix (S6)							Shallow Dark Surface (TF12)
	rface (S7) ( <b>LRR R</b> ,	MLRA 149	В)					(Explain in Remarks)
<sup>3</sup> Indicators o	f hydrophytic vegeta	ation and w	etland hydrology mu	st be prese	ent, unless	s disturbed	or problemation	<b>c</b> .
Restrictive	Layer (if observed)	):						
Type:	-1 >						Headala Oall	Durania Var V
Depth (in Remarks:	ches):						Hydric Soil	Present? Yes X No
ixemaiks.								

Project/Site: Charleston Mix	ed Use Developme	ent City/	County: Staten Isla	and, Richmond	Sampling Date: 7/16/12
Applicant/Owner: NYCEDC				State: NY	Sampling Point: G (upland)
Investigator(s): J. Rollino/M. S	Smith	Sect	ion, Township, Ran	ge: Charleston	
Landform (hillslope, terrace, etc	c.):	Local r	elief (concave, conv	vex, none): Flat land	Slope (%):
					Datum:
Soil Map Unit Name: Whethe					n/a
Are climatic / hydrologic conditi					
		-			
Are Vegetation, Soil					resent? Yes x No
Are Vegetation, Soil	, or Hydrology	naturally probler	natic? (If nee	eded, explain any answer	's in Remarks.)
SUMMARY OF FINDING	GS – Attach sif	te map showing sa	mpling point lo	ocations, transects	, important features, etc.
			Is the Sampled	Area	
Hydrophytic Vegetation Present?		No x No x	within a Wetlan		No x
Wetland Hydrology Present?		No x No x	If yes optional M	Wetland Site ID:	
Remarks: (Explain alternative	<u> </u>		ii yes, optional v	veliand Site ID.	
Tromano: (Explain alternative	, procedures nore	or in a coparate report.)			
HYDROLOGY					
Wetland Hydrology Indicato	ors:			Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum	of one is required;	check all that apply)		Surface Soil (	Cracks (B6)
Surface Water (A1)		Water-Stained Leav	/es (B9)	Drainage Pat	terns (B10)
High Water Table (A2)		Aquatic Fauna (B13	3)	Moss Trim Li	nes (B16)
Saturation (A3)		Marl Deposits (B15		Dry-Season \	Water Table (C2)
Water Marks (B1)		Hydrogen Sulfide C		Crayfish Burr	
Sediment Deposits (B2)		Oxidized Rhizosphe			sible on Aerial Imagery (C9)
Drift Deposits (B3)		Presence of Reduc			ressed Plants (D1)
Algal Mat or Crust (B4)		Recent Iron Reduct			
Iron Deposits (B5)	rial Imagan, (D7)	Thin Muck Surface		Shallow Aqui	
Inundation Visible on Aer		Other (Explain in R	emarks)		phic Relief (D4)
Sparsely Vegetated Cond	zave Surface (B8)		<u> </u>	FAC-Neutral	Test (D5)
Field Observations:	Voc. No.	y Donth (inches):			
Surface Water Present?	Yes No _	. , ,			
Water Table Present? Saturation Present?		x Depth (inches): x Depth (inches):	Woo	tland Hydrology Broson	t2 Voo Nov
(includes capillary fringe)	res No_	x Depth (inches).	vvei	tland Hydrology Presen	t? Yes No x
Describe Recorded Data (stre	am gauge, monitor	ring well, aerial photos, p	revious inspections)	), if available:	
					ļ
Remarks:					

Tree Stratum (Plot size: 30' )	Absolute <u>% Cover</u>	Dominant Species?		Dominance Test worksheet:		
. Populus grandidentata	10	D	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)		
. Betula populifolia	20	D	FAC	Total Number of Dominant		
i <u> </u>				Species Across All Strata:3 (B		
l				Percent of Dominant Species		
5				That Are OBL, FACW, or FAC: 50 (A/		
5				Prevalence Index worksheet:		
7				Total % Cover of: Multiply by:		
	30	= Total C	Cover	OBL species x 1 =		
Sapling/Shrub Stratum (Plot size: 15'	-			FACW species x 2 =		
. Vaccinium angustifolium	20	D	FACU	FAC species 50 x 3 = 150 FACU species 50 x 4 = 200		
2				UPL species x 5 =		
3			·	Column Totals: 100 (A) 350 (I		
l			·			
i				Prevalence Index = B/A =		
S				Hydrophytic Vegetation Indicators:		
7				1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50%		
	20	= Total C	Cover	3 - Prevalence Index is ≤3.0 <sup>1</sup>		
Herb Stratum (Plot size: 5' )				4 - Morphological Adaptations <sup>1</sup> (Provide supporting		
. Juncus tenuis				data in Remarks or on a separate sheet)		
2. Schizachyrium scoparium				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
3				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
4				· ·		
5				Definitions of Vegetation Strata:		
5				Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.		
7				Sapling/shrub – Woody plants less than 3 in. DBH		
3				and greater than or equal to 3.28 ft (1 m) tall.		
9				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of		
10				size, and woody plants less than 3.28 ft tall.		
11				Woody vines – All woody vines greater than 3.28 ft in		
12	10	= Total C	over	height.		
Noody Vine Stratum (Plot size:15')		- Total C	Ovei			
I. Smilax rotundifolia	20	D	FAC			
2.			TAO	Hydrophytic		
3.			-	Vegetation Present? Yes No x		
4.						
·	20	= Total C	Cover			
Remarks: (Include photo numbers here or on a separ	-					

SOIL Sampling Point: <u>G (upland)</u>

Profile Desc	cription: (Describe t	to the de	pth needed to docui	ment the i	ndicator o	or confirm	the absence of indic	ators.)	
Depth	Matrix			x Feature	<u>s</u>				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remark	KS
0-5	7.5YR5/4	100	· <del></del>				silt loam		
5-16	7.5YR5/6	95	7.5YR6/3	5	<u>D</u>	_M	silty clay		_
									_
			· <del></del>						
							·		
									_
Type: C=Coi Hydric Soil Ir	ncentration, D=Deplet	tion, RM=	Reduced Matrix, MS	=Masked \$	Sand Grain	ns.	<sup>2</sup> Location: PL=Por Indicators for Probl	-	
Histosol (	A1)		Polyvalue Below	Surface (	S8) ( <b>LRR I</b>	₹,	2 cm Muck (A10	) (LRR K, L, M	/ILRA 149B)
-	Histic Epipedon (A2) MLRA 149B)					Coast Prairie Re			
Black His			Thin Dark Surface				5 cm Mucky Pea		
	Sulfide (A4)		Loamy Mucky Mi		(LRR K, L	-)	Dark Surface (S Polyvalue Below		
	Layers (A5) Below Dark Surface (	(Δ11)	Loamy Gleyed M  Depleted Matrix				Thin Dark Surface		
	k Surface (A12)	(/ (   1 / )	Redox Dark Surf				Iron-Manganese		
	ucky Mineral (S1)		Depleted Dark S		·)		_		9) ( <b>MLRA 149B</b> )
Sandy Gl	eyed Matrix (S4)		Redox Depression	ons (F8)			Mesic Spodic (T	46) ( <b>MLRA 1</b> 4	I4A, 145, 149B)
Sandy Re							Red Parent Mate	, ,	
	Matrix (S6)	DA 440E					Very Shallow Da		=12)
	ace (S7) (LRR R, ML hydrophytic vegetation			t he nrese	nt unless (	disturbed (	Other (Explain in	Remarks)	
	_aver (if observed):	on and we	etiana nyarology mas	t be prese	iii, uiiiess i	uistui beu t	T problematic.		
Type:									
Depth (inch	es):		<u> </u>				Hydric Soil Present	Yes	No <u>x</u>
Remarks:									

Project/Site: Charleston Mixed Use Development City/Cour	nty: Staten Island, Richmond Sampling Date: 7/22/12
Applicant/Owner: NYCEDC	State: NY Sampling Point: H
Investigator(s): J. Rollino/M. Smith Section,	
Landform (hillslope, terrace, etc.): Local relief	
Subregion (LRR or MLRA): MLRA 149B Lat:	
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	<del></del>
Are Vegetation, Soil, or Hydrology significantly disturbed	
Are Vegetation, Soilx _ , or Hydrology naturally problemati	c? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing samp	ling point locations, transects, important features, etc.
Hydric Soil Present?  Yes X  No	the Sampled Area vithin a Wetland?  Yes X No  yes, optional Wetland Site ID:
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) <u>x</u> Water-Stained Leaves	· / · · · · · · · · · · · · · · · · · ·
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (	
Sediment Deposits (B2) Oxidized Rhizospheres Drift Deposits (B3) Presence of Reduced In	
Algal Mat or Crust (B4) Recent Iron Reduction is	
Iron Deposits (B5) Thin Muck Surface (C7)	
Inundation Visible on Aerial Imagery (B7)  Other (Explain in Remai	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No _x Depth (inches):	
Water Table Present? Yes Nox Depth (inches):	
Saturation Present? Yes No x Depth (inches):	Wetland Hydrology Present? Yes x No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous provides a control of the control	us inspections), if available:
Remarks:	

<b>/EGETATION –</b> Use scientific names of plants.					Sampling Point: <u>H</u>
Troo Stratum (Diet size:	Absolute			Dominance Test worksh	eet:
Tree Stratum (Plot size:)		Species?		Number of Dominant Spe	
1				That Are OBL, FACW, or	FAC: <u>3</u> (A)
2				Total Number of Dominan	
3				Species Across All Strata:	(B)
4				Percent of Dominant Spec That Are OBL, FACW, or	
5				That Ale OBL, FACW, Of	FAC: <u>100</u> (A
6			·	Prevalence Index works	heet:
7		-		Total % Cover of:	Multiply by:
		= Total Cov	er	OBL species	x 1 =
Sapling/Shrub Stratum (Plot size: 15 feet )				FACW species	
1. Salix sp.	10	D	<u>FACW</u>	FAC species	
2				FACU species	
3		-	· <u></u>	UPL species	
4				Column Totals.	(A) (B,
5				Prevalence Index =	B/A =
6				Hydrophytic Vegetation	Indicators:
7				1 - Rapid Test for Hyd	
	10	= Total Cov		X 2 - Dominance Test	is >50%
Harb Stratum (Diet einer E feet		- Total Cov	CI	3 - Prevalence Index	is ≤3.0 <sup>1</sup>
Herb Stratum (Plot size: <u>5 feet</u> )  1. Phragmites australis	30	D	FACW	4 - Morphological Ada data in Remarks o	aptations <sup>1</sup> (Provide supportir or on a separate sheet)
2. Juncus effusus			OBL	Problematic Hydrophy	•
3. Juncus tenuis			FAC	<sup>1</sup> Indicators of hydric soil a	nd wetland hydrology must
4. Scirpus cyperinus				be present, unless disturb	
5				Definitions of Vegetation	n Strata:
6				at breast height (DBH), re	<ul> <li>(7.6 cm) or more in diamete gardless of height.</li> </ul>
7				Sapling/shrub – Woody p	plants less than 3 in DRH
8				and greater than or equal	
9		-	· <del></del>	Herb – All herbaceous (non	-woody) plants, regardless of
10				size, and woody plants less t	
11		-	·	Woody vines – All woody v	rines greater than 3.28 ft in
12			·	height.	C
	90	= Total C	over		
Woody Vine Stratum (Plot size:)					
1					
2					
3					X No
4					
		= Total Cov	er		
1			rer	Hydrophytic Vegetation Present? Yes _	_X No

SOIL Sampling Point: H

Profile Desc	cription: (Describe	to the dep	th needed to docu	ment the i	ndicator	or confirm	the absence	of indicators.)	
Depth	Matrix		Redo	x Features	S				
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
0-6	10YR3/2	100					silty loam	red parent material, trace gravel	
6-13	5YR3/2	85	5YR3/4	_15	<u>C</u>	<u>M</u>	silty loam		
13-16	7.5YR3/6	75	7.5YR4/6	20		M	silty loam w	vith trace sand	
			7.5YR6/4	5		M			
	oncentration, D=Dep	oletion, RM	=Reduced Matrix, M	S=Masked	Sand Gra	ains.		: PL=Pore Lining, M=Matrix.	
Hydric Soil						_		for Problematic Hydric Soils <sup>3</sup> :	
Histosol	(A1) pipedon (A2)		Polyvalue Belo MLRA 149B		(S8) (LRF	RR,		fluck (A10) ( <b>LRR K, L, MLRA 149B</b> ) Prairie Redox (A16) ( <b>LRR K, L, R</b> )	
	istic (A3)		Thin Dark Surfa	•	RR R, MI	RA 149B)		flucky Peat or Peat (S3) (LRR K, L, R)	
	en Sulfide (A4)		Loamy Mucky			, <b>L</b> )		urface (S7) (LRR K, L, M)	
	d Layers (A5) d Below Dark Surfac	o (A11)	<ul><li>Loamy Gleyed</li><li>X Depleted Matri</li></ul>		2)			lue Below Surface (S8) (LRR K, L) ark Surface (S9) (LRR K, L)	
	u веюw Dark Surfac ark Surface (А12)	e (ATT)	X Depleted Matri					anganese Masses (F12) ( <b>LRR K, L, R</b> )	
	Mucky Mineral (S1)		Depleted Dark	. ,				ont Floodplain Soils (F19) (MLRA 149B)	
	Sleyed Matrix (S4)		Redox Depress	sions (F8)			Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
-	Redox (S5) I Matrix (S6)							arent Material (F21) hallow Dark Surface (TF12)	
	rface (S7) (LRR R,	MLRA 149	3)					Explain in Remarks)	
	f hydrophytic vegeta		etland hydrology mu	st be prese	ent, unless	disturbed	or problemation	;.	
	Layer (if observed)	:							
Type:	abaa):						Uvdria Cail	Present? Yes X No	
Depth (in Remarks:	cnes)						nyuric Soil	Present? Yes X No No	
Nemaiks.									

Project/Site: Charleston Mixed Use Developme	ent City/Co	ounty: Staten Island, Richmond	_ Sampling Date: 7/22/12
Applicant/Owner: NYCEDC		State: NY	Sampling Point: H (upland)
Investigator(s): _J. Rollino/M. Smith	Section	n, Township, Range: <u>Charleston</u>	
Landform (hillslope, terrace, etc.):	Local reli	ef (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): MLRA 149B			
Soil Map Unit Name: Whethersfield-Ludlow-Wilb			
Are climatic / hydrologic conditions on the site typi			
	•		present? Yes x No
Are Vegetation, Soil, or Hydrology			·
Are Vegetation, Soil, or Hydrology	naturally problema	tic? (If needed, explain any answ	ers in Remarks.)
SUMMARY OF FINDINGS - Attach sit	te map showing sam	pling point locations, transect	s, important features, etc.
		Is the Sampled Area	
	No x	within a Wetland? Yes	No x
	No x No x	If yes, optional Wetland Site ID:	
Remarks: (Explain alternative procedures here		ii yes, optional Wetland Site ID	
Tromano. (Explain alternative precedures note to	or in a doparate report.)		
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indi	cators (minimum of two required)
Primary Indicators (minimum of one is required;	check all that apply)	Surface So	
Surface Water (A1)	Water-Stained Leaves		
High Water Table (A2)	Aquatic Fauna (B13)	- · · ·	Lines (B16)
Saturation (A3)	Marl Deposits (B15)		n Water Table (C2)
Water Marks (B1)	Hydrogen Sulfide Odd		ırrows (C8)
Sediment Deposits (B2)	Oxidized Rhizosphere		Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Presence of Reduced	Iron (C4) Stunted or	Stressed Plants (D1)
Algal Mat or Crust (B4)	Recent Iron Reduction	n in Tilled Soils (C6) Geomorphi	c Position (D2)
Iron Deposits (B5)	Thin Muck Surface (C	7) Shallow Aq	uitard (D3)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Rem	, <u>—</u>	raphic Relief (D4)
Sparsely Vegetated Concave Surface (B8)		FAC-Neutr	al Test (D5)
Field Observations:			
Surface Water Present? Yes No _	. , ,		
	x Depth (inches):		
Saturation Present? Yes No _ (includes capillary fringe)	x Depth (inches):	Wetland Hydrology Prese	ent? Yes No x
Describe Recorded Data (stream gauge, monitor	ring well, aerial photos, prev	vious inspections), if available:	
Domorko			
Remarks:			

	S.			. 5
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
1				Number of Dominant Species That Are OBL, FACW, or FAC:1 (
2.				
3.				Total Number of Dominant Species Across All Strata: 2 (
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A
6				
7				Prevalence Index worksheet:
·· <u> </u>		= Total Cov		Total % Cover of:         Multiply by:           OBL species         x 1 =
Sapling/Shrub Stratum (Plot size: 15'		- Total Oo	VCI	FACW species x 2 =
				FAC species x 3 = _60
1				FACU species 40 x 4 = 160
2				UPL species x 5 =
3				Column Totals: (A) (A) (
4				Prevalence Index = B/A = 3.67
5				
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50%
	-	= Total Cov	ver	3 - Prevalence Index is ≤3.0¹
Herb Stratum (Plot size: 5' )				4 - Morphological Adaptations <sup>1</sup> (Provide support
1. Artemisia vulgaris	10	D	NI	data in Remarks or on a separate sheet)
2. Populus deltoides	20	D	FAC	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
3. Panicum sp.	20	N	NI	<sup>1</sup> Indicators of hydric soil and wetland hydrology mus
4. Andropogon virginicus	40	D	FACU	be present, unless disturbed or problematic.
5				Definitions of Vegetation Strata:
6				Tree – Woody plants 3 in. (7.6 cm) or more in diame
7				at breast height (DBH), regardless of height.
8				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
9				
10				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
11				
12			- ·	<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
	90	= Total C	Cover	
Woody Vine Stratum (Plot size: 15' )				
1				
2				Hydrophytic
3.				Vegetation Present? Yes No x
4.		= Total Cov	ver	
4				

SOIL Sampling Point: H (upland)

Profile Desc	ription: (Describe	to the dep	th needed to docun	nent the i	ndicator c	r confirm	the absence of indicate	ors.)
Depth	Matrix		Redox	k Features	<u>.</u>			
(inches)	Color (moist)	%	Color (moist)	<u></u> %	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-4	5YR4/3	100					Loam w/ trace gravel	
4-9	5YR3/4	100					Loam w/ trace gravel	
9+	auger refusal - rip	rap						
								_
		- ——						
'Type: C=Con Hydric Soil Inc		etion, RM=I	Reduced Matrix, MS=	Masked S	Sand Grain	IS.	<sup>2</sup> Location: PL=Pore L Indicators for Problem	
Histosol (A			Polyvalue Below	Surface (S	28) (I <b>PP</b> E	•		LRR K, L, MLRA 149B)
Histic Epip	,		MLRA 149B)	ourrace (c	oo) (LIXIX I	ν,		ox (A16) (LRR K, L, R)
Black Histi	. ,		Thin Dark Surface	e (S9) ( <b>LR</b>	R R, MLR	A 149B)		or Peat (S3) (LRR K, L, R)
	Sulfide (A4)		Loamy Mucky Mir		(LRR K, L	.)	Dark Surface (S7)	
	₋ayers (A5) 3elow Dark Surface	(Δ11)	Loamy Gleyed Matrix (				Polyvalue Below S Thin Dark Surface	urface (S8) (LRR K, L)
	Surface (A12)	(A11)	Redox Dark Surfa					lasses (F12) (LRR K, L, R)
	cky Mineral (S1)		Depleted Dark Su		)			in Soils (F19) ( <b>MLRA 149B</b> )
	eyed Matrix (S4)		Redox Depressio	ns (F8)				6) (MLRA 144A, 145, 149B)
Sandy Red Stripped M							Red Parent Materi Very Shallow Dark	
	ace (S7) (LRR R, M	LRA 149B)	)				Other (Explain in R	
<sup>3</sup> Indicators of h	nydrophytic vegetation	on and wet	land hydrology must l	be presen	t, unless d	isturbed o	or problematic.	
	yer (if observed):		, ,,					
Type: Ripra	p							
Depth (inch	es): 9 <u>+</u>						Hydric Soil Present?	Yes No <u>x</u>
Remarks:								

Project/Site: Charleston Mixe	ed Use Development	City/County: _	Staten Island, Richmond	Sampling Date: 7/22/12
Applicant/Owner:NYCEDC			State: NY	Sampling Point: HA
Investigator(s): J. Rollino/M. S	smith			
			eave, convex, none): concave (dra	inage easementlope (%):
			Long:	
			NWI classif	
			No (If no, explain in l	
Are Vegetation, Soil			Are "Normal Circumstances"	
Are Vegetation, Soil _x	, or Hydrolog <u>y</u>	naturally problematic?	(If needed, explain any ansv	vers in Remarks.)
SUMMARY OF FINDING	3S – Attach site ma	ap showing sampling	point locations, transect	s, important features, etc.
Hydrophytic Vegetation Prese Hydric Soil Present? Wetland Hydrology Present? Remarks: (Explain alternative	Yes x	No within No If yes,	Sampled Area a Wetland?  Optional Wetland Site ID:  consists of hydric soils in a draina	
HYDROLOGY				
Wetland Hydrology Indicato	rs:			cators (minimum of two required)
Primary Indicators (minimum	of one is required; check	all that apply)	Surface Soi	
Surface Water (A1)		Water-Stained Leaves (B9)	Drainage P	
High Water Table (A2)		Aquatic Fauna (B13)	Moss Trim I	
Saturation (A3)		Marl Deposits (B15)		Water Table (C2)
Water Marks (B1)		Hydrogen Sulfide Odor (C1)	Crayfish Bu	rrows (C8) /isible on Aerial Imagery (C9)
Sediment Deposits (B2) Drift Deposits (B3)		Oxidized Rhizospheres on Li Presence of Reduced Iron (C		Stressed Plants (D1)
Algal Mat or Crust (B4)		Recent Iron Reduction in Tille		c Position (D2)
Iron Deposits (B5)		Thin Muck Surface (C7)	Shallow Aq	· ·
Inundation Visible on Aeri		Other (Explain in Remarks)		graphic Relief (D4)
Sparsely Vegetated Cond	<del>-</del>	,	x FAC-Neuti	
Field Observations:				
Surface Water Present?	Yes No _x	Depth (inches):		
Water Table Present?	Yes Nox	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes Nox	Depth (inches):	Wetland Hydrology Prese	nt? Yes <u>x</u> No
Describe Recorded Data (stre	am gauge, monitoring we	ell, aerial photos, previous in	spections), if available:	
Remarks:				

	S.			\$		
Tree Stratum (Plot size:)	Absolute	Dominant Species?		Dominance Test worksh	eet:	
1				Number of Dominant Spe		
2.				That Are OBL, FACW, or	FAC: <u>2</u> (A)	
3				Total Number of Dominan Species Across All Strata:		
4				Percent of Dominant Spec That Are OBL, FACW, or	cies FAC: <u>100</u> (A/B	
5				, ,		
6				Prevalence Index works		
7				Total % Cover of:		
		= Total Co	ver	OBL species		
Sapling/Shrub Stratum (Plot size:)				FACW species FAC species		
l				FACU species		
2				UPL species		
3					(A) (B)	
4					D/A	
5		-		Prevalence Index =	B/A =	
5		-		Hydrophytic Vegetation		
7				1 - Rapid Test for Hyd		
		= Total Co	ver	X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 <sup>1</sup>		
Herb Stratum (Plot size: 5 feet )					is ≤3.0 aptations¹ (Provide supporting	
1. Juncus effusus	60	D	OBL	data in Remarks o	r on a separate sheet)	
2. Phragmites australis	20	D	FACW	Problematic Hydrophy	ytic Vegetation¹ (Explain)	
3. Euthamia gramnifolia	5	N	FAC	<sup>1</sup> Indicators of hydric soil a	nd wetland hydrology must	
4. <u>Scirpus cyperinus</u>	5	N	OBL	be present, unless disturb	ed or problematic.	
5. Juncus tenuis	10	N	FAC	Definitions of Vegetation	n Strata:	
6				Tree – Woody plants 3 in.	(7.6 cm) or more in diameter	
7				at breast height (DBH), re	gardless of height.	
8.				Sapling/shrub – Woody		
9.				and greater than or equal	to 3.28 ft (1 m) tall.	
10.					-woody) plants, regardless of	
11				size, and woody plants less t	han 3.28 ft tall.	
12				Woody vines – All woody v	ines greater than 3.28 ft in	
·	100	= Total	Cover	height.		
Woody Vine Stratum (Plot size:)	100	- 10141	OOVCI			
· · · · · · · · · · · · · · · · · · ·						
1				Hydrophytic		
2			<del></del>	Vegetation Present? Yes	X No	
3			<del></del>	Tresent.	<u> </u>	
4						
		= Total Co	ver			

SOIL Sampling Point: HA

Depth	Matrix (variet)		Redox Features			. 0				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks		
0-6	5YR3/2	100					Silt loam w/ g	ravel and red parent material		
6-14	7.5YR3/2	80	2.5YR2.5/4	20	<u>C</u>	M	Silt loam w/ 1	0% increasing trace sand		
14+	auger refusal/gra	avel								
	· ·									
							-			
	-						·			
	Concentration, D=De	pletion, RM	=Reduced Matrix, N	 //S=Masked S	Sand Gra	ains.		PL=Pore Lining, M=Matrix.		
	I Indicators:						Indicators	for Problematic Hydric Soils <sup>3</sup> :		
Histosol (A1) Polyvalue Below Surfa					38) ( <b>LRF</b>	RR,		luck (A10) (LRR K, L, MLRA 149B)		
	Histic Epipedon (A2) MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B)					Prairie Redox (A16) (LRR K, L, R)				
							5 cm Mucky Peat or Peat (S3) (LRR K, L, R) Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L)			
	en Sulfide (A4) de Layers (A5)		Loamy Mucky Loamy Gleyed		(LKK K	, ∟)				
	ed Below Dark Surfa	ce (A11)	x Depleted Ma				-	Thin Dark Surface (S9) (LRR K, L)		
_	Dark Surface (A12)	(/ ( / ( / )	Redox Dark S					anganese Masses (F12) ( <b>LRR K, L, R</b>		
	Mucky Mineral (S1)		Depleted Dark		)		Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
	Gleyed Matrix (S4)		Redox Depres		,					
	Redox (S5)			(* -)				x Red Parent Material (F21)		
-	d Matrix (S6)							hallow Dark Surface (TF12)		
	urface (S7) (LRR R,	MLRA 149	<b>B</b> )					Explain in Remarks)		
	of hydrophytic veget		etland hydrology mi	ust be present	t, unless	disturbed	d or problematic	<u> </u>		
	Layer (II Observed	)-								
Type:	achoe):						Hydric Soil	Present? Yes x No		
Depth (ir	ncnes):						Hydric Soil	Present? Yes x No		
emarks:										

Project/Site: Charleston Mixe	ed Use Development	t City/C	ounty: Staten Island, Ri	chmond	Sampling Date: 7/22/12
Applicant/Owner: NYCEDC				_ State: NY	Sampling Point: HA (upland
Investigator(s): J. Rollino/M. Si	mith	Sectio	n, Township, Range: Ch	narleston	
Landform (hillslope, terrace, etc			· -		
Subregion (LRR or MLRA): ML					
Soil Map Unit Name: Whether					
Are climatic / hydrologic condition	ons on the site typica	al for this time of year? Y	es <u>x</u> No	(If no, explain in F	Remarks.)
Are Vegetation, Soil	, or Hydrology _	significantly distur	bed? Are "Normal	Circumstances" p	resent? Yes <u>x</u> No
Are Vegetation, Soil	, or Hydrology _	naturally problema	atic? (If needed, e	explain any answe	rs in Remarks.)
SUMMARY OF FINDING	S – Attach site	map showing sam	npling point location	ons, transects	, important features, etc
Hydrophytic Vegetation Present Hydric Soil Present?	Yes	No x No x	Is the Sampled Area within a Wetland?	Yes	
Wetland Hydrology Present?  Remarks: (Explain alternative	·	No x	If yes, optional Wetland	I Site ID:	
HANDOLOGA					
HYDROLOGY				O d d - d - d -	
Wetland Hydrology Indicator				<u> </u>	tors (minimum of two required)
Primary Indicators (minimum o			(50)	Surface Soil	
Surface Water (A1)	<del>-</del>	Water-Stained Leave	` '	Drainage Pat	
High Water Table (A2)		Aquatic Fauna (B13)		Moss Trim Li	
Saturation (A3)		Marl Deposits (B15)	or (C1)		Water Table (C2)
Water Marks (B1) Sediment Deposits (B2)		<ul><li>Hydrogen Sulfide Od</li><li>Oxidized Rhizosphere</li></ul>		Crayfish Burr	sible on Aerial Imagery (C9)
Orift Deposits (B3)		Presence of Reduced			tressed Plants (D1)
Algal Mat or Crust (B4)		Recent Iron Reductio			Position (D2)
Iron Deposits (B5)		Thin Muck Surface (0		Shallow Aqui	
Inundation Visible on Aeri		Other (Explain in Rer			phic Relief (D4)
Sparsely Vegetated Conc		` ` '	,	FAC-Neutral	
Field Observations:					
Surface Water Present?	Yes No _x	Depth (inches):			
Water Table Present?	Yes No _>	Depth (inches):			
Saturation Present?	Yes Nox	Depth (inches):	Wetland F	lydrology Presen	t? Yes No x
(includes capillary fringe)  Describe Recorded Data (stream)	am gauge monitorin	ng well aerial photos, pre	vious inspections) if ava	ilahle <sup>.</sup>	
Booding Hooding Bata (Strot	am gaago, montonii	ig won, donar priotoc, pro	vious inspessions, ii ava	masio.	
Remarks:					

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
1				Number of Dominant Species That Are OBL, FACW, or FAC:1 (A)
2.				
3				Total Number of Dominant Species Across All Strata:4 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC:(A/B)
7				Prevalence Index worksheet:
		= Total Co		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15'				FACW species x 2 =
1				FAC species <u>25</u> x 3 <u>= 75</u>
2				FACU species
				UPL species x 5 =
3				Column Totals:65
1				Prevalence Index = B/A = 3.62
5.				Hydrophytic Vegetation Indicators:
5				1 - Rapid Test for Hydrophytic Vegetation
7				2 - Dominance Test is >50%
		= Total Co	ver	3 - Prevalence Index is ≤3.0¹
Herb Stratum (Plot size: 5' )		_		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
1. Artemisia vulgaris			_ <u>NI</u>	data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. Euthamia gramnifolia			FAC	
3. Populus deltoides			FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. Andropogon virginicus			FACU	Definitions of Vegetation Strata:
5. Phleum pratense		D		
6. <u>Lespedeza sp.</u>				Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
7				Sapling/shrub – Woody plants less than 3 in. DBH
3				and greater than or equal to 3.28 ft (1 m) tall.
9 10.				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of
				size, and woody plants less than 3.28 ft tall.
11				Woody vines – All woody vines greater than 3.28 ft in
12	100			height.
Mandu Vina Chrahima (Dlahaina) 451	100	= Total	Cover	
Noody Vine Stratum (Plot size:15')				
1		-		Hydrophytic
2		-		Vegetation Present? Yes No x
3			<del>-</del>	riesent: Tes No X
4		<del></del>		
		= Total Co	ver	

SOIL Sampling Point: HA (upland)

Profile Desc	ription: (Describe	to the de	oth needed to docur	nent the i	indicator	or confir	m the absence	of indicators.)			
Depth	Matrix	0/		x Feature	<u>s</u>	12	T 4	Demonto			
(inches)	Color (moist)	%	Color (moist)		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks			
0-7	5YR3/3	60	2.5YR3/4	40	<u>C</u>	<u>M</u>	Sandy loam	· · · · · · · · · · · · · · · · · · ·			
7-11	2.5YR4/4	100				-	Sandy loam w	gravel			
11-18	5YR4/4	08	5YR4/6	20	<u>C</u>	_M	Sandy loam w	/ gravel			
	-										
					-	-					
	-										
						-					
	-										
<sup>1</sup> Type: C=Cor	ncentration D=Denl	etion RM=	Reduced Matrix, MS=	=Masked	Sand Grai	ns	<sup>2</sup> I ocation:	PL=Pore Lining, M=Matrix.			
Hydric Soil In		Cuon, ruvi	reduced Matrix, Me	Waskea	oana oran	110.		or Problematic Hydric Soils <sup>3</sup> :			
Histosol (A1)			Polyvalue Below	Surface (	S8) ( <b>LRR</b>	R,	2 cm Mu	uck (A10) ( <b>LRR K, L, MLRA 149B</b> )			
Histic Epipedon (A2) MLRA 149B)Black Histic (A3)Thin Dark Surface (S9) (LRR R, MLRA 149B)					Coast Prairie Redox (A16) (LRR K, L, R)						
Black Hist	Sulfide (A4)		Loamy Mucky Mi				5 cm Mucky Peat or Peat (S3) (LRR K, L, R) Dark Surface (S7) (LRR K, L, M)				
	Layers (A5)		Loamy Gleyed M		(LITTI,	-,	Polyvalue Below Surface (S8) (LRR K, L)				
. —	Below Dark Surface	e (A11)	Depleted Matrix (					rk Surface (S9) ( <b>LRR K, L</b> )			
	k Surface (A12)		Redox Dark Surf		•			nganese Masses (F12) (LRR K, L, R)			
-	cky Mineral (S1) eyed Matrix (S4)		Depleted Dark Si Redox Depression	•	()			nt Floodplain Soils (F19) ( <b>MLRA 149B</b> ) podic (TA6) ( <b>MLRA 144A, 145, 149B</b> )			
Sandy Re				(. 0)				rent Material (F21)			
Stripped N	• •							allow Dark Surface (TF12)			
Dark Surfa	ace (S7) (LRR R, M	LRA 149B	)				Other (E	xplain in Remarks)			
I Indicators of h	nydrophytic vegetati	on and we	tland hydrology must	be preser	nt, unless o	disturbed	or problematic.				
	yer (if observed):			· ·							
Type:											
	ies):		-				Hydric Soil P	Present? Yes No <u>x</u>			
Remarks:											

Project/Site: Charleston Mixed Use Developm	ment City/Co	ounty: Staten Island, Richmond	_ Sampling Date: <u>7/10/12</u>
Applicant/Owner: NYCEDC		State: NY	Sampling Point: NA
Investigator(s): _J. Rollino/M. Smith	Section	n, Township, Range: Charleston	
Landform (hillslope, terrace, etc.):	<u></u>		
Subregion (LRR or MLRA): MLRA 149B			
Soil Map Unit Name: Whethersfield-Ludlow-Wi			
Are climatic / hydrologic conditions on the site ty			
Are Vegetation, Soil, or Hydrolog			present? Yes x No
Are Vegetation, Soilx , or Hydrold	ogy naturally problemate	atic? (If needed, explain any ans	wers in Remarks.)
SUMMARY OF FINDINGS – Attach s	site map showing sam	pling point locations, transect	s, important features, etc.
Hydric Soil Present? Yes	x No x No x No	Is the Sampled Area within a Wetland?  YesI  If yes, optional Wetland Site ID:	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary India	cators (minimum of two required)
Primary Indicators (minimum of one is required	d; check all that apply)	Surface So	il Cracks (B6)
Surface Water (A1)	Water-Stained Leaves	(B9) Drainage P	atterns (B10)
High Water Table (A2)	Aquatic Fauna (B13)		Lines (B16)
Saturation (A3)	Marl Deposits (B15)		n Water Table (C2)
Water Marks (B1)	Hydrogen Sulfide Odo		
Sediment Deposits (B2)	Oxidized Rhizosphere		Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Presence of Reduced		Stressed Plants (D1)
Algal Mat or Crust (B4) Iron Deposits (B5)	<ul><li>Recent Iron Reduction</li><li>Thin Muck Surface (C</li></ul>		c Position (D2)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Rem		graphic Relief (D4)
x Sparsely Vegetated Concave Surface (B			ral Test (D5)
Field Observations:	<u>-,                                      </u>	<u> </u>	
Surface Water Present? Yes No	x Depth (inches):		
Water Table Present? Yes No	x Depth (inches):		
	x Depth (inches):	Wetland Hydrology Prese	ent? Yes <u>I</u> No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monit	toring well aerial photos prev	vious inspections) if available:	
Describe Necorded Data (Stream gauge, month	toring well, acrial priotos, prev	nous inspections), if available.	
Remarks:			

#### **VEGETATION** – Use scientific names of plants. Sampling Point: NA Absolute Dominant Indicator Dominance Test worksheet: Tree Stratum (Plot size: \_\_\_\_\_) % Cover Species? Status **Number of Dominant Species** That Are OBL, FACW, or FAC: **Total Number of Dominant** Species Across All Strata: \_\_\_\_\_ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: \_\_\_\_(A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: \_\_\_\_\_ = Total Cover OBL species \_\_\_\_\_ x 1 = \_\_\_\_ FACW species \_\_\_\_\_ x 2 = \_\_\_\_ Sapling/Shrub Stratum (Plot size:\_\_\_\_\_) FAC species \_\_\_\_\_ x 3 = \_\_\_\_ FACU species \_\_\_\_\_ x 4 = \_\_\_\_ UPL species \_\_\_\_\_ x 5 = \_\_\_\_ Column Totals: \_\_\_\_\_ (A) \_\_\_\_ (B) Prevalence Index = B/A = **Hydrophytic Vegetation Indicators:** \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation \_\_\_ 2 - Dominance Test is >50% \_\_\_\_ = Total Cover \_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup> Herb Stratum (Plot size: \_\_\_\_\_) \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) X Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) <sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. **Definitions of Vegetation Strata:** Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. **Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in = Total Cover Woody Vine Stratum (Plot size: \_\_\_\_\_) **Hvdrophytic** Vegetation Present? Yes \_\_\_\_ No See below = Total Cover Remarks: (Include photo numbers here or on a separate sheet.) Non-vegetated vernal pool, dry at the time of survey.

