

Appendix F

Multi-Year Pre Final Design Natural Resources Investigations for Protected Species in the Three Mid-Island Watersheds

**Appendix Table F-1: Oakwood Beach
Monitoring Program for Protected Species and Fisheries to be Used in Final Design**

Species	Habitats	BMP Sites	Sample Program (Sampling years)
Protected Vegetation			
Slender blue iris (threatened)	Fresh, brackish and salt marshes	OB-1 (a)	Spring/fall surveys (2)
Northern gamma grass (threatened)	Ditches, depressions swales and salt marshes	OB-1, OB-2 and OB-3 (a)	Spring/fall surveys (2)
Turks-cap-lily (exploitably vulnerable)	Wet meadows and woods	OB-1 (a)	Spring/fall surveys (1)
Cinnamon fern (exploitably vulnerable)	Streambanks	OB-1, OB-2 and OB-3 (a)	Spring survey (1)
Royal fern (exploitably vulnerable)	Streambanks	OB-1(a), OB-2 and OB-3 (b)	Spring survey (1)
Protected Wildlife Species			
Osprey (special concern)	Dead trees, platform and perches along the coast	OB-1 through OB-3 (d)	Spring/summer/fall nesting/foraging surveys (3)
Northern Harrier (threatened)	Fields , meadows marshes and grasslands	OB-1 through OB-3 (d)	Spring/summer/fall nesting/foraging surveys (3)
Coopers Hawk (special concern)	Woodlands and fields	OB-1 through OB-3 (b)	Spring/summer/fall nesting/foraging surveys (3)
Fisheries			
Finfish and shellfish	East Branch (one sampling location, above the tide gate)	OB-2	June and September sampling (2)
Finfish and shellfish	West Branch (two sampling locations)	OB-3	June and September sampling (3)
Finfish and shellfish	West Branch (one sampling location)	OB-4	June and September sampling (2)
Notes: (a) Observed by DPR in 2008/2009; (b) Field observations 2009/2010; (c) NYSDEC, August 2011; (d) recorded evidence from NYSDEC Natural Heritage Program, USFWS, NMFS, Breeding Bird Atlas or other sources.			

Appendix Table F-2: New Creek

Monitoring Program for Protected Species, Fisheries and Key Habitats to be Used in Final Design

Species	Habitats	BMP Sites	Sample Program (Sampling years)
Protected Vegetation			
Upper Watershed			
Lowland fragile fern (endangered)	Moist wooded slopes	NC-1 through NC-3 (d)	Spring/fall surveys (2)
Jacob's Ladder (endangered)	Moist woods	NC-1 through NC-3	Spring/fall surveys (2)
Royal fern (exploitably vulnerable)	Streambanks and wet meadows	NC-1 through NC-3	Spring survey (1)
Cinnamon fern (exploitably vulnerable)	Streambanks and wet meadows	NC-1 through NC-3	Spring survey (1)
Spinulose fern (exploitably vulnerable)	Streambanks and wet meadows	NC-1 through NC-3	Spring survey (1)
Lower Watershed			
Purple milkweed (special concern)	Dry to moist woods	NC-9, NC-11 (d)	Spring/fall surveys (2)
Green milkweed (threatened)	Multiple habitats	NC-9, NC-11 (d)	Spring/fall surveys (2)
Jacob's Ladder (endangered)	Moist woods	NC-9, NC-11(d)	Spring/fall surveys (2)
Marsh fern (exploitably vulnerable)	Lowland marshes	NC--17 (b)	Spring survey (1)
Royal fern (exploitably vulnerable)	Streambanks and wet meadows	N-6 through NC--17 (b)	
Cinnamon fern (exploitably vulnerable)	Streambanks	N-6 through NC--17 (b)	Spring survey (1)
Spinulose wood fern (exploitably vulnerable)	Streambanks and wet meadows	N-6 through NC--17 (b)	Spring survey (1)
Protected Wildlife Species			
Peregrine Falcon (endangered*)	Nest on ledges or cliffs or high human structures and may use coastal marshes for foraging	NC-7 through NC-19 (b)	Flyover or foraging observations as needed
Fisheries			
Finfish and shellfish	Last Chance Pond (one sampling location)	NC-11	Finfish netting and trapping (June and September sampling, 3 sample years, see also below)
Finfish and shellfish	Main Branch (above Hylan Boulevard, one sampling location)	NC-12	Finfish and shellfish netting and trapping (June and September sampling, 3 sample years)
Finfish and shellfish	Main Branch (below Hylan Boulevard, three sampling location)	NC-13, NC-15, NC-16 and NC-17	Finfish and shellfish netting and trapping (June and September sampling, 3 sample years)
Finfish and shellfish	East Branch (above Slater Boulevard, one sampling location)	NC-19	Finfish and shellfish netting and trapping (June and September sampling, 2 sample years)
Key Habitats			
Gather additional natural resources data for all key habitats	Boundary Avenue Site (3.0 acres)	NC-6	Gather additional survey data for avian habitat, reptile and amphibians, macroinvertebrates (expanded baseline with 5 year updates and at least 1 year prior to construction)
Gather additional natural resources data for all key habitats	Last Chance Pond Site (8.8 acres)	NC-11	Survey data for avian habitat, reptile and amphibians, macroinvertebrates (expanded baseline with 5 year updates and at least 1 year prior to construction)
Notes: (a) Observed by DPR in 2008/2009; (b) Field observations 2009/2010; (c) NYSDEC, August 2011; (d) recorded evidence from NYSDEC Natural Heritage Program, USFWS, NMFS, Breeding Bird Atlas or other sources. (*) Reported at Verrazano-Narrows Bridge			

