BIODIVERSITY ASSESSMENT REPORT
FOR THE
CROTON OVERLOOK DEVELOPMENT PROJECT

Prepared for:
CROTON OVERLOOK CORPORATION
PO BOX 1132
YORKTOWN HEIGHTS, NY 10598

Prepared by:
ENVIRONEMTNAL COMPLIANCE SERVICES, INC.
26 SOUTH STREET
MIDDLETOWN, NEW YORK 10940

JULY 2011

BIODIVERSITY ASSESSMENT REPORT
FOR THE
CROTON OVERLOOK DEVELOPMENT PROJECT

TABLE OF CONTENTS

BIODIVERSITY ASSESSMENT REPORT
FOR THE
CROTON OVERLOOK DEVELOPMENT PROJECT

BIODIVERSITY ASSESSMENT REPORT
FOR THE
CROTON OVERLOOK DEVELOPMENT PROJECT

LIST OF APPENDICES

LIST OF FIGURES

1.0 INTRODUCTION

A Biodiversity Assessment was performed at the Croton Overlook Development property during the period of April through June 2011. The purpose of the Assessment is to determine the level of plant and animal diversity across the 68-acre property, and evaluate potential impacts the proposed project may have upon the life-cycles of wildlife. As a first step, on-site habitat characteristics were determined and assessed to define the types and value of each identified in the field. Available published information on vegetation (types and structure), geology, topography, soils, climate and water resources (wetlands and waterways) were reviewed to aid in identifying on-site habitats. Prior to commencing the assessment, a summary of proposed protocols was developed and submitted to the Town of Yorktown Environmental Consultant for review and approval. Appendix A (Project Correspondence) contains a copy of the proposed protocols and an e-mail message indicating acceptance by the Town's Environmental Consultant.

In addition, habitat profiles published for Weschester County and the Hudson River Estuary Corridor were used to "type" each on-site habitat. Undeveloped areas which adjoin the Croton Overlook Development property were visually assessed for habitat characteristics from a distance using binoculars and a spotting scope. At no time were the adjoining properties accessed. Field activities were performed pursuant to the protocols contained in the Town of Yorktown, Wildlife and Plant Biodiversity Assessments document (pages 1 through 3) and the publication entitled "Croton-to-Hudson Biodiversity Plan, Balancing Development and the Environment in the Hudson River Estuary Catchment" (MCA Technical Series Paper Series No. 7, 2004).

Once each on-site habitat was "typed", field survey "target sites/areas" were established in the field as a function of surrounding natural history and habitat preferences which have been documented by others for birds and herpetofauna (reptiles and amphibians). In addition, vegetation transects, quadrants and circular sample plots were located (flagged) within each most habitats to facilitate periodic species observation during the assessment period of April through late June.

Based on the timing of species habitat and breeding preference, each target site was visited at various times during the assessment period to record visual sightings and sounds (bird song/call notes and seasonal frog and toad callings) observed within each habitat. Reptiles and amphibians were surveyed during April through May, breeding birds were surveyed from May to late June. Plants, mammals and insects were surveyed April through late June.

1.1 Data Recording

During each field survey event, species observations were recorded along with the date, time, weather, observer, start/finish, location, how and where each species was identified (habitat). Later, this and other information about the site was used to determination whether, or not, the species is a "habitat specialist" (development-sensitive) or "habitat generalist" (development-associated).

Species were recorded separately on data sheets and in some cases, a field pad was used to record observations as less species were encountered. Observations of mammals and insects were recorded on a field pad; observations of mammals were based on visual sightings, sounds, scat, tracks and territorial field markings during the overall assessment period of April through late June. Insects were recorded similarly; all sightings were based on visual observations during April through late June when surveying throughout the property.

The types of methods employed for conducting field surveys are presented below. In addition, various guides and field biology/ecology documents and audio recordings were utilized to identify species encountered in the field. These resources are contained in Appendix B

2.0 SURVEY METHODS

As noted above, field surveys were performed as a function of when (timing) species may inhabit and breed within identified habitat areas of the property site. Various guides were utilized to pinpoint the most advantageous time species may be observed in the field throughout the period of April through late June.

2.1 Plants

Meter quadrant/point intercept transects were setup randomly within predetermined habitats to record and confirm vegetation species, their structure and percent cover. As necessary, circle plots were utilized to document vegetative structure and overall cover. Each transect was flagged in the field to facilitate revisiting survey locations during the assessment period of April through late June. Portable square meter tubing was used to record observations within each quadrant. Linear transects were extended over a 50 foot distance in order to express field findings; the distance between quadrants was evenly set over the 50 foot distance and was based on available ground cover. Two daytime field visits were performed to record vegetation within each identified target habitat area and during the later part of the assessment period to ensure that seasonal vegetation was present during the 2011 growing season.

As noted, information was gathered in the field and recorded on a field pad or specific field data sheets. Various guides were used to help identify species in the field; hand lens magnifiers were also used for close-up observations. Photographs were obtained to document observations for each transect; separate photographs of quadrants were also obtained.

2.2 Birds

Bird surveys were performed during three (3) site visits (April through late June), commencing at least ½ hour before dawn to 9:30 AM, during the period of April through June. This time period ensured that potential nocturnal (night), crepuscular (twilight) and diurnal (day) species would be observed. Emphasis was also placed on conducting surveys during May to late June when breeding birds likely visit the site. On June 25th, an attempt was made to observe the sounds of possible nocturnal bird species while visiting the site (1.5 hours, 8 to 9:30 PM) to observe frog and toad callings (Section 2.3, Reptiles and Amphibians).

Observation points were established visually in the field, once the center of each location was flagged within a portion of a predetermined habitat. The flagging allowed each location to be easily revisited in order to continue observations at the same location during the assessment period. The habitat location, direction and approximate distance was recorded for each sighting on specific field data sheets. The distance of each sighting was noted from the "center point" of each flagged location; whether or not a species was heard ("h"- song/call) or visually sighted ("v"), the name of each species (common name) and number of individuals sighted, were also recorded. Binoculars and a spotting scope were used as the primary tools for sighting birds at each flagged location. These devices were also utilized to observe habitat and bird sightings within nearby, off-site habitat areas.

2.3 Reptiles and Amphibians

Herpetofauna (reptiles and amphibians) were surveyed on three (3) separate days during the Spring and early Summer, April through the end of June. Prior to performing the surveys, natural history and habitat preference documents, as well as species distribution maps, were reviewed to confirm preselected target sites/areas across the Croton Overlook property. Sites included were on-site wet meadows, hardwood forests, rocky outcrops, pond and stream edges, and wetlands; these areas were surveyed in a random manner as reptile and amphibian species are highly mobile in the Spring and early Summer during the breeding season, April through June. Emphasis was placed on investigating landscapes between upland forested areas, and wetlands, stream sections, rock outcrops and moist meadow grasses (i.e. open cover pond and stream areas), as amphibians have been documented to frequent such areas during the assessment period. No vernal pools exist anywhere on the property. Only two man-made ponds are situated within on-site open canopy and forested freshwater wetlands. A section of a perennial stream lies south of the two ponds, which receive intermittent and perennial flow from off-site, upgradient sources.

The gathering of Herpetological data was based solely on visual and audio observations (sight and sound). A small rake resembling a snake hook was used to overturn wood debris, leaf litter, matted grass and stones to observe the "micro habitats" typical of reptiles and amphibians, within each identified on-site habitat. A dip net was also utilized while surveying along the water's edge of the two on-site ponds, and along a portion of the on-site perennial stream section to help identify amphibians. Binoculars were also utilized to identify amphibians within the on-site ponds and stream sections to facilitate observations at a distance, and thereby avoid startling.

At no time was any of the debris, matted grass, or stones overturned more than once in order to maintain these types of micro habitats. The surveys were performed during early morning hours and early afternoon, between 6 AM and 1:00 PM; one (1) evening survey event was performed on June 25th to listen for the callings and sounds of frogs and toads. This event was performed over a 1.5 hour period between the hours of 8 and 9:30 PM when the greatest likelihood of callings are expected. During daytime survey events, preselected upland and wet meadow areas surrounding the two on-site ponds and perennial stream section were inspected for reptiles and amphibians.

As noted under the assessment protocol, species encountered in the field were to be recorded on data sheets which would include date, time, observer, weather, start/finish, location, how and where each species was identified (habitat), aspect, and number of individuals observed. Since few species were encountered and sightings were erratic, it was decided that it would be best to record sightings on field pads and later tabulated these with potential species inhabitants for inclusion in this report. The dates of observations, time and weather were also recorded on field pads.

2.4 Mammals and Insects

Mammals and insects were surveyed April through late June. Given that mammal and insect species are highly predacious and mobile, and may occur during varied times of the day (due to nocturnal, diurnal and crepuscular behavior), species encountered while other surveys were being performed throughout the property site were recorded during the assessment period. Since few mammalian and insect species were encountered (and sightings were quite erratic), it was decided that those sighted would be listed on field pads and later tabulated with potential species habitants for inclusion in this report.

With respect to sighting mammals, recorded observations were based on visual sightings of animals, scat, tracks and territorial field markings. Various guide books on these topics were used to aid species identification.