SOIL Sampling Point: NA

Depth	Matrix	0/		Features	<b>-</b> . 1	. 2	<b>T</b> . (	
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-4	7.5YR 4/2						silt	
4-6	2.5YR4/3	_66	2.5YR4/4	33	C	M	loam	
6-12	2.5YR4/2&2.5YR	4/4					loamy sand	double matrix
12+	Auger refusal							
<sup>1</sup> Type: C=C <b>Hydric Soil</b>		letion, RN	/I=Reduced Matrix, MS	=Masked	Sand Gra	ains.		PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils <sup>3</sup> :
Black H Hydroge Stratifie Deplete Thick D Sandy N Sandy F Stripped Dark Su	pipedon (A2) istic (A3) en Sulfide (A4) d Layers (A5) d Below Dark Surface ark Surface (A12) Mucky Mineral (S1) Gleyed Matrix (S4) Redox (S5) d Matrix (S6) urface (S7) (LRR R, N	ILRA 149	Polyvalue Below MLRA 149B) Thin Dark Surfact Loamy Mucky M Loamy Gleyed N Depleted Matrix Redox Dark Sur Depleted Dark Sur Redox Depressi Redox Depressi	ce (S9) (LI lineral (F1) Matrix (F2) (F3) face (F6) Surface (F7 ons (F8)	RR R, MI ) (LRR K	_RA 149B , L)	Coast F  Coa	uck (A10) (LRR K, L, MLRA 149B) Prairie Redox (A16) (LRR K, L, R) ucky Peat or Peat (S3) (LRR K, L, R) urface (S7) (LRR K, L, M) ue Below Surface (S8) (LRR K, L) urface (S9) (LRR K, L) urface (S9) (LRR K, L) unganese Masses (F12) (LRR K, L, R) unt Floodplain Soils (F19) (MLRA 149B) Spodic (TA6) (MLRA 144A, 145, 149B) arent Material (F21) nallow Dark Surface (TF12) Explain in Remarks)
	Layer (if observed):							
Type:	ohoo):		=				Uvdria Cail I	Present? YesX (F21) No
Depth (in Remarks:	cnes):		_				Hydric Soil I	Present? Yes (121) No

Charleston Mixed Use Develop Project/Site:	oment City/C	ounty: Richmond		Sampling Date: July 2012			
Applicant/Owner: NYCEDC				Sampling Point: NA Upland			
				Camping Font			
	Section			01 (0/)			
Landform (hillslope, terrace, etc.):  MI RB 149B	Local reli	er (concave, convex, non	e): <u>1 lat land</u>	Slope (%):			
Subregion (LRR or MLRA): MLRB 149B							
Soil Map Unit Name: Whethersfield-Ludlow-				ation:			
Are climatic / hydrologic conditions on the site type	pical for this time of year? Y	es No (I	If no, explain in Re	emarks.)			
Are Vegetation, Soil, or Hydrology	y significantly distur	bed? Are "Normal	Circumstances" p	resent? Yes X No No			
Are Vegetation, Soil, or Hydrology	y naturally problema	atic? (If needed, ex	xplain any answer	rs in Remarks.)			
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.							
Hydrophytic Vegetation Present? Yes _	No X	Is the Sampled Area					
1	No X	within a Wetland?	Yes	No <sup>X</sup>			
	No X	If yes, optional Wetland	Site ID:				
Remarks: (Explain alternative procedures here		n yoo, optional vvotana	<u> </u>				
Plot adjacent to former access road, historic c	nsturbance пкегу.						
HYDROLOGY							
Wetland Hydrology Indicators:			Secondary Indica	tors (minimum of two required)			
Primary Indicators (minimum of one is required;	check all that apply)		Surface Soil (	Cracks (B6)			
Surface Water (A1) Water-Stained Leaves (B9) Drainage Patterns (B10)							
High Water Table (A2)	Aquatic Fauna (B13)		Moss Trim Lines (B16)				
	Saturation (A3) Marl Deposits (B15)			Dry-Season Water Table (C2)			
Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)							
Sediment Deposits (B2)	Oxidized Rhizosphere		<del></del> '	sible on Aerial Imagery (C9)			
Drift Deposits (B3)	Presence of Reduced		Stunted or Stressed Plants (D1)				
Algal Mat or Crust (B4)							
Iron Deposits (B5) Thin Muck Surface (C7) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks)			Microtopographic Relief (D4)				
Sparsely Vegetated Concave Surface (B8)	` ` '	nuno,	FAC-Neutral	. ,			
Field Observations:				(,			
Surface Water Present? Yes No _	X Depth (inches):						
Water Table Present? Yes No _	X Depth (inches):						
Saturation Present? Yes No _ (includes capillary fringe)	X Depth (inches):	Wetland H	ydrology Presen	t? Yes No <sup>X</sup>			
Describe Recorded Data (stream gauge, monitor	oring well, aerial photos, pre	vious inspections), if avail	lable:				
Remarks:							

	<b>3.</b>			Sampling Point: NA Upland
Tree Stratum (Plot size:30 ft radius )	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
Populous deltoides	75	D	FAC	Number of Dominant Species 2 That Are OBL, FACW, or FAC: (A)
Quercus rubra	25	N	FACL	
Ulmus sp.	25	N	NI	Total Number of Dominant Species Across All Strata:  3 (B)
				Percent of Dominant Species 66
				That Are OBL, FACW, or FAC: (A/B
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
	100	= Total Cov	er	OBL species x 1 =
apling/Shrub Stratum (Plot size: 10 sq ft )				FACW species x 2 =
				FAC species x 3 =
				FACU species x 4 =
				UPL species x 5 =
				Column Totals: (A) (B)
				Prevalence Index = B/A =
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
		= Total Cov	or	x 2 - Dominance Test is >50%
erb Stratum (Plot size: 1 meter )		Total Cov	Ci	3 - Prevalence Index is ≤3.0 <sup>1</sup>
Glechoma hederacea	3	D	FACU	<ul> <li>4 - Morphological Adaptations<sup>1</sup> (Provide supportin data in Remarks or on a separate sheet)</li> </ul>
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				¹Indicators of hydric soil and wetland hydrology must
·				be present, unless disturbed or problematic.
i				Definitions of Vegetation Strata:
				<b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diamete at breast height (DBH), regardless of height.
				Sapling/shrub – Woody plants less than 3 in. DBH
				and greater than or equal to 3.28 ft (1 m) tall.
0				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
1				
2				<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
10 sq ft	3	= Total Cov	er	
Voody Vine Stratum (Plot size:)	70		FAC	
Smilax rotundifolia	70	D		Hadronbatic
Lonicera sp.			NI	Hydrophytic Vegetation
-				Present? Yes X No
	80		er	

SOIL Sampling Point: NA Upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth	Matrix		Redox Feature	<u>s</u>			
(inches) 0-1	Color (moist)	<u>%</u>	Color (moist) %	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks
1-3	7.5 YR 3/2	100				Loam	
5-9	7.5 YR 4/3 5YR 5/6	100				Sandy loam	15% Charcoal
	5YR 5/6	85 100				Silty Sand	15% Charcoal
9-14						Silty Sand	
1Tuno: C=C:	ancontrotion D-D		-Daduard Matrix, MC-Markes			21 continu	: PL=Pore Lining, M=Matrix.
Hydric Soil		еріешоп, кім	=Reduced Matrix, MS=Masked	Sand Gra	airis.		for Problematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Below Surface	(S8) ( <b>LRF</b>	RR,		Muck (A10) ( <b>LRR K, L, MLRA 149B</b> )
	oipedon (A2)		MLRA 149B)	DD D MI	DA 440B		Prairie Redox (A16) (LRR K, L, R)
	istic (A3) en Sulfide (A4)		<ul><li>Thin Dark Surface (S9) (L</li><li>Loamy Mucky Mineral (F<sup>2</sup></li></ul>				Mucky Peat or Peat (S3) (LRR K, L, R) Surface (S7) (LRR K, L, M)
	d Layers (A5)		Loamy Gleyed Matrix (F2		, –,		alue Below Surface (S8) ( <b>LRR K, L</b> )
	d Below Dark Surfa	ace (A11)	Depleted Matrix (F3)				ark Surface (S9) (LRR K, L)
	ark Surface (A12)		Redox Dark Surface (F6)	:7)			anganese Masses (F12) (LRR K, L, R)
	Mucky Mineral (S1) Bleyed Matrix (S4)		<ul><li>Depleted Dark Surface (F</li><li>Redox Depressions (F8)</li></ul>	7)			ont Floodplain Soils (F19) ( <b>MLRA 149B</b> ) Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> )
	Redox (S5)		Nodex Bepreceione (Fe)				arent Material (F21)
	Matrix (S6)						Shallow Dark Surface (TF12)
Dark Su	rface (S7) (LRR R	, MLRA 149	<b>B</b> )			Other	(Explain in Remarks)
<sup>3</sup> Indicators o	f hydrophytic vege	tation and w	etland hydrology must be prese	ent, unless	disturbed	l or problemation	D.
	Layer (if observed	d):					
Type:	-1 X-					11	Discours No. X
Depth (inc	cnes):					Hydric Soil	Present? Yes NoX
Remarks.							

Project/Site: Charleston Mixed Use Development City/Con	unty: Staten Island, Richmond Sampling Date: 7/10/12	
Applicant/Owner: NYCEDC	State: NY Sampling Point: NB	
Investigator(s): J. Rollino/M. Smith Section	, Township, Range: Charleston	
Landform (hillslope, terrace, etc.): Local relie	· · · · ·	
Subregion (LRR or MLRA): MLRA 149B Lat:		
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex		
Are climatic / hydrologic conditions on the site typical for this time of year? Ye		
Are Vegetation, Soil, or Hydrology significantly disturbed		
Are Vegetation, Soil _x , or Hydrology naturally problema	ttic? (If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site map showing samp	oling point locations, transects, important features, etc.	
Hydric Soil Present?  Yes x No	Is the Sampled Area within a Wetland?  Yes <u>x</u> No  If yes, optional Wetland Site ID:	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)	
Surface Water (A1) x Water-Stained Leaves	· / · · · · · · · · · · · · · · · · · ·	
High Water Table (A2)  Aquatic Fauna (B13)  Seturation (A2)  Mad Deposits (B15)	Moss Trim Lines (B16)	
Saturation (A3) Marl Deposits (B15) Dry-Season Water Table (C2) Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)		
Sediment Deposits (B2) Oxidized Rhizospheres		
Drift Deposits (B3) Presence of Reduced		
Algal Mat or Crust (B4) Recent Iron Reduction		
Iron Deposits (B5) Thin Muck Surface (C7		
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rema		
x Sparsely Vegetated Concave Surface (B8)	x FAC-Neutral Test (D5)	
Field Observations:		
Surface Water Present? Yes No _x Depth (inches):		
Water Table Present? Yes No _x Depth (inches):		
Saturation Present? Yes No _x Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes x No	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous	ous inspections), if available:	
Daniela		
Remarks:		

			;		
Absolute % Cover			Dominance Test worksh		
20	D	<u>FACW</u>			
	D	FAC			
				•	
			Porcent of Dominant Spec	eine.	
				FAC: <u>100</u> (A/B)	
	= Total Cov	er			
_	_		·		
			*		
				(A) (B)	
		·		D/A	
		· <del></del>	Prevalence Index =	B/A =	
	-				
10	= Total C	over	_		
5	D	OBL	data in Remarks o	r on a separate sheet)	
			Problematic Hydroph	ytic Vegetation¹ (Explain)	
			Indicators of hydric soil a	nd wetland hydrology must	
			Definitions of Vegetation	n Strata:	
			Tree - Woody plants 3 in	(7.6 cm) or more in diameter	
			Sapling/shrub – Woody i	plants less than 3 in DBH	
			<b>Herb</b> – All herbaceous (non	-woody) plants, regardless of	
			Woody vines – All woody v	ines greater than 3.28 ft in	
	-		height.		
10	= Total C	cover			
_10					
_10					
50	D		Hada abata		
			Hydrophytic Vegetation		
50			Vegetation	<u>X</u> No	
50			Vegetation	X No	
			= Total Cover  = Total Cover	Number of Dominant Specification of Dominant Specification of Dominant Species Across All Strata:	

SOIL Sampling Point: NB

Profile Desc	ription: (Describe t	o the de	pth needed to docu	ment the	indicator	or confirn	n the absence	of indicators.)			
Depth	Matrix		Redo	x Feature	<u>s</u>						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks			
0-2	5YR3/2	100					Root mass				
2-6	7.5YR4/2	90	7 <u>.5YR4/4</u>	10	<u>C</u>	<u>PL S</u>	Sandy loam w/	fibrous root material throughout			
6-9	7.5YR5/2	50	7.5YR5/6	50			Silt loam	Double matrix			
9+	Auger refusal/rip-ra	а <u>р</u>									
							<u>,</u>				
							-				
<sup>1</sup> Type: C=Co	oncentration, D=Depl	etion, RN	//=Reduced Matrix, M	S=Masked	d Sand Gr	ains.	<sup>2</sup> Location	n: PL=Pore Lining, M=Matrix.			
Hydric Soil I								for Problematic Hydric Soils <sup>3</sup> :			
Histosol			Polyvalue Belo		(S8) ( <b>LR</b>	R R,		Muck (A10) (LRR K, L, MLRA 149B)			
Black Hi	oipedon (A2) stic (A3)		MLRA 149B Thin Dark Surfa	,	LRR R, M	LRA 149B		Prairie Redox (A16) ( <b>LRR K, L, R</b> )  Mucky Peat or Peat (S3) ( <b>LRR K, L, R</b> )			
	n Sulfide (A4)		Loamy Mucky					Surface (S7) (LRR K, L, M)			
	I Layers (A5)		Loamy Gleyed		2)			alue Below Surface (S8) (LRR K, L)			
	Below Dark Surface	e (A11)	_x Depleted Matrix	. ,				Dark Surface (S9) (LRR K, L)			
	ark Surface (A12)		Redox Dark Su	. ,				langanese Masses (F12) (LRR K, L, R)			
	lucky Mineral (S1)		Depleted Dark		-7)			Piedmont Floodplain Soils (F19) (MLRA 149B)			
	lleyed Matrix (S4) edox (S5)		Redox Depress	SIUIIS (FO)				Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> ) Parent Material (F21)			
-	Matrix (S6)							Shallow Dark Surface (TF12)			
	face (S7) ( <b>LRR R, M</b>	ILRA 149	<b>9B</b> )					(Explain in Remarks)			
<sup>3</sup> Indicators of	hydrophytic vegetati	ion and v	vetland hydrology mu	st be pres	ent, unles	s disturbed	d or problemati	С.			
Restrictive L	ayer (if observed):			<u> </u>							
Type:	-l > ·		_				Unadata O att	I Processed O. Mariana			
Depth (inc	cnes):		_				Hydric Soi	Present? Yes x No			
Remarks.											

Project/Site: Charleston Mix	ed Use Developme	ent City/0	County: Staten Island, F	Richmond	Sampling Date: 7/9/12		
Applicant/Owner: NYCEDC				State: NY	Sampling Point: NB (upland)		
Investigator(s): J. Rollino/M. S	Smith	Secti	on, Township, Range: C	Charleston			
					Slope (%):		
					Datum:		
Soil Map Unit Name: Whethe					n/a		
Are climatic / hydrologic conditi							
Are Vegetation, Soil				•	resent? Yes x No		
Are Vegetation, Soil	, or Hydrology	/ naturally problem	natic? (If needed,	explain any answer	rs in Remarks.)		
SUMMARY OF FINDING	GS – Attach si	te map showing sar	npling point locati	ons, transects	, important features, etc.		
Hydrophytic Vegetation Prese Hydric Soil Present?	Yes _	No x	Is the Sampled Area within a Wetland?	Yes			
Wetland Hydrology Present?  Remarks: (Explain alternative		No x	If yes, optional Wetlan	nd Site ID:			
HYDROLOGY							
Wetland Hydrology Indicato					tors (minimum of two required)		
Primary Indicators (minimum	of one is required;		(7.0)	Surface Soil			
Surface Water (A1)		Water-Stained Leav	` '	Drainage Pat			
<ul><li>High Water Table (A2)</li><li>Saturation (A3)</li></ul>		<ul><li>Aquatic Fauna (B13</li><li>Marl Deposits (B15)</li></ul>			Moss Trim Lines (B16) Dry-Season Water Table (C2)		
Water Marks (B1)		Hydrogen Sulfide O		Crayfish Burr			
Sediment Deposits (B2)		Oxidized Rhizosphe		-	sible on Aerial Imagery (C9)		
Drift Deposits (B3)		Presence of Reduce			tressed Plants (D1)		
Algal Mat or Crust (B4)		Recent Iron Reducti		Geomorphic			
Iron Deposits (B5)		Thin Muck Surface (		Shallow Aqui			
Inundation Visible on Aer	ial Imagery (B7)	Other (Explain in Re		Microtopogra	phic Relief (D4)		
Sparsely Vegetated Cond	cave Surface (B8)			FAC-Neutral	Test (D5)		
Field Observations:							
Surface Water Present?		x Depth (inches):					
Water Table Present?		x Depth (inches):					
Saturation Present? (includes capillary fringe)	Yes No _	x Depth (inches):	Wetland	Hydrology Presen	t? Yes No x		
Describe Recorded Data (stre	eam gauge, monito	ring well, aerial photos, pr	evious inspections), if av	ailable:			
Domarko							
Remarks:							

Absolute % Cover	Dominant Species?		Dominance Test worksheet:
			Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
			Total Number of Dominant Species Across All Strata: 2 (B)
			Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)
			, , , , , , , , , , , , , , , , , , , ,
			Prevalence Index worksheet:
			Total % Cover of: Multiply by:
	= Total Cov	er er	OBL species x 1 =
			FACW species 5 x 2 = FAC species x 3 =
			FACU species 14 x 4 = 56
5	D	NI	UPL species x 5 =
. 8	D	FACU	Column Totals: (A) (B) (E)
			Prevalence Index = B/A = 3.47
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
18	= Total C	Cover	2 - Dominance Test is >50%
			3 - Prevalence Index is ≤3.0 <sup>1</sup>
70	D	NI	4 - Morphological Adaptations <sup>1</sup> (Provide supportin data in Remarks or on a separate sheet)
		FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
			be present, unless disturbed or problematic.
			Definitions of Vegetation Strata:
			Tree – Woody plants 3 in. (7.6 cm) or more in diamete
			at breast height (DBH), regardless of height.
			Sapling/shrub – Woody plants less than 3 in. DBH
			and greater than or equal to 3.28 ft (1 m) tall.
		·	<b>Herb</b> – All herbaceous (non-woody) plants, regardless of
		· ——	size, and woody plants less than 3.28 ft tall.
		· ——	Woody vines – All woody vines greater than 3.28 ft in
			height.
<u>86</u>	= Total C	Cover	
. —			Hudrophytic
			Hydrophytic Vegetation
		·	
			Vegetation
		## Cover Species?  ## Total Cover Species?  ## Total Cover Species?  ## ## Total Cover Species?  ## ## ## ## ## ## ## ## ## ## ## ## ##	% Cover         Species?         Status

SOIL Sampling Point: NB (upland)

Profile Desci	ription: (Describe t	o the dep	th needed to docume	nt the indicato	r or confirm	the absence	of indicators.)
Depth	Matrix		Redox I	-eatures			
(inches)	Color (moist)	%	Color (moist)	% Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-9	7.5YR4/4	100			<u> </u>	Loam	Friable; anthropogenic debris
9+						Loam	Auger refusal
				-		-	
					<u> </u>		
						_	
					<u> </u>		
1Type: C=Co	ncentration D=Denl	etion RM	=Reduced Matrix, MS=	Masked Sand C	Grains	<sup>2</sup> l ocation	: PL=Pore Lining, M=Matrix.
Hydric Soil I		Caori, IXIVI	reduced Matrix, MO-	wasked Sand C	ziulio.		for Problematic Hydric Soils <sup>3</sup> :
Histosol (			Polyvalue Below \$	Surface (S8) (LI	RR R.		fluck (A10) (LRR K, L, MLRA 149B)
	ipedon (A2)		MLRA 149B)	5411400 (00) ( <b>2</b> 1	,		Prairie Redox (A16) ( <b>LRR K, L, R</b> )
Black His			Thin Dark Surface	e (S9) ( <b>LRR R, I</b>	MLRA 149B)		Mucky Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4)		Loamy Mucky Mir				surface (S7) (LRR K, L, M)
Stratified	Layers (A5)		Loamy Gleyed Ma	atrix (F2)			lue Below Surface (S8) (LRR K, L)
	Below Dark Surface	(A11)	Depleted Matrix (I				ark Surface (S9) (LRR K, L)
	rk Surface (A12)		Redox Dark Surfa	, ,			anganese Masses (F12) ( <b>LRR K, L, R</b> )
	ucky Mineral (S1)		Depleted Dark Su			· · · · · · · · · · · · · · · · · · ·	ont Floodplain Soils (F19) (MLRA 149B)
	leyed Matrix (S4)		Redox Depression	ns (F8)			Spodic (TA6) (MLRA 144A, 145, 149B)
-	edox (S5)						arent Material (F21)
	Matrix (S6)	I DA 1401	<b>&gt;</b> \				hallow Dark Surface (TF12) (Explain in Remarks)
Dark Sur	face (S7) ( <b>LRR R, M</b>	LKA 1431	<b>-</b> )			Other (	Explain in Remarks)
<sup>3</sup> Indicators of	hydrophytic vegetati	on and we	etland hydrology must t	oe present, unle	ss disturbed	or problematic	). :
Restrictive L	ayer (if observed):						
Type:							
Depth (inc	hes):					Hydric Soil	Present? Yes No x
Remarks:	,						
remarks.							

Project/Site: Charleston Mixe	ed Use Development	City/Co	ounty: Staten Island,	Richmond	Sampling Date: <u>7/10/12</u>		
Applicant/Owner: NYCEDC				State: NY	Sampling Point: NC		
Investigator(s): J. Rollino/M. Sr	mith	Section	n, Township, Range: (	Charleston			
= ::			· · · · · ·		Slope (%):		
Subregion (LRR or MLRA): ML							
Soil Map Unit Name: Whether							
Are climatic / hydrologic condition		-					
Are Vegetation, Soil				al Circumstances" p	present? Yes <u>x</u> N <u>o</u>		
Are Vegetation, Soilx	, or Hydrology	naturally problema	atic? (If needed	d, explain any answe	ers in Remarks.)		
SUMMARY OF FINDING	SS – Attach site ma	p showing sam	pling point locat	ions, transects	s, important features, etc.		
Hydrophytic Vegetation Preser Hydric Soil Present? Wetland Hydrology Present?	Yes x	No	Is the Sampled Area within a Wetland?	Yes <u>x</u>			
Remarks: (Explain alternative			If yes, optional Wetlan				
HYDROLOGY							
Wetland Hydrology Indicator					ators (minimum of two required)		
Primary Indicators (minimum o	of one is required; check	all that apply)		Surface Soil	Cracks (B6)		
Surface Water (A1)		Water-Stained Leave	es (B9)	_	atterns (B10)		
High Water Table (A2)		Aquatic Fauna (B13)		Moss Trim Lines (B16)			
Saturation (A3)		Marl Deposits (B15)	(04)		Water Table (C2)		
Water Marks (B1)		Hydrogen Sulfide Odd		Crayfish Bur			
Sediment Deposits (B2) Drift Deposits (B3)		Presence of Reduced	es on Living Roots (C3		fisible on Aerial Imagery (C9) Stressed Plants (D1)		
Algal Mat or Crust (B4)		Recent Iron Reduction			Position (D2)		
Iron Deposits (B5)		hin Muck Surface (C		Shallow Aqu			
Inundation Visible on Aeria		Other (Explain in Rem			raphic Relief (D4)		
x Sparsely Vegetated Cond				FAC-Neutra			
Field Observations:							
Surface Water Present?	Yes No _x	Depth (inches):					
Water Table Present?	Yes No _x_	Depth (inches):					
Saturation Present?	Yes Nox	Depth (inches):	Wetland	l Hydrology Preser	nt? Yes <u>x</u> No		
(includes capillary fringe)  Describe Recorded Data (streat	am gauge monitoring we	all aerial nhotos nrev	/ious inspections) if a	vailable:			
Describe Nescrided Data (Street	am gaage, monitoring we	on, acriai priotos, pre-	riodo iriopeotiorio), ir d	valiable.			
Remarks:							

· · · · · · · · · · · · · · · · · · ·				Sampling Point: NC			
Tree Stratum (Plot size: 30' )		Dominant er Specie		Dominance Test worksh	eet:		
1				Number of Dominant Spe That Are OBL, FACW, or			
2				Total Number of Dominan			
3				Species Across All Strata:	•		
4				Percent of Dominant Spec	cies		
5				That Are OBL, FACW, or	FAC: <u>100</u> (A/B		
3				Prevalence Index works	heet:		
7				Total % Cover of:			
		= Total Co	ver	OBL species			
Sapling/Shrub Stratum (Plot size: 15' )				FACW species	x 2 =		
				FAC species			
2				FACU species			
3				UPL species			
1,				Column Totals:	(A) (B)		
5				Prevalence Index =	B/A =		
3				Hydrophytic Vegetation	Indicators:		
7.				1 - Rapid Test for Hyd	drophytic Vegetation		
		= Total Co		x 2 - Dominance Test			
Herb Stratum (Plot size: 5' )				3 - Prevalence Index			
I. Persicaria pennsylvanica	1	N	FACW	4 - Morphological Ada data in Remarks o	aptations¹ (Provide supporting r on a separate sheet)		
2		-		Problematic Hydrophy	ytic Vegetation <sup>1</sup> (Explain)		
3				<sup>1</sup> Indicators of hydric soil a be present, unless disturb	nd wetland hydrology must		
4				Definitions of Vegetation	•		
5				_			
6 7				at breast height (DBH), re	(7.6 cm) or more in diameter gardless of height.		
3				Sapling/shrub – Woody			
9				and greater than or equal	to 3.28 ft (1 m) tall.		
10				<b>Herb</b> – All herbaceous (non size, and woody plants less t	-woody) plants, regardless of han 3.28 ft tall.		
11				Woody vines – All woody v	ines greater than 3.28 ft in		
12				height.	mes greater than 3.28 it in		
	1	= Total Co	over				
Woody Vine Stratum (Plot size:15' )							
1. Wisteria frutescens	8	D	FACW				
2. Toxicodendron radicans	3	N	FAC	Hydrophytic Vegetation			
	2	N	_FAC_	Present? Yes_	x No		
3. Smilax rotundifolia							
3. Smilax rotundifolia 4							
		= Total (	Cover				

SOIL Sampling Point: NC

Profile Desc	ription: (Describe t	o the de	pth needed to docun	nent the i	ndicator	or confirm	m the absence of indicators.)			
Depth	Matrix			x Feature	<u>s</u> .					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks			
0-2	10YR2/1	100					organic root mass			
2-5	7.5YR5/3	50	7.5YR4/4	_50	C	M	Loam			
5-8	7.5YR5/3	50	7.5YR5/6	_50	<u>C</u>	M	Loam			
8-15	7.5YR5/2	30	7.5YR5/4	30	C	M	Loam			
			7.5YR5/6	4 0	<u> </u>	M				
		-								
							<del></del>			
<sup>1</sup> Type: C=Co		etion, RM	1=Reduced Matrix, MS	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils <sup>3</sup> :			
_			Polyvalue Below	v Surface	(S8) (LRF	R.	2 cm Muck (A10) (LRR K, L, MLRA 149B)			
Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B)							Coast Prairie Redox (A16) (LRR K, L, R)			
Black Hi			Thin Dark Surfa							
	en Sulfide (A4)		Loamy Mucky M			, <b>L</b> )	Dark Surface (S7) (LRR K, L, M)			
	d Layers (A5)	(111)	Loamy Gleyed N		(1)		Polyvalue Below Surface (S8) (LRR K, L)			
	d Below Dark Surface ark Surface (A12)	(A11)	Depleted Matrix Redox Dark Sur				Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R)			
	fucky Mineral (S1)		Depleted Dark S	, ,			Piedmont Floodplain Soils (F12) (MLRA 149B)			
	Gleyed Matrix (S4)		Redox Depressi		')		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
	Redox (S5)			( )			x Red Parent Material (F21)			
-	Matrix (S6)						Very Shallow Dark Surface (TF12)			
	rface (S7) (LRR R, M	ILRA 149	B)				Other (Explain in Remarks)			
		on and w	etland hydrology mus	t be prese	ent, unless	disturbed	d or problematic.			
	Layer (if observed):									
Type: Depth (ind	ches):		_				Hydric Soil Present? Yes x No			
Remarks:			-				,u co 100 <u>x</u>			
1										

Project/Site: Charleston Mixed Use Deve	elopment City	/County: Staten Island, Richmond	Sampling Date: 7/9/12
Applicant/Owner: NYCEDC		State:	NY Sampling Point: NC (upland)
Investigator(s): J. Rollino/M. Smith	Sec		
Landform (hillslope, terrace, etc.):		· -	
Subregion (LRR or MLRA): MLRA 149B			
Soil Map Unit Name: Whethersfield-Ludlo			
Are climatic / hydrologic conditions on the s			olain in Remarks.)
Are Vegetation, Soil, or Hyd	drology significantly dist	turbed? Are "Normal Circums	tances" present? Yes <u>x</u> No
Are Vegetation, Soil, or Hyd	drology naturally proble	matic? (If needed, explain ar	ny answers in Remarks.)
SUMMARY OF FINDINGS – Atta	ch site map showing sa	ampling point locations, tra	nsects, important features, etc.
	Yes <u>x</u> No Yes No x	Is the Sampled Area within a Wetland?	esNo x
Wetland Hydrology Present?	Yes No x	If yes, optional Wetland Site ID:	
LIVEROLOGY			
HYDROLOGY			
Wetland Hydrology Indicators:			ary Indicators (minimum of two required)
Primary Indicators (minimum of one is req			face Soil Cracks (B6)
Surface Water (A1)	Water-Stained Lea		inage Patterns (B10)
High Water Table (A2)	Aquatic Fauna (B1		ss Trim Lines (B16)
Saturation (A3) Water Marks (B1)	Marl Deposits (B15 Hydrogen Sulfide 0		-Season Water Table (C2) yfish Burrows (C8)
Sediment Deposits (B2)			uration Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Presence of Reduc		nted or Stressed Plants (D1)
Algal Mat or Crust (B4)	Recent Iron Reduc		omorphic Position (D2)
Iron Deposits (B5)	Thin Muck Surface		llow Aquitard (D3)
Inundation Visible on Aerial Imagery (			rotopographic Relief (D4)
Sparsely Vegetated Concave Surface		FAC	C-Neutral Test (D5)
Field Observations:			
Surface Water Present? Yes	No x Depth (inches):		
Water Table Present? Yes	No x Depth (inches):		
	No x Depth (inches):	Wetland Hydrolog	y Present? Yes No x
(includes capillary fringe)  Describe Recorded Data (stream gauge, r	monitoring well, aerial photos, p	previous inspections), if available:	
	р р	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Remarks:			

<u>/er</u>	Species?		Dominance Test workshown Number of Dominant Specific That Are OBL, FACW, or Formal Number of Dominant Species Across All Strata:  Percent of Dominant Specific That Are OBL, FACW, or Formal Number of Dominant Specific That Are OBL, FACW, or Face of Dominant Specific That Are OBL, Fa	cies FAC: t	1 1 100	(A) (B)
  			That Are OBL, FACW, or Interest of Dominant Species Across All Strata:  Percent of Dominant Species That Are OBL, FACW, or Interest of Dominant Species Across All Strata	FAC: t ties	1	` ,
  			Species Across All Strata:  Percent of Dominant Specified That Are OBL, FACW, or F			(B)
  			Species Across All Strata:  Percent of Dominant Specified That Are OBL, FACW, or F			(B)
  =			That Are OBL, FACW, or F		100	
  =			That Are OBL, FACW, or F		100	
  _ =						(A/
=				4.		
=			Prevalence Index worksl Total % Cover of:		fultiply by:	
			OBL species			
			FACW species			
			FAC species			
			FACU species	x 4 =		_
			UPL species	x 5 =		_
			Column Totals:	(A)		_ (B)
			Prevalence Index =	B/A =		
			Hydronbytic Vegetation	Indicator		
			*		ogotation	
_=	Total Cov	/er				
			4 - Morphological Ada data in Remarks o	ptations <sup>1</sup> r on a sep	(Provide supparate sheet)	oorting
			Problematic Hydrophy	tic Vegeta	ation¹ (Explai	n)
						านรt
			be present, unless disturbe	ed or prob	lematic.	
			Definitions of Vegetation	Strata:		
						ımetei
			at breast height (DBH), req	gardless o	of height.	
						3H
					, ,	
						s of
				ines greate	r than 3.28 ft ii	n
=	Total Cov	ver				
	D	FACW	Hydronby 41a			
	N	FAC	Vegetation			
	N	FACU	Present? Yes _	X	No	
	= Total C	Cover				
		= Total Cov	= Total Cover D FACW N FAC	Hydrophytic Vegetation  — 1 - Rapid Test for Hyd  X 2 - Dominance Test  — 3 - Prevalence Index i  — 4 - Morphological Ada data in Remarks of — Problematic Hydrophy  Indicators of hydric soil are be present, unless disturbe  Definitions of Vegetation  Tree — Woody plants 3 in. at breast height (DBH), reg  Sapling/shrub — Woody plants described in the present of the	Hydrophytic Vegetation Indicators  1 - Rapid Test for Hydrophytic V  X 2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ data in Remarks or on a sep  Problematic Hydrophytic Vegetat  ¹Indicators of hydric soil and wetland be present, unless disturbed or prob  Definitions of Vegetation Strata:  Tree – Woody plants 3 in. (7.6 cm) of at breast height (DBH), regardless of the size, and woody plants less and greater than or equal to 3.28 ft woody vines – All woody vines greater height.  Herb – All herbaceous (non-woody) plants ize, and woody plants less than 3.28 ft woody vines – All woody vines greater height.  Tree – Woody vines – All woody vines greater height.  Hydrophytic Vegetation Present? Yes X	Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  X 2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supr data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation¹ (Explain)¹ (Explain)¹ (Indicators of hydric soil and wetland hydrology meterosent, unless disturbed or problematic.  Definitions of Vegetation Strata:  Tree - Woody plants 3 in. (7.6 cm) or more in dia at breast height (DBH), regardless of height.  Sapling/shrub - Woody plants less than 3 in. DE and greater than or equal to 3.28 ft (1 m) tall.  Herb - All herbaceous (non-woody) plants, regardless size, and woody plants less than 3.28 ft tall.  Woody vines - All woody vines greater than 3.28 ft in height.  = Total Cover  D FACW N FAC N FACU  Hydrophytic Vegetation Present? Yes X No