Appendix Table F-3: South Beach

Monitoring Program for Protected Species and Fisheries to be Used in Final Design

Protected Vegetation Species	Habitats	BMP Sites	Sample Program (Sampling years)
Green milkweed (threatened)	Multiple habitats	SBE-1A,1B,1C (d)	Spring/fall surveys (2-3)
Hop sedge (threatened)	Coastal sands and meadows	SBE-1A,1B,1C (d)	Spring/fall surveys (2-3)
Fringed Bonset (threatened)	Coastal sands and meadows	SBE-1A,1B,1C (d)	Spring/fall surveys (2-3)
Seaside knotweed (threatened)	Sandy beaches and shores	SBE-1A, 1B,1C (d)	Spring/fall surveys (2-3)
Globose flatsedge (endangered)	Sandy coastal plains	SBE-1A, 1B,1C (d)	Spring/fall surveys (2-3)
Needlepod rush (endangered)	Shallow pools and damp sandy soils	SBE-1A, 1B,1C (d)	Spring/fall surveys (2-3)
Slender rose gentian (endangered)	Brackish marshes	SBE-1A, 1B,1C (a)	Spring/fall surveys (2-3)
Nodding ladies tresses (exploitably vulnerable)	Coastal bogs	SBE-1A, 1B,1C (a)	Spring/fall surveys (1r)
Butterfly milkweed (exploitably vulnerable)	Coastal plains	SBE-1A, 1B,1C (a)	Spring/fall surveys (1)
Cinnamon fern (exploitably vulnerable)	Streambanks	SBE-1A, 1B,1C (c)	Spring/fall survey (1)
Royal fern (exploitably vulnerable)	Streambanks	SBE-1A, 1B,1C (c)	Spring/fall survey (1)
Protected Wildlife Species			
Osprey (special concern)	Coastal marshes and islands	SBE-1A, 1B, 1C (b)	Nesting/foraging surveys (3)
Northern Harrier (special concern)	Coastal marshes and islands	SBE-1A, 1B, 1C (d)	Nesting/foraging surveys (3)
Peregrine Falcon (endangered*)	Nest on ledges or cliffs or human tall human structures (1) use coastal marshes for foraging	SBE-1A, 1B, 1C (c)	Flyover or foraging observations as needed
Notes: (a) Observed by DPR in 2008/2009; (b) Field observations 2009/2010; (c) NYSDEC, August 2011; (d) recorded evidence from NYSDEC Natural Heritage Program, USFWS, NMFS, Breeding Bird Atlas or other sources. (*) Reported at Verrazano-Narrows Bridge			