2.5 Fish

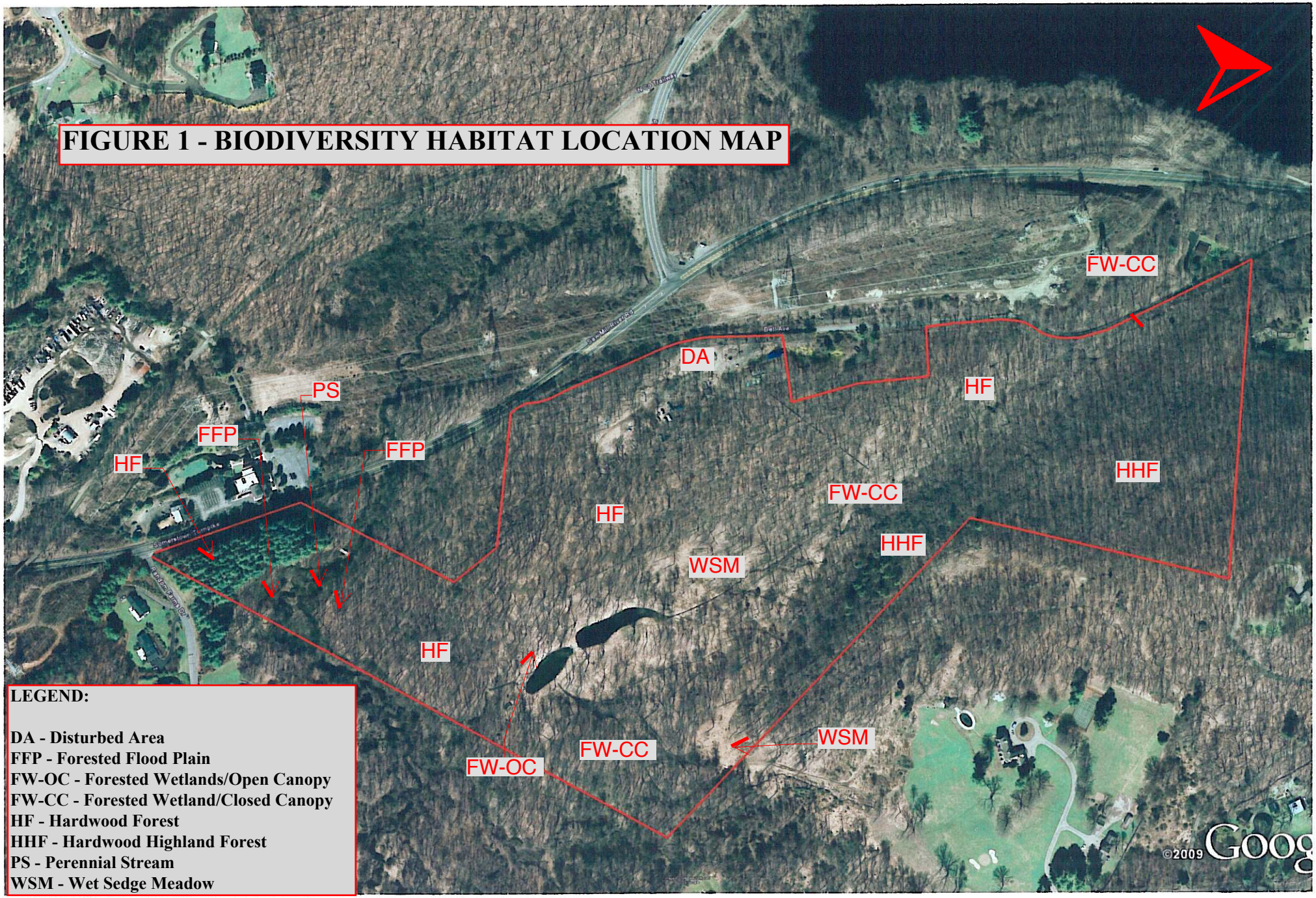
Fish habitation potentials were within the on-site ponds and perennial stream section; expected species were determined utilizing available fish and aquatic insect resource data (including NYSDEC fish data within the drainage area) for nearby streams/ponds with similar morphological characteristics (i.e. depth, width, bank, bottom conditions and NYSDEC classification). Three (3) daytime walk-through surveys were performed around each of the two on-site ponds and the stream section at the south reaches of the property, April through late June. The edge and center portions of these waters were visually inspected for the presence of juvenile and adult species. Emphasis was placed on visually inspecting stream sections within riffle pools, bank undercuts and debris. In-stream debris, including the bottom of stumps and stones, were examined for aquatic insects which are favored by area fish species. A dip net was also utilized to search out “fingerlings” for identification. These inspections were performed on the same day that other surveys were being performed, April through the end of June.

In the event species were encountered, each would be listed on separate field data sheets to include the date, time, observer, weather, start/finish, location, how and where each species was identified (habitat), length and the methods/techniques utilized. Unfortunately, no fish species were encountered during field surveys.

2.6 Habitat and Survey Locations

Figure 1, entitled “Biodiversity Habitat Location Map", presents a representation of the on-site habitats identified for the site and the locations where flora and fauna surveys were

FIGURE 1 - BIODIVERSITY HABITAT LOCATION MAP



LEGEND:

DA - Disturbed Area
FFP - Forested Flood Plain
FW-OC - Forested Wetlands/Open Canopy
FW-CC - Forested Wetland/Closed Canopy
HF - Hardwood Forest
HHF - Hardwood Highland Forest
PS - Perennial Stream
WSM - Wet Sedge Meadow

performed across the Croton Overlook property. Identified habitats include Wet Sedge Meadow (WSM) comprised primarily of sedge meadow vegetation, Hardwood Forest (HF) consisting of a Oak/Hickory/Maple/Beech forest, Hardwood Highland Forest (HHF) which represents a topographically elevated area of the property comprised of a Oak/Hickory/Maple/Beech forest, Forested Flood Plain (FFP), Perennial Stream (PS), and Disturbed Area (DA), as well as Forested Wetlands (FW-OC) consisting of Open Cover Canopy areas surrounding the on-site constructed ponds, and Forested Wetland (FW-CC) comprised of surrounding Closed Cover Canopy areas.

Figure 2, entitled "Survey Target Sites/Areas by Habitat", presents the location of target sites/areas surveyed within each on-site habitat. Survey target site/area locations selected are as follows: *v1* through *v6* approximates vegetation transect/quadrant locations, *b1* through *b4* approximates avian observation point locations, *h1* through *h10* denotes Herpetological (reptile and amphibian) walk-through areas, *eve* denotes the locations of the single evening audio observation event, and *f1* and *f2* approximate fish walk-through survey route locations. No specific locations were designated for surveying mammals and insects as these species were observed during each of the other types of field surveys performed across the property.

3.0 DATA ANALYSIS

Once each on-site and nearby off-site habitat was "typed", tabulations of species observed and likely to inhabit (potential) each area were generated. As each field survey was completed, species observed in the field were added to these tabulations (Appendix C). Indication of the "listed status" for Federal and State, threatened, endangered, or species of special concern were noted for each applicable species under a separate tabulations (Appendix D). Field findings and the tabulated species were then compared to the Biodiversity Conservation Study, Town of Yorktown, Westchester County, New York, prepared by Stearns & Wheler, LLC, (updated March 2010) to include likely additional species for those habitat areas which are similar to those of the habitats identified for the Croton Overlook property.

In addition, Federal and State rarity indications were added to the tabulations; indications as to whether a listed bird, reptile or amphibian species is a "development-associated species" or a "development-sensitive species" was also noted. These indications were developed by utilizing the Croton-to-Highlands Biodiversity Plan, the Biodiversity Conservation Study, Town of Yorktown, Westchester County, New York, the NYS Herpitological Atlas, New York Natural Heritage Program listings (including indications through prior correspondence with the Heritage Program), the Breeding Bird Survey and Breeding Bird Atlas, the Biodiversity Assessment Manual for the Hudson River Estuary Corridor and the National Audubon Watch List.

Analysis of habitat and species profiles contained within the Biodiversity Assessment Manual for the Hudson River Estuary Corridor, the Biodiversity Conservation Study, Town of Yorktown, Westchester County, New York, The Wildlife Resources of Westchester County, and the Ecological Communities of New York State (1990 and January 2002 revision) were used to analyze and confirm each on-site habitat and the species noted within each. This information