SOIL Sampling Point: NC (upland)

Profile Desc	ription: (Describe t	o the de	oth needed to docur	nent the i	ndicator o	or confirm	the absence of indicators.)		
Depth	Matrix			x Features	<u>s</u>	•			
(inches)	Color (moist)	<u></u> %	Color (moist)	<u> </u>	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks		
0-2	7.5YR3/2	100					Fiberous root mass		
2-9	7.5YR4/4	100					Loam		
9-14	5YR4/4	100					Loam		
14-16	7.5YR4/4	95	7.5YR4/6	5	<u>C</u>	M	Loam		
1T C-C		DN	—Daduard Matrix M				21 agations DI - David Lining M-Matrix		
Hydric Soil	oncentration, D=Depl Indicators:	ellon, Riv	=Reduced Matrix, Mis	5=Wasked	i Sand Gra	iiis.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils <sup>3</sup> :		
Histosol	(A1)		Polyvalue Belov	w Surface	(S8) ( <b>LRR</b>	R,	2 cm Muck (A10) (LRR K, L, MLRA 149B)		
Histic Ep	oipedon (A2)		MLRA 149B)		DD D MI	DA 440B)	Coast Prairie Redox (A16) (LRR K, L, R)		
	en Sulfide (A4)		Thin Dark Surfa				5 cm Mucky Peat or Peat (S3) (LRR K, L, R) Dark Surface (S7) (LRR K, L, M)		
Stratified	d Layers (A5)		Loamy Gleyed			,	Polyvalue Below Surface (S8) (LRR K, L)		
	d Below Dark Surface	e (A11)	Depleted Matrix				Thin Dark Surface (S9) (LRR K, L)		
	ark Surface (A12) Nucky Mineral (S1)		Redox Dark Su Depleted Dark S	. ,			Iron-Manganese Masses (F12) ( <b>LRR K, L, R</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 149B</b> )		
	Gleyed Matrix (S4)		Redox Depress		,		Mesic Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> )		
-	Redox (S5)						Red Parent Material (F21)		
	Matrix (S6) rface (S7) ( <b>LRR R, M</b>	ILRA 149	<b>B</b> )				Very Shallow Dark Surface (TF12)     Other (Explain in Remarks)		
	f hydrophytic vegetati	on and w	etland hydrology mus	st be prese	ent, unless	disturbed	or problematic.		
	Layer (if observed):								
Type:									
	ches):						Hydric Soil Present? Yes No _x		
Remarks:									

Project/Site: Charleston Mix	ed Use Developme	ent City/C	ounty: Staten Island, Rich	mond	Sampling Date: <u>7/10/12</u>		
Applicant/Owner: NYCEDC				State: NY	Sampling Point: ND		
Investigator(s): J. Rollino/M. S	Smith	Sectio	n, Township, Range: Char	leston			
Landform (hillslope, terrace, etc	c.):	Local reli	ef (concave, convex, none	): Flat land	Slope (%):		
					Datum:		
Soil Map Unit Name: Whether							
Are climatic / hydrologic conditi							
Are Vegetation, Soil					present? Yes <u>x</u> No		
Are Vegetation, Soil	, or Hydrology	naturally problems	atic? (If needed, exp	olain any answe	ers in Remarks.)		
SUMMARY OF FINDING	GS – Attach si	te map showing sam	pling point location	s, transects	s, important features, etc.		
Hydrophytic Vegetation Prese Hydric Soil Present? Wetland Hydrology Present?	Yes _	x No	Is the Sampled Area within a Wetland?	Yes L	<del></del>		
Remarks: (Explain alternative			If yes, optional Wetland S	orte ID:			
HYDROLOGY							
Wetland Hydrology Indicato	ors:		<u>s</u>	econdary Indic	ators (minimum of two required)		
Primary Indicators (minimum	of one is required;	check all that apply)		_ Surface Soil	Cracks (B6)		
Surface Water (A1)		s (B9)	Drainage	Patterns (B10)			
High Water Table (A2)		Aquatic Fauna (B13)	_	Moss Trim Lines (B16)			
Saturation (A3)		Marl Deposits (B15)	_	Dry-Season Water Table (C2)			
Water Marks (B1)		Hydrogen Sulfide Od		_ Crayfish Bu			
x Sediment Deposits (B2)			res on Living Roots (C3) _		Visible on Aerial Imagery (C9)		
Drift Deposits (B3) Algal Mat or Crust (B4)		<ul><li>Presence of Reduced</li><li>Recent Iron Reduction</li></ul>		<del></del>	Stressed Plants (D1) c Position (D2)		
Iron Deposits (B5)		Thin Muck Surface (C		Geomorphic Shallow Aqu			
Inundation Visible on Aer	rial Imagery (B7)	Other (Explain in Rer			aphic Relief (D4)		
x Sparsely Vegetated Cor		Other (Explain in Ner	<u></u>		al Test (D5)		
Field Observations:	(20)		<del>_</del>		u. 1001(20)		
Surface Water Present?	Yes No _	Depth (inches):					
Water Table Present?	Yes No _	Depth (inches):					
Saturation Present?		Depth (inches):	Wetland Hye	drology Prese	nt? Yes <u>I</u> No		
(includes capillary fringe)  Describe Recorded Data (stre	eam gauge, monitor	ring well, aerial photos, pre	vious inspections), if availa	ıble:			
2000	Jan gaage, meme	g, acriai priotoc, pro	Trodo mopositiono,, in a raina				
Remarks:							

			Sampling Point: <u>ND</u>	
<u>Tree Stratum</u> (Plot size: <u>30 foot</u> )	Absolute	Dominant Indica Species? Statu	Dominance Lest Worksheet.	
1			Number of Dominant Species	(A)
2.				(^)
3			Total Nambol of Bollmant	(B)
4				. ( )
5			— Percent of Dominant Species That Are OBL, FACW, or FAC: 100	(A/B
6			_	
7			The same of the sa	
·		= Total Cover		
Conling/Chrub Ctratum /Dlot aiza: 15 fact	•	- Total Cover	OBL species x 1 = FACW species x 2 =	
Sapling/Shrub Stratum (Plot size: 15 foot )			FAC species x 3 =	
l			— FACII species x 4 =	
2			UPL species x 5 =	
3			Column Totals: (A)	(B)
ł			Provalence Index = P/A =	
5				
5				
7			1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50%	
		= Total Cover	3 - Prevalence Index is ≤3.0¹	
Herb Stratum (Plot size: 5 foot )	00	D 001	4 - Morphological Adaptations <sup>1</sup> (Provide su	porting
1. Juncus effusus			Backless of a Uniterate the New Action 1 (Final	
2. Phragmites australis			···	
3			Indicators of hydric soil and wetland hydrology be present, unless disturbed or problematic.	must
4				
5			_	·
6 7			at breast beight (DRH), regardless of beight	iameter
				)BH
3			and greater than or equal to 3.28 ft (1 m) tall.	
9 10.			Herb – All herbaceous (non-woody) plants, regardle	ess of
			size, and woody plants less than 3.28 ft tall.	
11			Woody vines – All woody vines greater than 3.28 ft	in
12		= Total Cover	height.	
Mondy Vine Stratum (Diet eine 15 feet )	50	- Total Covel		
Woody Vine Stratum (Plot size: 15 foot )				
1			— Hydrophytic	
2			Vegetation Present? Yes x No	
3			Fresent: Fes No	
4		T-1-1-0	_	
		= Total Cover		

SOIL Sampling Point: ND Wetland

Depth	cription: (Describ Matrix		-	ument the indica lox Features	tor or confirm	n the absence of indic	ators.)
(inches)	Color (moist)	%	Color (moist)		e <sup>1</sup> Loc <sup>2</sup>	Texture	Remarks
0-5	5 YR 3/2	90	5 YR 3/4	10		Sandy loam	
5-9	7.5 YR 3/2	85	7.5 YR 3/3	15		Sandy loam	
9-14	7.5 YR 3/2	85	7.5 YR 3/3	15		Loam with gravel	
					<u> </u>		
		<del></del> -					
			-		<u> </u>	·	
	-	<u> </u>			<u> </u>	·	
					<u> </u>	·	
					<u> </u>		
						· ——	
		epletion, RN	1=Reduced Matrix, N	MS=Masked Sand	Grains.		ore Lining, M=Matrix.
Hydric Soil Histosol			Polyvalue Bel	ow Surface (S8) (	I RR R		blematic Hydric Soils <sup>3</sup> : 0) (LRR K, L, MLRA 149B)
	pipedon (A2)		MLRA 149		LIKIT IK,		Redox (A16) ( <b>LRR K, L, R</b> )
	istic (A3)			face (S9) (LRR R			eat or Peat (S3) (LRR K, L, R)
	en Sulfide (A4) d Layers (A5)		Loamy Mucky	Mineral (F1) ( <b>LR</b> d Matrix (F2)	R K, L)		S7) ( <b>LRR K, L, M</b> ) w Surface (S8) ( <b>LRR K, L</b> )
	d Below Dark Surf	ace (A11)	Depleted Mat				ace (S9) ( <b>LRR K, L</b> )
	ark Surface (A12)		Redox Dark S			_	se Masses (F12) (LRR K, L, R)
	Mucky Mineral (S1) Gleyed Matrix (S4)		Nepleted Da	rk Surface (F7) ssions (F8)			odplain Soils (F19) ( <b>MLRA 149B</b> ) TA6) ( <b>MLRA 144A, 145, 149B</b> )
Sandy F	Redox (S5)			` '		Red Parent Ma	aterial (F21)
	Matrix (S6)	MI DA 440	NP)			Very Shallow D Other (Explain	Dark Surface (TF12)
Dark Su	rface (S7) (LRR R	, WLKA 148	<b>16</b> )			Other (Explain	in Remarks)
			vetland hydrology m	ust be present, un	less disturbed	d or problematic.	
	Layer (if observe	d):					
Type: Depth (in	ches).		_			Hydric Soil Present	t? Yes <u>x</u> No <u> </u>
Remarks:	CHC3)		_			Trydric don't resem	11 163 <u>X</u> 110
rtomanto.							

Charleston Mixed Use Development Project/Site: City	//County: Richmond Sampling Date: July 2012						
Applicant/Owner: NYCEDC	State: NY Sampling Point: ND Upland						
Applicani/Owner:							
Investigator(s): Rollino, J. Sec							
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):							
Subregion (LRR or MLRA):         MLRB 149B         Lat:         Long:         Datum:							
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: n/a							
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes No (If no, explain in Remarks.)						
Are Vegetation, Soil, or Hydrology significantly dist							
Are Vegetation, Soil, or Hydrology naturally proble							
	impling point locations, transects, important features, etc.						
	In the Complete Aven						
Hydrophytic Vegetation Present? Yes No X	Is the Sampled Area within a Wetland? Yes No x						
Hydric Soil Present?  Yesx No  Wetland Hydrology Present?  Yesx No X							
Wetland Hydrology Present? Yes No X  Remarks: (Explain alternative procedures here or in a separate report.)	If yes, optional Wetland Site ID:						
HYDROLOGY							
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)						
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)						
Surface Water (A1) Water-Stained Lea							
High Water Table (A2) Aquatic Fauna (B1 Seturation (A2) Mark Deposits (B15)							
Saturation (A3) Marl Deposits (B15 Water Marks (B1) Hydrogen Sulfide (							
	eres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)						
Drift Deposits (B3) Presence of Reduc							
Algal Mat or Crust (B4) Recent Iron Reduc							
Iron Deposits (B5) Thin Muck Surface							
Inundation Visible on Aerial Imagery (B7) Other (Explain in R							
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)						
Field Observations:							
Surface Water Present? Yes No Depth (inches):							
Water Table Present? Yes No Depth (inches):							
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes No x						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:						
Remarks:							

<b>'EGETATION –</b> Use scientific names of plants	S.			Sampling Point: ND Upland
Tree Stratum (Plot size: 30' )	Absolute		t Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:30" ) 1)		Species?		Number of Dominant Species That Are OBL, FACW, or FAC:0 (A)
2				Total Number of Dominant Species Across All Strata:1 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC:0 (A/E
T			_	Frevalence index worksheet.
7				Total % Cover of: Multiply by:
10'	-	= Total Co	ver	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 = FAC species x 3 =
1,				FACU species 5 x 4 = 20
2				UPL species x 5 =
3				Column Totals: <u>5</u> (A) <u>20</u> (E
4				Column Totals. 5 (A) 20 (E
5				Prevalence Index = B/A = 4
				Hydrophytic Vegetation Indicators:
6				1 - Rapid Test for Hydrophytic Vegetation
7				2 - Dominance Test is >50%
1 sq m		= Total Co	ver	3 - Prevalence Index is ≤3.0 <sup>1</sup>
Herb Stratum (Plot size:)  1 Gramineae	90	Yes	NI	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
2 Andropogon virginicus	5	No	FACU	Problematic Hydrophytic Vegetation¹ (Explain)
3. Daucus carota	5			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
4				be present, unless disturbed or problematic.
5				Definitions of Vegetation Strata:
6				Tree – Woody plants 3 in. (7.6 cm) or more in diameter
				at breast height (DBH), regardless of height.
7				Continuate with Mandy plants less than 2 in DDII
8				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
9				T l All l ( l) l (
10				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
11				
12				<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
	100	= Total Co	ver	
Woody Vine Stratum (Plot size: 10 sq ft )				
1				Hydrophytic
2				Vegetation
3				Present? Yes No x
4				
4		= Total Co	ver	

SOIL Sampling Point: ND Upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth	Matrix		Redox Feature	<u>s</u> ,	2		
(inches)	Color (moist)	<u>%</u>	Color (moist) %	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-4	7.5 YR 3/3	100				Loam	
4-9	7.5 YR 3/2	100				Sandy loam	
9-15	5 YR 3/3	100			-	Sandy loam	
					-		
						·	
							_
							_
					-		
						-	
		-					
Type: C=C Hydric Soil		letion, RM	=Reduced Matrix, MS=Masked	Sand Gr	ains.		PL=Pore Lining, M=Matrix. or Problematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Below Surface	(S8) ( <b>LRI</b>	RR.		uck (A10) (LRR K, L, MLRA 149B)
Histic E	pipedon (A2)		MLRA 149B)			Coast P	rairie Redox (A16) ( <b>LRR K, L, R</b> )
	istic (A3)		Thin Dark Surface (S9) (I				ucky Peat or Peat (S3) (LRR K, L, R)
	en Sulfide (A4) d Layers (A5)		<ul><li>Loamy Mucky Mineral (F</li><li>Loamy Gleyed Matrix (F2</li></ul>		, L)		rface (S7) ( <b>LRR K, L, M</b> ) ue Below Surface (S8) ( <b>LRR K, L</b> )
	d Below Dark Surface	e (A11)	x Depleted Matrix (F3)	.,			ark Surface (S9) ( <b>LRR K, L</b> )
	ark Surface (A12)		Redox Dark Surface (F6)				nganese Masses (F12) (LRR K, L, R)
	Mucky Mineral (S1)		Depleted Dark Surface (F	7)			nt Floodplain Soils (F19) (MLRA 149B)
	Gleyed Matrix (S4) Redox (S5)		Redox Depressions (F8)				podic (TA6) ( <b>MLRA 144A, 145, 149B</b> ) rent Material (F21)
-	Matrix (S6)						allow Dark Surface (TF12)
	rface (S7) (LRR R, N	ILRA 1491	<b>B</b> )				explain in Remarks)
<sup>3</sup> Indicators o	f hydrophytic vegetat	ion and we	etland hydrology must be prese	ent, unless	s disturbed	l or problematic.	
	Layer (if observed):		, 0, 1	<u> </u>		<u> </u>	
Type:							
Depth (in	ches):					Hydric Soil P	Present? Yes <u>x</u> No
Remarks:							

Project/Site: Charleston Mixed Use Development City	//County: Staten Island, Richmond Sampling Date: 7/10/12
Applicant/Owner: NYCEDC	State: NY Sampling Point: NE
Investigator(s): _J. Rollino/M. Smith Sec	tion, Township, Range: Charleston
	relief (concave, convex, none): Flat land Slope (%):
	Long: Datum:
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex	
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation, Soil, or Hydrology significantly dis	
Are Vegetation, Soil, or Hydrology naturally proble	ematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sa	ampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?         Yes _ x No           Hydric Soil Present?         Yes _ x No           Wetland Hydrology Present?         Yes _ x No	Is the Sampled Area within a Wetland? Yes I No
Remarks: (Explain alternative procedures here or in a separate report.)	If yes, optional Wetland Site ID:
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Lea	ves (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B1	
Saturation (A3) Marl Deposits (B15)	
Water Marks (B1) Hydrogen Sulfide (	
	heres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduc	
	ction in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface Inundation Visible on Aerial Imagery (B7) Other (Explain in F	
x Sparsely Vegetated Concave Surface (B8)	Remarks) <u>x</u> Microtopographic Relief (D4)  FAC-Neutral Test (D5)
Field Observations:	1710 Noutidi 1651 (20)
Surface Water Present? Yes Nox Depth (inches):	
Water Table Present? Yes No _x Depth (inches):	
Saturation Present? Yes No x Depth (inches):	Wetland Hydrology Present? Yes I No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	provious inspections) if available:
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	nevious inspections), ii avaliable.
Remarks:	

				;	
Tree Stratum (Diet size: 20)		Dominant		Dominance Test worksh	neet:
Tree Stratum (Plot size: 30' )  1.		Species?		Number of Dominant Spe That Are OBL, FACW, or	
2					
3				Total Number of Dominar Species Across All Strata	• •
				Percent of Dominant Spe	
· · · · · · · · · · · · · · · · · · ·				That Are OBL, FACW, or	
5					
·				Prevalence Index works	
		= Total Cov		Total % Cover of:  OBL species	
sapling/Shrub Stratum (Plot size: 15' )		_ = Total Cov	Ci	FACW species	
				FAC species	
-				FACU species	
1.				UPL species	
1				Column Totals:	(A) (B)
l <u>.                                    </u>				Prevalence Index =	B/A =
i					
·				Hydrophytic Vegetation 1 - Rapid Test for Hy	
				x 2 - Dominance Test	· · ·
	-	_ = Total Cov	er	3 - Prevalence Index	
Herb Stratum (Plot size: 5' )  Rumex crispus	8	D	FAC	4 - Morphological Ada	aptations <sup>1</sup> (Provide supportin or on a separate sheet)
2. Carex scoparia			FACW	Problematic Hydroph	• ,
3. Juncus effusus			OBL	<sup>1</sup> Indicators of hydric soil a	nd wetland hydrology must
1,				be present, unless disturb	ed or problematic.
5				Definitions of Vegetatio	n Strata:
5				Tree – Woody plants 3 in	. (7.6 cm) or more in diamete
7				at breast height (DBH), re	
3					plants less than 3 in. DBH
)				and greater than or equal	to 3.28 ft (1 m) tall.
10.					-woody) plants, regardless of
11				size, and woody plants less	
12.				<b>Woody vines</b> – All woody vineight.	rines greater than 3.28 ft in
	15	= Total C	over	neight.	
Noody Vine Stratum (Plot size:15')		_ rotar c			
1					
2.		-	-	Hydrophytic	
3.				Vegetation Present? Yes	x No
¥		- Total Car			
		_ = Total Cov	er		

SOIL Sampling Point: NE Wetland

Depth	nption: (Describ Matrix		pth needed to doo Re	edox Features	ator or commi	n the absence (	of indicators.)
(inches)	Color (moist)	%	Color (moist)	<u>%</u> Typ	pe <sup>1</sup> Loc <sup>2</sup>	Texture	Remarks
0-2	7.5 YR 3/3	100				Sandy loam	
2-7	7.5 YR 3/2	85	7.5 YR 4/6	15		Loam	
7-12	5 YR 4/1	85	5 YR 4/4	15		Loam	
¹Type: C=C  Hydric Soil  Histosol	Indicators:	epletion, RN	M=Reduced Matrix,	MS=Masked Sand		Indicators 1	PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils <sup>3</sup> :  uck (A10) (LRR K, L, MLRA 149B)
Histic Ep Black Hi Hydroge Stratified Depleted Thick Da Sandy M Sandy F Stripped	popedon (A2) stic (A3) en Sulfide (A4) d Layers (A5) d Below Dark Surfa ark Surface (A12) Mucky Mineral (S1) Gleyed Matrix (S4) Redox (S5) I Matrix (S6) rface (S7) (LRR R		MLRA 149 Thin Dark Su Loamy Muck Loamy Gleye X Depleted M Redox Dark Depleted Da Redox Depre	9B) urface (S9) (LRR F uy Mineral (F1) (LF ed Matrix (F2) atrix (F3) Surface (F6) rk Surface (F7)	R, MLRA 149B	Coast F  5 cm M Dark St Polyval Thin D Iron-Ma Piedmo Mesic S Red Pa Very Sh	Prairie Redox (A16) (LRR K, L, R) ucky Peat or Peat (S3) (LRR K, L, R) urface (S7) (LRR K, L, M) ue Below Surface (S8) (LRR K, L) park Surface (S9) (LRR K, L) unganese Masses (F12) (LRR K, L, R) unt Floodplain Soils (F19) (MLRA 149B) Spodic (TA6) (MLRA 144A, 145, 149B) rent Material (F21) nallow Dark Surface (TF12) Explain in Remarks)
			vetland hydrology n	nust be present, u	nless disturbed	d or problematic.	
Type:	Layer (if observed	a):					
Depth (in	ches):		_			Hydric Soil I	Present? Yes x No
Remarks:							

Charleston Mixed Use Developmer Project/Site:	nt City/County: Ri	chmond Sampling Date: July 2012			
Applicant/Owner: NYCEDC	Oity/County	State: NY Sampling Point: NE Upland			
	Section, Townsh				
Landform (hillslope, terrace, etc.):	Local relief (concav	e, convex, none): Flat land Slope (%):			
Subregion (LRR or MLRA): La	t:	Long: Datum:			
Soil Map Unit Name: Whethersfield-Ludlow-Wilb	raham Complex	NWI classification: none			
Are climatic / hydrologic conditions on the site typical	for this time of year? Yes	No (If no, explain in Remarks.)			
Are Vegetation, Soil, or Hydrology	significantly disturbed?	Are "Normal Circumstances" present? Yes No			
Are Vegetation, Soil, or Hydrology					
		oint locations, transects, important features, etc			
	No. X Is the Sa	mpled Area			
Hydrophytic Vegetation Present? Yes		Wetland? Yes No X			
Hydric Soil Present? Yes Wetland Hydrology Present? Yes	NO				
Remarks: (Explain alternative procedures here or in	110   11 yes, op	tional Wetland Site ID:			
HYDROLOGY					
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)			
Primary Indicators (minimum of one is required; che	ck all that apply)	Surface Soil Cracks (B6)			
Surface Water (A1)	_ Water-Stained Leaves (B9)	Drainage Patterns (B10)			
High Water Table (A2)	_ Aquatic Fauna (B13)	Moss Trim Lines (B16)			
	_ Marl Deposits (B15)	Dry-Season Water Table (C2)			
	_ Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)			
	Oxidized Rhizospheres on Livin				
	Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)			
	<ul><li>Recent Iron Reduction in Tilled</li><li>Thin Muck Surface (C7)</li></ul>	Soils (C6) Geomorphic Position (D2) Shallow Aquitard (D3)			
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Microtopographic Relief (D4)			
Sparsely Vegetated Concave Surface (B8)	_ Other (Explain in Nemarko)	FAC-Neutral Test (D5)			
Field Observations:		<u> </u>			
Surface Water Present? Yes Nox	Depth (inches):				
Water Table Present? Yes No					
Saturation Present? Yes Nox	Depth (inches):	Wetland Hydrology Present? Yes No X			
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring	well periol photos, provious inone	ections) if available:			
Describe Recorded Data (stream gauge, monitoring	well, aeriai priotos, previous irispe	ections), ii avaliable.			
Remarks:					

<b>/EGETATION</b> – Use scientific names of plan	ts.			Sampling Point: NE Upland
Taga Chachian (Districe)	Absolute			Dominance Test worksheet:
Tree Stratum (Plot size:) 1		Species?		Number of Dominant Species That Are OBL, FACW, or FAC:  (A)
2				Total Number of Dominant
3				Species Across All Strata: 1 (B)
4				Percent of Dominant Species 100
5				That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
		= Total Cover		OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)	)			FACW species x 2 =
1				FAC species x 3 =
2				FACU species x 4 =
3				UPL species x 5 =
4				Column Totals: (A) (B)
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
		= Total Cover		2 - Dominance Test is >50%
Herb Stratum (Plot size: 5 feet )		•		3 - Prevalence Index is ≤3.0 <sup>1</sup>
1 Panicum virgatum	90	Υ	FAC	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Andropogon virginicus 2.	5	F	ACU	Problematic Hydrophytic Vegetation¹ (Explain)
Daucus carota 3.	5		FACU	¹Indicators of hydric soil and wetland hydrology must
4				be present, unless disturbed or problematic.
5				Definitions of Vegetation Strata:
6				Tree – Woody plants 3 in. (7.6 cm) or more in diameter
7				at breast height (DBH), regardless of height.
8				Sapling/shrub – Woody plants less than 3 in. DBH
9.		·		and greater than or equal to 3.28 ft (1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless of
11				size, and woody plants less than 3.28 ft tall.
12.				<b>Woody vines</b> – All woody vines greater than 3.28 ft in
	100	= Total Cover		height.
Woody Vine Stratum (Plot size:)				
1				
2				Hydrophytic
3				Vegetation
4.				
		= Total Cover		
Remarks: (Include photo numbers here or on a separa	te sheet.)			
Subdominant species are non hydric.				
•				

SOIL Sampling Point: NE Upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix			x Features	<u>s</u>	2		
(inches)	Color (moist)	<u></u> %	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks	
0-4	7.5 YR 3/3	100				-	Loam	
4-9	7.5 YR 3/2	100					Sandy loam	
9-15	5 YR 3/3	100					Sandy loam	
		·						
		·					<del>-</del>	
							- , <del></del>	
		·						
	oncentration, D=Dep	letion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.	
Hydric Soil							Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histosol	(A1) pipedon (A2)		Polyvalue Below MLRA 149B		(S8) ( <b>LR</b> R	R,	2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)	)
	istic (A3)		Thin Dark Surfa	,	.RR R, ML	RA 149B		R)
Hydroge	en Sulfide (A4)		Loamy Mucky N	Mineral (F1	) (LRR K		Dark Surface (S7) (LRR K, L, M)	ŕ
	d Layers (A5)	- (0.4.4)	Loamy Gleyed		)		Polyvalue Below Surface (S8) (LRR K, L)	
	d Below Dark Surfac ark Surface (A12)	e (ATT)	Depleted Matrix Redox Dark Su				<ul><li>Thin Dark Surface (S9) (LRR K, L)</li><li>Iron-Manganese Masses (F12) (LRR K, L,</li></ul>	R)
	Mucky Mineral (S1)		Depleted Dark		7)		Piedmont Floodplain Soils (F19) (MLRA 1-	
	Gleyed Matrix (S4)		Redox Depress	sions (F8)			Mesic Spodic (TA6) (MLRA 144A, 145, 14	9B)
-	Redox (S5)						Red Parent Material (F21)	
	l Matrix (S6) rface (S7) (LRR R, N	/II RΔ 149F	8)				Very Shallow Dark Surface (TF12) Other (Explain in Remarks)	
Dark ou	nace (or) (ERR R, II	MENA 1431	•)				Other (Explain in Remarks)	
	f hydrophytic vegetat		tland hydrology mus	st be prese	ent, unless	disturbed	d or problematic.	
	Layer (if observed):							
Type:							x	
Depth (in	ches):						Hydric Soil Present? Yes No _X	_
Remarks:								

Project/Site: Charleston Mixed Use Development City/County:	Staten Island, Richmond Sampling Date: 7/10/12		
Applicant/Owner: NYCEDC	State: NY Sampling Point: NF		
Investigator(s): <u>J. Rollino/M. Smith</u> Section, Town	iship, Range: Charleston		
Landform (hillslope, terrace, etc.): Local relief (conc	· · · · ·		
Subregion (LRR or MLRA): MLRA 149B Lat:			
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex			
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <u>x</u>			
Are Vegetation, Soil, or Hydrology significantly disturbed?	Are "Normal Circumstances" present? Yes <u>x</u> No		
Are Vegetation, Soil, or Hydrology naturally problematic?	(If needed, explain any answers in Remarks.)		
SUMMARY OF FINDINGS – Attach site map showing sampling	point locations, transects, important features, etc.		
Hydric Soil Present?  Yes No  within	Sampled Area a Wetland? Yes <u>I</u> No		
Wetland Hydrology Present? Yes <u>x</u> No If yes,  Remarks: (Explain alternative procedures here or in a separate report.)  Red parent material. Wetland is a depression in former site access road.	optional Wetland Site ID:		
HYDROLOGY			
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)		
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)		
Surface Water (A1) Water-Stained Leaves (B9)	Drainage Patterns (B10)		
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)		
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)		
Water Marks (B1) Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)		
Sediment Deposits (B2) <u>x</u> Oxidized Rhizospheres on L			
Drift Deposits (B3) Presence of Reduced Iron (C			
Algal Mat or Crust (B4) Recent Iron Reduction in Tille			
Iron Deposits (B5) Thin Muck Surface (C7) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks)	Shallow Aquitard (D3) x Microtopographic Relief (D4)		
Sparsely Vegetated Concave Surface (B8)	x FAC-Neutral Test (D5)		
Field Observations:	<u> </u>		
Surface Water Present? Yes No x Depth (inches):			
Water Table Present? Yes No x Depth (inches):			
Saturation Present? Yes No x Depth (inches):	Wetland Hydrology Present? Yes I No		
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous in	enections) if available:		
Describe Recorded Data (Stream gauge, monitoring well, aerial priotos, previous in	spections), ii available.		
Remarks:			

	i.				Sampling Point: N	
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?		Dominance Test worksh	eet:	
1				Number of Dominant Spec That Are OBL, FACW, or I		(4)
2						(A)
3				Total Number of Dominant Species Across All Strata:		(B)
						(=)
4				Percent of Dominant Spec That Are OBL, FACW, or F		(A/B
5					-	
6				Prevalence Index works		
7				Total % Cover of:		
	-	= Total Cov	/er	OBL species		
Sapling/Shrub Stratum (Plot size:)				FACW species FAC species		
1				FACU species		
2				UPL species		
3		-		Column Totals:		
4		-				` ,
5				Prevalence Index =	B/A =	
6				Hydrophytic Vegetation	Indicators:	
7				1 - Rapid Test for Hyd		n
		= Total Cov	/er	x 2 - Dominance Test		
Herb Stratum (Plot size:5' )				3 - Prevalence Index i		
1. Juncus effusus	75	D	OBL	4 - Morphological Ada data in Remarks of		
2. Phragmites australis	5	N	FACW	Problematic Hydrophy	tic Vegetation¹ (E	xplain)
3. Eleocharis obtusa	5	N	OBL	<sup>1</sup> Indicators of hydric soil ar		gy must
4				be present, unless disturbe	ed or problematic.	
5				Definitions of Vegetation	Strata:	
6				Tree – Woody plants 3 in.	(7.6 cm) or more i	n diameter
7				at breast height (DBH), reg	gardless of height.	
8				Sapling/shrub – Woody p		
9				and greater than or equal	, ,	
10				<b>Herb</b> – All herbaceous (non- size, and woody plants less th		rdless of
11						
12				<b>Woody vines</b> – All woody vineight.	ines greater than 3.2	8 ft in
	85	= Total C	Cover			
Woody Vine Stratum (Plot size:)						
1						
2.				Hydrophytic		
3				Vegetation Present? Yes _	x No	
4.						
4		= Total Cov	/ei			

SOIL Sampling Point: NF

Profile Desc	ription: (Describe t	o the dept	h needed to docur	nent the ir	ndicator	or confirm	the absence	of indicators.)
Depth	Matrix		Redo	x Features		•		
(inches)	Color (moist)	<u></u> %	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-1	5YR 3/2	100					Organic ma	terial w/ sand
3-8	7.5YR 4/3	85	7.5YR 4/6	15		sa	nd clay loam	small pieces of red parent material
8-14	7.5YR 5/4	80	7.5 YR 4/6	20			clay loam	gritty
- <u></u>								
¹Type: C=Ce	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	nins.	<sup>2</sup> Location:	: PL=Pore Lining, M=Matrix.
Hydric Soil		,	,					for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1) pipedon (A2)	•	Polyvalue Belov		(S8) ( <b>LRF</b>	2 R,		luck (A10) ( <b>LRR K, L, MLRA 149B</b> ) Prairie Redox (A16) ( <b>LRR K, L, R</b> )
	stic (A3)		Thin Dark Surfa		RR R, ML	.RA 149B)		lucky Peat or Peat (S3) (LRR K, L, R)
	en Sulfide (A4)	•	Loamy Mucky N			L)		urface (S7) ( <b>LRR K, L, M</b> )
	d Layers (A5)	•	Loamy Gleyed I		)			lue Below Surface (S8) (LRR K, L)
	d Below Dark Surface	e (A11)	Depleted Matrix					ark Surface (S9) (LRR K, L)
	ark Surface (A12)		Redox Dark Su	. ,	7)			anganese Masses (F12) (LRR K, L, R)
	Mucky Mineral (S1)		Depleted Dark S		7)			ont Floodplain Soils (F19) (MLRA 149B)
	Bleyed Matrix (S4) Redox (S5)		Redox Depress	ions (Fo)				Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> ) arent Material (F21)
-	Matrix (S6)							hallow Dark Surface (TF12)
	rface (S7) (LRR R, M	LRA 149B	)					Explain in Remarks)
	f hydrophytic vegetati	on and we	tland hydrology mus	t be prese	nt, unless	disturbed	or problematic	
	Layer (if observed):							
Type: Depth (in	ches):						Hydric Soil	Present? Yes No
Remarks:							ı	
Soil in form	ner access road. Wetl	and is a sn	nall, confined depres	ssion.				

Project/Site: Charleston Mixed Use Development City/County:	Staten Island, Richmond Sampling Date: 7/10/12
Applicant/Owner: NYCEDC	State: NY Sampling Point: NG
Investigator(s): _J. Rollino/M. Smith Section, Tow	nship, Range: Charleston
Landform (hillslope, terrace, etc.): Local relief (cor	ncave, convex, none): Flat land Slope (%):
Subregion (LRR or MLRA): MLRA 149B Lat:	
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex	
Are climatic / hydrologic conditions on the site typical for this time of year? Yesx	
Are Vegetation, Soil, or Hydrology significantly disturbed?	Are "Normal Circumstances" present? Yes <u>x</u> No
Are Vegetation, Soilx , or Hydrology naturally problematic?	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling	point locations, transects, important features, etc.
Hydric Soil Present?  Yes x No (see below)  withi	e Sampled Area n a Wetland? Yes <u>x</u> No , optional Wetland Site ID:
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) <u>x</u> Water-Stained Leaves (B9)	
High Water Table (A2) Aquatic Fauna (B13)	x Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
x Water Marks (B1) Hydrogen Sulfide Odor (C1	
Sediment Deposits (B2) Oxidized Rhizospheres on L Drift Deposits (B3) Presence of Reduced Iron (	* ' ' -
Algal Mat or Crust (B4) Recent Iron Reduction in Til	
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks)	
x Sparsely Vegetated Concave Surface (B8)	x FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No _x Depth (inches):	
Water Table Present? Yes No _x Depth (inches):	
Saturation Present? Yes No _x _ Depth (inches):	Wetland Hydrology Present? Yes x No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous i	nspections), if available:
Remarks:	

•	S.			Sampling Point: NG			
Tree Stratum (Plot size: 30' )	Absolute % Cover	Dominant Species?		Dominance Test worksh			
1. Quercus palustris	45	D	FACW	Number of Dominant Spec That Are OBL, FACW, or I			
2				Total Number of Dominan			
3				Species Across All Strata:			
4				Percent of Dominant Spec	ties		
5				That Are OBL, FACW, or I			
6				Duning and an analysis			
7				Prevalence Index worksl  Total % Cover of:			
	45			OBL species			
Sapling/Shrub Stratum (Plot size:)				FACW species			
1				FAC species	x 3 =		
2.				FACU species	x 4 =		
				UPL species	x 5 =		
3				Column Totals:	(A) (		
4				Prevalence Index =	B/A =		
5							
5				Hydrophytic Vegetation 1 - Rapid Test for Hyd			
7				X 2 - Dominance Test i	· · ·		
		= Total Cov	/er	3 - Prevalence Index is ≤3.0¹			
Herb Stratum (Plot size: 5' )	10	D	OBL	4 - Morphological Ada			
1. Scirpus atrovierens			OBL	Problematic Hydrophy	•		
2. Juncus effusus							
3. Agrostis gigantea			FACW	<sup>1</sup> Indicators of hydric soil and be present, unless disturbed			
45				Definitions of Vegetation	•		
6				Tree – Woody plants 3 in.			
7				at breast height (DBH), re			
8				Sapling/shrub – Woody p	plants less than 3 in. DBH		
9				and greater than or equal	to 3.28 ft (1 m) tall.		
40			· ——	Herb – All herbaceous (non-	woody) plants, regardless of		
				size, and woody plants less th	han 3.28 ft tall.		
11				Woody vines – All woody v	ines greater than 3.28 ft in		
12		T-4-1.0		height.			
M. I. V. O. I. V. Pl. I.	49	= Total C	over				
Woody Vine Stratum (Plot size:)							
1				Hydrophytic			
2		-	-	Vegetation	V No		
3				Present? Yes _	X No		
4.	_						
		= Total Cov	/er				

SOIL Sampling Point: NG Wetland

Profile Desc	ription: (Describe	to the de	pth needed to docu	ment the	indicator o	or confirm	n the absence	of indicators.)
Depth	Matrix			ox Feature	<u>s</u> ,	2		
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-3	10 YR 3/2	85	5 YR 3/4	15			Silty sand	
3-10	5 YR 4/6	85	2.5 YR 3/4	15			Silty sand	Depth to refusal - 10"
							· <del></del>	
							. ———	· ———
							· <del></del>	
				· -			· <del></del>	
							· <del></del>	
		_						-
			·					
			·					
¹Tyne: C=Co	oncentration D=De	oletion RN	/=Reduced Matrix, M	IS=Masker		ins	<sup>2</sup> l ocation	n: PL=Pore Lining, M=Matrix.
Hydric Soil		oletion, rai	T Treadded Wattix, IV	io masilet	a Garia Gre			s for Problematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Belo	w Surface	(S8) ( <b>LRR</b>	R,	2 cm l	Muck (A10) ( <b>LRR K, L, MLRA 149B</b> )
	pipedon (A2)		MLRA 149E				Coast	Prairie Redox (A16) ( <b>LRR K, L, R</b> )
Black Hi			Thin Dark Surf					Mucky Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4)		Loamy Mucky			L)		Surface (S7) (LRR K, L, M)
	d Layers (A5) d Below Dark Surfac	re (A11)	Loamy Gleyed Depleted Matri		<u>(</u> )		-	alue Below Surface (S8) (LRR K, L) Dark Surface (S9) (LRR K, L)
-	ark Surface (A12)	C (A11)	Redox Dark St		)			Manganese Masses (F12) (LRR K, L, R)
	lucky Mineral (S1)		Depleted Dark	. ,				nont Floodplain Soils (F19) (MLRA 149B)
-	Bleyed Matrix (S4)		Redox Depres	sions (F8)				Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> )
-	ledox (S5)							Parent Material (F21)
	Matrix (S6) rface (S7) ( <b>LRR R</b> , I	MI DA 140	ND\					Shallow Dark Surface (TF12) (Explain in Remarks)
Daik Su	nace (57) (LKK K,	WILKA 143	<b>16</b> )				Other	(Explain in Remarks)
<sup>3</sup> Indicators of	f hydrophytic vegeta	ition and w	etland hydrology mu	st be pres	ent, unless	disturbed	l or problemati	C.
Restrictive I	_ayer (if observed)	:		-				
Type:			_					
Depth (inc	ches):		_				Hydric Soi	l Present? Yes <u>x</u> No
Remarks:							· L	

Charleston Mixed Use Developme	ent City/County: Rich	nmond	Sampling Date: July 2012
Applicant/Owner:NYCEDC	City/County		
	0 " 7 1		Sampling Point: NG Upland
	Section, Township		0, (0)
Landform (hillslope, terrace, etc.):  MI RB 149B	Local relief (concave,	convex, none): Flat land	Slope (%):
Subregion (LRR or MLRA): MLRB 149B L			
Soil Map Unit Name: Whethersfield-Ludlow-Wi	braham Complex	NWI classific	cation: none
Are climatic / hydrologic conditions on the site typical	al for this time of year? Yes N	No (If no, explain in F	Remarks.)
Are Vegetation, Soil, or Hydrology _	significantly disturbed?	Are "Normal Circumstances"	oresent? Yes No
Are Vegetation, Soil, or Hydrology _	naturally problematic?	(If needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS – Attach site	map showing sampling poi	nt locations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Yes	No X Is the Sam	pled Area	
	No X within a W		No <sup>X</sup>
	v	onal Wetland Site ID:	
Remarks: (Explain alternative procedures here or	3 1 1		
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; ch	eck all that apply)	Surface Soil	
-	Water-Stained Leaves (B9)	Drainage Pa	, ,
	Aquatic Fauna (B13)	Moss Trim L	
Saturation (A3)	Marl Deposits (B15)	Dry-Season	Water Table (C2)
	Hydrogen Sulfide Odor (C1)	Crayfish Bur	
	Oxidized Rhizospheres on Living I		isible on Aerial Imagery (C9)
	Presence of Reduced Iron (C4)		tressed Plants (D1)
	<ul><li>Recent Iron Reduction in Tilled So</li><li>Thin Muck Surface (C7)</li></ul>	Shallow Aqu	Position (D2)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		aphic Relief (D4)
Sparsely Vegetated Concave Surface (B8)		FAC-Neutra	. ,
Field Observations:			
Surface Water Present? Yes No	Depth (inches): Depth (inches):		
Water Table Present? Yes No	Depth (inches):		
Saturation Present? Yes No? (includes capillary fringe)	Depth (inches):	Wetland Hydrology Prese	nt? Yes No X
Describe Recorded Data (stream gauge, monitoring	g well, aerial photos, previous inspec	tions), if available:	
Remarks:			

<b>'EGETATION</b> – Use scientific names of plants	•			Sampling Point: NG Upland
Troo Stratum (Diot size:	Absolute			Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size:)  1		Species?		Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
1				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B
3				
7				Prevalence Index worksheet:
		= Total Co		
Conline/Chruh Ctrotum /Dlot size:		_ = 10tal C0	vei	OBL species x 1 = FACW species x 2 =
Sapling/Shrub Stratum (Plot size:)				FAC species x 3 =
·				FACU species x 4 =
				UPL species x 5 =
3				Column Totals: (A) (B)
l				Prevalence Index = B/A =
5				Hydrophytic Vegetation Indicators:
5				1 - Rapid Test for Hydrophytic Vegetation
7				2 - Dominance Test is >50%
F . C		= Total Co	ver	3 - Prevalence Index is ≤3.0 <sup>1</sup>
Herb Stratum (Plot size: 5 feet ) Juncus tenuis	50	Υ	FAC-	<ul> <li>4 - Morphological Adaptations<sup>1</sup> (Provide supportin data in Remarks or on a separate sheet)</li> </ul>
2				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
3				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
1				be present, unless disturbed or problematic.
5				Definitions of Vegetation Strata:
3				Tree – Woody plants 3 in. (7.6 cm) or more in diamete at breast height (DBH), regardless of height.
7				
3				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
)				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of
0				size, and woody plants less than 3.28 ft tall.
11				<b>Woody vines</b> – All woody vines greater than 3.28 ft in
[2			<u> </u>	height.
Mandy Vina Stratum (Plataina)		= Total Co	ver	
Noody Vine Stratum (Plot size:)				
Smilax rotundifolia	50	Υ	FAC	Hydrophytic
3.				Vegetation   Present?
4	400			
4	100	= Total Co	ver	

SOIL Sampling Point: NG Upland

Profile Desc	ription: (Describe	to the de	pth needed to docu	ment the i	ndicator	or confirm	the absence	of indicators.)
Depth	Matrix			ox Features	<u>s</u>			
(inches) 0-2	Color (moist) 5 YR 2.5/2	<u>%</u> 100	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Friable	Remarks O Horizon
			5 VD 2/4	40				O HOUZOU
2-5	5 YR 4/4	90	5 YR 3/4	10			Sandy loam	
5-9	5 YR 3/4	100					Sandy loam	
9-12	2.5 YR 4/4	100	· ———				Sandy loam	
		_						
		_	- <u></u>					
								-
<sup>1</sup> Type: C=C	oncentration D=Dec	oletion PA	- ∕/I=Reduced Matrix, M	S=Masked	Sand Gr		<sup>2</sup> I ocation	: PL=Pore Lining, M=Matrix.
Hydric Soil		Jietion, ixi	vi–rreduced iviatrix, ivi	0-Masked	oand Ore	aii i 5.		for Problematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Belo		(S8) ( <b>LRF</b>	RR,		Muck (A10) ( <b>LRR K, L, MLRA 149B</b> )
	oipedon (A2) stic (A3)		MLRA 149B Thin Dark Surfa	,	DD D MI	DA 140B		Prairie Redox (A16) (LRR K, L, R)  Mucky Peat or Peat (S3) (LRR K, L, R)
	en Sulfide (A4)		Loamy Mucky					Surface (S7) (LRR K, L, M)
Stratified	d Layers (A5)		Loamy Gleyed	Matrix (F2		,	Polyva	alue Below Surface (S8) (LRR K, L)
	d Below Dark Surface	ce (A11)	Depleted Matri					eark Surface (S9) (LRR K, L)
	ark Surface (A12)  Mucky Mineral (S1)		Redox Dark Su Depleted Dark	. ,	7)			anganese Masses (F12) (LRR K, L, R) ont Floodplain Soils (F19) (MLRA 149B)
	Gleyed Matrix (S4)		Redox Depress		.,			Spodic (TA6) (MLRA 144A, 145, 149B)
-	Redox (S5)							arent Material (F21)
	Matrix (S6) rface (S7) ( <b>LRR R,</b>	MLRA 149	<b>9B</b> )					Shallow Dark Surface (TF12) (Explain in Remarks)
3Indicators o	f bydrophytic ycasta	tion and w	vetland hydrology mu	at ha proce	ant unloca	diaturbad	or problematic	
	Layer (if observed)		vetiand flydrology mu	st be prese	ent, uniess	Guistarbea	or probleman	J.
Type:			_					
Depth (in	ches):		_				Hydric Soil	Present? Yes No _X
Remarks:								

Project/Site: Charleston Mixed Use Development City/Co	ounty: Staten Island, Richmond Sampling Date: 7/10/12
Applicant/Owner: NYCEDC	State: <u>NY</u> Sampling Point: <u>NH</u>
Investigator(s): _J. Rollino/M. Smith Section	n, Township, Range: Charleston
Landform (hillslope, terrace, etc.): Local relie	·
Subregion (LRR or MLRA): MLRA 149B Lat:	
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex	
Are climatic / hydrologic conditions on the site typical for this time of year? Ye	
Are Vegetation, Soil, or Hydrology significantly disturb	
Are Vegetation, Soil _x, or Hydrology naturally problema	tic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?  Yesx No  Hydric Soil Present?  Yesx No  Westland Hydrology Present?	Is the Sampled Area within a Wetland? Yes x No
Wetland Hydrology Present? Yes <u>x</u> No  Remarks: (Explain alternative procedures here or in a separate report.) Rec	If yes, optional Wetland Site ID:
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leave	
High Water Table (A2)  Aquatic Fauna (B13)  And Deposits (B45)	Moss Trim Lines (B16)
<ul><li>x Saturation (A3)</li><li>Water Marks (B1)</li><li>Marl Deposits (B15)</li><li>Hydrogen Sulfide Odo</li></ul>	Dry-Season Water Table (C2) or (C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizosphere	
Drift Deposits (B3) Presence of Reduced	
Algal Mat or Crust (B4) Recent Iron Reduction	
Iron Deposits (B5) Thin Muck Surface (C	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rem	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes Nox Depth (inches):	
Water Table Present? Yes Nox Depth (inches):	
Saturation Present? Yes x No Depth (inches): 10" (includes capillary fringe)	Wetland Hydrology Present? Yes x No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, prev	vious inspections), if available:
Damada	
Remarks:	

	Dominant Species?	Status	Dominance Test workshop Number of Dominant Spec That Are OBL, FACW, or F Total Number of Dominant	ies	
			That Are OBL, FACW, or F		
				·AC:3 (A)	
			Total Number of Dominant		
			Species Across All Strata:	3 (B)	
			Percent of Dominant Speci That Are OBL, FACW, or F		
	- Total Cov	CI			
E	Б	FAC			
			Column Totals:	(A) (B)	
			Prevalence Index = I	R/A =	
			•	· ·	
7	= Total Co	ver	3 - Prevalence Index is ≤3.0 <sup>1</sup>		
			4 - Morphological Ada	ptations <sup>1</sup> (Provide supportin	
25	D	<u>FAC</u>		• • • • • • • • • • • • • • • • • • • •	
25	D	<u>FAC</u>	Problematic Hydrophy	tic Vegetation' (Explain)	
2	N	OBL			
10	N	FACW	•	•	
2	N	OBL	Definitions of Vegetation	Strata:	
2	N	FACW			
2	N	FAC	at breast height (DBH), reg	ardless of neight.	
2	<u>N</u>	FACW			
2	N	NI		, ,	
			height.	nes greater than 3.28 It in	
72	= Total C	over			
			Hydrophytic Vegetation		
				X No	
:	= Total Cov	er			
	5 2 7 25 25 2 10 2 2 2 2 2 2	= Total Cov  5	25         D         FAC           2         N         OBL           10         N         FACW           2         N         OBL           2         N         FACW           2         N         FACW           2         N         NI           72         = Total Cover	Prevalence Index worksh Total % Cover of:  OBL species FACW species FACU species FACU species UPL species UPL species Column Totals:  Prevalence Index = E Hydrophytic Vegetation In 1 - Rapid Test for Hydr X 2 - Dominance Test i 3 - Prevalence Index is 4 - Morphological Adar data in Remarks or Problematic Hydrophytic N OBL N FACW N OBL N FACW N OBL N FACW N FACW N FACW Sapling/shrub – Woody plants 3 in . ( at breast height (DBH), reg Sapling/shrub – Woody plant greater than or equal to Herb – All herbaceous (non-vsize, and woody plants less th Woody vines – All woody vinheight.  Tese – Woody plants 1 in . ( at breast height (DBH), reg Woody vines – All woody vinheight.  Hydrophytic Vegetation Present? Yes	

SOIL Sampling Point: NH

Depth	Matrix	%		<u>x Features</u> 		12	Toutium
(inches)	Color (moist)		Color (moist)	<u>%</u>	Type	LOC	Texture Remarks
0-1	7.5YR3/2	100					Organic w/ trace silt
1-5	7.5YR4/2	80	5YR3/4	2 0	<u>C</u>	M	Silty clay loam
5-8	7.5YR4/3	85	7.5YR3/4	15	<u>C</u>	M	Silty clay loam
8-16	7.5YR4/2	50	7.5YR5/6	35	C	M	Silty clay loam
			7.5YR5/1	1 5		M	
	-	_	· .				
Type: C=C	Concentration D=Dec	oletion PA	 ∕/=Reduced Matrix, M	S=Macked	Sand Gr		Location: PL=Pore Lining, M=Matrix.
	Indicators:	piction, ren	n-reduced Matrix, W	O-Maskea	Odrid Ore	JII 13.	Indicators for Problematic Hydric Soils <sup>3</sup> :
Histoso			Polyvalue Belo		S8) ( <b>LRF</b>	RR,	2 cm Muck (A10) (LRR K, L, MLRA 149B
	pipedon (A2) listic (A3)		MLRA 149B Thin Dark Surfa	•	RRR MI	RΔ 149	<ul><li>Coast Prairie Redox (A16) (LRR K, L, R)</li><li>5 cm Mucky Peat or Peat (S3) (LRR K, L,</li></ul>
	en Sulfide (A4)		Loamy Mucky I				Dark Surface (S7) (LRR K, L, M)
	ed Layers (A5)		Loamy Gleyed				Polyvalue Below Surface (S8) (LRR K, L)
	ed Below Dark Surface	ce (A11)	X Depleted Mat	` ,			Thin Dark Surface (S9) (LRR K, L)
	Park Surface (A12) Mucky Mineral (S1)		Redox Dark Su Depleted Dark		7)		<pre> Iron-Manganese Masses (F12) (LRR K, L Piedmont Floodplain Soils (F19) (MLRA 1</pre>
	Gleyed Matrix (S4)		Redox Depress		,		Mesic Spodic (TA6) (MLRA 144A, 145, 1
-	Redox (S5)						Red Parent Material (F21)
	d Matrix (S6) urface (S7) ( <b>LRR R</b> ,	MLRA 149	<b>9B</b> )				<ul><li>Very Shallow Dark Surface (TF12)</li><li>Other (Explain in Remarks)</li></ul>
Indicators o	of hydrophytic vegeta	ation and v	vetland hydrology mus	st be preser	nt. unless	s disturbe	ed or problematic.
	Layer (if observed)				.,		
Type:			_				
Depth (ir	nches):						Hydric Soil Present? Yes X No
Remarks:							

Project/Site: Charleston Mixe	d Use Development	City/C	County: Staten Island	d, Richmond	Sampling Date: 7/9/12			
Applicant/Owner:NYCEDC				State: NY	Sampling Point: NH (upland)			
Investigator(s): J. Rollino/M. Sn	nith	Section	on, Township, Range:	: Charleston				
Landform (hillslope, terrace, etc.			-		Slope (%):			
Subregion (LRR or MLRA): ML								
Soil Map Unit Name: Whethers								
Are climatic / hydrologic conditio		-						
Are Vegetation, Soil				rmal Circumstances" p	present? Yes <u>x</u> No			
Are Vegetation, Soil	`, or Hydrology	naturally problem	atic? (If neede	ed, explain any answe	rs in Remarks.)			
SUMMARY OF FINDING	S – Attach site	map showing san	npling point loc	ations, transects	, important features, etc			
Hydrophytic Vegetation Presen			Is the Sampled Ar within a Wetland?		No x			
Hydric Soil Present? Wetland Hydrology Present?		No x No x	If you optional Wot					
Remarks: (Explain alternative			Red parent material.	tland Site ID:				
HYDROLOGY								
Wetland Hydrology Indicator	s:			Secondary Indica	ators (minimum of two required)			
Primary Indicators (minimum o	f one is required; ch	eck all that apply)		Surface Soil	Cracks (B6)			
Surface Water (A1)	_	Water-Stained Leave	es (B9)	Drainage Pa				
High Water Table (A2)		Aquatic Fauna (B13)	l	Moss Trim Lines (B16)				
Saturation (A3)		Marl Deposits (B15)			Water Table (C2)			
Water Marks (B1)		Hydrogen Sulfide Od		Crayfish Buri				
Sediment Deposits (B2)		_ Oxidized Rhizospher			isible on Aerial Imagery (C9)			
Drift Deposits (B3) Algal Mat or Crust (B4)		<ul><li>Presence of Reduce</li><li>Recent Iron Reduction</li></ul>			tressed Plants (D1) Position (D2)			
Iron Deposits (B5)		Thin Muck Surface (		Shallow Aqui				
Inundation Visible on Aeria		Other (Explain in Re			aphic Relief (D4)			
Sparsely Vegetated Conca		_	,	FAC-Neutral				
Field Observations:					··			
Surface Water Present?	Yes Nox	Depth (inches):						
Water Table Present?	Yes No _x	Depth (inches):						
Saturation Present?	Yes Nox	Depth (inches):	Wetla	nd Hydrology Presen	nt? Yes No x			
(includes capillary fringe)  Describe Recorded Data (streat	am gauge, monitorin	g well, aerial photos, pre	evious inspections), if	available:				
,		, , ,	, ,,					
Remarks:								

	Absolute	Dominant	Indicator			
Tree Stratum (Plot size: 30' )		Species?		Dominance Test worksh		
				Number of Dominant Sper That Are OBL, FACW, or		
				Total Number of Dominan	t	
				Species Across All Strata:		
				Percent of Dominant Spec	cies	
				That Are OBL, FACW, or		
				Prevalence Index works		
		= Total Cov		Total % Cover of: OBL species		
anling/Shruh Stratum (Diet size: 15)		- Total Cov	Ci	FACW species		
apling/Shrub Stratum (Plot size: 15'  Betula populifolia	25	Б	FAC	FAC species		
			·	FACU species		
				UPL species		
					(A) (B)	
				Drovolenes Index	D/A =	
·				Prevalence Index =		
				Hydrophytic Vegetation		
				1 - Rapid Test for Hyd		
		= Total Cov	er	X 2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0 <sup>1</sup>		
lerb Stratum (Plot size: 5' )					ıs ≤3.0 aptations¹ (Provide supportin	
Symphphyotrichum sp.	2	N	NI	data in Remarks o	r on a separate sheet)	
Juncus tenuis	5	Ν	FAC	Problematic Hydrophy	ytic Vegetation <sup>1</sup> (Explain)	
Agrostis gigantea	10	D	FACW	<sup>1</sup> Indicators of hydric soil a	nd wetland hydrology must	
Euthamia gramnifolia	5	N	FAC	be present, unless disturb		
Andropogon virginicus	10		FACU	Definitions of Vegetation	n Strata:	
Potentilla sp.	10		NI	_	(7.6 cm) or more in diamete	
Pinus thunbergii	2	N	NI	at breast height (DBH), re		
·				Sapling/shrub – Woody p	plants less than 3 in DRH	
				and greater than or equal		
l <u> </u>				Herb – All herbaceous (non	-woody) plants, regardless of	
0				size, and woody plants less t		
1				Woody vines – All woody v	rines greater than 3.28 ft in	
2				height.		
	44=	= Total Cove	er			
Voody Vine Stratum (Plot size:15' )		_				
Smilax rotundifolia	10	D	FAC			
				Hydrophytic Vegetation		
					X No	
	10	= Total Cov	er			
·						

SOIL Sampling Point: NH (upland)

Profile Desc	cription: (Describe	to the de	pth needed to docu	ment the i	ndicator o	r confirm	the absence of in	dicators.)
Depth	Matrix	0/		x Features	<u>s</u> _ 1	. 2		
(inches) 0-8	Color (moist) 7.5YR5/6	100	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Clay loam	Remarks
	_		EVD 4/0					
8-12	7.5YR5/6	80	5YR4/6	20			Clay loam	·
12-16	5YR4/6	_60	5YR5/4	_40_			Clay loam	
		_						
		_						•
		-						
		-						
1-Type: C=Cer	acontration D=Danie	tion DM	- Doduced Metrix MC	-Maakad 9	Cond Crain		<sup>2</sup> l costion: DI =I	Pore Lining, M=Matrix.
Hydric Soil In		ellori, Rivi-	=Reduced Matrix, MS	-iviaskeu s	Sanu Gran	is.		oblematic Hydric Soils <sup>3</sup> :
Histosol (			Polyvalue Below	Surface (	S8) ( <b>LRR F</b>	₹,		A10) (LRR K, L, MLRA 149B)
	pedon (A2)		MLRA 149B)					Redox (A16) ( <b>LRR K, L, R</b> )
Black His	tic (A3) Sulfide (A4)		Thin Dark Surfac Loamy Mucky M			,	-	Peat or Peat (S3) ( <b>LRR K, L, R</b> ) (S7) ( <b>LRR K, L, M</b> )
stratified			Loamy Gleyed M		(LKK K, L	-)		How Surface (S8) (LRR K, L)
	Below Dark Surface	(A11)	Depleted Matrix				Thin Dark Su	rface (S9) (LRR K, L)
	k Surface (A12)		Redox Dark Surf	, ,			_	ese Masses (F12) (LRR K, L, R)
	ucky Mineral (S1) eyed Matrix (S4)		Depleted Dark S Redox Depression	•	)			odplain Soils (F19) ( <b>MLRA 149B</b> ) c (TA6) ( <b>MLRA 144A, 145, 149B</b> )
Sandy Re				) (1 O)			Red Parent N	
Stripped I	Matrix (S6)						Very Shallow	Dark Surface (TF12)
Dark Surf	ace (S7) (LRR R, MI	LRA 149E	3)				Other (Explai	n in Remarks)
Indicators of I	hydrophytic vegetation	on and we	etland hydrology must	be presen	nt, unless d	isturbed o	r problematic.	
Restrictive La	ayer (if observed):			-				
Type:			_					
	nes):		_				Hydric Soil Prese	nt? Yes No <u>x</u>
Remarks:								

Project/Site: Charleston Mixed Use Development	City/County: Sta	ten Island, Richmond	Sampling Date: <u>7/11/12</u>
Applicant/Owner: NYCEDC		State: NY	Sampling Point: NI
Investigator(s): _J. Rollino/M. Smith	Section, Township	o, Range: Charleston	
Landform (hillslope, terrace, etc.):		_	
Subregion (LRR or MLRA): MLRA 149B La			
Soil Map Unit Name: Whethersfield-Ludlow-Wilbral			
Are climatic / hydrologic conditions on the site typical	•		
Are Vegetation, Soil, or Hydrology			present? Yes x No
Are Vegetation, Soil, or Hydrology	naturally problematic?	(If needed, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site	map showing sampling po	int locations, transects	, important features, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  YesX	No within a V	npled Area Vetland? Yes x ional Wetland Site ID:	
Remarks: (Explain alternative procedures here or i boundary.	n a separate report.) Wetland was	mostly devoid of vegetation ex	cept at the perimeter of the wetland
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; che	eck all that apply)	Surface Soil	Cracks (B6)
Surface Water (A1)	Water-Stained Leaves (B9)	Drainage Pa	atterns (B10)
High Water Table (A2)	_ Aquatic Fauna (B13)	Moss Trim Li	nes (B16)
Saturation (A3)	_ Marl Deposits (B15)	Dry-Season	Water Table (C2)
	_ Hydrogen Sulfide Odor (C1)	Crayfish Bu	rrows (C8)
	<ul> <li>Oxidized Rhizospheres on Living</li> </ul>		
	Presence of Reduced Iron (C4)		tressed Plants (D1)
	Recent Iron Reduction in Tilled S		
Iron Deposits (B5)	_ Thin Muck Surface (C7)	Shallow Aqui	
	_ Other (Explain in Remarks)	Microtopogra	
x Sparsely Vegetated Concave Surface (B8)		FAC-Neutra	Il Test (D5)
Field Observations:	Double (Smale and)		
Surface Water Present? Yes No _x			
	Depth (inches):	Motley d Hudgele au Due e a	42 Vaa 11 Na
Saturation Present? Yes x No (includes capillary fringe)	Depth (inches): Surface	Wetland Hydrology Presen	t? Yes <u>x</u> No
Describe Recorded Data (stream gauge, monitoring	g well, aerial photos, previous inspe	ctions), if available:	
Remarks:			
Terrains.			

<b>VEGETATION - Use</b>	scientific names	of plants
-------------------------	------------------	-----------

EGETATION – Use scientific names of plants				Sampling Point: NI
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
. Quercus palustris				Number of Dominant Species That Are OBL, FACW, or FAC: (A)
Populous tremuloides				
				Total Number of Dominant Species Across All Strata: 0 (B)
				Percent of Dominant Species
				That Are OBL, FACW, or FAC: (A/B)
				2
				Prevalence Index worksheet:
		= Total Co		
apling/Shrub Stratum (Plot size: 15'		. Total oc	,,,,,	FACW species 4 x 2 = 8
Viburnum dentatum	2	N	FAC	FAC species 4 x 3 = 12
Vaccinium corymbosum			FACW	FACU species 2 x 4 = 8
				UPL species x 5 =
Salix sp.				Column Totals: <u>12</u> (A) <u>30 (B)</u>
Cephalanthus occidentalis				Prevalence Index = B/A = 2.5
_				
				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation
_				2 - Dominance Test is >50%
	8	= Total Co	over	 _x 3 - Prevalence Index is ≤3.0
erb Stratum (Plot size:)				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
				data in Remarks or on a separate sheet)
		-		Problematic Hydrophytic Vegetation¹ (Explain)
-				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
-				be present, unless disturbed or problematic.
				Definitions of Vegetation Strata:
				Tree – Woody plants 3 in. (7.6 cm) or more in diameter
				at breast height (DBH), regardless of height.
				Sapling/shrub – Woody plants less than 3 in. DBH
				and greater than or equal to 3.28 ft (1 m) tall.
0				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
1				
2.				<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
		= Total Cov	ver	
/oody Vine Stratum (Plot size:15' )		•		
. Smilax rotundifolia	2	N	FAC	
			. <u> </u>	Hydrophytic
				Vegetation Present? Yes x No
	2	= Total Co	· · · · · · · · · · · · · · · · · · ·	
				lt in the majority of this wetland, vegetation only found at pe

SOIL Sampling Point: NI

Profile Desc	ription: (Describe t	to the de	pth needed to docur	nent the i	ndicator	or confirm	n the absence of indicators.)	
Depth	Matrix			x Features	<u>s</u>	2		
(inches)	Color (moist)	%	Color (moist)		Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks	
0-1	7.5YR3/1	100					organic	
1-6	7.5YR3/2	50	7.5YR4/4	50	C	M	Silty clay loam with trace sand	
6-16	7.5YR4/2	55	7.5YR3/4	40	<u> </u>	M	Silty clay loam with trace sand; hydrogen sulfice	de odor
			7.5YR4/6	_ 5	<u> </u>	M	·	
							-	
							· <del></del>	
		etion, RM	I=Reduced Matrix, M	S=Masked	Sand Gra	ins.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.	
Hydric Soil							Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histosol	(A1) Dipedon (A2)		Polyvalue Below		(S8) ( <b>LRR</b>	R,	<ul> <li>2 cm Muck (A10) (LRR K, L, MLRA 14</li> <li>Coast Prairie Redox (A16) (LRR K, L,</li> </ul>	
Black Hi			Thin Dark Surfa	,	.RR R, ML	.RA 149B)		
	en Sulfide (A4)		Loamy Mucky	Mineral (F	1) ( <b>LRR k</b>		Dark Surface (S7) (LRR K, L, M)	
	l Layers (A5)	(444)	Loamy Gleyed		)		Polyvalue Below Surface (S8) (LRR K,	L)
	d Below Dark Surface ark Surface (A12)	e (A11)	<ul><li>x Depleted Matr</li><li>Redox Dark Su</li></ul>				<ul><li>Thin Dark Surface (S9) (LRR K, L)</li><li>Iron-Manganese Masses (F12) (LRR K</li></ul>	(. L. R)
	fucky Mineral (S1)		Depleted Dark	. ,			Piedmont Floodplain Soils (F19) (MLR	
-	Bleyed Matrix (S4)		Redox Depress	ions (F8)			Mesic Spodic (TA6) (MLRA 144A, 145	, 149B)
-	Redox (S5)						Red Parent Material (F21)	
	Matrix (S6) rface (S7) ( <b>LRR R, M</b>	ILRA 149	<b>B</b> )				<ul><li>Very Shallow Dark Surface (TF12)</li><li>Other (Explain in Remarks)</li></ul>	
	f hydrophytic vegetat -ayer (if observed):	ion and w	etland hydrology mus	st be prese	ent, unless	disturbed	d or problematic.	
Type:	zayor (ii oboci voa).							
	ches):		_				Hydric Soil Present? Yes x No	<u> </u>
Remarks:								

Project/Site: Charleston Mixed Use Development City/C	ounty: Staten Island, Richmond Sa	mpling Date: <u>7/9/12</u>		
Applicant/Owner:NYCEDC	State: NY S	sampling Point: NI (upland)		
Investigator(s): J. Rollino/M. Smith Section	n, Township, Range: <u>Charleston</u>			
Landform (hillslope, terrace, etc.): Local rel	ief (concave, convex, none): Flat land	Slope (%):		
Subregion (LRR or MLRA): MLRA 149B Lat:				
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex				
Are climatic / hydrologic conditions on the site typical for this time of year? Y				
		•		
Are Vegetation, Soil, or Hydrology significantly distur				
Are Vegetation, Soil, or Hydrology naturally problems	atic? (If needed, explain any answers in	Remarks.)		
SUMMARY OF FINDINGS - Attach site map showing sam	npling point locations, transects, in	nportant features, etc.		
Hydrophytic Vegetation Present?  Yesx No  Hydric Soil Present?  Yesx No  Wetland Hydrology Present?  Yes No x	Is the Sampled Area within a Wetland?  If yes, optional Wetland Site ID:			
Remarks: (Explain alternative procedures here or in a separate report.)	in yes, optional vveitand one ib.			
HYDROLOGY				
Wetland Hydrology Indicators:	Secondary Indicators	(minimum of two required)		
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cra	cks (B6)		
Surface Water (A1) Water-Stained Leave	es (B9) Drainage Patterr	ıs (B10)		
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines	Moss Trim Lines (B16)		
Saturation (A3) Marl Deposits (B15)	Dry-Season Wat	er Table (C2)		
Water Marks (B1) Hydrogen Sulfide Od	or (C1) Crayfish Burrows	s (C8)		
Sediment Deposits (B2) Oxidized Rhizosphere	es on Living Roots (C3) Saturation Visible	e on Aerial Imagery (C9)		
Drift Deposits (B3) Presence of Reduced	d Iron (C4) Stunted or Stress	sed Plants (D1)		
Algal Mat or Crust (B4) Recent Iron Reductio	on in Tilled Soils (C6) Geomorphic Pos	sition (D2)		
Iron Deposits (B5) Thin Muck Surface (C	C7) Shallow Aquitard	I (D3)		
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rer		c Relief (D4)		
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Tes	st (D5)		
Field Observations:				
Surface Water Present? Yes Nox Depth (inches):				
Water Table Present? Yes Nox Depth (inches):				
Saturation Present? Yes Nox Depth (inches): (includes capillary fringe)	Wetland Hydrology Present?	Yes No x		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:			
Remarks:				
Terrains.				