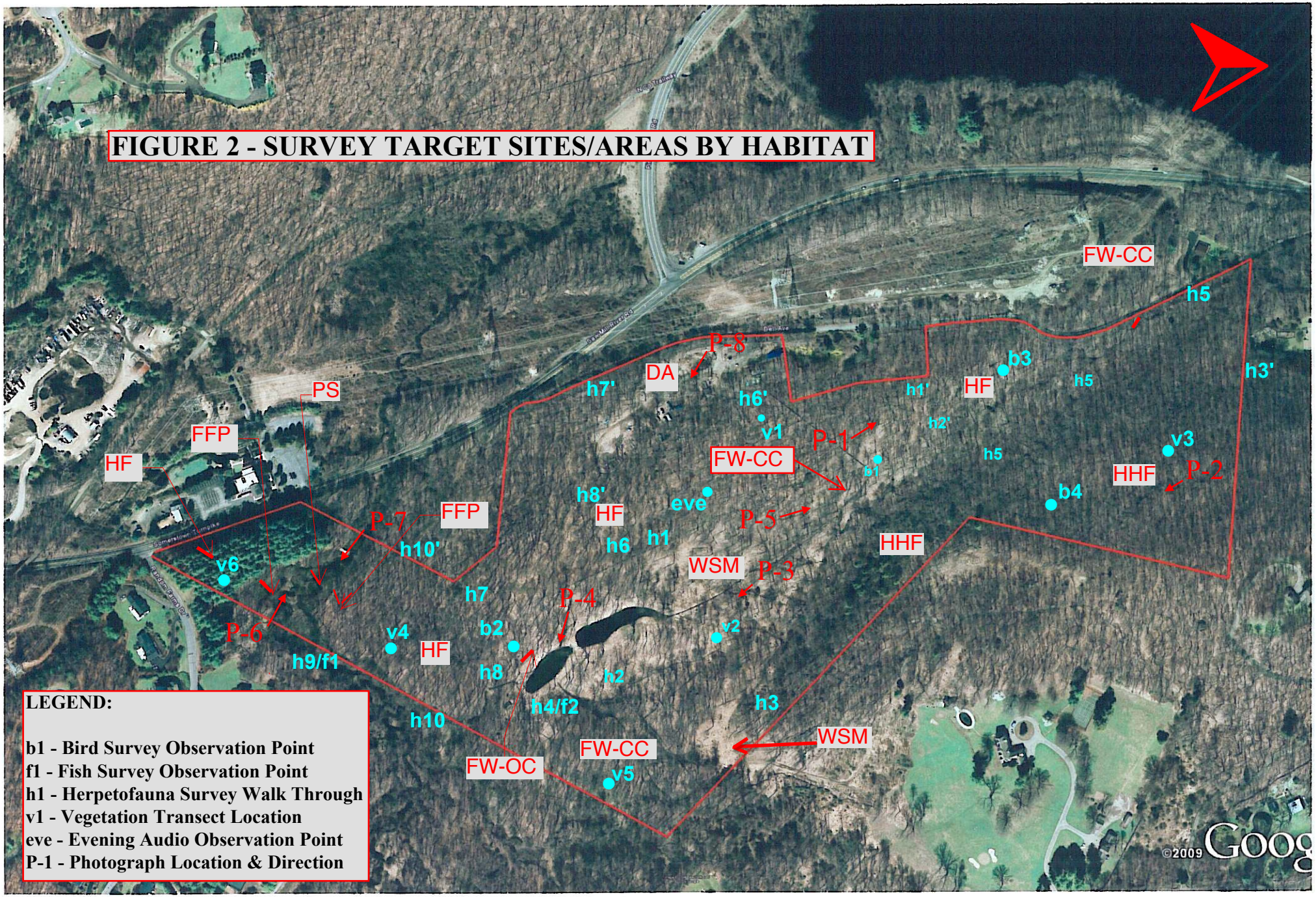


FIGURE 2 - SURVEY TARGET SITES/AREAS BY HABITAT
FW-CC
h5
h3'
P-8
DA
h7'
PS
h6'
h1'
HF
b3
h5
FFP
HF
v1
P-1
h2'
v3
FW-CC
b1
h5
HHF
P-2
h8'
eve
b4
HF
P-7
FFP
P-5
h6
h1
HHF
h10'
v6
WSM
P-3
h7
P-4
P-6
v4
b2
v2
HF
h9/f1
h8
h2
h4/f2
h3
h10
WSM
FW-CC
FW-OC
v5
LEGEND:
b1 - Bird Survey Observation Point
f1 - Fish Survey Observation Point
h1 - Herpetofauna Survey Walk Through
v1 - Vegetation Transect Location
eve - Evening Audio Observation Point
P-1 - Photograph Location & Direction
©2009 Goog

was used to evaluate habitat characteristics for the life-cycles of observed and potential on-site wildlife.

3.1 Nearby Reference Sites

Available species and habitat information for the Kitchawan Preserve (a Westchester County Park), and a Critical Environmental Area which adjoins the Croton Point Park (west of the Croton Overlook Development property), was reviewed and compared to the Biodiversity Assessment survey findings for the Croton Overlook Development site. An analysis of existing habitat fragmentation, as a function of the geographic positioning of these resource areas, was performed to determine habitat management options for the proposed development area, as well as the proposed "open space" area. The results of this evaluation is discussed below in Section 7.0 Development-Associated/Development-Specialist Species, and Section 8.0 Habitat Fragmentation.

4.0 FLORA COMMUNITIES

A total of eight (8) vegetation communities were identified to exist within the boundaries of the Croton Overlook Development site. Figure 1 presents the approximate limits of these communities. These communities support a variety of avian, mammalian, and herpetological species which have been observed and may potentially inhabit these areas. These communities were identified by ECSI as part of completing field activities performed under the Biodiversity Assessment. Data obtained from the six vegetation transects placed within some of these communities, served to profile and confirm vegetation structure and distribution (Appendix E).

Field surveys performed at the site revealed that the greatest vegetation diversity occurs within a large, on-site freshwater wetland, previously delineated as Wetland A. This wetland lies within the Forested Wetland-Closed Canopy (FW-CC), Forested Wetland-Open Canopy (FW-OC) and Wet Sedge Meadow (WSM) vegetation communities (Figure 1). Adjoining habitat areas consist of Hardwood Forest (HF), Highland Hardwood Forest (HHF), Forested Floodplain (FFP), Perennial Stream (PS) and a Disturbed Area (DA). The tables contained in Appendix C present both observed (denoted with an “O”) and potential inhabitants for the eight vegetation habitat communities identified at the site. Potential inhabitant listings were developed by ECSI utilizing reference information for other areas of the Town of Yorktown and Westchester County with similar vegetation communities and conditions, as well as resource listings maintained by the State of New York and Westchester County. Species denoted as being "observed" were identified by ECSI during field visits conducted during the Assessment period of April through late June. In addition, photographs were obtained in the field to depict the structure and distribution of the types of vegetation encountered in the field (Appendix F) These vegetation communities are further discussed below.

4.1 Hardwood Forest (HF)

This upland community lies atop a slight topographic rise located along the western portions of the property. An approximate 16.9 acre portion of the property (which includes the

Disturbed Area community; DA) consists of the proposed development site. The majority of the development will lie within this Hardwood Forest. Observed vegetation consist of second growth hardwood species with little understory vegetation within the central and northern reaches of this community. Stands of White Oak (*Quercus alba*), Burr Oak (*Quercus macrocarpra*), Northern Red Oak (*Quercus rubra*), and Scarlet Oak (*Quercus coccinea*) are the most dominant forms of vegetation, along with co-dominant species of Shagbark Hickory (*Carya ovata*), Bitternut Hickory (*Carya cordiformis*) and Black Birch (*Betula lenta*). The observed range of diameter-at-breast-height (DBH) is 6 to 18 inches. Based on the apparent structure of these stands, strong evidence of competitive growth have occurred over time, whereby very little branching exists and the boles of most trees are straight with limited lower branching. Branch and leaf structure exists mostly within a tight-fitted canopy which has been observed 55 to 65 feet above the surface. Some seedlings and saplings comprised of both dominant and co-dominant species make up a an understory structure which can be described as somewhat sparse.

Within the south-central and southern reaches of this community, White Oak, White Ash (*Fraxinus americana*), Northern Red Oak, Sugar Maple (*Acer saccharum*), Red Maple (*Acer rubrum*) and Shagbark Hickory are the most dominant tree species. The range in DBH is 8 to 18 inches. Some understory vegetation also exists which is comprised of Slippery Elm (*Ulmus rubra*), American Beech (*Fagus grandifolia*), Red Maple and Sugar Maple. The understory structure within this portion of the community is slightly more pronounced.

The predominant types of herbaceous vegetation observed within this community consists of Solomon Seal (*Polygonatum communtatum*), Wild Lilly-of-the-Valley (*Maianthemum dilatatum*), Japanese Barberry (*Berberis thunbergii*), Pennsylvania Sedge (*Carex pennsylvania*), Wild Onion (*Allium canadense*), Japanese Honeysuckle (*Lonisera japonica*), Garlic Mustard (*Alliaria petiolata)*, Japanese Stiltgrass (*Microstegium vimineum*), Common Blue Violet *(Viola soroia),* Christmas Fern *(Polystichum acrostichoides*) and New York Fern (*Thelypteris noveboracensis*).

Photographs numbered 1 through 8 (Appendix F) depict conditions in the 8 vegetation communities; the photograph and directions locations are shown on Figure 2. Photograph 1 depicts some of the canopy vegetation encountered in this community.

4.2 Highland Hardwood Forest (HHF)

This upland community is found along a high topographic ridge line situated along the northeast and eastern boundaries of the property. Observed vegetation consists of second growth hardwood with limited understory vegetation within its central and northern reaches. Stands of White Oak, Burr Oak, Northern Red Oak, and Scarlet Oak are the most dominant tree species, along with co-dominant species of Shagbark Hickory, Black Cherry (*Prunus serotina*) and Black Birch. The observed range of diameter-at-breast-height (DBH) is 5 to 18 inches. As in the case of the Hardwood Forest situated west of this ridge line, these stands display evidence of competitive growth patterns whereby very little lower trunk branching exists and the boles of most trees are straight. Primary branch and leaf structure within the canopy can be observed to be 60 to 70 feet above the surface.

Within the south-central and southern reaches of this community, White Oak, Northern Red Oak, Sugar Maple, Red Maple and Shagbark Hickory are the most dominant species. The range in DBH is 6 to 16 inches. Some understory vegetation also exists which are predominantly comprised of Rhododendron varieties (*Rhododendron spp.*), Shagbark Hickory, American Beech, and Sugar Maple. Here, the understory structure is slightly more pronounced compared to it's northern limits.

This community also supports herbaceous vegetation consisting of Wild Lilly-of-the-Valley, Pennsylvania Sedge, Wild Onion, Garlic Mustard, Common Blue Violet, Christmas Fern and New York Fern.

Photograph number 2 depicts some mature strands of Sugar Maple and Red Oak.

4.3 Forested Wetland - Closed Canopy (FW-CC)

This community is situated at lower elevations of the site, a fairly large portion of which is nestled between the surrounding upland Hardwood Forest (HF) and Highland Hardwood Forest (HHF) communities. It extends from the north central portions of the site, to the southern reaches of the property. This community is fed by intermittent streams and groundwater seeps originating from the nearby surrounding upland hardwood forest communities. A large portion of this community, delineated as Wetland A, consists of this community. A smaller wetland area, delineated as Wetland B, exists just beyond a topographic flow divide situated near Dell Avenue. Predominant vegetation within this community consists of Red Maple, Sweet Gum (*Liquidambar styraciflua*), Northern Pin Oak *(Quercus palustris*), Shagbark Hickory and Green Ash *(Fraxinus pennylvanica*). The observed range of diameter-at-breast-height (DBH) is 4 to 16 inches. Dominant understory species consist of Red Maple, Spicebush (*Lindera benzoin*), Wild Grape (*Vitis spp.*), American Elm (*Uimus americana*) American Hophornbeam (*Ostrya virginiana*), Alternate-Leaf Dogwood (*Cornus alternifolia*) and Gray Dogwood *(Cornu racemosa*).

Herbaceous vegetation identified within this community is comprised of Tussocks Sedge (*Carex stricta*), Skunk Cabbage *(Symplocarpus foetidus*), False Hellebore (*Veratrum californicum)*, Cinnamon Fern (*Osumunda cinnamomea*), Common Reed (*Phragmites communis*), Multiflora Rose (*Rosa multiflora*), Soft Rush (*Juncus Effusus*), Japanese Barberry (*Berberis thunbergii*), and Cattail (*Typha latifolia*).

Photograph number 3 depicts some of the vegetation encountered in this community.

4.4 Forested Wetland - Open Canopy (FW-OC)

This community is situated at the lowest elevations of the site, and is surrounded by the Forested Wetland - Closed Canopy (FW-CC) vegetation community. This community includes two connecting open water ponds which are configured north and south, and are tributary to an unnamed stream located at the southern boundaries of the site. The north pond receives seasonal surface and groundwater flow from the north just beyond the drainage divide separating Wetland B from Wetland A. The south pond receives this flow component as spill over from the north

pond during high seasonal precipitation events; it also receives surface water from two unnamed perennial streams originating upgradient from the Random Farms development. During field surveys conducted under the Biodiversity Assessment, it was observed that the north pond is susceptible to seasonal water level fluctuations; water levels within the south pond appear to be more stable given the volume of surface flow received from the unnamed upgradient streams. Overall, upgradient intermittent surface/groundwater flow sources, originating from the north and east, provide a perennial moisture regime suitable to support a variety of water tolerant vegetation observed within this community. Dominant herbaceous vegetation forms observed within this community is comprised of Tussocks Sedge, Skunk Cabbage, False Hellebore, Common Reed, Multiflora Rose, Soft Rush, Japanese Barberry, and Cattail.

Photograph number 4 depicts the north and south ponds within surrounding FW-OC, FW-CC and WSM communities.

4.5 Wet Sedge Meadow (WSM)

This vegetation community is situated between the Forested Wetland-Closed Canopy and the Forested Wetland-Open Canopy. Saturated soil conditions exists throughout this area which is fed by upgradient intermittent surface water and groundwater seeps originating from the surrounding Hardwood Forest and Highland Hardwood Forest communities. Observed predominant herbaceous vegetation within this community is comprised of Tussocks Sedge, Skunk Cabbage, False Hellebore, Common Reed, Soft Rush, Japanese Barberry, Cattail, Multiflora Rose, Star Sedge (*Carex echinata*), Bladder Sedge (*Carex intermescens*), Lurid Sedge (*Carex lurida*), Fox Sedge (*Carex vulpinoidea*) and Umbrella Sedge (*Cyperus strigosus*).

Photograph number 5 depicts some of the vegetation encountered in this community.

4.6 Forested Floodplain (FFP)

This community is seasonally flooded, portions of which consist of open canopy with heavily laden surface sediments; a Perennial Stream (PS) lies within the limits of the floodplain. Skunk Cabbage, Spotted Jewelweed (*Impatiens capensis*) and False Hellebore are the most predominant types of herbaceous plants existing throughout the limits of this community. These plants thrive on wet woodland sites where perennial stream flow provides a persistent moisture regime. Along the upper limits of flood stage, Shagbark Hickory, Northern Pin Oak, American Elm (*Ulmus americana*), Sycamore *(Ficus sycomorus),* Black Willow (*Salix nigra*) and Eastern Cottonwood (*Populus deltoides*) are dominant canopy species. Stands of Eastern Hemlock (*Tsuga canadensis*) and White Pine (*Pinus strobus*) primarily occupy at the southeastern and southwestern limits of this community. The observed range in DBH is 4 to 24 inches.

The understory is sparse with Multiflora Rose, American Elm, Spicebush and Pussy Willow (*Salix cabrea*) as predominant species.

Photograph number 6 depicts some of the vegetation encountered in this community.

4.7 Perennial Stream (PS)

The Perennial Stream community is located within the limits of the Forested Floodplain community and thus, the canopy, understory and herbaceous species observed within the Forested Floodplain community "overlap" within this community. This community is dependent upon on-site surface water flows originating from the east, southeast and southern portions of the property, as well as from adjoining off-site areas situated upgradient of the property. This community lies at the most lowest elevation of the site where a flow gradient occurs from east to west, towards the New Croton Reservoir.

Photograph number 7 depicts the perennial stream vegetation encountered in this community.

4.8 Disturbed Area (DA)

Because of its disturbed ground conditions, this community is comprised of limited herbaceous "pioneer" species resulting in an "ecological edge" border along the Hardwood Forest (HF) community. This community is situated along the western boundary of the site and lies within a portion of the proposed limits of the development. Expected predominant herbaceous species consist of Queen Anne's Lace (*Daucus carota*), Common Mullen (*Verbascum thapsus*), Dandelion (*Taraxacum officinale*), Crab Grass (*Digitaria sanguinalis*), Golden Rod (*Solidago spp.*), Virginia Creeper (*Parthenocissus quinnquefolia*), Poison Ivy (*Toxicondendron radicans*), Chicory (*Cichorium intybus*) and Common Milkweed (*Asclepias syriaca*).

Photograph number 8 depicts some of the vegetation encountered in this community.

5.0 FAUNA

The eight vegetative communities identified at the Croton Overlook Development property support a variety of avian, mammalian, and herpetological species with various food sources and shelter. During daytime (Diurnal) and twilight (Crepuscular) periods of the day when field surveys were performed at the property, a number of avian, mammalian, reptile and amphibian species were recorded. As noted in Appendix C, mammals observed on-site include White Tailed Deer (*Odocoileus virginianus*), Eastern Gray Squirrel (*Sciurus carolinensis*) and Eastern Chipmunk (*Tamias striatus*), Little Brown Bat (*Myotis lucifugus*) and Red Fox (*Vulpes vulpes*)***;*** observed avian species include various woodpeckers (*Picoides spp.*), several perching and song birds *(Passeriformes* and *Oscines spp*.), Wild Turkey (*Meleagris gallopavo*), Raptor (*Buteo spp.*) and Turkey Vulture (*Cathartes aura*); observed reptiles and amphibians include Eastern Box Turtle (*Terrapene carolina*), Eastern Garter Snake (*Thamnophis sirtalis*), Northern Spring Peeper (*Hyla crucifer*), Bull Frog (*Rana catesbeiana*), Green Frog (*Rana clamitans*) and Gray Tree Frog (*Hyla versicolor*). These species are highly mobile and have the potential to inhabit most communities on site. Little Brown Bat, Red Fox, Bull Frog, Green Frog and Gray Tree Frog were observed (sighted and heard) during the evening survey period on June 25th.

In addition, a variety of insects were observed throughout the property during the Assessment period. These species, as well as potential inhabitants, are also contained in Appendix C.

5.1 Hardwood Forest (HF)

The Hardwood Forest vegetation habitat displays the least structure and variety of vegetation compared to other on-site communities. The majority of this community contains little opportunity for nest sites, as the surface is open and "smooth" with little understory structure and herbaceous cover. Tree branching occurs at heights of approximately 45 to 65 feet above the ground and thus, little is offered in the way of long-term shelter protection from the elements; however, this area is enriched with a variety of food source including acorns, seed and insect inhabitants favored by large and small mammals, reptiles and various avian species.

A small variety of migratory and indigenous avian species have been observed to occupy the canopy as perch sites (Passerines). Small mammals such as the White-footed Mouse, Deer Mouse, Skunk, Virginia Opossum, Star-nosed Mole, Little Brown Bat and Northern Myotis (*Myotis septentrionalis*) may likely inhabit this community. The Eastern Chipmunk, White Tailed Deer and the Eastern Gray Squirrel were observed in this habitat community. Reptile and amphibian species that may inhabit this community include the Wood Frog (*Rana sylvatica*) and the Fowler's Toad *(Bufo fowleri*). The Eastern Box Turtle and the Eastern Garter Snake were observed in this community (Appendix C). During preliminary field surveys, small herds of White Tailed Deer (comprised of 4 to 6 individuals) have been observed feeding on the variety of acorns (mast), leaves, forbs and twigs produced by the Oak, Beech, Birch and Maple trees within this community.