				1	
Tree Stratum (Plot size:30' )	Absolute % Cover		Indicator Status	Dominance Test worksh	
				Number of Dominant Spe That Are OBL, FACW, or	
i				Total Number of Dominan Species Across All Strata:	
				Percent of Dominant Spec	ripe
i				That Are OBL, FACW, or	
5					
·				Prevalence Index works	
		= Total Co		Total % Cover of:	
Canling/Chrub Ctratum /Diet eine 45'		- Total Co	ivei	OBL species	
Sapling/Shrub Stratum (Plot size: 15'				FAC species	
				FACU species	
				UPL species	
i				Column Totals:	
·				Drawalawaa laday —	D/A -
i				Prevalence Index =	
5				Hydrophytic Vegetation	
·,				1 - Rapid Test for Hyd	
		= Total Co	ver	x 2 - Dominance Test 3 - Prevalence Index	
Herb Stratum (Plot size: 5' )				3 - Prevalence Index 4 - Morphological Ada	
. Juncus tenuis	50	D	FAC	data in Remarks o	r on a separate sheet)
2. Solidago rugosa	5	N	FAC	Problematic Hydroph	ytic Vegetation¹ (Explain
3. Juncus canadensis	_ 1_	N	OBL	<sup>1</sup> Indicators of hydric soil a	
1		-		be present, unless disturb	•
5				Definitions of Vegetation	n Strata:
5				<b>Tree</b> – Woody plants 3 in. at breast height (DBH), re	
7				Sapling/shrub – Woody	
3				and greater than or equal	
) 10.				<b>Herb</b> – All herbaceous (non	-woody) plants, regardless
10 11				size, and woody plants less t	han 3.28 ft tall.
12.				<b>Woody vines</b> – All woody vineight.	ines greater than 3.28 ft in
		= Total Co	ver		
Noody Vine Stratum (Plot size: 15' )					
. Smilax rotundifolia	50	D	FAC		
2				Hydrophytic Vegetation	
3					x No
4					
	50	= Total (	Cover		
Remarks: (Include photo numbers here or on a separat					

SOIL Sampling Point: NI (upland)

Profile Desc	ription: (Describe	to the dep	oth needed to docur	nent the i	ndicator	or confirm	the absence of indicators.)
Depth	Matrix		Redo	x Features	8		
(inches)	Color (moist)	<u></u> %	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks
0-1	7.5YR3/2	100					Organic
1-6	7.5YR4/2	85	7.5YR4/4	15	<u>C</u>	_M	Silt loam with trace sand
6-12	7.5YR4/3	90	7.5YR3/4	10	<u>C</u>	M	Silt loam with trace sand
12+	refusal						
		oletion, RM	=Reduced Matrix, MS	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Belov		(S8) ( <b>LRF</b>	RR,	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	oipedon (A2) stic (A3)		MLRA 149B Thin Dark Surfa	,	RRR MI	RA 149R)	Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
	en Sulfide (A4)		Loamy Mucky N				Dark Surface (S7) (LRR K, L, M)
	d Layers (A5)		Loamy Gleyed			, ,	Polyvalue Below Surface (S8) (LRR K, L)
Depleted	d Below Dark Surfac	ce (A11)	Depleted Matrix	(F3)			Thin Dark Surface (S9) (LRR K, L)
	ark Surface (A12)		Redox Dark Su	, ,			Iron-Manganese Masses (F12) (LRR K, L, R)
	Mucky Mineral (S1)		Depleted Dark		7)		Piedmont Floodplain Soils (F19) (MLRA 149B)
-	Gleyed Matrix (S4)		Redox Depress	ions (F8)			Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
-	Redox (S5)						Red Parent Material (F21) Very Shallow Dark Surface (TF12)
	l Matrix (S6) rface (S7) ( <b>LRR R,</b> l	MLRA 149	<b>B</b> )				Other (Explain in Remarks)
<sup>3</sup> Indicators of	f hydrophytic vegeta	ition and w	etland hydrology mus	st be prese	ent, unless	s disturbed	or problematic.
	Layer (if observed)	:					
Type:							
Depth (inc	ches):		•				Hydric Soil Present? Yes <u>x</u> No
Remarks:							

Project/Site: Charleston Mixed Use Development City/Con	unty: Staten Island, Richmond Sampling Date: 7/12/12
Applicant/Owner: NYCEDC	State: NY Sampling Point: NJ
Investigator(s): _J. Rollino/M. Smith Section	, Township, Range: Charleston
Landform (hillslope, terrace, etc.): Local relie	
Subregion (LRR or MLRA): MLRA 149B Lat:	
Cail Man Unit Name: Whathersfield Ludley Willsraham Compley	NW/ classification, wetland not mapped
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex	
Are climatic / hydrologic conditions on the site typical for this time of year? Ye	
Are Vegetation, Soil, or Hydrology significantly disturbed	
Are Vegetation, Soilx, or Hydrology naturally problema	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing samp	oling point locations, transects, important features, etc.
Hydric Soil Present?  Yes X  No	Is the Sampled Area within a Wetland?  Yes x No  If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	ii yes, optional Wetland Site ID.
Problematic hydric soils; red parent material.	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves	s (B9) <u>x</u> Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
<u>x</u> Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor	
Sediment Deposits (B2) Oxidized Rhizospheres	
Drift Deposits (B3) Presence of Reduced	
Algal Mat or Crust (B4) Recent Iron Reduction	
Iron Deposits (B5) Thin Muck Surface (C7	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rema	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	
Water Table Present? Yes No x Depth (inches):	O" Westend Hydrology Dyscont 2 Voc. v. No.
Saturation Present? Yes <u>x</u> No Depth (inches): >1: (includes capillary fringe)	2" Wetland Hydrology Present? Yes <u>x</u> No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous	ious inspections), if available:
Remarks: Depression; man-made pond approximately 7 meters in diameter.	
Tremund. Depression, main made point approximately 7 meters in diameter.	

Tree Stratum (Plot size:)	Absolute	Dominant Species?		Dominance Test workshe	et:	
1				Number of Dominant Speci		<b>(A)</b>
2				That Are OBL, FACW, or F	AC: <u>1</u>	(A)
3				Total Number of Dominant Species Across All Strata:	1	(B)
						(=)
4 5				Percent of Dominant Speci That Are OBL, FACW, or F		(A/E
5						`
6				Prevalence Index worksh		
7				Total % Cover of:		
0 1 (0) 1 0 1 (0)		= Total Cov	/er	OBL species FACW species		
Sapling/Shrub Stratum (Plot size:)				FAC species		
1				FACU species		
2				UPL species		
3				Column Totals:		
4				Danielana ladar 5	2/4	
5			<u> </u>	Prevalence Index = E		
6		-		Hydrophytic Vegetation I		
7				1 - Rapid Test for Hydr		
		= Total Cov	/er	<ul> <li>x 2 - Dominance Test is &gt;50%</li> <li>3 - Prevalence Index is ≤3.0¹</li> </ul>		
Herb Stratum (Plot size:)				4 - Morphological Adap		ortina
1. Cyperus esculentus	40	D	FACW	data in Remarks or	on a separate sheet)	orting
2. Phragmites australis	_10	N	FACW	Problematic Hydrophyt	ic Vegetation¹ (Explair	1)
3. Juncus effusus	2	N	OBL	<sup>1</sup> Indicators of hydric soil an	d wetland hydrology m	ust
4. Eleocharis obtusa	<1	N	OBL	be present, unless disturbe	d or problematic.	
5				Definitions of Vegetation	Strata:	
6				Tree – Woody plants 3 in. (	7 6 cm) or more in dia	meter
7				at breast height (DBH), reg	ardless of height.	
8				Sapling/shrub – Woody pl	ants less than 3 in. DB	Н
9.				and greater than or equal to	3.28 ft (1 m) tall.	
10.				<b>Herb</b> – All herbaceous (non-v		of
11			·	size, and woody plants less th	an 3.28 ft tall.	
				Woody vines – All woody vin	nes greater than 3.28 ft in	
12		- Total C	20105	height.		
Manda Vine Otenham (Districts	52	= Total C	Jovei			
Woody Vine Stratum (Plot size:)						
1				Hydrophytic		
2				Vegetation	N	
3				Present? Yes	x No	
4		= Total Cov				

SOIL Sampling Point: NJ

Depth	Matrix	•	Redox Feature	s			•
(inches)	Color (moist)	%	Color (moist) %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-9	5YR 2/1	100				Silty sand with o	rganic material
9-16	5YR 4/4	100				Sand loam with	gravel
			·				
1 <sub>Tyrac</sub> , C=Ca	noontrotion D-Don	lotion DM	-Dadusad Matrix, MC-Maskas			<sup>2</sup> l costion: F	DI - Doro Lining M-Matrix
Hydric Soil I		ietion, Rivi	=Reduced Matrix, MS=Masked	i Sand Gra	airis.		PL=Pore Lining, M=Matrix.  r Problematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Below Surface	(S8) ( <b>LRF</b>	RR,		k (A10) (LRR K, L, MLRA 149B)
	ipedon (A2)		MLRA 149B)	`	,		airie Redox (A16) ( <b>LRR K, L, R</b> )
Black His	` '		Thin Dark Surface (S9) (I			. —	ky Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4)		Loamy Mucky Mineral (F		, <b>L</b> )		ace (S7) (LRR K, L, M)
	Layers (A5) Below Dark Surface	e (A11)	<ul><li>Loamy Gleyed Matrix (F2</li><li>Depleted Matrix (F3)</li></ul>	.)			Below Surface (S8) (LRR K, L) Surface (S9) (LRR K, L)
	rk Surface (A12)	(,,,,	Redox Dark Surface (F6)				ganese Masses (F12) (LRR K, L, R)
	ucky Mineral (S1)		Depleted Dark Surface (F	7)			Floodplain Soils (F19) (MLRA 149B)
	leyed Matrix (S4)		Redox Depressions (F8)				odic (TA6) ( <b>MLRA 144A, 145, 149B</b> )
	edox (S5) Matrix (S6)						nt Material (F21) llow Dark Surface (TF12)
	urface (S7) (LRR R,	MLRA 14	9B)				xplain in Remarks)
	, , , ,		,				,
			etland hydrology must be prese	ent, unless	disturbed	or problematic.	
	ayer (if observed):						
Type:	In a a No					Uhadala Oali Ba	Y
Depth (inc	enes):					Hydric Soil Pro	esent? Yes X No
Remarks:							

Project/Site: Charleston Mix	ed Use Developme	nt City/C	ounty: Staten Island, Richr	mond S	ampling Date: 7/12/12		
Applicant/Owner: NYCEDC				State: NY	Sampling Point: NJ (upland)		
Investigator(s): J. Rollino/M. S	mith	Section	n, Township, Range: Charle	eston			
Landform (hillslope, terrace, etc			·		Slope (%):		
Subregion (LRR or MLRA): MI							
			_				
Soil Map Unit Name: Whether							
Are climatic / hydrologic condition	•	•		no, explain in Re	marks.)		
Are Vegetation, Soil	, or Hydrology	significantly distur	bed? Are "Normal Ci	rcumstances" pre	sent? Yes x No		
Are Vegetation, Soil	, or Hydrology	naturally problema	atic? (If needed, exp	lain any answers	in Remarks.)		
SUMMARY OF FINDING	3S – Attach sit	e map showing sam	pling point locations	s, transects, i	mportant features, etc.		
Hydrophytic Vegetation Prese Hydric Soil Present?		x No No x	Is the Sampled Area within a Wetland?	Yes	No x		
Wetland Hydrology Present?	Yes	No x	If yes, optional Wetland Si	te ID:			
LIVEROLOGY							
HYDROLOGY							
Wetland Hydrology Indicato					rs (minimum of two required)		
Primary Indicators (minimum	of one is required; o			_ Surface Soil Cr			
Surface Water (A1)		Water-Stained Leave		_ Drainage Patte			
High Water Table (A2)		Aquatic Fauna (B13)		Moss Trim Lines (B16) Dry-Season Water Table (C2)			
Saturation (A3)		Marl Deposits (B15)					
Water Marks (B1) Sediment Deposits (B2)		<ul><li>Hydrogen Sulfide Odd</li><li>Oxidized Rhizosphere</li></ul>		Crayfish Burrov	ole on Aerial Imagery (C9)		
Orift Deposits (B3)		Presence of Reduced			ssed Plants (D1)		
Algal Mat or Crust (B4)		Recent Iron Reductio		_ Geomorphic Po			
Iron Deposits (B5)		Thin Muck Surface (C		_ Shallow Aquitar			
Inundation Visible on Aer		Other (Explain in Ren		Microtopograph			
Sparsely Vegetated Cond				_ FAC-Neutral Te			
Field Observations:							
Surface Water Present?	Yes No _	x Depth (inches):					
Water Table Present?	Yes No _	x Depth (inches):					
Saturation Present? (includes capillary fringe)	Yes No _	x Depth (inches):	Wetland Hyd	rology Present?	Yes No x		
Describe Recorded Data (stre	am gauge, monitor	ing well, aerial photos, pre	I vious inspections), if availat	ole:			
Demodes							
Remarks:							

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?		Dominance Test worksho		
1. Fraxinus pennsylcanica	10	D	FACW	Number of Dominant Spec That Are OBL, FACW, or F		(/
2. Polonia tomentosa	5	D	NI		·	(,
3				Total Number of Dominant Species Across All Strata:		(B
i				Percent of Dominant Spec	ioc	
i				That Are OBL, FACW, or F		00(/
5						
				Prevalence Index worksh		
,	15			Total % Cover of:  OBL species		
Sapling/Shrub Stratum (Plot size: 15'		_ Total	OOVCI	FACW species		
				FAC species		
				FACU species		
1.				UPL species	x 5 =	
				Column Totals:	(A)	(I
·				Prevalence Index =	B/A =	
i						
·				Hydrophytic Vegetation		ation
				1 - Rapid Test for Hyd _x 2 - Dominance Test i		alion
		= Total Co	/er	$\frac{1}{2}$ 3 - Prevalence Index is $\leq 3.0^{1}$		
lerb Stratum (Plot size: 5' )				4 - Morphological Ada	ptations <sup>1</sup> (Prov	ide support
				data in Remarks or	•	,
2		-		Problematic Hydrophy	rtic Vegetation <sup>1</sup>	(Explain)
3				Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
k				be present, unless disturbe	ed or problema	tic.
5				Definitions of Vegetation	Strata:	
S				Tree – Woody plants 3 in.		
				at breast height (DBH), req	gardless of heig	ght.
l <u> </u>				Sapling/shrub – Woody p		
)				and greater than or equal	` ′	
0.				Herb – All herbaceous (non-		regardless of
1				size, and woody plants less th	1an 5.28 It tail.	
2				<b>Woody vines</b> – All woody vineight.	ines greater than	3.28 ft in
		= Total Co	/er	neight.		
Voody Vine Stratum (Plot size:15')		. Total oo				
	8	N	FAC			
				Hydrophytic		
2. Wisteria frutescens		D	FACU	Vegetation Present? Yes _	x No	
3. Vitis labrusca		N	<u>FACU</u>	110301111 103_	<u>x</u> 110	
k						
	85	= Total (	Cover			

SOIL Sampling Point: NJ (upland)

Profile Desc	ription: (Describe	to the de	pth needed to document the indicator	or confirm	the absence of indicators.)
Depth	Matrix		Redox Features		
(inches)	Color (moist)	%	Color (moist) % Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks
0-4	10YR3/3	100			Loose, Friable
4-10	5YR4/4	100			Silt loam with trace coarse sand
10+	Rocky refusal				
		_			
¹Type: C=Co	oncentration, D=De	oletion, RM	=Reduced Matrix, MS=Masked Sand Gr	ains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.
Hydric Soil I		,	,		Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Below Surface (S8) (LRI	RR,	2 cm Muck (A10) (LRR K, L, MLRA 149B)
Black Hi	oipedon (A2) stic (A3)		MLRA 149B) Thin Dark Surface (S9) (LRR R, MI	_RA 149B	Coast Prairie Redox (A16) ( <b>LRR K, L, R</b> ) ) 5 cm Mucky Peat or Peat (S3) ( <b>LRR K, L, R</b> )
Hydroge	n Sulfide (A4)		Loamy Mucky Mineral (F1) (LRR K		Dark Surface (S7) (LRR K, L, M)
	d Layers (A5)	oo (A11)	Loamy Gleyed Matrix (F2)		Polyvalue Below Surface (S8) (LRR K, L)
	d Below Dark Surfac ark Surface (A12)	ce (ATT)	<ul><li>Depleted Matrix (F3)</li><li>Redox Dark Surface (F6)</li></ul>		Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R)
	fucky Mineral (S1)		Depleted Dark Surface (F7)		Piedmont Floodplain Soils (F19) (MLRA 149B)
-	Bleyed Matrix (S4)		Redox Depressions (F8)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
-	Redox (S5)				Red Parent Material (F21)
	Matrix (S6) rface (S7) (LRR R,	MLRA 149	<b>B</b> )		Very Shallow Dark Surface (TF12)     Other (Explain in Remarks)
			retland hydrology must be present, unless	disturbed	or problematic.
	_ayer (if observed)	):			
Type: Depth (ind	choc):		-		Hydric Soil Present? Yes No _x
Remarks:					nyunc son Fresent: TesNo_X
rtemanto.					

Charleston Mixed Use Development Project/Site: City/	County: Richmond Sampling Date: July 2012
Applicant/Owner: NYCEDC	State: NY Sampling Point: NK Wetland
Investigator(s): Rollino, J. Sec	ion, Township, Range: Onanesion
Landform (hillslope, terrace, etc.): Local re	elief (concave, convex, none): Flat land Slope (%):
Subregion (LRR or MLRA): MLRB 149B Lat:	Long: Datum:
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex	NWI classification: wetland not mapped
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes X No (If no, explain in Remarks.)
Are Vegetationx_, Soilx, or Hydrology significantly distu	urbed? Are "Normal Circumstances" present? Yes Nox
Are Vegetation, Soil, or Hydrology naturally problem	
	mpling point locations, transects, important features, etc.
Hadron St. Vandation Broads Van X	Is the Sampled Area
Hydrophytic Vegetation Present?  Yes X  No  Hydric Soil Present?  Yes X  No	within a Wetland? Yes X
Hydric Soil Present?  Wetland Hydrology Present?  Yes No  No	If yes, optional Wetland Site ID: NK
Remarks: (Explain alternative procedures here or in a separate report.)	ii yes, optional wetiand Site ib
Wetland is 0.005 acres in size	
	on. Natural clay deposits occur in the field. Also, site used as a hore pasture.
vocadra is in a field that has beed difered by previous filling and executati	on. Natural day deposits occur in the field. Also, site doed as a flore pusture.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leav	V
High Water Table (A2) Aquatic Fauna (B13	
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide O	dor (C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizosphe	eres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduce	ed Iron (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduct	on in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface	(C7) Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) X Other (Explain in Re	emarks) Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes Nox Depth (inches):	
Water Table Present?  Yes Nox Depth (inches):  Saturation Present?  Yes Nox Depth (inches):	Wetland Hydrology Present? Yes $\frac{X}{X}$ No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, principle of the control of	ravious inspections), if available:
Describe Recorded Data (stream gauge, monitoring well, aerial priotos, pi	evious inspections), ii available.
Remarks:	
Matter disconnected deposits in a field with material standard and the	odne la companya da la companya da la coda coda de coda de la coda
Wetland is compressed depression in a field with natural clay deposits. Hy	rarology enough to promote hydrophytic vetation.

<b>/EGETATION</b> – Use scientific names of plants	<b>S</b> .			Sampling Point: NK Wetla
Tree Stratum (Plot size:)	Absolute	Dominant In Species?		Dominance Test worksheet:
1				Number of Dominant Species That Are OBL, FACW, or FAC: (A
2				Total Number of Dominant
3				Species Across All Strata: (B
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
		= Total Cover		OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1				FAC species x 3 =
2.				FACU species x 4 =
				UPL species x 5 =
3				Column Totals: (A) (
4 5				Prevalence Index = B/A =
5				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
·· <u> </u>		= Total Cover		2 - Dominance Test is >50%
Herb Stratum (Plot size: 5 feet )		- Total Cover		3 - Prevalence Index is ≤3.0 <sup>1</sup>
1. Elocharis obtusa	90		OBL	4 - Morphological Adaptations <sup>1</sup> (Provide suppor data in Remarks or on a separate sheet)
2				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
3				<sup>1</sup> Indicators of hydric soil and wetland hydrology mus
4				be present, unless disturbed or problematic.
5				Definitions of Vegetation Strata:
6				Tree – Woody plants 3 in. (7.6 cm) or more in diame at breast height (DBH), regardless of height.
7				
8				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
9				
10				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
11				
12				<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
	90	= Total Cover		
Noody Vine Stratum (Plot size:)				
1				
2				Hydrophytic Vegetation
3				Present? Yes X No
4				
		= Total Cover		
Remarks: (Include photo numbers here or on a separate	sheet.)			

SOIL Sampling Point: NK Wetland

Profile Desc	ription: (Describe	to the de	oth needed to docun	nent the indi	cator or c	onfirm	the absence	of indicators.)
Depth	Matrix		Redox	K Features	1	2		
(inches)	Color (moist)	400	Color (moist)	<u>%</u> T	ype <sup>1</sup> L	oc²	<u>Texture</u>	Remarks
0-4	7.5 YR 3/2	100					Sandy silt	
4-8	5 YR 4/4	100					Sandy loam	8"=Depth to refusal
		= <del></del>						
	-							
1 <sub>T.max</sub> 0-0		- DM	— Dadwaad Matrix MC	 -Maakad Ca			21	DI - Dana Limin a M-Matrix
Hydric Soil I		netion, Riv	=Reduced Matrix, MS	s=iviasked Sa	na Grains	i <u>.</u>		: PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Belov	v Surface (S8	) (I RR R			luck (A10) (LRR K, L, MLRA 149B)
	oipedon (A2)		MLRA 149B)		) ( <b>L</b> IXIX IX,			Prairie Redox (A16) (LRR K, L, R)
Black Hi			Thin Dark Surfa		R, MLRA	149B)		lucky Peat or Peat (S3) (LRR K, L, R)
Hydroge	n Sulfide (A4)		Loamy Mucky M	lineral (F1) ( <b>L</b>	RR K, L)		Dark S	urface (S7) (LRR K, L, M)
	l Layers (A5)		Loamy Gleyed I					lue Below Surface (S8) (LRR K, L)
	Below Dark Surfac	e (A11)	Depleted Matrix	. ,				ark Surface (S9) (LRR K, L)
	ark Surface (A12) lucky Mineral (S1)		Redox Dark Sur Depleted Dark S	, ,				anganese Masses (F12) ( <b>LRR K, L, R</b> ) ont Floodplain Soils (F19) ( <b>MLRA 149B</b> )
	Gleyed Matrix (S4)		Redox Depress					Spodic (TA6) (MLRA 144A, 145, 149B)
	ledox (S5)			(. 0)				arent Material (F21)
-	Matrix (S6)							hallow Dark Surface (TF12)
Dark Sui	rface (S7) (LRR R, I	MLRA 149	<b>B</b> )				Other (	Explain in Remarks)
2								
			etland hydrology mus	t be present,	unless dis	sturbed	or problematic	
	ayer (if observed) clay, hard packed							
Type:	Q							x
Depth (inc	ches):		-				Hydric Soil	Present? Yes No
Remarks:								

Charleston Mixed Use Development Project/Site:	City/County: Richmond Sampling Date: July 2012
Applicant/Owner:NYCEDC	State: NY Sampling Point: NL Wetland
	Section, Township, Range: Charleston
Landform (nilisiope, terrace, etc.): Lo	ocal relief (concave, convex, none): Flat land Slope (%):
Subregion (LRR or MLRA): Lat: Lat:	Long: Datum:
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Comple	ex NWI classification: wetland not mapped
Are climatic / hydrologic conditions on the site typical for this time of ${\bf y}$	rear? Yes X No (If no, explain in Remarks.)
Are Vegetationx_, Soilx, or Hydrology significantly	y disturbed? Are "Normal Circumstances" present? Yes Nox
Are Vegetation, Soilx , or Hydrology naturally pr	roblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present?  Yes X No	within a Wetland? Yes X No
Hydric Soil Present?  Wetland Hydrology Present?  Yes X No Yes X No	If yes, optional Wetland Site ID: NL
Remarks: (Explain alternative procedures here or in a separate repo	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained	d Leaves (B9) <u>X</u> Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna	
Saturation (A3) Marl Deposits	
Water Marks (B1) Hydrogen Sulf	
	cospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of R	
Algal Mat or Crust (B4) Recent Iron R Iron Deposits (B5) Thin Muck Sui	
Initial Deposits (B3) Initial Mack Call Inundation Visible on Aerial Imagery (B7) Other (Explain	V
x Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches	s):
Water Table Present? Yes No Depth (inches	
Saturation Present? Yes No Depth (inches	Wetland Hydrology Present? Yes No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photography)	tos, previous inspections), if available:
33.,	, [
Remarks:	

	-			Sampling Point: NL Wetland		
Tree Stratum (Plot size:)	Absolute	Dominan Species?	t Indicator	Dominance Test worksheet:		
1				Number of Dominant Species That Are OBL, FACW, or FAC: (A)		
2		-		Total Number of Dominant		
3				Species Across All Strata: (B)		
4				Percent of Dominant Species		
5				That Are OBL, FACW, or FAC: (A/B		
6				Prevalence Index worksheet:		
7				Total % Cover of: Multiply by:		
		= Total Co		OBL species x 1 =		
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =		
1				FAC species x 3 =		
2.				FACU species x 4 =		
				UPL species x 5 =		
3				Column Totals: (A) (B)		
4 5				Prevalence Index = B/A =		
6				Hydrophytic Vegetation Indicators:		
7				1 - Rapid Test for Hydrophytic Vegetation		
·	= Total Cover		ver	2 - Dominance Test is >50%		
Herb Stratum (Plot size: 5 feet )		10101 00	, VC1	3 - Prevalence Index is ≤3.0 <sup>1</sup>		
1. Juncus effusus	20	D	FACW+	4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)		
<sub>2.</sub> Eleocharis obtusa	15	D	OBL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
<sub>3.</sub> Juncus tenuis	5	n	FAC-	Indicators of hydric soil and wetland hydrology must		
4.Cyperus sp.	2	n	NL	be present, unless disturbed or problematic.		
5				Definitions of Vegetation Strata:		
6				Tree – Woody plants 3 in. (7.6 cm) or more in diamete		
7				at breast height (DBH), regardless of height.		
8				Sapling/shrub – Woody plants less than 3 in. DBH		
9.				and greater than or equal to 3.28 ft (1 m) tall.		
10		-		<b>Herb</b> – All herbaceous (non-woody) plants, regardless of		
11				size, and woody plants less than 3.28 ft tall.		
				Woody vines – All woody vines greater than 3.28 ft in		
12	47			height.		
		= Total Co	ver			
Woody Vine Stratum (Plot size:)						
1				Hydrophytic		
		-		Vegetation		
				Present? Yes X No		
2 3						
2						

SOIL Sampling Point: NL Wetland

Profile Desc	ription: (Describe	to the de	oth needed to docu	ment the i	ndicator	or confirm	m the absence of indicators.)	
Depth	Matrix			ox Feature	<u>s</u>			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks	
0-3	5 YR 5/1	90	5 YR 4/6	10			Clay	
3-12	10 YR 6/1	60	10 YR 6/2	30			Clay	
continued			- 5 YR 4/6	10			Clay	
	-							
			-					
							<del>-</del>	
		_						
	-	_						
			-					
	-	-	-					
			_				- <del> </del>	
		oletion, RM	I=Reduced Matrix, M	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.	
Hydric Soil			Dobarduo Polo	w Curfoco	(CO) /I DE	D D	Indicators for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
Histosol Histic Er	oipedon (A2)		Polyvalue Belo MLRA 149B		(30) (LKF	κκ,	2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)	
Black Hi			Thin Dark Surf	,	RR R, MI	RA 149B		₹)
	n Sulfide (A4)		Loamy Mucky			, <b>L</b> )	Dark Surface (S7) (LRR K, L, M)	
	d Layers (A5)	o (A11)	Loamy Gleyed  X Depleted Matri		2)		<ul><li>Polyvalue Below Surface (S8) (LRR K, L)</li><li>Thin Dark Surface (S9) (LRR K, L)</li></ul>	
	d Below Dark Surfac ark Surface (A12)	e (ATT)	Redox Dark Su	. ,			Iron-Manganese Masses (F12) (LRR K, L)	R)
	lucky Mineral (S1)		Depleted Dark	, ,			Piedmont Floodplain Soils (F19) (MLRA 14	
	Gleyed Matrix (S4)		Redox Depres	sions (F8)			Mesic Spodic (TA6) (MLRA 144A, 145, 149	<b>9B</b> )
-	Redox (S5)						Red Parent Material (F21)	
	Matrix (S6) rface (S7) (LRR R, I	MLRA 149	В)				Very Shallow Dark Surface (TF12) Other (Explain in Remarks)	
			etland hydrology mu	st be prese	ent, unless	disturbed	d or problematic.	
	<b>_ayer (if observed)</b> Clay	:						
Depth (inc	ches). at surface.		-				Hydric Soil Present? Yes X No	
Remarks:			-					
rtomanto.								

Project/Site: Charleston Mixed Use Development City/Cour	nty: Staten Island, Richmond Sampling Date: 7/11/12
Applicant/Owner: NYCEDC	State: <u>NY</u> Sampling Point: <u>NM</u>
Investigator(s): _J. Rollino/M. Smith Section, 7	Fownship, Range: Charleston
Investigator(s): Section, \bar{1}  Landform (hillslope, terrace, etc.): Local relief (	Flat land Slope (%):
Subregion (LRR or MLRA): MLRA 149B Lat:	Long: Datum:
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex	NIMI classification: wetland not mapped
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	Y
Are Vegetationx, Soilx, or Hydrology significantly disturbed	
Are Vegetation, Soilx, or Hydrology naturally problematic	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sample	ing point locations, transects, important features, etc.
Hydric Soil Present?  Yesx	the Sampled Area ithin a Wetland? Yesx No  yes, optional Wetland Site ID:
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (B	
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
x Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (	
Sediment Deposits (B2) Oxidized Rhizospheres of	
Drift Deposits (B3) Presence of Reduced Iro	
Algal Mat or Crust (B4) Recent Iron Reduction in	
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar	ks) <u>x</u> Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	x FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No_x Depth (inches):	
Water Table Present? Yes Nox Depth (inches):	
Saturation Present? Yes x No Depth (inches): 9 (includes capillary fringe)	Wetland Hydrology Present? Yes x No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previo	us inspections), if available:
Remarks:	

	i.					
Tree Stratum (Plot size:)	Absolute	Dominant Species?		Dominance Test worksh	eet:	
1				Number of Dominant Spec		(4)
2				That Are OBL, FACW, or		(A)
3				Total Number of Dominan Species Across All Strata:	•	(B)
						(5)
4				Percent of Dominant Spec That Are OBL, FACW, or		(A/B
5				, ,		
6				Prevalence Index works		
7				Total % Cover of:		
		= Total Co	ver	OBL species		
Sapling/Shrub Stratum (Plot size:)				FACW species FAC species		
1				FACU species		
2				UPL species		
3				Column Totals:		
4				Decualance Index -	D/A -	
5				Prevalence Index =		
6				Hydrophytic Vegetation		
7				1 - Rapid Test for Hyd		n
	-	= Total Co	ver	$\underline{x}$ 2 - Dominance Test is >50% $\underline{}$ 3 - Prevalence Index is ≤3.0 <sup>1</sup>		
Herb Stratum (Plot size: 5' )				4 - Morphological Ada		supporting
1. Juncus effusus	30	D	OBL	data in Remarks o	r on a separate she	eet)
2. Eleocharis obtusa	50	D	OBL	Problematic Hydrophy	ytic Vegetation¹ (Ex	(plain)
3. Juncus sp.	10	N	NI	<sup>1</sup> Indicators of hydric soil a		gy must
4. Euthamia gramnifolia	5	N	FAC	be present, unless disturb	ed or problematic.	
5. Juncus tenuis	5	N	FAC	Definitions of Vegetation	n Strata:	
6				Tree – Woody plants 3 in.		n diameter
7		-	- ·	at breast height (DBH), re	gardless of height.	
8			_ · ·	Sapling/shrub – Woody p		
9				and greater than or equal	` '	
10				<b>Herb</b> – All herbaceous (non-size, and woody plants less t		rdless of
11						
12				<b>Woody vines</b> – All woody v height.	ines greater than 3.2	8 ft in
	100	= Total	Cover	8		
Woody Vine Stratum (Plot size:)						
1						
2				Hydrophytic		
3.				Vegetation Present? Yes_	x No	
·						
4						
4		= Total Co	ver			

SOIL Sampling Point: NM Wetland

Profile Desc	ription: (Describe t	o the dep	th needed to docu	ment the i	ndicator o	or confirm	the absence of indi	icators.)
Depth	Matrix			x Features	<u>s</u>	2		
(inches) 0-2	Color (moist) 7.5 YR 3/2	<u>%</u> 100	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Silty sand	Remarks
·							<u> </u>	
2-8	7.5 YR 4/4	100					Silty sand 15% mat	:erial
8-14	5 YR 4/4	90	5 YR 3/4	10			Sandy loam	
<sup>1</sup> Type: C=Co	oncentration, D=Depl	etion RM:	=Reduced Matrix M	S=Masked	Sand Gra	nins	<sup>2</sup> l ocation: PI =F	Pore Lining, M=Matrix.
Hydric Soil		Cuon, run	reduced Matrix, W	O WIGORCG	Cana Cit			oblematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Belo		(S8) ( <b>LRR</b>	? R,		(10) (LRR K, L, MLRA 149B)
	oipedon (A2)		MLRA 149B	•	DD D MI	DA 440B\		Redox (A16) (LRR K, L, R)
Black Hi Hvdroge	en Sulfide (A4)		Thin Dark Surfa				-	Peat or Peat (S3) (LRR K, L, R) (S7) (LRR K, L, M)
	Layers (A5)		Loamy Gleyed					low Surface (S8) (LRR K, L)
	d Below Dark Surface	(A11)	Depleted Matrix					rface (S9) (LRR K, L)
	ark Surface (A12) lucky Mineral (S1)		Redox Dark Su Depleted Dark	, ,				ese Masses (F12) ( <b>LRR K, L, R</b> ) odplain Soils (F19) ( <b>MLRA 149B</b> )
	Gleyed Matrix (S4)		Redox Depress		")			(TA6) (MLRA 144A, 145, 149B)
-	tedox (S5)			, ,				Material (F21)
	Matrix (S6)							Dark Surface (TF12)
Dark Su	rface (S7) (LRR R, M	ILRA 1491	3)				Other (Explain	n in Remarks)
<sup>3</sup> Indicators of	f hydrophytic vegetat	ion and we	etland hydrology mus	st be prese	ent, unless	disturbed	or problematic.	
Restrictive I	_ayer (if observed):							
Type:								
Depth (inc	cnes):						Hydric Soil Presei	nt? Yes <u>x</u> No
Remarks:								