5.2 Highland Hardwood Forest (HHF)

The Highland Hardwood Forest is expected to be utilized by various mammalian, avian and reptile species as forage and for temporary/long-term shelter, both on the ground and within the understory. Surface soil conditions within the Highland Hardwood Forest is irregular with various sized stones and boulders capable of providing suitable temporary and long-term shelter for small burrowing mammals and reptiles. Observed dense areas of understory and herbaceous species within this community are preferred by nesting song birds and Passerines, as well as large and small mammals, including the White Tailed Deer (Observed), Eastern Gray Squirrel (Observed), Eastern Chipmunk (Observed), Star-nosed Mole (*Condylura cristata*), Little Brown Bat (*Myotis lucifugus*), Northern Myotis (*Myotis vivesi*) and reptiles (turtles and snakes) for food and shelter. The Red Tailed Hawk (*Buteo jamaicensis*) was observed in this community which hunts small mammals and is known to nest within the canopy at higher elevations; the Great Crested Fly Catcher (*Myiarchus crinitus*), also observed in this community, is likely to be a repeat inhabitant as this species is noted for hunting large insects within the canopy and it nests within cavities.

5.3 Forested Wetland - Closed Canopy (FW-CC)

This vegetation community is diverse and supplies food and shelter for a variety of wildlife. Observed understory and herbaceous species provide temporary- and long-term shelter, as well as fairly abundant sources of seed and fruit, which in turn are suitable to support large insect populations. These food sources attract small and large mammals, reptiles and various avian species. The tables contained in Appendix C present both observed and potential species for this habitat community.

The ecology of this habitat is diverse in that "predator and prey" relationships are somewhat stable to sustain the listed observed and expected populations presented in Appendix C. Adequate cover and ground conditions exists to enable small mammals, reptiles and birds to move freely to adjoining vegetated habitats for food and shelter. This in turn compliments and supports a wildlife diversity within adjoining vegetation community habitats.

As an example, large mammals such as the White Tailed Deer (Observed) utilize this habitat for bedding and protection for nurturing their young. Tree frogs and reptiles are attracted to the large variety of insects and plants available to satisfy needs for food and shelter. Songbirds are also attracted by insects and both perch and nesting sites (including cavities) are available within the understory. Bird surveys conducted under the Assessment (location b-1) revealed that the greatest variety of species were observed in this community.

5.4 Forested Wetland - Open Canopy (FW-OC)

This habitat community contains the highest diversity of plant species and overall support resources favored by the listed observed and expected wildlife. This vegetation community is inhabited by plants and animals which favor soil saturation and direct sunlight conditions.

The two man-made open-water ponds existing within this community support limited reptile and amphibian populations with shelter, food and temperature gradients necessary for survival. The Green Frog, Bull Frog, Spring Peeper and Gray Tree Frog were observed in this community. These ponds likely provide favorable ectothermic conditions for seasonal propagation and hibernation***;*** however, observations of water level conditions within the north pond indicate that this body of water is prone to wide seasonal fluctuations, while levels in the south pond are more stable.

Several avian species have been observed migrating through and/or inhabiting this habitat community. Woodpeckers and a variety of indigenous and migratory warblers (songbirds) will feast on an abundant insect population, as well as a variety of seeds and fruits produced by a diverse understory. White Tailed Deer, Little Brown Bat and Red Fox were observed in this community. As with the FW-CC community, bird surveys conducted under the Assessment (location b-2) revealed that the greatest variety of species were observed in this community. The tables contained in Appendix C present several observed and potential avian species for this habitat community.

In addition, several dead trees (snags) surround the two ponds which in turn provide habitat for the types of insects sort after by several bird species and small mammals. Natural holes within decayed and standing and/or fallen tree trunks (and those excavated by Woodpeckers) are used by small mammals, amphibians and birds for nesting sites (cavity nesters).

5.5 Wet Sedge Meadow (WSM)

This vegetation community is inhabited by plants which favor soil saturation, partial shade and direct sunlight conditions. These conditions are also favored by several reptile and amphibian species which seek ideal seasonal ectothermic temperature gradients to survive. An abundance of decaying plant matter, water tolerant rush and reed plants, and surface stones exist throughout this community; these features provide food source and shelter for several species. Potential inhabitants include the Northern Red-backed Salamanders (*Plethodon serratus*), Red Newt *(Notophthalmus viridescens*), Green Frog, Spring Peeper, Gray Tree Frog and Pickerel Frog (*Rana palustris*). The Eastern Box Turtle and Spring Peeper were observed within this community. Both small and large mammals such as the Raccoon, Little Brown Bat and Red Fox, hunt prey within wet meadows and may seek temporary shelter as well. This habitat also attracts a large variety of avian species including the Empidonax Flycatchers (Willow, Alder and Arcadian); the American Goldfinch (*Spinus tristis*), Bluebird (*Sialia sialis*) and Yellow Warbler (*Dendroica petechia*) were observed feeding on insects in this habitat community. As with the FW-CC and FW-OC communities, bird surveys conducted under the Assessment in the vicinity of this community revealed that a large variety of species exist.

5.6 Forested Floodplain (FFP)

This habitat community attracts several avian species which feed upon plant seeds and insects common to floodplain communities. The American Robin (*Turdus migratorius*), Gray Catbird (*Dumetella carolinensis*), American Crow (*Corvus brachyrhynchos*), White-breasted Nuthatch (*Sitta carolinensis*), Red-eyed Vireo (*Vireo olivaceus*), Red-bellied Woodpecker (*Melanerpes carolinus*), American Goldfinch, Veery (*Catharus fuscescens*) and Eastern Wood-Peewee (*Contopus virens*) are typical avian inhabitants in this community.

Reptile and amphibian inhabitants may include Wood Frog, American Toad, Pickerel Frog, Two-lined Salamander (*Eurycea bislineata*), Spring Peeper, Eastern Garter Snake and Red-backed Salamander. Typical mammalian inhabitants include White Tailed Deer, Raccoon (*Procyon lotor*), Skunk, Eastern Gray Squirrel, Eastern Chipmunk, Virginia Opossum *(Didelphia virginiana)*, Star-nosed Mole, Little Brown Bat and Northern Myotis (*Myotis septentrionalis*).

5.7 Perennial Stream (PS)

The Perennial Stream community flows from east to west through the Floodplain (FP) community. Two unnamed tributaries which originate from upgradient sources east and southeast of the property, connect with the on-site perennial stream along the southern reaches of the property. In addition, the Cornell Brook (also a perennial stream) flows from the south and connects with the on-site perennial stream at a nearby off-site location (south). The majority of

on-site streams (intermittent and perennial) flow through forested wetlands with closed canopy (FW-CC). These on-site streams are found within the southern limits of Wetland A.

Field surveys completed by ECSI under the Biodiversity Assessment revealed that the perennial stream meanders through the site and is comprised of both soft (fine sediment) and hard (sand and gravel) bottom conditions. Bank undercutting exists along portions of the stream which serves to cool water temperatures and provides temporary shelter for aquatic insects and young fish. In addition, fallen tree trunks and branches exist across portions of the stream; these features produce eddies which in turn provide rest points for small fish and aquatic insects. The branching habit of observed understory species does not overhang the stream whereby insects may be a food source for fish; the understory does serve to shade and cool stream waters. No fish species or aquatic insects were observed within the stream during any of the herpetological and fish surveys completed under the Assessment.

5.8 Disturbed Area (DA)

This community is somewhat void of vegetation. Small clusters of plants do exist sporadically, which are primarily comprised of "pioneer" forms of vegetation (Appendix C). These plants seasonally offer fruits and seeds, as well as attract insects, which are favored by avian species and small mammals. Appendix C presents a table of potential avian species which may inhabit this community. In addition, this area is likely visited by raptors to hunt prey consisting of small mammals and reptiles. This area is bordered by the Hardwood Forest community and thus, an "ecological edge" occurs which is also favored by birds and small mammals. Larger mammals, such as the Skunk and Raccoon may visit this area solely for food. It is likely that very little opportunities exist for shelter, or for nesting. During field surveys performed by ECSI as part of the Assessment, White Tailed Deer were observed foraging within this area, as well as the Eastern Gray Squirrel and the Eastern Chipmunk.

6.0 ENDANGERED, THREATENED AND SPECIES OF SPECIAL CONCERN

As part of gathering information contained within this document, COC contacted the New York State Natural Heritage Program to determine if any rare, threatened, and/or endangered (or of special concern) habitats, or species, exist at or near the project site. COC received correspondence from the Heritage Program on September 30, 2010 indicating that no rare, threatened, and/or endangered (or species of special concern) species or habitats exist for the project area (Appendix A).

6.1 Observed and Potential Species

During the Assessment surveys performed by ECSI, no rare, threatened, and/or endangered species were observed within the vegetation communities inspected during April through late June. As noted, an Eastern Box Turtle was observed within the Wet Sedge Meadow (WSM) vegetation community and along the central-east portion of the Hardwood Forest (HF) community. According to listings maintained by the NYSDEC, the Eastern Box Turtle is designated as a species of special concern, as defined in Section 182.2(i) of 6 NYCRR Part 182.

In addition, a potential inhabitant listed by ECSI, the Marbled Salamander, is also regarded to be a species of special concern. Species of special concern warrant attention and consideration, but current information, collected by the Department, does not justify listing these species as either endangered or threatened. Comparison of potential and observed species to that of State and Federal listings revealed that none of the species listed are either endangered, or threatened.

6.2 Species Rarity

ECSI compared listings of observed and potential inhabitants to rarity indices published by the New York Natural Heritage Program. The indices were reviewed to determine if any observed or potential animal or plant species listed under the vegetation communities identified at the Croton Overlook property are considered rare or most imperiled species. The listings were generated in consultation with the New York State Department of Environmental Conservation's Endangered Species Unit and Nongame Unit, Natureserve, researches, conservation organizations and knowledgeable amateur botanists.

One animal, the Least Shrew, has been assigned a rarity index of "G5, SH, U". This species is listed as potentially inhabiting the WSM and HF vegetation communities identified for the property. The "G5" designation means that the species demonstratively is secured globally, but it can be quite rare in some locations. The "SH" means that it is historically in-State but has not been seen in 15 to 20 years. The "U" denotes that the species is Unprotected.

One observed plant species was, Carex spp., identified within the FW-CC vegetation community is listed for the Westchester County area. Depending on the actual species, the listing vary from endangered to unprotected.

Given that the Least Shrew is a listed potential species that has not been seen in 15 to 20 years, it is likely that this species does not inhabit the WSM and HF communities.

6.3 Breeding Birds

ECSI compared observed and potential avian species listed for the 8 vegetation communities identified at the Croton Overlook property to the New York State Breeding Bird Atlas (2000 to 2005). This comparison revealed that 99% of these species are indicated as being "confirmed" or "probable" breeding birds for the Westchester County area. During the bird surveys conducted at the b1 and b2 locations, the greatest diversity of breeding birds were identified within the FW-CC, FW-OC and WSM vegetation communities. Further, some of the avian species recorded in these communities were observed to be paired and caring for young "on the nest". Actual breeding species observed in these communities included the American Goldfinch, Bluebird, Eastern Wood-peewee and the American Robin. The Bluebird and Eastern Wood-peewee are cavity nesters, which were observed to be nesting within dead tree snags located throughout the FW-OC vegetation community.

7.0 DEVELOPMENT-ASSOCIATED/DEVELOPMENT-SPECIALIST SPECIES

A "habitat generalist" species is regarded as one which can survive under a variety of habitat conditions, utilizing a large variety of food sources, whereas a "habitat specialist" species is one that survives on a more narrow range of habitat and food choices. Generalists species are know to exploit a wider range of resources, while specialists make more efficient use of resources and typically exist under more diverse habitat conditions.

In an effort to better determine how potential impacts the project may pose for observed and potential wildlife species listed for the project, ECSI utilized the "Focal Species Approach" (FoSA) to evaluate species mix and its implications for ecosystem health. This approach has been developed jointly by the Wildlife Conservation Society (WCS) and the Metropolitan Conservation Alliance (MCA) and is described in the document entitled "Croton-to-Hudson Biodiversity Plan, Balancing Development and the Environment in the Hudson River Estuary Catchment" (MCA Technical Series Paper Series No. 7, 2004).

7.1 Specialists and Generalists

Under the Focal Species Approach, observed species are compared to listings of "developmental-associated focal species" (habitat generalist) and "development-sensitive focal species" (habitat specialist). ECSI also compared potential inhabitants listed for the Croton Overlook property. The approach provides lists of bird, reptile and amphibian species in each category to aid in evaluating ecosystem health.

Based on a review of the listings provided by WCS/MCA under Appendix A of their publication, some of the observed and potential bird, reptile and amphibian species listed for the Croton Overlook property match those noted under the development-associated and development-sensitive species categories. On-site species which match up under listed development-associated species include the Canada Goose, Blue Jay, American Crow, European Starling, Brown-headed Cowbird, Common Grackle and House Wren. The majority of these species were observed throughout the Croton Overlook property. One reptile, the Garter Snake and one amphibian, the Bull Frog, are also listed. These were also observed at the Croton Overlook property.

Potential and observed development-sensitive species listed for the Croton Overlook property include the Least Flycatcher, Black-and-white Warbler, Worm-eating Warbler, Eastern Bluebird, Indigo Bunting, Pileated Woodpecker, Blue-winged Warbler, Prairie Warbler, Ovenbird and the Veery. The majority of these species were observed at the Croton Overlook property. (The Indigo Bunting, Blue-winged Warbler and Prairie Warbler were observed from bird survey location b3 as being from 150 to 350 feet west of the Croton Overlook property along the nearby utility power line owned and maintain by ConEdison.) Reptile species include the Spotted Turtle, Eastern Box Turtle, Eastern Hognose Snake and the Northern Copperhead. The Eastern Box Turtle was observed at the Croton Overlook property; the other reptile species were listed as potential inhabitants. Amphibians include the Jefferson Salamander, Spotted Salamander, Marbled Salamander, Fowler's Toad, Gray Tree Frog and Wood Frog. Of these

species, the Gray Tree Frog was observed at the Croton Overlook property, the remainder are listed as potential inhabitants.

The above noted development-associated and development-sensitive species are listed on tables contained in Appendix D.

7.2 Data Analysis

Both development-associated and development-sensitive species exist at the Croton Overlook property. A tabulation of these species is contained in Appendix C. With the exception of the Indigo Bunting, Blue-winged Warbler and the Prairie Warbler, the majority of bird, reptile and amphibian species listed for the property were observed at the subject property. It is important to note that the Indigo Bunting, Blue-winged Warbler and the Prairie Warbler may, on occasion, visit within the nearby Hardwood Forest for food and temporary shelter. As implied above, the habitat characteristics preferred by the Indigo Bunting, Blue-winged Warbler and Prairie Warbler (pioneer grass, shrub and tree vegetation within the ConEdison utility right-of-way) are very different than those found in the Hardwood Forest community.

Development-associated species listed for the Croton Overlook property were mostly observed within each of the 8 vegetation communities identified. In fact, the majority of these listed species were observed within the Hardwood Forest (HF) vegetation community. Listed development-sensitive species were observed in the Highland Hardwood Forest (HHF), Forested Wetland-Closed Canopy (FW-CC), Forested Wetland-Open Canopy (FW-OC) sand Wet Sedge Meadow (WSM) vegetation communities. These vegetation communities were observed to have the greatest biodiversity within the limits of the property, and thus, the types of development-sensitive species observed in these areas rely heavily on the natural resources contained in each. Fortunately, these communities lie within the 47.9 acre portion of the Croton Overlook property which will remain as protected and preserved Open Space.

8.0 HABITAT FRAGMENTATION

Two natural resource areas located west of the proposed Croton Overlook Development were evaluated for potential habitat fragmentation with the development. The two areas evaluated were the Kitchawan Preserve, located approximately 600 to 700 feet from the proposed project area, and the Croton Point Park Critical Environmental Area (CEA) located more than 2.0 miles from the project area.

8.1 Kitchawan Preserve

On June 25, 2011, ECSI personnel visited the Kitchawan Preserve to observe vegetation communities within areas of the Preserve nearest the proposed project site. This was performed to confirm its proximity to that of the proposed development, as well as evaluate habitat characteristics within a portion of this preserve. In particular, the eastern portions of the Preserve were walked and vegetation species were recorded to determine species habitat

potentials. Observation of avian and mammalian species were also recorded to assist in confirming habitat potential.

The Kitchawan Preserve exists northwest of the proposed development and is mostly oriented in an east-west configuration. Observations of plants and animals at the Preserve revealed that this area contains rich and highly diverse habitats with respect to vegetation and animal habitation. The structure and distribution of vegetation species observed are indicative of habitat characteristics suitable for a large variety of mammals, birds, reptiles and amphibians, well beyond the populations of those observed within the vegetation communities of the Croton Overlook property.

In light of the closeness of this area to that of the Croton Overlook project site, both properties provide a green way corridor which may most likely be utilized by a variety of avian species and larger mammals. This is because nearby NYS Routes 134 and 100 are connected in a perpendicular configuration, and a wide-swath utility right-of-way (owned and maintain by ConEdison) exists across a portion of the New Croton Reservoir. These features serve to disconnect these areas and can be obstacles to species mobility. Species of reptiles and amphibians, and some small mammals, may not benefit from the "green way corridor" affect provided by these areas. On the other hand, birds and larger mammals have a greater opportunity to move between these areas, and during breeding and hibernation periods of the year.

It is important to note that the Kitchawan Preserve displays a great abundance of diverse habitat and overall natural resources, compared to that of the Croton Overlook Development project site. In addition, other continuous greenway lands connect with the Preserve to the west. As noted, the area planned for development is 16.9 acres in size, a portion of which includes a sizable disturbed area (the Disturbed Area vegetation community) which lies within the limits of the Hardwood Forest community. Based on observations made during the biodiversity assessment completed for the Croton Overlook property, the Hardwood Forest vegetation community provides food and temporary shelter for a variety of small and large mammals, as well as avian species. Removal of 16.9 acres of vegetation has the potential to fragment the greenway corridor characteristics attributed by this area; however, given the existing obstacles posed by the utility right-of-way and NYS Routes 134/100 and that 47.9 acres of the property will remain as Open Space, removal of vegetation is expected to present somewhat minimal impacts for the following reasons:

1) Animal inhabitants at the Kitchawan Preserve are least likely to utilize the Hardwood Forest vegetation community at the Croton Overlook project site as a preferred habitat; a greater abundance of habitat characteristics are provided within the Preserve for breeding and rearing young. Birds and larger mammals have the opportunity to move between these areas despite the above noted obstacles. Movement between these areas serves to reduce inbreeding potentials common to isolated habitats, which in turn serves to enrich the gene pool of animals.

2) The more diverse habitats of the Croton Overlook property (i.e. FW-CC, FW-OC, and WSM) present a greater attraction for avian and mammal species which may travel between these properties, compared to that of the Hardwood Forest and Disturbed Area communities.

3) The most productive and ideal types of corridors are those with the least amount of separation and/or obstacles for animal mobility. In light of this, the removal of vegetation within the Hardwood Forest community may very well affect on-site inhabitants as opposed to those existing within the Kitchawan Preserve and beyond.