Project/Site: Charleston Mixed Ose Development City/County: Richmond Sampling Date: July 2013  Applicant/Owner: NYCEDC State: NY Sampling Point: NM Uplat  Investigator(s): Rollino, J. Section, Township, Range: Charleston  Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):  Subregion (LRR or MLRA): MLRB 149B Lat: Long: Datum:  Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification:  Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Investigator(s): Rollino, J. Section, Township, Range: Charleston  Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%):  Subregion (LRR or MLRA): MLRB 149B Lat: Long: Datum:  Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification:  Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Flat land Slope (%): Subregion (LRR or MLRA): MLRB 149B Lat: Long: Datum: Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification: Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Subregion (LRR or MLRA): MLRB 149B Lat: Long: Datum:  Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex NWI classification:  Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex  Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
X
Ann Variabellan X Call X and hadrology along the add to the do Ann White and Oleranda and Call Ann and Call A
Are Vegetationx, Soilx , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soilx_, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, e
Hydrophytic Vegetation Present? Yes No X Is the Sampled Area
Hydric Soil Present? Yes No X within a Wetland? Yes No X
Wetland Hydrology Present?  Yes No X  If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)
HYDROLOGY
Wetland Hydrology Indicators:  Secondary Indicators (minimum of two required
Primary Indicators (minimum of one is required; check all that apply)  Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13) Moss Trim Lines (B16)
Saturation (A3)      Marl Deposits (B15)      Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)
Algal Mat or Crust (B4)
Inundation Visible on Aerial Imagery (B7)  Other (Explain in Remarks)  Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8) FAC-Neutral Test (D5)
Field Observations:
Surface Water Present? Yes No _X Depth (inches):
Water Table Present? Yes No _x Depth (inches):
Saturation Present? Yes No _X Depth (inches): Wetland Hydrology Present? Yes No X (includes capillary fringe)
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Remarks:

	Dominant I Species?	Status	Dominance Test worksheet:           Number of Dominant Species         (A)           Total Number of Dominant         (B)           Percent of Dominant Species         (B)           Percent of Dominant Species         (A/B)           Prevalence Index worksheet:         Multiply by:           OBL species         x 1 =           FACW species         x 2 =           FAC species         x 3 =           FACU species         x 4 =           UPL species         x 5 =           Column Totals:         (A)           Prevalence Index = B/A =
	= Total Cove	,	That Are OBL, FACW, or FAC:
	= Total Cove	,	Total Number of Dominant Species Across All Strata:
	= Total Cove		Species Across All Strata:
	= Total Cove	,	Percent of Dominant Species         (A/B)           Prevalence Index worksheet:         Multiply by:           OBL species         x 1 =           FACW species         x 2 =           FAC species         x 3 =           FACU species         x 4 =           UPL species         x 5 =           Column Totals:         (A)
	= Total Cove	, , , , , , , , , , , , , , , , , , ,	That Are OBL, FACW, or FAC:
	= Total Cove	,	Prevalence Index worksheet:           Total % Cover of:         Multiply by:           OBL species
	= Total Cove	·	Total % Cover of:         Multiply by:           OBL species         x 1 =           FACW species         x 2 =           FAC species         x 3 =           FACU species         x 4 =           UPL species         x 5 =           Column Totals:         (A)
	= Total Cove		OBL species       x 1 =         FACW species       x 2 =         FAC species       x 3 =         FACU species       x 4 =         UPL species       x 5 =         Column Totals:       (A)
			FACW species       x 2 =         FAC species       x 3 =         FACU species       x 4 =         UPL species       x 5 =         Column Totals:       (A)
			FAC species       x 3 =         FACU species       x 4 =         UPL species       x 5 =         Column Totals:       (A)
			FACU species       x 4 =         UPL species       x 5 =         Column Totals:       (A)
			UPL species x 5 = (A) (B)
			Column Totals: (A) (B)
			Prevalence Index = B/A =
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
			2 - Dominance Test is >50%
	_		3 - Prevalence Index is ≤3.0 <sup>1</sup>
85		NI	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
15		NI	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
			be present, unless disturbed or problematic.
			Definitions of Vegetation Strata:
			<b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diamete at breast height (DBH), regardless of height.
			Sapling/shrub – Woody plants less than 3 in. DBH
			and greater than or equal to 3.28 ft (1 m) tall.
			Herb – All herbaceous (non-woody) plants, regardless of
			size, and woody plants less than 3.28 ft tall.
	·		Woody vines – All woody vines greater than 3.28 ft in
	= Total Cove	•	height.
	Total Gove		
			Hydrophytic
			Vegetation Present? Yes No X
			Fresent: 1es NO 22
	= Total Cove	<u> </u>	
sneet.)			
		= Total Cover	= Total Cover

SOIL Sampling Point: NM Upland

Profile Desc	cription: (Describe	e to the de	pth needed to docum	ent the ir	ndicator	or confirm	m the absence of indicators.)	
Depth (inches)	Matrix Color (moist)	%	Color (moist)	K Features %	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture Remarks	
0-3	7.5 YR 3/2	100	Ocioi (moist)		Турс		Silty sand	
3-8	7.5 YR 5/4	100					Silty sand	
8-14	7.5 YR 4/4	100						
							<u> </u>	
	_							
1- 0.0							2	
Hydric Soil		pletion, RN	1=Reduced Matrix, MS	=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histosol			Polyvalue Below	/ Surface	(S8) ( <b>LRF</b>	RR,	2 cm Muck (A10) (LRR K, L, MLRA 149B	)
	pipedon (A2)		MLRA 149B)				Coast Prairie Redox (A16) (LRR K, L, R)	
	istic (A3) en Sulfide (A4)		Thin Dark Surface Loamy Mucky M				B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, Dark Surface (S7) (LRR K, L, M)	R)
	d Layers (A5)		Loamy Gleyed N			, <b>-</b> )	Polyvalue Below Surface (S8) (LRR K, L)	
	d Below Dark Surfa	ce (A11)	Depleted Matrix	(F3)			Thin Dark Surface (S9) (LRR K, L)	
	ark Surface (A12)  Mucky Mineral (S1)		Redox Dark Sur Depleted Dark S	. ,	7)		Iron-Manganese Masses (F12) (LRR K, L Piedmont Floodplain Soils (F19) (MLRA 1	
	Gleyed Matrix (S4)		Redox Depressi		' )		Mesic Spodic (TA6) (MLRA 144A, 145, 14	
-	Redox (S5)						Red Parent Material (F21)	
	d Matrix (S6) irface (S7) ( <b>LRR R,</b>	MLRA 149	JB)				<ul><li>Very Shallow Dark Surface (TF12)</li><li>Other (Explain in Remarks)</li></ul>	
	, , ,		,					
	f hydrophytic vegeta Layer (if observed		etland hydrology mus	t be prese	nt, unless	disturbed	d or problematic.	
Type:	Layer (ii observed	):						
	ches):		-				Hydric Soil Present? Yes No _X	
Remarks:	,		-					
Active hors	se pasture. Herbace	ous materi	al is grazed					
7101110 11010	o paciaro. Frontaco	odo maton	ar 10 grazou.					

Charleston Mixed Use Development Project/Site: Ci	ty/County: Richmond Sampling Date: July 2012
Applicant/Owner: NYCEDC	State: NY Sampling Point: NN Wetland
	ection, Township, Range: Charleston
	I relief (concave, convex, none): Flat land Slope (%):
Landiorini (missiope, terrace, etc.) Local	Long: Datum:
Subregion (LRR or MLRA): Lat: Lat:	Long: Datum:
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Complex	NWI classification: wetland not mapped
Are climatic / hydrologic conditions on the site typical for this time of year	v ·
Are Vegetationx , Soilx , or Hydrology _x significantly di	sturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soilx , or Hydrology naturally probl	
SUMMARY OF FINDINGS – Attach site map showing s	sampling point locations, transects, important features, etc.
Lludranhutia Vagatatian Pragant?	Is the Sampled Area
Hydrophytic Vegetation Present?  Yes _^ No  Hydric Soil Present?  Yes _X No	within a Wetland? Yes X No
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes X  No  Yes X  No	If yes, optional Wetland Site ID: NN
Remarks: (Explain alternative procedures here or in a separate report.)	Natural clay deposists in the soil.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) X Water-Stained Le	
High Water Table (A2) Aquatic Fauna (B	
Saturation (A3) Marl Deposits (B1	
Water Marks (B1) Hydrogen Sulfide Oxidized Rhizosp	Odor (C1) Crayfish Burrows (C8)  wheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Redu	
	uction in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surfac	
Inundation Visible on Aerial Imagery (B7) Other (Explain in	
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No X Depth (inches):	
Water Table Present? Yes Nox Depth (inches):	
Saturation Present? Yes NoX Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos,	previous inspections), if available:
Remarks:	

	Dominant Species?	Status	Dominance Test worksheet:  Number of Dominant Species 2 That Are OBL, FACW, or FAC: (A)
			l
			( ,
			Total Number of Dominant
			Species Across All Strata: (B)
			Percent of Dominant Species That Are OBL, FACW, or FAC:100 (A/E
			Prevalence Index worksheet:
			Total % Cover of: Multiply by:
	= Total Cove	er	OBL species x 1 =
			FACW species x 2 =
			FAC species x 3 =
			FACU species x 4 =
			UPL species x 5 =
			Column Totals: (A) (B)
			Prevalence Index = B/A =
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
			2 - Dominance Test is >50%
	10101 001	<b>5</b> 1	3 - Prevalence Index is ≤3.0 <sup>1</sup>
25	D	OBL	<ul> <li>4 - Morphological Adaptations<sup>1</sup> (Provide supportin data in Remarks or on a separate sheet)</li> </ul>
15	D	FACW	+ Problematic Hydrophytic Vegetation¹ (Explain)
			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
			be present, unless disturbed or problematic.
			Definitions of Vegetation Strata:
			Tree – Woody plants 3 in. (7.6 cm) or more in diamete at breast height (DBH), regardless of height.
			Sapling/shrub – Woody plants less than 3 in. DBH
			and greater than or equal to 3.28 ft (1 m) tall.
			<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
			<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
40	= Total Cove	er	
			Hydrophytic
			Vegetation
	•		Present? Yes X No
	- Total Cov		
	= Total Cove	er	
	25 15	= Total Covered to the second	= Total Cover  25 D OBL 15 D FACW  40 = Total Cover

SOIL Sampling Point: NN Wetland

Profile Desc	ription: (Describe	to the de	oth needed to docu	ment the i	ndicator c	r confirm	n the absence of indicators.)	
Depth	Matrix		Redo	x Feature	S			
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks	
0-4	5 YR 3/2	100					Clay	
4-14	10 YR 6/2	70	10 YR 6/1	20			Clay	
continued			- 5 YR 4/6	10			Clay	
							· <del></del>	
		·						
		· ——						
							-	
1- 0.0							2	
Type: C=Co		letion, RM	=Reduced Matrix, M	S=Masked	Sand Gra	ins.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histosol			Polyvalue Belo	w Surface	(S8) ( <b>LRR</b>	R.	2 cm Muck (A10) (LRR K, L, MLRA 149	<b>B</b> )
	ipedon (A2)		MLRA 149B		() (	,	Coast Prairie Redox (A16) (LRR K, L, R)	
Black His			Thin Dark Surfa				· · · · · · · · · · · · · · · · · · ·	., R)
	n Sulfide (A4)		Loamy Mucky I			L)	Dark Surface (S7) (LRR K, L, M)	`
	l Layers (A5) I Below Dark Surfac	e (A11)	Loamy Gleyed  Depleted Matrix		.)		<ul><li>Polyvalue Below Surface (S8) (LRR K, L</li><li>Thin Dark Surface (S9) (LRR K, L)</li></ul>	.)
	rk Surface (A12)	· (, )	Redox Dark Su	. ,			Iron-Manganese Masses (F12) ( <b>LRR K</b> ,	L, R)
Sandy M	lucky Mineral (S1)		Depleted Dark		7)		Piedmont Floodplain Soils (F19) (MLRA	149B)
-	leyed Matrix (S4)		Redox Depress	sions (F8)			Mesic Spodic (TA6) (MLRA 144A, 145, 1	<b>49B</b> )
-	edox (S5) Matrix (S6)						<ul><li>Red Parent Material (F21)</li><li>Very Shallow Dark Surface (TF12)</li></ul>	
	face (S7) ( <b>LRR R, N</b>	/ILRA 149	<b>B</b> )				Other (Explain in Remarks)	
<sup>3</sup> Indicators of	hydrophytic vegeta	tion and w	etland hydrology mus	st be prese	ent, unless	disturbed	d or problematic.	
	ayer (if observed):		, ,,					
Type:							x	
Depth (inc	ches):		-				Hydric Soil Present? Yes No	
Remarks:								

Project/Site: Charleston Mixed	Use Developmer	nt	City/C	ounty: Rich	nmond		Sampling Date:	July 2012	
Applicant/Owner: NYCEDC						State: NY	Sampling Point	: NO Wetland	
Investigator(s): Rollino J			Section						
Landform (hillslope, terrace, etc								e (%).	
Subregion (LRR or MLRA): ML								i:	
- '					-				
Soil Map Unit Name: Whethers							cation: wetland	от тарреа	
Are climatic / hydrologic conditi			-						
Are Vegetation, Soil	, or Hydrolog	у	_ significantly distur	bed?	Are "Normal	Circumstances" p	present? Yes X	No	
Are Vegetation, Soil	x, or Hydrolog	у	_ naturally problema	atic? (	(If needed, e	xplain any answe	ers in Remarks.)		
SUMMARY OF FINDING	GS – Attach s	ite ma	p showing sam	npling poi	nt locatio	ns, transects	s, important fea	atures, etc.	
Hydrophytic Vegetation Prese	ent? Yes	х	No	Is the Sam	pled Area				
Hydric Soil Present?				within a We	· V				
Wetland Hydrology Present?	Yes	X	No	If ves. optio	nal Wetland	Site ID:			
Remarks: (Explain alternative	<del>-</del>			,,					
HYDROLOGY									
Wetland Hydrology Indicato							ators (minimum of t	wo required)	
Primary Indicators (minimum	of one is required					Surface Soil			
Surface Water (A1)			X Water-Stained Leaves (B9)			X Drainage Patterns (B10)			
High Water Table (A2)			quatic Fauna (B13)			<ul><li> Moss Trim Lines (B16)</li><li> Dry-Season Water Table (C2)</li></ul>			
Saturation (A3)			Marl Deposits (B15) Dry-Season Water Table (C2) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)						
<ul><li>Water Marks (B1)</li><li>Sediment Deposits (B2)</li></ul>			xidized Rhizosphere		Roots (C3)		isible on Aerial Ima	agery (C9)	
Drift Deposits (B3)			resence of Reduced	•	110010 (00)		tressed Plants (D1		
Algal Mat or Crust (B4)			ecent Iron Reductio		oils (C6)		Position (D2)	,	
Iron Deposits (B5)			hin Muck Surface (C		()	Shallow Aguitard (D3)			
Inundation Visible on Aer	ial Imagery (B7)	0	ther (Explain in Ren	er (Explain in Remarks)  X Microtopographic Relief (D4)					
Sparsely Vegetated Cond	cave Surface (B8)					FAC-Neutral			
Field Observations:									
Surface Water Present?	Yes No	X [	Depth (inches):						
Water Table Present?	Yes No Yes No Yes No		Depth (inches):						
Saturation Present?	Yes No	[	Depth (inches):		Wetland H	lydrology Preser	nt? Yes	No <sup>X</sup>	
(includes capillary fringe)  Describe Recorded Data (stre	eam gauge, monit	oring wel	II, aerial photos, pre	vious inspect	tions), if avai	ilable:			
,	0 0 7	Ü	, , , , , ,		,,				
Remarks:									

	Absolute			Dominance Test worksheet:
ree Stratum (Plot size:) no trees	% Cover	Species?	<u>Status</u>	Number of Dominant Species 1
		-		That Are OBL, FACW, or FAC: (A)
				Total Number of Dominant
				Species Across All Strata: 1 (B)
				Percent of Dominant Species 100
				That Are OBL, FACW, or FAC: (A/E
				Brownlaw on Indox workshoots
				Prevalence Index worksheet:
		= Total Cov	er	OBL species x 1 =
apling/Shrub Stratum (Plot size: 100 sq ft )		- Total Cov	Ci	FACW species x 2 =
no trees				FAC species x 3 =
	· ·			FACU species x 4 =
		-		UPL species x 5 =
				Column Totals: (A) (B
				Prevalence Index = B/A =
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
		= Total Cov	er	_X 2 - Dominance Test is >50%
erb Stratum (Plot size: 1 m )			<b>.</b>	3 - Prevalence Index is ≤3.0 <sup>1</sup>
Juncus effusus	70	D	OBL	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Solidago rugosa	12	n	FAC	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Eleocharis obtusa			OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
·		-		
		-		Definitions of Vegetation Strata:
				Tree – Woody plants 3 in. (7.6 cm) or more in diameter
				at breast height (DBH), regardless of height.
				Sapling/shrub – Woody plants less than 3 in. DBH
				and greater than or equal to 3.28 ft (1 m) tall.
0				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of
1.				size, and woody plants less than 3.28 ft tall.
				Woody vines – All woody vines greater than 3.28 ft in
2	91			height.
		= Total Cov	er	
/oody Vine Stratum (Plot size:)				
none				Hisdon aboution
		-		Hydrophytic Vegetation
				Present? Yes X No
		= Total Cov	er	
		= Total Cov	er	

SOIL Sampling Point: NO Wet

Profile Desc	ription: (Describe t	o the dept	h needed to docur	nent the i	ndicator	or confirm	the absence	of indicators.)
Depth	Matrix		Redo	x Features	<u>s</u>	2		
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-5	7.5 YR 3/2	100					sand loam	organic material with gravel
5-12	10YR 5/6	80	10 YR 4/6	20			Clay Loam	
				•				
			_			-		
			_					·
			_					
1- 0.0				<del></del> .			2	
Hydric Soil	oncentration, D=Deple	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ains.		: PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils <sup>3</sup> :
_			Dolynyalua Palay	v Curfoco	(CO) (I DE	D D		•
Histosol	oipedon (A2)	•	Polyvalue Belov MLRA 149B		(30) (LKF	х κ,		luck (A10) ( <b>LRR K, L, MLRA 149B</b> ) Prairie Redox (A16) ( <b>LRR K, L, R</b> )
	istic (A3)		Thin Dark Surfa		.RR R, ML	-RA 149B		lucky Peat or Peat (S3) (LRR K, L, R)
	en Sulfide (A4)	· ·	Loamy Mucky N					urface (S7) (LRR K, L, M)
	d Layers (A5)		Loamy Gleyed	Matrix (F2	)			lue Below Surface (S8) (LRR K, L)
	d Below Dark Surface	(A11)	Depleted Matrix					ark Surface (S9) (LRR K, L)
	ark Surface (A12)	-	Redox Dark Su	. ,	7)			anganese Masses (F12) (LRR K, L, R)
	Mucky Mineral (S1)	-	Depleted Dark S Redox Depress		7)			ont Floodplain Soils (F19) ( <b>MLRA 149B</b> ) Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> )
	Gleyed Matrix (S4) Redox (S5)	•	Redux Depless	ions (Fo)				arent Material (F21)
-	Matrix (S6)							hallow Dark Surface (TF12)
	rface (S7) (LRR R, M	LRA 149B	)				-	Explain in Remarks)
	f hydrophytic vegetati	on and we	tland hydrology mus	t be prese	ent, unless	disturbed	or problemation	i.
	Layer (if observed):							
Type:								X
Depth (in	ches):						Hydric Soil	Present? Yes No
Remarks:								

Project/Site: Charleston Mixed	Use Development	City	//County: Rich	mond		Sampling Date:	July 2012		
Applicant/Owner: NYCEDC				Stat	NY te:	Sampling Point	t: NR Wetland		
		Se							
Landform (hillslope, terrace, etc							e (%).		
Subregion (LRR or MLRA): ML									
-				_			not mapped		
Soil Map Unit Name: Whethers		·		N			тистпаррец		
Are climatic / hydrologic conditi	•	•	· · · · · · · · · · · · · · · · · · ·		•	•			
Are Vegetation, Soil	, or Hydrology	significantly dis	turbed?	Are "Normal Circu	mstances" pr	resent? Yes X	No		
Are Vegetation, Soil	, or Hydrology	naturally proble	matic? (	If needed, explain	any answer	s in Remarks.)			
SUMMARY OF FINDING	GS – Attach sit	te map showing sa	ampling poir	nt locations, t	transects,	important fe	atures, etc.		
Hydrophytic Vegetation Prese	ent? Yes	x No	Is the Samp	oled Area					
Hydric Soil Present?				etland? Yes X No					
Wetland Hydrology Present?	Yes	X No No	If ves. option	nal Wetland Site I	nd Site ID:				
Remarks: (Explain alternative			, 550, 554.51		<u> </u>				
HYDROLOGY									
Wetland Hydrology Indicato	ors:					ors (minimum of t	wo required)		
Primary Indicators (minimum	of one is required; of	check all that apply)			Surface Soil C				
Surface Water (A1)			Water-Stained Leaves (B9)			x Drainage Patterns (B10)			
High Water Table (A2)		Aquatic Fauna (B1				Moss Trim Lines (B16)			
Saturation (A3)		Marl Deposits (B15							
Water Marks (B1)		Hydrogen Sulfide (			Crayfish Burrows (C8) s (C3) Saturation Visible on Aerial Imagery (C9)				
Sediment Deposits (B2)		Oxidized Rhizosph	-						
Drift Deposits (B3) Algal Mat or Crust (B4)		Presence of Reduce Recent Iron Reduce Presence of Reduce Presence Pre		Stunted or Stressed Plants (D1) ils (C6) Geomorphic Position (D2)					
Algai Mat of Crust (B4) Iron Deposits (B5)		Thin Muck Surface			Shallow Aquitard (D3)				
Inundation Visible on Aer	rial Imagery (B7)	Other (Explain in F	` '	<u></u>	Microtopographic Relief (D4)				
Sparsely Vegetated Cond		Other (Explain III )	cinano,	···	AC-Neutral	Test (D5)			
Field Observations:	2470 0411400 (20)			<u></u> :	710 11041141	. 661 (26)			
Surface Water Present?	Yes No	X Depth (inches):							
Water Table Present?	Yes No	Depth (inches):							
Saturation Present?	Yes No _	X Depth (inches): X Depth (inches): X Depth (inches):		Wetland Hydrol	ogy Present	? Yes <u>X</u>	No		
(includes capillary fringe)  Describe Recorded Data (stre				iana) if available.					
Describe Recorded Data (stre	am gauge, monitor	ing well, aerial priotos, p	revious irispect	ioris), ii avallable.					
Remarks:									
į									

	Absolute	Dominant	Indicator	Sampling Point: NR Wetland
<u>Free Stratum</u> (Plot size:)		Species?		Dominance Test worksheet:
no trees				Number of Dominant Species 1 That Are OBL, FACW, or FAC: (A)
				Total Number of Dominant
<u> </u>				Species Across All Strata: 1 (B)
·				Percent of Dominant Species 100
				That Are OBL, FACW, or FAC: (A/B)
3				
				Prevalence Index worksheet:
-				Total % Cover of: Multiply by:
100 sq ft		= Total Cov	er	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 100 sq ft no trees				FACW species x 2 =
				FAC species x 3 =
				FACU species x 4 =
i <u>.</u>				UPL species x 5 =(A)
·				Column Totals: (A) (B)
				Prevalence Index = B/A =
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
		= Total Cov	er	_x 2 - Dominance Test is >50%
Herb Stratum (Plot size: 1 m )		10101 001	OI .	3 - Prevalence Index is ≤3.0 <sup>1</sup>
Juncus effusus	50	D	OBL	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Cyperus sp. (Umbrella Sedge)	25	n	NL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
B. Eleocharis obtusa	15	n	OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Carex sp.	10	n	NI	be present, unless disturbed or problematic.
5				Definitions of Vegetation Strata:
				Tree – Woody plants 3 in. (7.6 cm) or more in diamete
i				at breast height (DBH), regardless of height.
·		-		Sapling/shrub – Woody plants less than 3 in. DBH
J				and greater than or equal to 3.28 ft (1 m) tall.
)				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of
0				size, and woody plants less than 3.28 ft tall.
1				Woody vines – All woody vines greater than 3.28 ft in
2.				height.
	90	= Total Cov	er	
		- Total Cov		
		10tai 00v		
Voody Vine Stratum (Plot size:)		_ Total Gov		
Voody Vine Stratum (Plot size:) none				Hydrophytic
Voody Vine Stratum (Plot size:)none				Vegetation
Noody Vine Stratum (Plot size:)  none  2  3				
Noody Vine Stratum (Plot size:) none		= Total Cov		Vegetation

SOIL Sampling Point: NR

ches)  0-2  3-8  3-14	7.5 YR 3/2 7.5 YR 4/3 7.5 YR 5/4	85 80	7.5 YR 4/4 7.5 YR 4/6		e <sup>1</sup> Loc <sup>2</sup>	sand loam clay loam	Remarks organic material
3-8	7.5YR 4/3	85				clay loam	
					_	·	
	7.5YR 5/4	80	7.5YR 4/6	20			
 						Clay loam	
rpe: C=Conc	centration, D=Depl	etion, RM:	=Reduced Matrix, MS	S=Masked Sand	Grains.	Location	: PL=Pore Lining, M=Matrix.
dric Soil Ind		,	,		•		for Problematic Hydric Soils <sup>3</sup> :
Stratified La Depleted B Thick Dark Sandy Muc Sandy Gley Sandy Red Stripped Ma Dark Surface	c (A3) Sulfide (A4) ayers (A5) Below Dark Surface Surface (A12) cky Mineral (S1) yed Matrix (S4) dox (S5) latrix (S6) ce (S7) (LRR R, N	ILRA 1491		ce (S9) (LRR R flineral (F1) (LR Matrix (F2) (F3) face (F6) Surface (F7) ions (F8)	R K, L)	5) 5 cm N Dark S Polyva Thin D Iron-M Piedm Mesic X Red Pa Very S Other o	Prairie Redox (A16) (LRR K, L, R) Mucky Peat or Peat (S3) (LRR K, L, R) Surface (S7) (LRR K, L, M) alue Below Surface (S8) (LRR K, L) Park Surface (S9) (LRR K, L) Ianganese Masses (F12) (LRR K, L, R) ont Floodplain Soils (F19) (MLRA 149E Spodic (TA6) (MLRA 144A, 145, 149B arent Material (F21) Shallow Dark Surface (TF12) (Explain in Remarks)
		ion and we	etland hydrology mus	t be present, un	less disturbed	d or problemation	<u>).                                    </u>
-	yer (if observed):						
Type:							x
Depth (inche	es):					Hydric Soil	Present? Yes No

Project/Site: Charleston Mixed Use Deve	elopment	_ City/County: _ Ric	chmond		Sampling Date:	July 2012
			Star	te: NY	Sampling Point	NR Upland
Investigator(s): Rollino J		Section. Township	p. Range:			
Landform (hillslope, terrace, etc.):	1	ocal relief (concave	convex none).	Flat Land	Slope	e (%) <sup>.</sup> <2
Subregion (LRR or MLRA): MLRA 149B						
Soil Map Unit Name: Whethersfield-Ludlo						
·			1			
Are climatic / hydrologic conditions on the						
Are Vegetation, Soil, or H	ydrology significant	ly disturbed?	Are "Normal Circu	ımstances" p	resent? Yesx	No
Are Vegetation, SoilX, or H	ydrology naturally p	problematic?	(If needed, explain	n any answer	s in Remarks.)	
SUMMARY OF FINDINGS – Att	ach site map showir	ng sampling po	int locations,	transects,	, important fea	atures, etc.
Hydrophytic Vegetation Present?	Yes No X	Is the San	npled Area			
Hydric Soil Present?	Yes No X	within a W	Vetland?	Yes	_ No X	
Wetland Hydrology Present?	Yes No X	If yes, opti	onal Wetland Site I	ID:		
Remarks: (Explain alternative procedur				· - ·		
HYDROLOGY						
Wetland Hydrology Indicators:			Seco	ndary Indicat	tors (minimum of t	wo required)
Primary Indicators (minimum of one is required; check all that apply)				Surface Soil (	Cracks (B6)	
Surface Water (A1)		X Water-Stained Leaves (B9)		Drainage Patterns (B10)		
High Water Table (A2)		Aquatic Fauna (B13)		Moss Trim Lines (B16)		
x Saturation (A3)		_ Marl Deposits (B15)		Dry-Season Water Table (C2)		
		Hydrogen Sulfide Odor (C1)		Crayfish Burrows (C8)		
		Oxidized Rhizospheres on Living Roots (C3)				
		Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6)		Stunted or Stressed Plants (D1) Geomorphic Position (D2)		
		Thin Muck Surface (C7)		Shallow Aquitard (D3)		
Inundation Visible on Aerial Imager		Other (Explain in Remarks)		Microtopographic Relief (D4)		
Sparsely Vegetated Concave Surface (B8)		,		FAC-Neutral		
Field Observations:						
Surface Water Present? Yes	NoX Depth (inche	es):				
Water Table Present? Yes	NoX Depth (inche	es):				
Saturation Present? Yes	No X Depth (inche No X Depth (inche No X Depth (inche	es):	Wetland Hydrol	logy Presen	t? Yes	No X
(includes capillary fringe)  Describe Recorded Data (stream gauge			otions) if available:			
Describe Recorded Data (stream gauge	e, monitoring well, aerial pric	nos, previous inspec	ctions), ii avallable.	•		
Remarks:						

#### **VEGETATION** – Use scientific names of plants.

			Dominance Test worksheet:
% Cover	Species?	<u>Status</u>	Number of Dominant Species 1
			That Are OBL, FACW, or FAC: (A)
	-		Total Number of Dominant 2
			Species Across All Strata: (B)
			Percent of Dominant Species 50
			That Are OBL, FACW, or FAC: (A/B
			Prevalence Index worksheet:
			Total % Cover of: Multiply by:
	= Total Cov	ver	OBL species x 1 =
			FACW species x 2 =
			FAC species x 3 =
			FACU species x 4 =
			UPL species x 5 =(A)
			Column Totals: (A) (B)
			Prevalence Index = B/A =
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
	= Total Cov	ver	x 2 - Dominance Test is >50%
	- 10tai 00	VCI	3 - Prevalence Index is ≤3.0 <sup>1</sup>
60	D	NI	<ul> <li>4 - Morphological Adaptations<sup>1</sup> (Provide supportin data in Remarks or on a separate sheet)</li> </ul>
20	n	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
10	n	NL	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
5	n	FACU	be present, unless disturbed or problematic.
·		<del></del>	Definitions of Vegetation Strata:
· ——	-		Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
			Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
			<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
			<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
90	= Total Cov	ver	norgan.
20	D	FAC	
	-		Hydrophytic
			Hydrophytic Vegetation
			Vegetation
	% Cover	Absolute % Cover Species?  = Total Cover Species?  = Total Cover Species?	Absolute % Cover         Dominant Indicator Species?