It is important to note that during construction, removal of vegetation within the Hardwood Forest may serve to stress some varieties of on-site wildlife populations which seek food and temporary shelter within this community; however, it is expected that some of this population will be absorbed within the adjoining, more diverse areas of the site including the Highland Hardwood Forest community along the eastern limits of the site which displays similar habitat characteristics to that of the Hardwood Forest community. Further, potentially affected species inhabiting the Preserve and/or the Croton Overlook property will likely seek refuge in immediately adjoining lands observed (confirmed by aerial interpretation) consistent with connected greenway corridors.

4) Preservation and protection of the remaining habitat communities at the Croton Overlook property as Open Space will ensure that displaced animals will have the opportunity to seek alternative habitat and maintain the most diverse habitats identified at the property.

8.2 Croton Point Park Critical Environmental Area (CEA)

Based on a review of available aerial photographs and mapping compiled for the Croton Point Park Critical Environmental Area, this area is located more than 2.25 miles from the proposed development area. In addition, several irregularly shaped, but connecting green space corridors exist between Croton Point Park and the project site. Given that this area is located a considerable distance from the project site, it can be concluded that the removal of vegetation from within the development area will not likely pose a concern of habitat fragmentation for this CEA. In light of this, the proposed project is not expected to pose a significant habitat fragmentation issue for the Croton Point Park Critical Environmental Area.

9.0 PROJECT IMPACTS AND RECOMMENDATIONS

The proposed development will be located within a portion of the western boundaries of the property, primarily within the Hardwood Forest and Disturbed Area (DA) vegetation communities. The types of vegetation existing within the Hardwood Forest and Disturbed Area communities satisfy habitat needs for a variety of wildlife species, such as food for small and large mammals (i.e. Mast), avian species and some reptiles. Development within the Hardwood Forest community would require the removal of existing vegetation which in turn will result in reduced habitat area for such wildlife species.

Most of the populations on the property are highly mobile, comprised primarily of birds and mammals. It is assumed that, during construction, these species will occupy undisturbed portions of the site, or migrate to adjacent vacant land areas for food and shelter. A consequence of reduced habitat area would be competition for remaining habitat areas, which could lead to stress. Stress could result in increased mortality and decreased reproductive capacity. The greatest potential impacts exist with regard to less mobile species such as reptiles and amphibians. Populations of these species could experience a decrease in population size due to direct mortality from construction activities. Therefore, development of the property could result in a reduction of some existing wildlife populations.

Overall, the development will result in the loss of approximately 16.9 acres of vegetation cover. This loss represents 28 percent of total forested areas across the entire the property. Approximately 47.9 acres, consisting of a remaining 19.5 acres of Hardwood Forest and 28.4 acres of all other vegetation communities, will remain unaffected under the project. This area will be preserved and protected as Open Space. The majority of the remaining open space (slightly less than 41.7 acres) consists of second growth deciduous forests and productive wetlands located in the central and eastern portions of the property. This land is expected to provide suitable habitat for those species displaced from the areas of the development site under construction. A landscape plan will be implemented under the project to compensate vegetation removal and maximize the creation of wildlife habitat. These landscaped areas would primarily serve species of mammals and birds adapted to suburban/semi-rural areas; however, indigenous tree species remaining after construction will continue to provide food and shelter for a greater variety wildlife species.

In light of these project impacts, certain considerations should be made to minimize impacts and ensure preservation for the remaining 47.9 acres of Open Space. These recommendations are as follows:

1) Ensure that vegetation is removed in a north-south direction to avoid greater habitat fragmentation that will occur with an east-west configured removal. This will maximize habitat connectivity on-site and preserve the north-south corridor affect the property currently displays in relation to surrounding undeveloped areas.

2) All wetland and waterway buffer lands (including those regulated by the Town of Yorktown and the New York City Department of Environmental Protection) should be preserved and protected under a legal binding agreement (such as a conservation easement) developed between the developer, the Home Owner's Association and the Town of Yorktown.

3) Removal of existing Maple/Oak/Birch trees within the proposed development area should be minimized to allow certain trees to remain in idle areas of the development. This will allow a continuation of resources favored by existing wildlife, as well as provide a shelter wood affect.

4) Plant tree saplings indigenous to the area, similar to those types vegetation removed under the project. This would be provided under proposed project's landscape plan.

5) Ensure that proper storm water management planning is implemented and that controls are maintained properly during and after construction in order to protect the water resources found within the on-site vegetation communities favored by developmemnt-sensitive species.

APPENDICES

APPENDIX A

PROJECT CORRESPONDENCE

SUMMARY OF BIODIVERSITY ASSESSMENT PROTOCOLS, ANALYSES, AND REPORTING

SUMMARY OF BIODIVERSITY ASSESSMENT SURVEY PROTOCOLS, ANALYSES AND REPORTING FOR THE CROTON OVERLOOK DEVELOPMENT PROJECT

Prepared for:
CROTON OVERLOOK CORPORATION
PO BOX 1132
YORKTOWN HEIGHTS, NY 10598

Prepared by:
ENVIRONEMTNAL COMPLIANCE SERVICES, INC.
26 SOUTH STREET
MIDDLETOWN, NEW YORK 10940

APRIL 2011

SUMMARY OF BIODIVERSITY ASSESSMENT SURVEY PROTOCOLS, ANALYSES AND REPORTING FOR THE CROTON OVERLOOK DEVELOPMENT PROJECT

TABLE OF CONTENTS

SUMMARY OF BIODIVERSITY ASSESSMENT SURVEY PROTOCOLS, ANALYSES AND REPORTING FOR THE CROTON OVERLOOK DEVELOPMENT PROJECT

LIST OF APPENDICES

LIST OF FIGURES

1.0 INTRODUCTION

A Biodiversity Assessment will be performed at the Croton Overlook Development property during the period of April through July 2011. The purpose of the assessment is to determine the level of plant and animal diversity across the project site, and evaluate potential impacts the project may have upon the life-cycles of wildlife. As a first step, on-site habitat characteristics will be determined and assessed to define the types and value of each identified in the filed. Available published information on vegetation (types and structure), geology, topography, soils, climate and water resources (wetlands and waterways) will be reviewed to aid in identifying on-site habitats. In addition, habitat profiles published for Weschester County and the Hudson River Estuary Corridor will be used to "type" each on-site habitat. Undeveloped areas which adjoin the Croton Overlook Development property will be visually assessed for habitat characteristics from a distance using binoculars and a spotting scope. At no time will adjoining properties be accessed. All work will be performed pursuant to the protocols contained in the Town of Yorktown, Wildlife and Plant Biodiversity Assessments document (page 1 through 3).

Once each on-site habitat is "typed", field survey "target sites/areas" will be established in the field as a function of the natural history and habitat preferences which have been documented by others for birds and herpetofauna (reptiles and amphibians). In addition, vegetation transects and circular sample plots will be flagged within each habitat to facilitate periodic species observation during the assessment period of April through July. Based on the timing of species habitat and breeding preference, each target site will be visited at various times during the assessment period to record visual sightings and sounds (bird song/call notes and seasonal frog and toad callings) observed within each habitat. Reptiles and amphibians will be surveyed during April through May, breeding birds will be surveyed from May to July. Plants, mammals and insects will be surveyed April through July.

During each field survey, observations will be recorded on habitat and species specific data sheets. For birds, reptiles and amphibians, the date, time, weather, observer, start/finish, location, how and were each species was identified (habitat), methods utilized, whether the species is a "habitat specialist" (development-sensitive) or "habitat generalist" (development-associated) will be recorded, as well as the name of each species (common and scientific). Separate data sheets will be utilized to record vegetation (plants) within each habitat; each sheet will be formatted to record date, time, observer, aspect, weather, habitat, soil characteristics, percent cover and structure (ground, understory, canopy, dominance/co-dominance), estimated height and diameter at breast height (DBH). Mammals will be recorded similarly; recorded data will be based on visual sightings, sounds, scat, tracks and territorial field markings during the overall assessment period of April through July. Insects will be recorded utilizing a similarly formatted data sheet; recordings will be based on visual sightings April through July.

The types of methods to be implemented for conducting field surveys are presented below. Various guides and field biology/ecology documents and audio recordings will be utilized to identify species encountered in the field. Appendix A contains a tentative listing of

references/guides to be used for the assessment; this list will be included in the Biodiversity Assessment Report.

2.0 SURVEY METHODS

As noted above, field surveys will be performed as a function of when (timing) species may inhabit and breed within identified habitat areas of the property site. Various guides will be utilized to pinpoint the most advantageous time species may be observed in the field throughout the period of April through July 2011.

2.1 Plants

Meter quadrant transects will be setup randomly within each habitat to record plant species, their structure and percent cover. As necessary, circle plots will be utilized to document vegetative structure and overall cover. Each transect will be flagged in the field to facilitate revisiting survey locations during the assessment period April through July. Either square meter, or hula hoops, will be used to record observations within each quadrant. Linear and lateral transects will be arranged, as necessary, to express field findings and the distance between quadrants will vary, based on ground cover. It is expected that three daytime field visits will be performed to record vegetation within each identified on-site habitat.

Information gathered in the field will be recorded on vegetation specific field data sheets. As noted above, these data sheets will include the types of plants observed within each habitat (common and scientific name) and each sheet will be formatted to record date, time, observer, aspect, weather, habitat, soil type/characteristics, percent cover and structure (ground, understory, canopy, dominance/co-dominance), estimated height and diameter at breast height (trees with a DBH greater than 1.5 inches). Various guides will be used to help identify species in the field; hand lens magnifiers will also be used for close-up observations. Photographs will be obtained to document observation for certain species.