Sampling Point:

Color (moist)	_
Depth of refusal  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Reduck (Sp) (LRR K, L, R)  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Reduck (Sp) (LRR K, L, R)  Type: C=Concentration, D=Depletion, Matrix, MS=Masked Sand Grains.  Type: C=Concentration, M=Mat	Remarks
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Total Case Surface (SP) (LRR R, L)  Depleted Matrix (S9) Depleted Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Depleted Below Dark Surface (A12) Sandy Mucky Mineral (S1) Depleted Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F6) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S6) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S6)	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  1	
Hydric Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A11) Sandy Mucky Mineral (F1) (LRR K, L) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  MERA 149B)  Redox Depressions (F8)  Indicators for Problematic Hydric Soils <sup>3</sup> :  ### A149B  Coast Prairie Redox (A16) (LRR K, L, R) Coast Prairie Redox (A16) (LRR K, L, R)  ### Surface (S9) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  ### Polyvalue Below Surface (S8) (LRR K, L) Dark Surface (S9) (LRR K, L)  ### Thin Dark Surface (S8) (LRR K, L)  ### Indicators Of Normal Surface (F1)  ### A149B  Sandy Mucky Mineral (S1) Sandy Redox (S5)  ### Stripped Matrix (S4)  ### Sandy Redox (S5)  ### Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  ### A149B  ###	
Hydric Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No X Hydric Soil Present?	
Hydric Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Sandy Mucky Mineral (F1) (LRR K, L) Sandy Mucky Mineral (F3) Sandy Mucky Mineral (F1) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B) Stripped Matrix (S6) Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Depteted Below Dark Surface (TF12) Stripped Matrix (S6) Dark Surface (S7) MLRA 149B Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Mesic Spodic (TA6) (MLRA 149A, 1455, 149B)  Mesic Spodic (TA6) (MLRA 149B)  Mesic Spod	
Hydric Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Sandy Mucky Mineral (F1) (LRR K, L) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No X  Hydric Soil Present?	
Hydric Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Sandy Mucky Mineral (F1) (LRR K, L) Sandy Mucky Mineral (F3) Sandy Mucky Mineral (F1) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B) Stripped Matrix (S6) Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Depteted Below Dark Surface (TF12) Stripped Matrix (S6) Dark Surface (S7) MLRA 149B Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Mesic Spodic (TA6) (MLRA 149A, 1455, 149B)  Mesic Spodic (TA6) (MLRA 149B)  Mesic Spod	
Number of the soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A11)  Sandy Mucky Mineral (F1) (LRR K, L)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, MLRA 149B)  Stripped Matrix (S6)  Dark Surface (S7) (LRR K, L)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  And Surface (S7) (LRR R, MLRA 149B)  Indicators for Problematic Hydric Soils Present? Yes No _ x  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Stratified Layer (S7) (LRR K, L, M)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S7) (LRR K, L)  Thin Dark Surface (S8) (LRR K, L)  Thin Dark Surface (S8) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, MLRA 149B)  And Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)	
Hydric Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Sandy Mucky Mineral (F1) (LRR K, L) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No X  Hydric Soil Present?	
Hydric Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Sandy Mucky Mineral (F1) (LRR K, L) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No X  Hydric Soil Present?	
Number of the soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A11)  Sandy Mucky Mineral (F1) (LRR K, L)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, MLRA 149B)  Stripped Matrix (S6)  Dark Surface (S7) (LRR K, L)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  And Surface (S7) (LRR R, MLRA 149B)  Indicators for Problematic Hydric Soils Present? Yes No _ x  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Stratified Layer (S7) (LRR K, L, M)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S7) (LRR K, L)  Thin Dark Surface (S8) (LRR K, L)  Thin Dark Surface (S8) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, MLRA 149B)  And Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)	
Negario Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B) Slack Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B) Stripped Matrix (S6) Dark Surface (S7) MLRA 149B) MLRA 149B) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) MLRA K, L, M) Stripped Matrix (S6) Dark Surface (S7) MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Mesic Spodic (TA6) (MLRA	
Hydric Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Sandy Mucky Mineral (F1) (LRR K, L) Sandy Mucky Mineral (F3) Sandy Mucky Mineral (F1) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B) Stripped Matrix (S6) Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Depteted Below Dark Surface (TF12) Stripped Matrix (S6) Dark Surface (S7) MLRA 149B Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Mesic Spodic (TA6) (MLRA 149A, 1455, 149B)  Mesic Spodic (TA6) (MLRA 149B)  Mesic Spod	
Hydric Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Sandy Mucky Mineral (F1) (LRR K, L) Sandy Mucky Mineral (F3) Sandy Mucky Mineral (F1) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B) Stripped Matrix (S6) Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Depteted Below Dark Surface (TF12) Stripped Matrix (S6) Dark Surface (S7) MLRA 149B Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Mesic Spodic (TA6) (MLRA 149A, 1455, 149B)  Mesic Spodic (TA6) (MLRA 149B)  Mesic Spod	
Hydric Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Sandy Mucky Mineral (F1) (LRR K, L) Sandy Mucky Mineral (F3) Sandy Mucky Mineral (F1) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B) Stripped Matrix (S6) Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Depteted Below Dark Surface (TF12) Stripped Matrix (S6) Dark Surface (S7) MLRA 149B Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Mesic Spodic (TA6) (MLRA 149A, 1455, 149B)  Mesic Spodic (TA6) (MLRA 149B)  Mesic Spod	
Histosol (A1)	
Histic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Hydrogen Sulfide (A4)  Loamy Mucky Mineral (F1) (LRR K, L)  Depleted Below Dark Surface (A11)  Depleted Below Dark Surface (A11)  Redox Dark Surface (F6)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR K, L, M)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Mesic Spodic (TF12)  Other (Explain in Remarks)  Hydric Soil Present? Yes No _X  Hydric Soil Present? Yes No _X	•
Black Histic (A3)	
Hydrogen Sulfide (A4)	
Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  Thick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149)  Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149E)  Sandy Redox (S5) X Red Parent Material (F21)  Stripped Matrix (S6) Very Shallow Dark Surface (TF12)  Dark Surface (S7) (LRR R, MLRA 149B)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type:  Depth (inches):  Hydric Soil Present? Yes No X	
Thick Dark Surface (A12)	
Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B Sandy Redox (S5) X Red Parent Material (F21) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, MLRA 149B) Other (Explain in Remarks) Other (Explain in Remarks)	
Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	
Dark Surface (S7) (LRR R, MLRA 149B) Other (Explain in Remarks)  Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes No _x	
Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type: Depth (inches): Hydric Soil Present? Yes No _x	
Restrictive Layer (if observed):           Type:         Hydric Soil Present? Yes Nox	arks)
Restrictive Layer (if observed):           Type:         Hydric Soil Present? Yes Nox	
Type:           Depth (inches):         Hydric Soil Present? Yes No _X	
Depth (inches):	
	es No X
Remarks:	

#### WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed Use Development	City/County: Richn	nond	Sampling Date: July 2012				
Applicant/Owner: NYCEDC	c.ty/ county!	NY State:	Sampling Date:  Sampling Point:  July 2012  NS Wetland				
Investigator(s): Rollino J			<u> </u>				
Landform (hillslope, terrace, etc.):	Local relief (concave, c	onvex none). Flat Land	Slone (%):				
Subregion (LRR or MLRA): MLRA 149B Lat:							
Soil Map Unit Name: Whethersfield-Ludlow-Wilbraham Comple			eation: wetland not mapped				
Are climatic / hydrologic conditions on the site typical for this tin							
Are Vegetation, Soil, or Hydrology sign	ificantly disturbed? Ar	re "Normal Circumstances" p	resent? Yes No				
Are Vegetation, Soilx, or Hydrology natu	rally problematic? (If	needed, explain any answe	rs in Remarks.)				
SUMMARY OF FINDINGS – Attach site map she	owing sampling poin	t locations, transects	, important features, etc.				
Hydrophytic Vegetation Present? Yes X No	Is the Sampl	led Area					
Hydric Soil Present?  Yes X  No	within a Wet	land? Yes X	No				
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes X  No  Yes X  No  No	If yes, option	al Wetland Site ID:					
Remarks: (Explain alternative procedures here or in a separa	-						
HYDROLOGY							
Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of two required)				
Primary Indicators (minimum of one is required; check all that	annly)	Surface Soil					
-	Stained Leaves (B9)	Surface Soil Drainage Pa					
	Fauna (B13)	Moss Trim Li					
	eposits (B15)		Dry-Season Water Table (C2)				
	en Sulfide Odor (C1)	Crayfish Bur					
			sible on Aerial Imagery (C9)				
Drift Deposits (B3) Present	ce of Reduced Iron (C4)	Stunted or S	tressed Plants (D1)				
Algal Mat or Crust (B4) Recent	Iron Reduction in Tilled Soils	s (C6) Geomorphic	Position (D2)				
	uck Surface (C7)	Shallow Aqu	` '				
	Explain in Remarks)	Microtopogra					
x Sparsely Vegetated Concave Surface (B8)		FAC-Neutral	Test (D5)				
Field Observations:	(inches): 2						
Surface Water Present? Yes X No Depth	(inches):						
Surface Water Present?         Yes X         No Depth           Water Table Present?         Yes No X         Depth           Saturation Present?         Yes No Depth	(inches):	Wetland Hydrology Preser	X X No				
Saturation Present? Yes No Depth (includes capillary fringe)	(inches).	wetiand hydrology Preser	nt? Yes No				
Describe Recorded Data (stream gauge, monitoring well, aeri	al photos, previous inspection	ons), if available:					
Remarks:							
Normania.							

#### **VEGETATION** – Use scientific names of plants.

ZEGETATION – Use scientific names of plants	- Absolute	Dominant In	dicator	Sampling Point: NS Wetland
Tree Stratum (Plot size:)		Dominant Ir Species?		Dominance Test worksheet:
1				Number of Dominant Species That Are OBL, FACW, or FAC:  (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
l				Percent of Dominant Species
5				That Are OBL, FACW, or FAC:(A/B)
S				
				Prevalence Index worksheet:
	0	= Total Cover		Total % Cover of: Multiply by:
Continue/Charle Charles (District)		- Total Cover		OBL species x 1 = FACW species x 2 =
Sapling/Shrub Stratum (Plot size:)				FAC species x 3 =
•				FACU species x 4 =
				UPL species x 5 =
i				Column Totals: (A) (B)
l <u>.                                    </u>				(3)
5				Prevalence Index = B/A =
S				Hydrophytic Vegetation Indicators:
<b>.</b>				1 - Rapid Test for Hydrophytic Vegetation
	0	= Total Cover		2 - Dominance Test is >50%
Herb Stratum (Plot size: 1 m )				3 - Prevalence Index is ≤3.0¹
Juncus effusus	15	D	OBL	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Cyperus sp. (Umbrella Sedge)	2	n	NL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
3				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
1				be present, unless disturbed or problematic.
5.				Definitions of Vegetation Strata:
5			,	Tree – Woody plants 3 in. (7.6 cm) or more in diameter
7.				at breast height (DBH), regardless of height.
				Sapling/shrub – Woody plants less than 3 in. DBH
3				and greater than or equal to 3.28 ft (1 m) tall.
)				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of
0				size, and woody plants less than 3.28 ft tall.
1				Woody vines – All woody vines greater than 3.28 ft in
2				height.
	17	= Total Cover		
Noody Vine Stratum (Plot size: 10 sq ft )				
2.				Hydrophytic Vegetation X
3.				Present? Yes No
4		·		
	0	= Total Cover		
Remarks: (Include photo numbers here or on a separate	sheet.)			
Hydric vegetation are all FAC	,			
Trydic vegetation are all 1 Ao				

SOIL Sampling Point: NS wet

Profile Description: (Describ	e to the dep	th needed to docum	ent the indicator of	or confirm	the absence of	of indicators.)
Depth Matrix		Redox	Features			
(inches) Color (moist)	%	Color (moist)	% Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-4 7.5YR 3/4	90	7.5 YR 4/6			sandy clay	
5-12 5YR 4/6	100				sandy clay	
					<del></del>	
<sup>1</sup> Type: C=Concentration, D=De	enletion RM:	=Reduced Matrix MS:	=Masked Sand Gra	ine	<sup>2</sup> Location:	PL=Pore Lining, M=Matrix.
Hydric Soil Indicators:	opiction, raivi	-reduced Matrix, MO-	-Masked Garia Gra			for Problematic Hydric Soils <sup>3</sup> :
Histosol (A1)		Polyvalue Below	Surface (S8) (LRR	R.		uck (A10) (LRR K, L, MLRA 149B)
Histic Epipedon (A2)		MLRA 149B)	Curiace (CO) (Erri			Prairie Redox (A16) (LRR K, L, R)
Black Histic (A3)		,	e (S9) ( <b>LRR R, ML</b>	RA 149B)		ucky Peat or Peat (S3) (LRR K, L, R)
Hydrogen Sulfide (A4)			neral (F1) (LRR K,			urface (S7) (LRR K, L, M)
Stratified Layers (A5)		Loamy Gleyed M		,		ue Below Surface (S8) (LRR K, L)
Depleted Below Dark Surfa	ace (A11)	Depleted Matrix (				ark Surface (S9) (LRR K, L)
Thick Dark Surface (A12)		Redox Dark Surf	ace (F6)		Iron-Ma	inganese Masses (F12) (LRR K, L, R)
Sandy Mucky Mineral (S1)		Depleted Dark S	urface (F7)		Piedmo	nt Floodplain Soils (F19) ( <b>MLRA 149B</b> )
Sandy Gleyed Matrix (S4)		Redox Depression	ons (F8)			Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> )
Sandy Redox (S5)						rent Material (F21)
Stripped Matrix (S6)						nallow Dark Surface (TF12)
Dark Surface (S7) (LRR R	, MLRA 149E	3)			Other (E	Explain in Remarks)
31	4 - 4! d	41 1	h	all a ferral and		
<sup>3</sup> Indicators of hydrophytic veger Restrictive Layer (if observed		etiand nydrology must	be present, unless	aisturbea	or problematic.	
• •	1):					
Type:						x
Depth (inches):					Hydric Soil I	Present? Yes No
Remarks:						

#### WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed	Use Development		City/C	county: Rich	nmond		Sampling Date:	July 2012	
Applicant/Owner: NYCEDC				,		State: NY	Sampling Poin	NS Upland	
Investigator(s): Rollino J			Section	on. Township.					
Landform (hillslope, terrace, etc			Local reli	ief (concave.	convex. nor	ne): Flat Land	Slop	<2 e (%):	
Subregion (LRR or MLRA): ML									
							not man	ped	
Soil Map Unit Name: Whethers									
Are climatic / hydrologic conditi									
Are Vegetation, Soil	, or Hydrology	sign	ificantly distur	bed?	Are "Normal	Circumstances" p	present? Yes	No	
Are Vegetation, Soil	K, or Hydrology	natu	rally problema	atic? (	(If needed, e	explain any answe	rs in Remarks.)		
SUMMARY OF FINDING	GS – Attach si	te map sh	owing san	npling poir	nt locatio	ons, transects	, important fe	atures, etc.	
Hydrophytic Vegetation Prese	ent? Yes	x No		Is the Samp	pled Area				
Hydric Soil Present?		No	х	within a We		Yes	No <sup>X</sup>		
Wetland Hydrology Present?		No	Х	If ves option	nal Wetland	Site ID:			
Remarks: (Explain alternative			ate report.)	, , . ,					
HYDROLOGY									
Wetland Hydrology Indicato	ors:					Secondary Indica	ators (minimum of t	wo required)	
Primary Indicators (minimum	of one is required;					Surface Soil	, ,		
Surface Water (A1)	Stained Leave			Drainage Pa					
High Water Table (A2)			Fauna (B13)			Moss Trim L			
Saturation (A3)			eposits (B15)	(04)			Water Table (C2)		
Water Marks (B1)				ulfide Odor (C1) Crayfish Burrows (C8)  izospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)					
Sediment Deposits (B2)				Reduced Iron (C4) Stunted or Stressed Plants (D1)					
Drift Deposits (B3) Algal Mat or Crust (B4)			Iron Reduced		ile (C6)		Position (D2)	)	
Iron Deposits (B5)			uck Surface (C		ilis (CO)	Shallow Aqu			
Inundation Visible on Aer	rial Imagery (B7)	_	Explain in Rer	,			aphic Relief (D4)		
Sparsely Vegetated Cond		0.1101 (1	Explain in Tol	namo)		FAC-Neutral			
Field Observations:	24.0 04.1400 (20)								
Surface Water Present?	Yes No	X Depth	(inches):						
Water Table Present?	Yes No	X Depth	(inches):						
Saturation Present?	Yes No _ Yes No _ Yes No _	X Depth	(inches):		Wetland F	lydrology Preser	nt? Yes	No <sup>X</sup>	
(includes capillary fringe)						7	·		
Describe Recorded Data (stre	am gauge, monito	rıng well, aeri	ial photos, pre	vious inspect	tions), if ava	ıılable:			
Remarks:									

#### **VEGETATION** – Use scientific names of plants

<b>'EGETATION</b> – Use scientific names of plant	S.			Sampling Point:	NS uplan
Tree Stratum (Plot size:)  1 Populus grandidentata)		Dominant Species?		Dominance Test worksheet:  Number of Dominant Species 2	
1. Quercus alba		N	FACU	That Are OBL, FACW, or FAC:	_ (A)
2. Quercus rubra 3.	10	N	FACU	Total Number of Dominant Species Across All Strata: 5	_ (B)
4				Percent of Dominant Species	_
5				That Are OBL, FACW, or FAC:	_ (A/B)
5			. ———	Prevalence Index worksheet:	
7			·	Total % Cover of: Multiply by:	
100 sa ft	90	= Total Cov	er	OBL species x 1 =	
Sapling/Shrub Stratum (Plot size: 100 sq ft )	30	D	FAC	FACW species x 2 = FAC species x 3 =	
1. Betula populifolia				FACU species x 4 =	
2		-		UPL species x 5 =	
3				Column Totals: (A)	
i					(5)
5				Prevalence Index = B/A =	
5				Hydrophytic Vegetation Indicators:	
7				1 - Rapid Test for Hydrophytic Vegetation	
		= Total Cov	er	2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
Herb Stratum (Plot size: 1 m )	2	D	FACU	4 - Morphological Adaptations <sup>1</sup> (Provide su	
1 Glechoma hedercea Eupatorium serotinum		D	FAC-	data in Remarks or on a separate shee	•
Rubus sp			NI	Problematic Hydrophytic Vegetation <sup>1</sup> (Expl	iain)
3 Lonicera sp.	_ 1	-	NI	<sup>1</sup> Indicators of hydric soil and wetland hydrology be present, unless disturbed or problematic.	must
5				Definitions of Vegetation Strata:	
3				Tree – Woody plants 3 in. (7.6 cm) or more in 6	diameter
7				at breast height (DBH), regardless of height.	
3				Sapling/shrub – Woody plants less than 3 in. and greater than or equal to 3.28 ft (1 m) tall.	DBH
9			·	<b>Herb</b> – All herbaceous (non-woody) plants, regardl	<b>c</b>
10			·	size, and woody plants less than 3.28 ft tall.	ess of
11		-	·	<b>Woody vines</b> – All woody vines greater than 3.28 f	t in
12				height.	
		= Total Cov	er		
Woody Vine Stratum (Plot size: 10 sq ft )  Smilax rotundifolia	70	D	FAC		
2				Hydrophytic	
3.			· <del></del>	Vegetation   Present?   Yes No X	
4.			·		
·	70	= Total Cov	er		
Remarks: (Include photo numbers here or on a separat	e sheet.)			<u> </u>	
Hydric vegetation are all FAC	,				
Trydic vegetation are all 1 AC					

NS upland

SOIL Sampling Point: NS upland

Profile Desc	ription: (Describe t	o the dep	th needed to docun	nent the in	ndicator	or confirm	n the absence of indicators.)
Depth	Matrix			k Features			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks loam w/ grit and organic material
0-2	10YR 3/2						loan w ght and organic material
2-7	10YR 3/2	90	10YR 3/4	10			clay loam
7-14	7.5 YR 4/4	100					clay loam
<sup>1</sup> Type: C=Co		etion, RM	=Reduced Matrix, MS	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils <sup>3</sup> :
Black His Hydrogel Stratified Depleted Thick Da Sandy M Sandy G Sandy R Stripped Dark Sur	ipedon (A2) stic (A3) n Sulfide (A4) Layers (A5) I Below Dark Surface rk Surface (A12) ucky Mineral (S1) leyed Matrix (S4) edox (S5) Matrix (S6) face (S7) (LRR R, M	LRA 149		ce (S9) ( <b>L</b> flineral (F1 Matrix (F2) (F3) (F3) face (F6) Surface (F fons (F8)	RR R, MI ) (LRR K )	.RA 149B	<ul> <li>Dark Surface (S7) (LRR K, L, M)</li> <li>Polyvalue Below Surface (S8) (LRR K, L)</li> <li>Thin Dark Surface (S9) (LRR K, L)</li> <li>Iron-Manganese Masses (F12) (LRR K, L, R)</li> <li>Piedmont Floodplain Soils (F19) (MLRA 149B)</li> <li>Mesic Spodic (TA6) (MLRA 144A, 145, 149B)</li> <li>X Red Parent Material (F21)</li> <li>Very Shallow Dark Surface (TF12)</li> <li>Other (Explain in Remarks)</li> </ul>
	hydrophytic vegetati	on and we	etland hydrology mus	t be prese	nt, unless	disturbed	d or problematic.
Type:	ayer (ii observed).						
Depth (inc	:hes):						Hydric Soil Present? Yes No _X
Remarks:							

#### WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed	Use Development	City/	County: Richmond		Sampling Date: July 2012			
Applicant/Owner: NYCEDC				State: NU	NU Wetland Sampling Point:			
• •		Sect			_ ,			
• , ,					Slope (%):			
Subregion (LRR or MLRA): ML								
Soil Map Unit Name: Whethers								
Are climatic / hydrologic conditi								
Are Vegetation, Soil	, or Hydrology _	significantly distu	rbed? Are "Norr	mal Circumstances" p	present? Yes X No No			
Are Vegetation, Soil	x_, or Hydrology _	naturally problem	natic? (If needed	d, explain any answe	rs in Remarks.)			
SUMMARY OF FINDING	GS – Attach site	e map showing sa	mpling point loca	tions, transects	, important features, etc.			
Hydrophytic Vegetation Prese	ent? Yes	x No	Is the Sampled Are					
Hydric Soil Present?			within a Wetland?	Yes X	No			
Wetland Hydrology Present?	Yes	X No No	If yes, optional Wetla	and Site ID:				
Wetland is a depression in a								
HYDROLOGY								
Wetland Hydrology Indicato	ors:			Secondary Indica	ators (minimum of two required)			
Primary Indicators (minimum	of one is required; c	heck all that apply)		Surface Soil	Cracks (B6)			
Surface Water (A1)		Water-Stained Leav	es (B9)	x Drainage Pa	tterns (B10)			
High Water Table (A2)		Aquatic Fauna (B13	)	Moss Trim L	ines (B16)			
Saturation (A3)		Marl Deposits (B15)		Dry-Season	Water Table (C2)			
Water Marks (B1)		Hydrogen Sulfide O		Crayfish Burrows (C8)				
Sediment Deposits (B2)		Oxidized Rhizosphe	• ,	· —	isible on Aerial Imagery (C9)			
Drift Deposits (B3)		Presence of Reduce		' <del></del>	tressed Plants (D1)			
Algal Mat or Crust (B4)		Recent Iron Reducti		ed Soils (C6) Geomorphic Position (D2) Shallow Aquitard (D3)				
Iron Deposits (B5)	dal Imagent (DZ)	Thin Muck Surface (	,	Shallow Aquitard (D3) Microtopographic Relief (D4)				
Inundation Visible on Aer Sparsely Vegetated Cond		Other (Explain in Re	emarks)	Microtopogra	Toot (D5)			
Field Observations:	cave Surface (Bo)			FAC-Neutral	Test (Do)			
Surface Water Present?	Voc. No.	X Donth (inches):						
Water Table Present?	Yes No	X Depth (inches):						
Saturation Present?	Ves No	X Depth (inches): X Depth (inches): X Depth (inches):	Wetlan	d Hydrology Preser	nt? Yes <sup>X</sup> No			
(includes capillary fringe)					it: 165 NO			
Describe Recorded Data (stre	eam gauge, monitori	ng well, aerial photos, pr	evious inspections), if a	available:				
Remarks:								
Remarks.								

#### **VEGETATION** – Use scientific names of plants.

<b>EGETATION</b> – Use scientific names of plants				Sampling Point: NU Wetland
Trace Observator (Plat since	Absolute			Dominance Test worksheet:
<u>Free Stratum</u> (Plot size:) no trees	% Cover	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC:  (A)
2				
				Total Number of Dominant Species Across All Strata: (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC:  (A/B
) <u>.                                    </u>				
i	-			Prevalence Index worksheet:
·		-		Total % Cover of: Multiply by:
100 cg ft		= Total Cov	er	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 100 sq ft )				FACW species x 2 =
				FAC species x 3 =
				FACU species x 4 =
3				UPL species x 5 = Column Totals: (A) (B)
<u>.                                      </u>				(A)(B)
5				Prevalence Index = B/A =
S				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
		= Total Cov	er	x 2 - Dominance Test is >50%
Herb Stratum (Plot size: 1 m )				3 - Prevalence Index is ≤3.0 <sup>1</sup>
Juncus effusus	25	D	OBL	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
Cyperus sp. (Umbrella Sedge)	20	D	NL	Problematic Hydrophytic Vegetation¹ (Explain)
B Eleocharis obtusa	20	D	OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Carex sp.	2	n	NI	be present, unless disturbed or problematic.
				Definitions of Vegetation Strata:
5				
5				Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
7				
3				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
)				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of
0		-		size, and woody plants less than 3.28 ft tall.
1				Woody vines – All woody vines greater than 3.28 ft in
2				height.
	<u>59</u>	= Total Cov	er	
Noody Vine Stratum (Plot size:)				
none				
2.				Hydrophytic Vegetation
3.				Present? Yes X No
<u> </u>				
1		= Total Cov	er	

Sampling Point: \_

Depth	Matrix			Features	1 . 2		
(inches) 0-7	Color (moist) 10YR 4/1	100	Color (moist)	%Type	Loc <sup>2</sup>	Texture silt loam	Remarks organic material
		100			_		
7-11	7.5YR 4/2	100				clay loam	
		-				<del>-</del>	
					_		
					_		
					=		
					_	<del>.</del> .	
				<del></del>	_		
					_		·
<sup>1</sup> Type: C=Co	oncentration D=Denk	etion RM:	=Reduced Matrix, MS	=Masked Sand (	Grains	<sup>2</sup> l ocation	n: PL=Pore Lining, M=Matrix.
Hydric Soil		ouon, run	rtoddodd Matrix, Mo	madica dana	oranio.		for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Polyvalue Below	Surface (S8) (L	RR R,	2 cm N	Muck (A10) ( <b>LRR K, L, MLRA 149B</b> )
Histic Ep	pipedon (A2)		MLRA 149B)			Coast	Prairie Redox (A16) (LRR K, L, R)
Black Hi			Thin Dark Surface				Mucky Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4)		Loamy Mucky M		<b>K</b> , <b>L</b> )		Surface (S7) (LRR K, L, M)
	l Layers (A5) d Below Dark Surface	(Δ11)	<ul><li>Loamy Gleyed M</li><li>Depleted Matrix</li></ul>			-	alue Below Surface (S8) (LRR K, L) Park Surface (S9) (LRR K, L)
	ark Surface (A12)	(Д11)	Redox Dark Surf				langanese Masses (F12) (LRR K, L, R)
	lucky Mineral (S1)		Depleted Dark S				iont Floodplain Soils (F19) (MLRA 149B)
	Bleyed Matrix (S4)		Redox Depression				Spodic (TA6) (MLRA 144A, 145, 149B)
-	ledox (S5)						arent Material (F21)
	Matrix (S6)		_,				Shallow Dark Surface (TF12)
Dark Su	rface (S7) ( <b>LRR R, M</b>	LRA 149E	3)			Other	(Explain in Remarks)
<sup>3</sup> Indicators of	f hydrophytic vegetati	on and we	etland hydrology must	be present unle	ess disturbed	d or problemation	c
	_ayer (if observed):		Juliana ny aronogy maor	20 р. 000, ш			<u> </u>
Type:	,						
Depth (inc	ches):					Hydric Soil	Present? Yes No
Remarks:	,	-					
rtemanto.							

#### WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mixed	Use Development	:	City/C	county: Rich	nmond		Sampling Date:	July 2012	
Applicant/Owner: NYCEDC						State:		MLLIInland	
Investigator(s): Rollino J									
Landform (hillslope, terrace, etc.	c.):		Local rel	ief (concave.	convex. nor	ne): Flat Land	Slop	<2 oe (%):	
Subregion (LRR or MLRA): ML									
Soil Map Unit Name: Whethers									
Are climatic / hydrologic conditi			-						
Are Vegetation, Soil	, or Hydrology	sign	ificantly distur	bed?	Are "Normal	l Circumstances" p	resent? Yesx	No	
Are Vegetation, Soil	x, or Hydrology	/ natu	rally problema	atic? (	(If needed, e	explain any answe	rs in Remarks.)		
SUMMARY OF FINDING	GS – Attach si	te map sh	owing san	npling poi	nt locatio	ons, transects	, important fe	atures, etc.	
Hydrophytic Vegetation Prese	ent? Yes	x No		Is the Samp	pled Area				
Hydric Soil Present?		No	X	within a We		Yes	No ×		
Wetland Hydrology Present?		No	X	If yes, option	nal Wetland	Site ID:			
Remarks: (Explain alternative			ate report.)	, , . ,					
HYDROLOGY									
Wetland Hydrology Indicato	ors:					Secondary Indica	tors (minimum of	wo required)	
Primary Indicators (minimum	of one is required;	check all that	t apply)			Surface Soil	Cracks (B6)		
Surface Water (A1)			Stained Leave			Drainage Pat			
High Water Table (A2)			Fauna (B13)			Moss Trim Li			
Saturation (A3)			eposits (B15)						
Water Marks (B1)			en Sulfide Od	de Odor (C1) Crayfish Burrows (C8) spheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)					
Sediment Deposits (B2)				uced Iron (C4)  Stunted or Stressed Plants (D1)					
Drift Deposits (B3)					ilo (C6)			)	
Algal Mat or Crust (B4) Iron Deposits (B5)			uck Surface (0		n in Tilled Soils (C6) Geomorphic Position (D2)  7) Shallow Aquitard (D3)				
Inundation Visible on Aer	rial Imagery (R7)		Explain in Rer	,			phic Relief (D4)		
Sparsely Vegetated Cond		00101 (1	Explain in reci	narko)		FAC-Neutral			
Field Observations:	2010 0011000 (20)								
Surface Water Present?	Yes No	X Depth	(inches):						
Water Table Present?	Yes No	X Depth	(inches):						
Saturation Present?	Yes No _ Yes No _ Yes No _	X Depth	(inches):		Wetland F	lydrology Presen	it? Yes	No <sup>X</sup>	
(includes capillary fringe)  Describe Recorded Data (stre				:	:\ : <b>f</b>	ilahla.			
Describe Recorded Data (stre	am gauge, monito	ring weil, aeri	iai pnotos, pre	vious inspect	lions), it ava	illable:			
Remarks:									

			Indicator		
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:	
1				Number of Dominant Species That Are OBL, FACW, or FAC:	1 (A)
2				Total Number of Dominant	1
3				Species Across All Strata:	(B)
4				Percent of Dominant Species	100
5				That Are OBL, FACW, or FAC:	(A/I
S				Bassalan as Indonesial at	
7				Prevalence Index worksheet:	Aultiply by
		= Total Cov		Total % Cover of:         M           OBL species         x 1 =	
Sapling/Shrub Stratum (Plot size: 100 sq ft )		- Total Cov	GI	FACW species x 2 =	
no trees				FAC species x 3 =	
1.				FACU species x 4 =	
2				UPL species x 5 =	
3				Column Totals: (A)	
1					`
5				Prevalence Index = B/A =	
3				Hydrophytic Vegetation Indicator	's:
7				1 - Rapid Test for Hydrophytic	Vegetation
		= Total Cov	er	x 2 - Dominance Test is >50%	
Herb Stratum (Plot size: 1 m )				3 - Prevalence Index is ≤3.0¹	
Panicum virgatum	60	D	FAC	4 - Morphological Adaptations <sup>1</sup> data in Remarks or on a seg	(Provide supporti
Andropogon virginicus	20	n	FACU	Problematic Hydrophytic Veget	•
3				<sup>1</sup> Indicators of hydric soil and wetlan	d hydrology must
4				be present, unless disturbed or prol	
5				Definitions of Vegetation Strata:	
3				Tree – Woody plants 3 in. (7.6 cm)	
7				at breast height (DBH), regardless	of height.
3				Sapling/shrub – Woody plants less	
9.				and greater than or equal to 3.28 ft	(1 m) tall.
10				<b>Herb</b> – All herbaceous (non-woody) pl	
11				size, and woody plants less than 3.28 ft	tan.
12.				<b>Woody vines</b> – All woody vines greate height.	er than 3.28 ft in
	90	= Total Cov	or o	neight.	
Noody Vine Stratum (Plot size:)		- Total Gov	O1		
1				Hydrophytic	
2				Vegetation	No <sup>X</sup>
3				Present? Yes	NO ^
4					
		= Total Cov	er		
Remarks: (Include photo numbers here or on a separat	e sheet.)				
Only dominat hydrophytic vegetation is Panicum, which	n is an onnurti	unistic senec	ies. Other	identified grass species are upland sr	oecies.
	S S. , Sppuitt			g. add opodiod are apiaria of	
Ciny defining hydrophytic vegetation is i aniodin, which					
Only dominat hydrophysic vegetation is ranioans, which					

(inches)	Matrix		Redox Featu	<u>es</u>	•		
	Color (moist)	<u>%</u>	Color (moist) %	Type <sup>1</sup>	<u>Loc²</u>	<u>Texture</u>	Remarks
0-4	7.5YR 4/2	100				Clay Loam	
4-11	7.5 YR 5/4	100				sandy clay loar	n
Depth of re	efusal						
<u>.</u>			<del></del>			<del></del>	
					-	<del></del>	
			<del></del>			· -	
						·	
						·	
						<u> </u>	
						·	
				_			
		etion, RM:	=Reduced Matrix, MS=Mask	ed Sand Gr	ains.		PL=Pore Lining, M=Matrix.
Hydric Soil I							for Problematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Below Surface	e (S8) ( <b>LRI</b>	RR,		uck (A10) (LRR K, L, MLRA 149B)
Histic Ep Black His	ipedon (A2)		MLRA 149B) Thin Dark Surface (S9)	/I DD D MI	DA 140E		Prairie Redox (A16) (LRR K, L, R) ucky Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4)		Loamy Mucky Mineral (				ucky real of real (33) (LKK K, L, K) urface (S7) (LRR K, L, M)
	Layers (A5)		Loamy Gleyed Matrix (I		, <b>-</b> )		ue Below Surface (S8) (LRR K, L)
	Below Dark Surface	(A11)	Depleted Matrix (F3)	,		-	irk Surface (S9) (LRR K, L)
Thick Da	rk Surface (A12)		Redox Dark Surface (F	6)		Iron-Ma	inganese Masses (F12) ( <b>LRR K, L, R</b> )
	ucky Mineral (S1)		Depleted Dark Surface				nt Floodplain Soils (F19) ( <b>MLRA 149B</b> )
Candy C	leyed Matrix (S4)		Redox Depressions (F8	3)			Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> )
			_ ' '				
Sandy R	edox (S5)						rent Material (F21)
Sandy Ro	edox (S5) Matrix (S6)	I RA 149F				Very Sh	nallow Dark Surface (TF12)
Sandy Ro	edox (S5)	LRA 1498				Very Sh	` ,
Sandy Roman Stripped Dark Sur	edox (S5) Matrix (S6) face (S7) (LRR R, M			sent, unless	s disturbed	Very Sh Other (E	nallow Dark Surface (TF12) Explain in Remarks)
Sandy R Stripped Dark Sur	edox (S5) Matrix (S6) face (S7) (LRR R, M		3)	sent, unless	s disturbed	Very Sh Other (E	nallow Dark Surface (TF12) Explain in Remarks)
Sandy R Stripped Dark Sur	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati		3)	sent, unless	s disturbed	Very Sh Other (E	nallow Dark Surface (TF12) Explain in Remarks)
Sandy Roman Stripped Dark Sur  Black Sur  Jindicators of Restrictive L	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed):		3)	sent, unless	s disturbed	Very Sh Other (E	nallow Dark Surface (TF12) Explain in Remarks)
Sandy Rown Stripped Surface Surfac	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed):		3)	sent, unless	s disturbed	Very Sh Other (E	nallow Dark Surface (TF12) Explain in Remarks)
Sandy Reserved	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _x
Sandy Reserved	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3)			Very Sh Other (E	Present? Yes No _X
Sandy Reserved	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _X
Sandy Reserved	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _X
Sandy Reserved	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _X
Sandy Reserved	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _X
Sandy Reserved	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _X
Sandy Reserved	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _X
Sandy Reserved	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _X
Sandy Reserved	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _X
Sandy Roman Stripped Dark Sur  Indicators of Restrictive L Type: Depth (incompleted)	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _x
Sandy Roman Stripped Dark Sur  Indicators of Restrictive L Type: Depth (incompleted)	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _x
Sandy Roman Stripped Dark Sur  Indicators of Restrictive L Type: Depth (incorrection)	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _x
Sandy Reserved	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _x
Sandy Reserved	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _X
Sandy Reserved	edox (S5) Matrix (S6) face (S7) (LRR R, M hydrophytic vegetati ayer (if observed): hes):	on and we	3) etland hydrology must be pre			Very Sh Other (E	Present? Yes No _X

### WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mix	ed Use Development	City/Cou	nty: Staten Island, Richr	mond :	Sampling Date: 7/22/12
Applicant/Owner: NYCEDC				State: NY	_Sampling Point: <u>NW</u>
Investigator(s): J. Rollino/M. S	Smith	Section,	Township, Range: Charle	eston	
Landform (hillslope, terrace, etc.			·		Slope (%):
					Datum:
Soil Map Unit Name: Whethe					
Are climatic / hydrologic conditi	•	-			
Are Vegetation, Soil		-			esent? Yes x No
Are Vegetation, Soil _x	, or Hydrolog <u>y</u>	_ naturally problemat	ic? (If needed, ex	plain any answe	rs in Remarks.)
SUMMARY OF FINDING	3S – Attach site ma	p showing samp	ling point locations	s, transects,	important features, etc.
Hydrophytic Vegetation Prese Hydric Soil Present? Wetland Hydrology Present? Remarks: (Explain alternative	Yes <u>x</u> Yes <u>x</u>	No Mo	s the Sampled Area vithin a Wetland? f yes, optional Wetland Si		
HYDROLOGY  Westland Hydrology Indicase			90		ore (minimum of two required)
Wetland Hydrology Indicato		all the at a wall of			ors (minimum of two required)
Primary Indicators (minimum Surface Water (A1)		aii that apply) /ater-Stained Leaves (		Surface Soil C Drainage Pa	
High Water Table (A2)		vater-Stained Leaves ( quatic Fauna (B13)	<u>x</u>	_ Drainage Fai _ Moss Trim Lin	
Saturation (A3)		larl Deposits (B15)	_		Vater Table (C2)
Water Marks (B1)		lydrogen Sulfide Odor	(C1)	Crayfish Burro	
Sediment Deposits (B2)		xidized Rhizospheres		-	sible on Aerial Imagery (C9)
Drift Deposits (B3)		resence of Reduced Ir			ressed Plants (D1)
Algal Mat or Crust (B4)		ecent Iron Reduction i		_ Geomorphic F	Position (D2)
Iron Deposits (B5)	T	hin Muck Surface (C7)	_	_ Shallow Aquita	ard (D3)
Inundation Visible on Aer	- · · · —	ther (Explain in Rema	· ·		aphic Relief (D4)
Sparsely Vegetated Cond	cave Surface (B8)			_ FAC-Neutral 1	Test (D5)
Field Observations:					
Surface Water Present?	Yes No _x	,			
Water Table Present?	Yes No _x				
Saturation Present? (includes capillary fringe)	Yes No <u>x</u>	Depth (inches):	Wetland Hyd	rology Present	? Yes <u>x</u> No
Describe Recorded Data (stre	am gauge, monitoring we	ll, aerial photos, previo	ous inspections), if availat	ole:	
Remarks:					
rtemanto.					

#### **VEGETATION –** Use scientific names of plants.

	3.			•	Sampling Point: <u>NW</u>
Tree Stratum (Plot size:)	Absolute	Dominant Species?		Dominance Test worksh	eet:
1				Number of Dominant Spec	
2				That Are OBL, FACW, or I	FAC: <u>2</u> (A)
3				Total Number of Dominan Species Across All Strata:	
4				'	
				Percent of Dominant Spec That Are OBL, FACW, or I	
5					
6				Prevalence Index works	
7				Total % Cover of:	
		= Total Co	ver	OBL species	
Sapling/Shrub Stratum (Plot size:)				FAC species	
<u> </u>				FACU species	
2				UPL species	
3	-				(A)(B)
l	· ——		<del> </del>	Daniel and a landau	D/A
5		-		Prevalence Index =	B/A =
5		-		Hydrophytic Vegetation	
7				1 - Rapid Test for Hyd	· · ·
	-	= Total Co	ver	<ul><li>x 2 - Dominance Test</li><li>3 - Prevalence Index</li></ul>	
Herb Stratum (Plot size: 5' )					is ≤3.0 iptations¹ (Provide supportin
1. Juncus effusus	_30	D	OBL	data in Remarks o	r on a separate sheet)
2. Apocynum cannabinum	25	D	FAC	Problematic Hydrophy	tic Vegetation <sup>1</sup> (Explain)
3. Phalaris arundinacea	15	N	FACW	<sup>1</sup> Indicators of hydric soil a	nd wetland hydrology must
4. Phragmites australis	15	N	FACW	be present, unless disturb	ed or problematic.
5Graminaea	5	N	NI	Definitions of Vegetation	Strata:
6				Tree – Woody plants 3 in.	(7.6 cm) or more in diamete
7				at breast height (DBH), re	gardless of height.
3				Sapling/shrub – Woody p	
9.				and greater than or equal	to 3.28 ft (1 m) tall.
10.					woody) plants, regardless of
11				size, and woody plants less the	han 3.28 ft tall.
12				Woody vines – All woody v	ines greater than 3.28 ft in
	90	= Total (	Cover	height.	
Woody Vine Stratum (Plot size:)		_ Total v	J04C1		
· · · · · · · · · · · · · · · · ·					
1		-		Hydrophytic	
2				Vegetation Present? Yes	x No
3	·		<del></del>	riesent: res_	X NO
4.					
T		= Total Co	ver		

DfcZ[Y8 Yg	W]dh]cb. "f8 YgW]VY	hc h YXY	dh byyxyxhcxcw a	Ybhih Y	]bX]WUhcf	cf`WcbZ]fa	'h Y'UVgYbWY'cZ]k	oX] <b>WU</b> rcfg"Ľ
Depth (inches)	Matrix Color (moist)	%	Color (moist)	x Feature %	<u>s</u> Type <sup>1</sup>	Loc²	Texture	Remarks
0-4	7.5YR3/3	90	5YR3/4	1 0	C C	M	silt loam	Remarks
			31 N3/4			IVI		and Author debuic la vicas and value
4-10	7.5YR3/3	100	·			-	siit loam w/ trace s	sand. Anthro. debris, lg pieces red parer
10+	auger refusal				·	-		
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		_	<u> </u>		·	-		
¹Type: C=C		oletion, RN	M=Reduced Matrix, MS	S=Masked	d Sand Gr	ains.		=Pore Lining, M=Matrix.  DfcVYa U-]W<-nXf]WGc] g
Black H Hydroge Stratified Deplete Thick Do Sandy M Sandy F	pipedon (A2) istic (A3) en Sulfide (A4) d Layers (A5) d Below Dark Surfac ark Surface (A12) Mucky Mineral (S1) Gleyed Matrix (S4) Redox (S5)	e (A11)	Polyvalue Belov  A @F 5 '% - 6 '  Thin Dark Surfa  Loamy Mucky M  Loamy Gleyed I  Depleted Matrix  Redox Dark Su  Depleted Dark Su  Redox Depress	) Aineral (F Matrix (F2 (F3) rface (F6) Surface (F	@FF'FZA( 1)(@FF'? 2) ) =7)	@F5`%(-6	Coast Prair  To the Coast Prair  Coast Prair  To the Coast Prair  Coast Prair  Dark Surfact  Polyvalue B  Thin Dark S  Iron-Manga  Piedmont F  Mesic Spoo	(A10) (@FF'?ž@ZA @F5'%(-6)) rie Redox (A16) (@FF'?ž@ZF)' y Peat or Peat (S3) (@FF'?ž@ZF) ce (S7) (@FF'?ž@ZA) Below Surface (S8) (@FF'?ž@] Surface (S9) (@FF'?ž@] anese Masses (F12) (@FF'?ž@ZF) Floodplain Soils (F19) (A @F5'%(-6)) dic (TA6) (A @F5'%((5ž%()ž%(-6))' ont Material (F21) ow Dark Surface (TF12)
	d Matrix (S6) urface (S7) ( <b>@FF Fž</b>	A@F5°%(-	6)				•	lain in Remarks)
<sup>3</sup> Indicators o	of hydrophytic vegeta	tion and v	vetland hydrology mus  Depth (inches):	st be prese	ent, unless	s disturbed	or problematic. FY	/gHf]W¶jY`@UmYf`f¶ZcVgYfjYXL` /gYbH8````MYg```I`````Bc``
Remarks:	<del></del>		_					

### WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Charleston Mix	ed Use Developme	ent City/C	ounty: Staten Island, Richr	mond 5	Sampling Date: 7/22/12
Applicant/Owner: NYCEDC				State: NY	_Sampling Point: <u>NW (upland)</u>
Investigator(s): J. Rollino/M. S	Smith	Sectio	n, Township, Range: Charl	eston	
- · · ·			· · · · · · · · ·		Slope (%):
					Datum:
			_		1-
Soil Map Unit Name: Whether					
Are climatic / hydrologic conditi		•		·	,
Are Vegetation, Soil					esent? Yes <u>x</u> No
Are Vegetation, Soil	, or Hydrology	naturally problema	atic? (If needed, exp	lain any answers	s in Remarks.)
SUMMARY OF FINDING	GS – Attach sif	te map showing sam	npling point locations	s, transects,	important features, etc.
Hydrophytic Vegetation Prese Hydric Soil Present?	Yes	X No No X	Is the Sampled Area within a Wetland?	Yes	_ No x
Wetland Hydrology Present?  Remarks: (Explain alternative	<u> </u>	No x	If yes, optional Wetland Si	te ID:	
LIVEROLOGY					
HYDROLOGY			0.		(i-i
Wetland Hydrology Indicato					ors (minimum of two required)
Primary Indicators (minimum	or one is required; of			_ Surface Soil C	
Surface Water (A1) High Water Table (A2)		Water-Stained Leave Aquatic Fauna (B13)		<ul><li>Drainage Patt</li><li>Moss Trim Lin</li></ul>	
Saturation (A3)		Marl Deposits (B15)	_		/ater Table (C2)
Water Marks (B1)		Hydrogen Sulfide Od	or (C1)	Crayfish Burro	
Sediment Deposits (B2)		Oxidized Rhizosphere		-	ible on Aerial Imagery (C9)
Drift Deposits (B3)		Presence of Reduced			essed Plants (D1)
Algal Mat or Crust (B4)		Recent Iron Reductio		_ Geomorphic F	Position (D2)
Iron Deposits (B5)		Thin Muck Surface (C	C7)	_ Shallow Aquita	ard (D3)
Inundation Visible on Aer		Other (Explain in Rer			phic Relief (D4)
Sparsely Vegetated Cond	cave Surface (B8)		_	_ FAC-Neutral T	Test (D5)
Field Observations:					
Surface Water Present?	Yes No _	. , ,			
Water Table Present?		x Depth (inches):			• V
Saturation Present? (includes capillary fringe)	Yes No _	x Depth (inches):	wetland Hyd	drology Present	? Yes No x
Describe Recorded Data (stre	am gauge, monitor	ring well, aerial photos, pre	vious inspections), if availab	ole:	
Remarks:				_	
T to man to					

#### **VEGETATION –** Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?		Dominance Test worksh	eet:
				Number of Dominant Sper That Are OBL, FACW, or	
·					
				Total Number of Dominan Species Across All Strata:	
				Percent of Dominant Spec	ripe
					FAC: <u>67</u> (A/E
				Prevalence Index works	
		= Total Co		Total % Cover of: OBL species	
apling/Shrub Stratum (Plot size: 15'		- 10tai 00	VCI	FACW species	
				FAC species	
				FACU species	
_				UPL species	x 5 =
-				Column Totals:	(A) (B)
				Prevalence Index =	R/A =
				Hydrophytic Vegetation	
				1 - Rapid Test for Hyd X 2 - Dominance Test	
		= Total Co	ver	3 - Prevalence Index	
lerb Stratum (Plot size: 5' )					aptations <sup>1</sup> (Provide supportin
. Juncus tenuis	20	D	FAC	data in Remarks o	r on a separate sheet)
. Euthamia gramnifolia	20	D	FAC	Problematic Hydrophy	ytic Vegetation <sup>1</sup> (Explain)
s. Solidago spp.	5	N	NI		nd wetland hydrology must
. Andropogon virginicus	20	D	FACU	be present, unless disturb	ed or problematic.
. Phleum pratense	5	N	FACU	Definitions of Vegetation	n Strata:
i	_				(7.6 cm) or more in diameter
-				at breast height (DBH), re	gardless of height.
l <u> </u>				Sapling/shrub – Woody	
l <u>.</u>	_			and greater than or equal	, ,
0				<b>Herb</b> – All herbaceous (non size, and woody plants less t	-woody) plants, regardless of
1					
2				<b>Woody vines</b> – All woody vineight.	ines greater than 3.28 ft in
	70	= Total (	Cover	8	
Voody Vine Stratum (Plot size:15')					
				Hydrophytic	
				Vegetation Present? Yes	X No
		-		-	
l		= Total Co	· · · · · ·		
		- Total Co	VEI		

SOIL Sampling Point: NW (upland)

Profile Desc	ription: (Describe	to the dep	th needed to docur	nent the i	ndicator c	or confirm	m the absence of indicators.)	
Depth	Matrix		Redo	x Features	3			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks	
0-6	7.5YR3/4	100					Sandy loam w/ trace gravel	
6-18	7.5YR3/3	100					Sandy loam w/ gravel fill	
	1.01110/0						Garray roam w gravor m	_
	-							
		<del></del>					<del>-</del>	_
	-	<u> </u>						_
		<del></del>					<del></del>	_
	-	<u> </u>						_
	-							
								_
	-							
'Type: C=Con Hydric Soil In		etion, RM=	Reduced Matrix, MS	=Masked S	Sand Grain	is.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.	
-				0		_	Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histosol (A	,		Polyvalue Below MLRA 149B)	Surface (S	58) (LRR F	₹,	2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)	
Black Hist			Thin Dark Surfac	e (S9) ( <b>LR</b>	R R. MLR	A 149B)		
Hydrogen			Loamy Mucky Mi				Dark Surface (S7) (LRR K, L, M)	
Stratified I	_ayers (A5)		Loamy Gleyed M	atrix (F2)			Polyvalue Below Surface (S8) (LRR K, L)	
	Below Dark Surface	(A11)	Depleted Matrix				Thin Dark Surface (S9) (LRR K, L)	
	Surface (A12)		Redox Dark Surf				Iron-Manganese Masses (F12) (LRR K, L, R)	
	cky Mineral (S1) eyed Matrix (S4)		Depleted Dark S Redox Depression		)		Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
Sandy Gle			Redux Depression	) IIS (FO)			Red Parent Material (F21)	
Stripped N							Very Shallow Dark Surface (TF12)	
	ace (S7) (LRR R, M	LRA 149B	)				Other (Explain in Remarks)	
		on and wet	land hydrology must	be presen	t, unless d	isturbed o	or problematic.	
	yer (if observed):							
Type:								
	es):						Hydric Soil Present? Yes No x	-
Remarks:								

# ATTACHMENT C VERNAL POOL SURVEY

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During the wetland delineation surveys conducted in 2012, natural resource scientists identified areas that had the potential to function as vernal habitat. These areas were subsequently evaluated in the Spring of 2013 using techniques adapted from the New Jersey Department of Environmental Protection's (NJDEP) Land Use Regulation Program (LURP) Freshwater Wetlands Vernal Habitat Protocol (see attachment). Potential vernal pool habitat was evaluated to determine whether or not they meet the following four determining criteria:

- 1. Occurs in a confined basin depression without a permanent flowing outlet: The scientists walked the circumference of the potential vernal habitat area to confirm the absence of an inlet or outlet.
- 2. Features evidence of breeding by one or more species of fauna adapted to reproduce in ephemeral aquatic conditions: Visual and ocular observations were made to identify presence of obligate or facultative species individuals, larvae, egg masses, or breeding chorus'.
- 3. Maintains ponded water for at least two continuous months between March and September of a normal rainfall year:
- 4. Is free of fish throughout the year, or dries up at some time during the year: the area will be visually scanned for the presence of any fish species; for potential vernal pool areas contiguous with deep water habitats will require additional survey of the deep water habitats to determine the potential presence of fish species.

All delineated wetlands within the entire project area were reviewed for the presence of vernal habitat. Also, several low depressions that were not wetlands were also evaluated, including two within the Englewood Avenue Corridor south of the existing dirt path. These depressions were located approximately 425 ft and 925 ft east of Wetland C, respectively.

Natural resource scientists conducted the vernal habitat investigation on April 16<sup>th</sup> and April 17<sup>th</sup>, 2013. The surveys were conducted during the optimum time to identify areas that function as vernal pools and/or amphibian breeding habitat (in the spring, when evening low temperatures remain in the 40s Fahrenheit). The scientists targeted their search to start before sunrise to identify vocalizations of amphibians and during mid-day to identify potential basking herptofauna. Both days were warm and sunny.

During the 2012 Wetland Delineation, certain wetland parcels were identified as potentially serving as vernal pool habitat. Photographs of those wetlands are provided in the following pages.

#### PHOTOGRAPHIC LOG

Photo No.

Date: April 2013

16,

Description:

Wetland Identified as likely supporting vernal pool habitat despite not meeting criteria at the time of survey.



Photo No.

Date: April 16, 2013

Description:

Wetland Redback salamander found in wetland A.



#### PHOTOGRAPHIC LOG

Photo No. Date: April 16, 2013

Description:

Wetland A – Redback salamander (leadback phase) found in wetland A.



Photo No. Date: April 16, 2013

Description:

Wetland B – Identified as providing vernal pool habitat.



#### PHOTOGRAPHIC LOG

Photo No.

Date: April 2013

16,

Description:

Wetland C - Did not present evidence of vernal pool habitat at the time of survey.



Date: April Photo No. 16, 2013

Description:

Wetland С Redback salamander (leadback phase) identified in wetland C.



#### PHOTOGRAPHIC LOG

Photo No. Date: April 16, 2013

Description:

Wetland D — Located adjacent to horse trail/path. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.



Photo No. Date: April 16, 2013

Description:

Wetland E — Southern extent of wetland. Located in active horse pasture. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.



#### PHOTOGRAPHIC LOG

Photo No. Date: April 16, 2013

Description:

Wetland E — Northern extent of wetland. Located in active horse pasture. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.



Photo No.

10

Date: April 16, 2013

Description:

Wetland G – Located in horse trail/path. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.



#### PHOTOGRAPHIC LOG

Photo No. 11

Date: April 16, 2013

Description:

Wetland NA Located in horse trail/path. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.



Photo No.

12

Date: April 16, 2013

Description:

Wetland NB Inundated portion located in horse trail/path. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.



#### PHOTOGRAPHIC LOG

Photo No. 13

Date: April

16, 2013

#### Description:

Wetland NI Identified as likely supporting vernal pool habitat despite not meeting criteria at the time of survey.



Photo No.

14

Date: April 16, 2013

#### Description:

Wetland NJ Located in horse trail/path. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.



#### PHOTOGRAPHIC LOG

Photo No. 15 Date: April 16, 2013

Description:

Wetland NM — Located in horse pasture south of Englewood Avenue. Did not provide evidence of meeting vernal pool habitat criteria at the time of survey.



Photo No.

16

Date: April 16, 2013

Description:

Wetland NP – Located in horse trail/path. Did not provide evidence of meeting vernal pool criteria at the time of survey.



#### PHOTOGRAPHIC LOG

Photo No. 17

Date: April 16,

2013

Description:

Wetland NQ Located in horse trail/path. Did not provide evidence of meeting vernal pool criteria at the time of survey.



Photo No.

18

Date: April 16, 2013

Description:

Wetland NR - Did not provide evidence meeting vernal pool criteria at the time of survey.



#### PHOTOGRAPHIC LOG

Photo No. 19 Date: April 16, 2013

Description:

Wetland NS – Located in horse trail/path. Did not provide evidence of meeting vernal pool criteria at the time of survey.



Photo No.

20

Date: April 16, 2013

Description:

Wetland NW – Did not provide evidence of meeting vernal pool criteria at the time of survey.



## ATTACHMENT NJ VERNAL POOLS PROTOCOLS

Charleston Mixed Use Development Site Natural Resources Report	

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### Land Use Regulation Program Freshwater Wetlands Vernal Habitat Protocol

(updated: 05/17/02)

#### Purpose: 54

Item 1: "Occurs in a confined basin depression without a permanent flowing outlet"

Item 2: "Features evidence of breeding by one or more species of fauna adapted to reproduce in ephemeral aquatic conditions"

Item 3: "Maintains ponded water for at least two continuous months between March and September of a normal rainfall year"

Item 4: "Is free of fish throughout the year, or dries up at some time during the year"

Required Field Observations for Certifying a Vernal Habitat

Documenting The Location Of A Vernal Habitat

Use Of This Protocol In The Freshwater Wetlands Permit Program

#### 1 Purpose:

This protocol will be used by the Land Use Regulation Program to determine whether an area meets the definition of a "vernal habitat" in N.J.A.C. 7:7A-1.4. If the application of this protocol results in a Department determination that an area meets the definition of a vernal habitat, the area will be placed on the list of certified vernal habitats, maintained by the Department. The Department will also develop digital mapping to show the locations of certified vernal habitats.

The definition of a vernal habitat includes four criteria that must be satisfied. Item 1 requires that the area occur in a confined basin depression without a permanently flowing outlet. Item 2 requires the documentation of obligate or facultative vernal habitat species (these species are identified in N.J.A.C. 7:7A, Appendix 1). Item 3 requires that the area maintain ponded water for at least two continuous months between March and September of a normal rainfall year. Item 4 requires that the area is free of fish populations throughout the year, or dries up at some time during a normal rainfall year. The elements required to satisfy each item are discussed below.

#### 1.1.1 Item 1: "Occurs in a confined basin depression without a permanent flowing outlet"

The area must be a depression in the surrounding ground, confined by areas of higher upland or wetland ground. It must not have a permanently flowing outlet but may have a periodic outlet through which water flows during periods of heavy rain events, flooding or seasonally high water tables.

## 1.1.2 Item 2: "Features evidence of breeding by one or more species of fauna adapted to reproduce in ephemeral aquatic conditions"

The area must feature evidence of breeding by vernal habitat species. These species are listed in N.J.A.C. 7:7A, Appendix 1, and are divided into obligate and facultative species. An obligate vernal habitat species is one for which vernal habitats are the only type of habitat used for breeding. A facultative species will use vernal habitat for various activities, for example breeding or foraging, but can also use other types of habitats.

Obligate species: For the purposes of item 2 of the definition of vernal habitat, the following will constitute evidence of breeding by a species listed as an obligate species at N.J.A.C. 7:7A, Appendix 1:

- a. The following types of evidence of breeding adults:
- i. Frog breeding chorus;
- ii. Mated pairs of frogs;
- iii. Salamander courting individuals; and/or
- iv. Salamander spermatophores;
- b. Two or more egg masses of any obligate species;
- c. Frog tadpoles;
- d. Mole salamander larvae; and/or
- e. The following types of evidence of transforming juveniles:
- i. Wood frogs with tail stubs evident; and/or
- ii. Salamanders with gill remnants evident.

<u>Facultative species:</u> For the purposes of item 2 of the definition of vernal habitat, evidence of the presence of one or more members of the species within the area of the habitat listed as facultative species at N.J.A.C. 7:7A, Appendix 1 shall constitute evidence of breeding or foraging by that species.

## 1.1.3 Item 3: "Maintains ponded water for at least two continuous months between March and September of a normal rainfall year"

If an area satisfies item 2 by showing evidence of breeding by obligate species, the criteria in items 3 and 4 are presumed to be satisfied. (See flow chart below for an illustration of this.) This presumption does not apply if an area satisfies item 2 solely by showing evidence of breeding by facultative species. This application of the presumption reflects the fact that the species listed as obligate depend almost exclusively on vernal habitat for breeding, and cannot breed in other types of habitat. They must breed in an area that maintains water for certain time periods, and in which there are no fish to eat their eggs. Obligate species also tend to be site tenacious, meaning that succeeding generations of the species frequently return to their natal pond for breeding purposes. Therefore, if an area shows evidence of breeding by an obligate species, the area must meet the criteria in items 3 and 4.

However, the species listed as facultative do not depend exclusively on vernal habitat, although they do regularly use vernal habitats. These species also use other similar types of habitat that would not meet the definition of a vernal habitat. Therefore, the presumption that an area is ponded for at least two months and is free of fish populations (i.e., that the criteria in items 3 and 4 are met) does not apply where only facultative species have been found. In those cases, the ponding of water (Item 3) and the drying up or lack of fish populations (Item 4) must be independently demonstrated in accordance with this protocol.

To satisfy Item 3, an area that is not subject to the presumption discussed above (i.e., an area with evidence of facultative species only) must maintain ponded water continuously for at least two contiguous months (60 days) between March 1<sup>st</sup> and September 30<sup>th</sup> of a normal rainfall year.

#### 1.1.4 Item 4: "Is free of fish throughout the year, or dries up at some time during the year"

As discussed above under Item 3, if an area satisfies item 2 by showing evidence of breeding by obligate species, the criteria in items 3 and 4 are presumed to be satisfied. (See flow chart below for an illustration of this.)

To satisfy Item 4, an area that is not subject to the presumption discussed above (i.e., an area with evidence of facultative species only) must be free of fish populations throughout the year, or dry up at some time during the year. Meeting either one of these criteria is sufficient to satisfy Item 4.

#### Required Field Observations for Certifying a Vernal Habitat

- A. Item 1: Clear photographs are required to document that an area is a confined basin depression without a permanent flowing outlet. The photographs must be taken from several angles, and must be sufficient to clearly display the area's complete or intermittent hydric isolation.
- B. Item 2: At least one of the following types of evidence is required to document each observation of a vernal habitat species:
- 1. Photograph(s). <u>This is the preferred method</u>. Prints, slides, or digital photographs are acceptable. The location, date of observation, and observer's name must be provided;
- Videotape recording. The location, date, and recorder's name must be provided;
- 3. Taped audio recording of a frog breeding chorus. The location, date, and recorder's name must be provided; and/or
- 4. Detailed written description(s) of species observed, including a discussion of the criteria that were used to identify the species involved. Field notes, and/or a drawing of the animal, may be submitted as part of the description. It is preferred that the description and field notes be prepared by a biologist competent in animal identification.
- C. Item 3: The following evidence is required to support observations that an area maintains ponded water for at least two contiguous months between March and September:
- 1. A logbook containing a record of observations, made approximately weekly, of the presence or absence of standing water in the area. For each observation date, the logbook shall state the approximate depth and dimensions of the area covered by standing water; and/or
- 2. A list of one or more amphibian and reptile species that were observed using the area for breeding purposes (including dates).
- D. Item 4: At least one of the following types of evidence is required to demonstrate that an area is free of fish populations throughout the year, or dries up at some time during the year:
- 1. Clear photograph(s) and/or statement of direct observation, including date of observation, showing the area to be dried up; or
- 2. Scientific evidence sufficient to conclude that the area is free of fish populations.

#### **Documenting The Location Of A Vernal Habitat**

The following documentation is required to identify the location of a vernal habitat:

- 1. One or more of the items at i through iii below:
- i. Metes and bounds description. Compass bearings and measured distances (the distances should be 1000 feet or less) of the habitat from at least two permanent landmarks, and the locations of landmarks. The compass bearings must account for the appropriate declination. The locations of the landmarks and the vernal habitat must be shown on the municipal tax map required in 2 below;
- ii. Aerial photographs. The vernal habitat must be clearly visible on the aerial photograph; or
- iii. Professional survey or GPS coordinates; and
- 2. A photocopy of an 8.5" by 11" section of the appropriate United States Geological Survey quadrangle map with the approximate site of the vernal habitat clearly marked should also be included (USGS quad maps are available from the Department's Office of Maps and Publications at (609) 777-1038); and
- 3. It is recommended that a sketch map and/or detailed description of features in the immediate vicinity (within 1000 feet) of the vernal habitat also be provided.

### Use Of This Protocol In The Freshwater Wetlands Permit Program:

- 1. The Department will develop a list of certified vernal habitats. After the list is developed, the Department will develop digital GIS maps showing the locations of certified vernal habitats.
- 2. When an application for a freshwater wetlands permit is submitted, the Department will review the list of certified vernal habitats to determine if the site may contain a vernal habitat.
- 3. If the site contains a certified vernal habitat, the Department will inform the applicant of this fact.
- 4. For each permit application, LUR accepts public comment during the period of application review, in accordance with N.J.A.C. 7:7A-12.3. If the Department receives information indicating that an area may be a vernal habitat during the public comment period (whether the information is submitted by the public, discovered by staff during a site investigation, or obtained in some other way), the Department will evaluate this information. If the information is sufficient to certify the area as a vernal habitat in accordance with this protocol, the Department will do so. Alternatively, the Department may delay a final decision on the application in order to obtain further information. The Department's action in these cases will vary on a case by case basis depending upon the quality of information available to the Department and/or the credentials of the person providing the information.
- 5. If the Department does not receive or discover any information indicating that an area is a vernal habitat prior to the Department's final decision on the application, the area shall not be considered a vernal habitat for purposes of the final decision on that application.
- 6. An applicant may contest the certification of an area as a vernal habitat. In order to contest a certification, an applicant must demonstrate that the area no longer meets the criteria in items 1, 2, 3, or 4 of the definition of vernal habitat. If such a demonstration includes a survey for vernal habitat species, the survey must be conducted over a minimum of two normal rainfall years, and must show no evidence of the presence of any vernal habitat species during the survey period.

Charleston Mixed Use Development Site
Natural Resources Report

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## ATTACHMENT D

AGENCY CORRESPONDENCE

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## New York State Department of Environmental Conservation Division of Fish, Wildlife & Marine Resources

**Bureau of Wildlife** 

47-40 21st Street, Long Island City, New York 11101-4502

Phone: (718) 482-4922 • Fax: (718) 482-4502

Website: www.dec.ny.gov



December 5, 2012

Matt Mason Vice President New York City Economic Development Corporation 110 William Street New York, New York 10038

Re: Freshwater Wetland AR - 11

Dear Sir;

Staff examined the parcels proposed for the Charleston Mixed-Use Development and provided information concerning the location of the mapped NYS Freshwater Wetland.

A survey prepared by J.S. Schmidt, Project N0559.002.00 Sheet 1, dated October 16, 2012rev. was submitted to this office for verification. This survey depicts the wetland boundary, flags B1-18, C1-19, CA1-9, approved by the Department

Please contact me if I can be of any further assistance.

Yours truly;

Joseph J. Pane

Principal Fish & Wildlife

Biologist

b\l\delin12

#### NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION Division of Fish, Wildlife & Marine Resources New York Natural Heritage Program

625 Broadway, 5th Floor, Albany, New York 12233-4757

Phone: (518) 402-8935 • Fax: (518) 402-8925

Website: www.dec.ny.gov

Joe Martens Commissioner

February 13, 2013

John Rollino AECOM 20 Exchange Place New York, NY 10005

Dear Mr. Rollino:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the Proposed Development, site as indicated on the map you enclosed, located in Richmond, New York City.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities, which our database indicates occur, or may occur, on your site or in the immediate vicinity of your site. For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

The enclosed report may be included in documents that will be available to the public. However, any enclosed maps displaying locations of rare species are considered sensitive information, and are intended only for the internal use of the recipient; they should not be included in any document that will be made available to the public, without permission from the New York Natural Heritage Program.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

Ean leber

ean Pietrusiak, Information Services

NYS Department Environmental Conservation # 148

Enc.

cc: Reg. 2, Wildlife Mgr.

#### New York Natural Heritage Program



#### Report on Rare Animals, Rare Plants, and Significant Natural Communities

# The following rare plants, rare animals, and significant natural communities have been documented at your project site, or in its vicinity.

We recommend that potential onsite and offsite impacts of the proposed project on these species or communities be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQR. Field surveys of the project site may be necessary to determine the status of a species at the site, particularly for sites that are currently undeveloped and may still contain suitable habitat. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following animals, while not listed by New York State as Endangered or Threatened, are of conservation concern to the state, and are considered rare by the New York Natural Heritage Program.

COMMON NAME

SCIENTIFIC NAME

NY STATE LISTING

HERITAGE CONSERVATION STATUS

**Dragonflies and Damselflies** 

**Comet Darner** 

Anax longipes

Unlisted

Imperiled in NYS

Comet Pond: The odonates were observed in the fields, marshs, and trails near a pond.

13441

The following plants are listed as Endangered or Threatened by New York State, and/or are considered rare by the New York Natural Heritage Program, and so are a vulnerable natural resource of conservation concern.

COMMON NAME

SCIENTIFIC NAME

NY STATE LISTING

HERITAGE CONSERVATION STATUS

Vascular Plants

Fringed Boneset

Eupatorium torreyanum

Threatened

Imperiled in NYS

Clay Pit Ponds Bloomingdale Road: Groups 1-3: Sandy dry and sandy wet openings in the dense shrubland. The openings are human-made. The trails in the southern part of the site seem to be more wet. Groups 4-6: An open, dry oak woods with a high percentage of open, unvegetated sand. Group7: The plants are growing on the edge of a wooded area in a vegetated corridor between two roads. Eupatorium hyssopifolium var. hyssopifolium is also present at Groups 5, 6, and 7; there are good examples of both varieties, but also some intermediate forms present.

Torrey's Mountain-mint

Pycnanthemum torrei

Endangered

Critically Imperiled in NYS

and Globally Rare

Clay Pit Ponds Bloomingdale Road: A vegetated roadside about 4-6 feet wide. The plants are mostly native and it appears to be seldom mowed. Part of the roadside is dominated by Artemisia. The roadside is backed by a berm with trees.

10717

Virginia Pine

Pinus virginiana

Endangered

Critically Imperiled in NYS

Clay Pit Ponds Bloomingdale Road: Group 1: An upland forest in a clearing along the horse trail. Group 2: This tree is in dense vegetation.

10720

Willow Oak

Quercus phellos

Endangered

Critically Imperiled in NYS

Clay Pit Ponds Bloomingdale Road: The trees are growing in a wooded corridor along a major roadway. The corridor is bordered by lawn that is regularly maintained.

13247

This report only includes records from the NY Natural Heritage databases. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at http://www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

Information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org. For descriptions of all community types, go to http://www.dec.ny.gov/animals/29384.html and click on Draft Ecological Communities of New York State.

New York Natural Heritage Program



Report on Historical Records of Rare Animals, Rare Plants, and Natural Communities

# The following rare plants and rare animals have historical records at your project site, or in its vicinity.

The following rare plants and animals were documented in the vicinity of the project site at one time, but have not been documented there since 1979 or earlier, and/or there is uncertainty regarding their continued presence. There is no recent information on these plants and animals in the vicinity of the project site and their current status there is unknown. In most cases the precise location of the plant or animal in this vicinity at the time it was last documented is also unknown.

If suitable habitat for these plants or animals is present in the vicinity of the project site, it is possible that they may still occur there. We recommend that any field surveys to the site should include a search for these species, particularly for sites that are currently undeveloped and may still contain suitable habitat.

	COMMON NAME	SCIENTIFIC NAME	NYS LISTING	HERITAGE CONSERVATION STATUS	7
Va	scular Plants				
	American Ipecac	Euphorbia ipecacuanhae	Endangered	Critically Imperiled in NYS	
	1882-06: Kreischerville.				4506
	American Strawberry-bush	Euonymus americanus	Endangered	Critically Imperiled in NYS	
	1901-09-19: Kreischerville. Woo	ods.			800
	Bead Pinweed	Lechea pulchella var. moniliformis	Endangered	Critically Imperiled in NYS	
	1901-09-19; Kreischerville. Pine	barrens.			2590
	Dwarf Hawthorn	Crataegus uniflora	Endangered	Critically Imperiled in NYS	
	1907-06-05: Kreischerville. Clos	se to shore line.			7112
	Primrose-leaf Violet	Viola primulifolia	Threatened	Imperiled in NYS	
	1902-05-29: Kreischerville. Clay pits.				
	Soapwort Gentian	Gentiana saponaria	Endangered	Critically Imperiled in NYS	
	1889-09-22: Pleasant Plains.				8849
	Whorled Mountain-mint	Pycnanthemum verticillatum var. verticillatum	Endangered	Critically Imperiled in NYS	
	1869-07-22: Richmond Valley.			S. 2	5662

New York Natural Heritage Program



#### Report on State-Listed Animals

# The following state-listed animals have been documented at your project site, or in its vicinity.

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing. The list may also include significant natural communities that can serve as habitat for Endangered or Threatened animals, and/or other rare animals and rare plants found at these habitats.

For information about potential impacts of your project on these populations, how to avoid, minimize, or mitigate any impacts, and any permit considerations, contact the Wildlife Manager or the Fisheries Manager at the NYSDEC Regional Office for the region where the project is located. A listing of Regional Offices is at http://www.dec.ny.gov/about/558.html.

The following species and habitats have been documented at or near the project site, generally within 0.5 mile. Potential onsite and offsite impacts from the project may need to be addressed.

COMMON NAME

SCIENTIFIC NAME

NY STATE LISTING

FEDERAL LISTING

Reptiles

**Eastern Mud Turtle** 

Kinosternon subrubrum

Endangered

2855

This report only includes records from the NY Natural Heritage databases. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at http://www.dec.ny.gov/animals/7494.

Information about many of the rare plants and animals, and natural community types, in New York are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NatureServe Explorer at http://www.natureserve.org/explorer.