2.2 Birds

Bird surveys will be performed during three (3) site visits, at least ½ hour before dawn through 9:30 AM, during the period of April through July. This time period will ensure that nocturnal (night), crepuscular (twilight) and diurnal (day) species will be observed. Emphasis will also be placed on conducting surveys during May to July when breeding birds will likely to visit the site. In addition, the sounds of nocturnal bird species will be observed while visiting the site during one evening in May (1.5 hours) to observe frog and toad callings (see section 2.3 Reptiles and Amphibians below).

Circular observation plots will be established and flagged within portions of each on-site habitat so that each can be revisited to continue observations at the same location during the assessment period. Each plot will be divided into compass quadrants to help note the direction of each sightings on survey specific field data sheets. As noted, field data sheets will include date, time, observer, weather, start/finish, location, how and where each species was identified

(habitat), methods utilized, and whether the species is a "habitat specialist" (development-sensitive) or "habitat generalist" (development-associated). The distance of each sighting will be noted from the center point of each circle plot, and whether or not a species was heard ("h"- song/call) or visually sighted ("v"); the name of each species (common and scientific) and number of individuals sighted will also be recorded. Binoculars and a spotting scope will be the main tools for sighting birds at each circle plot. These devices will also be utilized to observe habitat and bird sightings within nearby, off-site habitat areas.

2.3 Reptiles and Amphibians

Herpetofauna (reptiles and amphibians) will be surveyed on three (3) separate days during the Spring and early Summer, April through June. Prior to performing the surveys, natural history and habitat preference documents, as well as species distribution maps, will be reviewed to help establish target sites/areas across the Croton Overlook Development site. Such sites will include on-site wet meadows, hardwood forests, rocky outcrops, pond and stream edges, and wetlands; these areas will be surveyed in a random manner as reptile and amphibian species are highly mobile in the Spring and Summer during the breeding season, April through June. Emphasis will be placed on investigating landscapes between upland forested areas, and wetlands, stream sections, rock outcrops and moist meadow grasses (i.e. open cover pond and stream areas), as amphibians have been documented to frequent such areas during the assessment period.

The gathering of Herpetological data will be based solely on visual observations. A snake hook, or reptile tong, will be used to overturn wood debris, leaf litter, matted grass and stones to observe the "micro habitats" typical of reptiles and amphibian, within each identified on-site habitat. A dip net will be utilized while surveying along the water's edge of two on-site ponds, and a perennial stream section to help identify amphibians. The net will most likely be used catch and temporarily hold tadpoles (partially submerged within water) for prompt identification and release. Binoculars will also be utilized to identify basking turtles within the on-site ponds and stream sections to facilitate observations at a distance and thereby avoid startling.

At no time will debris, matted grass, or stones be overturned more than once in order to maintain these types of micro habitats. The surveys will take place during early morning hours and early afternoon, between 6 AM and 1:00 PM; at least one (1) evening survey event will be performed to listen for the callings and sounds of frogs and toads. This event will be performed for a period of 1 hour during May when the greatest likelihood of callings are expected. Subsequently, preselected upland and wet meadow areas which surround the two on-site ponds will be inspected for reptiles and amphibians. The areas selected will be based on the field findings of the herpetofauna surveys completed during April.

As noted, species encountered in the field will be recorded on data sheets which will include date, time, observer, weather, start/finish, location, how and where each species was identified (habitat), aspect, soil type and number of individuals. Photographs will be obtained to document sightings.

2.4 Mammals and Insects

Mammals and insects will be surveyed April through July. Given that mammal and insect species are highly predacious and mobile, and may occur during varied times of the day (due to nocturnal, diurnal and crepuscular behavior), species encountered while other surveys are being performed will be recorded during the assessment period, across the project site. Separate data sheets will be utilized to record sightings and will include date, time, observer, weather, start/finish, location, how and were each species was identified (habitat), aspect, and the number of individuals observed.

With respect to sighting mammals, recorded observations will be based on visual sightings of scat, tracks and territorial field markings. Various guide books will be used to aid species identification; photographs of encountered sightings, including scat/territorial markings, will be obtained for documentation.

2.5 Fish

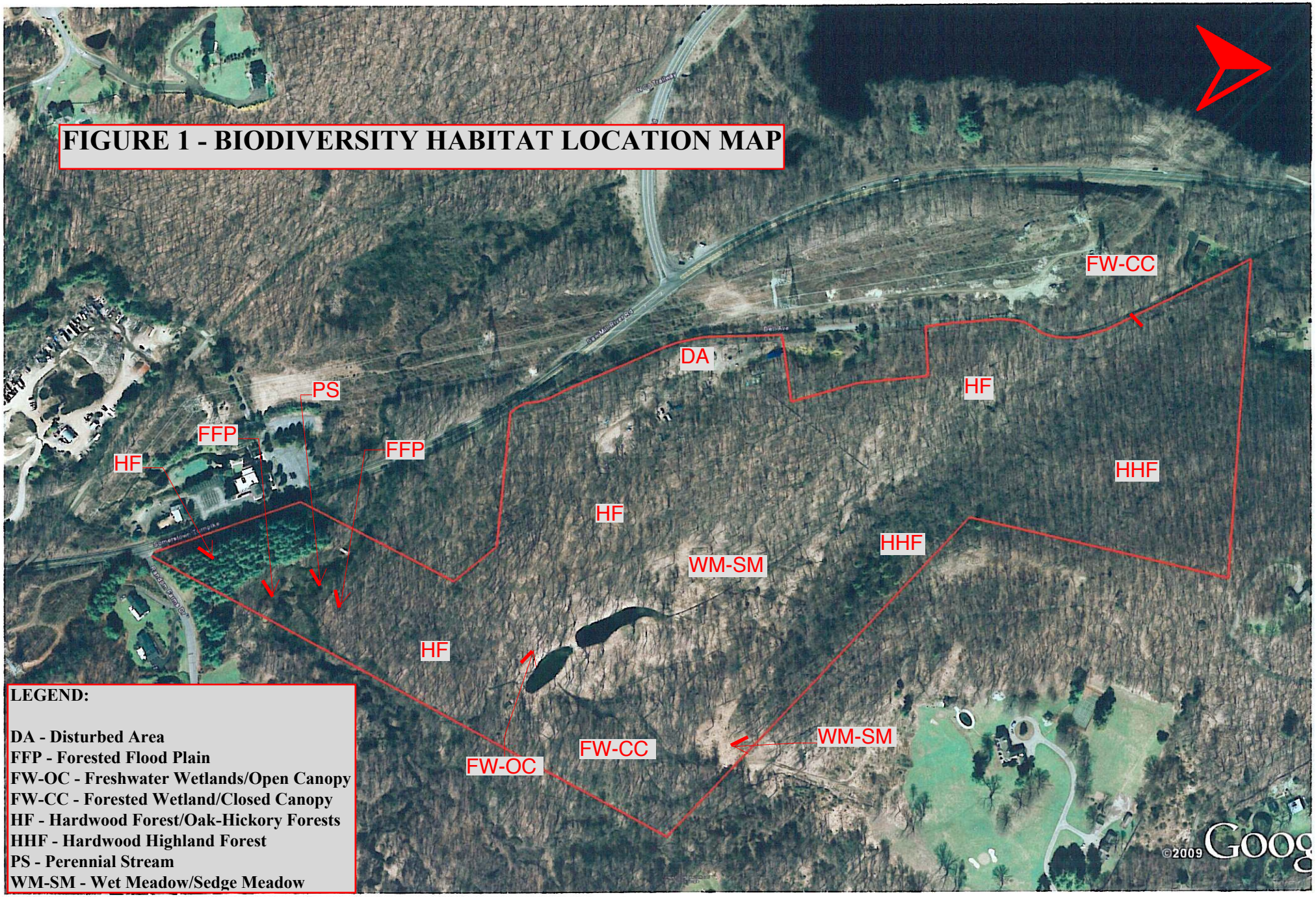
Fish habitation potentials within the on-site ponds and perennial stream section, will be determined utilizing available fish and aquatic insect resource data (including NYSDEC fish data within the drainage area) for nearby streams/ponds with similar morphological characteristics (i.e. depth, width, bank, bottom conditions and NYSDEC classification). Three (3) daytime walk-through surveys of each of the two on-site ponds and stream section will be performed April through May to visually inspect the edge and center portions of these waters for the presence of juvenile and adult species. Emphasis will be placed on visually inspecting stream sections within riffle pools, bank undercuts and debris. In-stream debris, including the bottom of stumps and stones, will be examined for aquatic insects which are favored by area fish species. A dip net will also be used to temporarily hold “fingerlings” for prompt identification and release. These inspections will be performed on the same day that other surveys are being performed during April through May.

Observed species will be listed on separate field data sheets to include the date, time , observer, weather, start/finish, location, how and where each species was identified (habitat), length and the methods/techniques utilized.

2.6 Tentative Habitat and Survey Locations

Figure 1, entitled “Biodiversity Habitat Location Map", presents a tentative representation of on-site habitats and the locations where flora and fauna surveys will take place across the Croton Overlook Development property site. At this time, identified habitats include Wet Meadow (**WM-SM**) comprised primarily of sedge meadow vegetation, Hardwood Forest (**HF**) consisting of Oak/Hickory forests, Hardwood Highland Forest (**HHF**) which represents the topographically elevated areas of the site, Forested Flood Plain (**FFP**), Perennial Stream (**PS**), Disturbed Area (**DA**), Freshwater Wetlands (**FW-OC**) consisting of Open Cover Canopy areas surrounding the on-site constructed ponds, and Forested Wetland (**FW-CC**) comprised of surrounding Closed Cover Canopy areas.

FIGURE 1 - BIODIVERSITY HABITAT LOCATION MAP



LEGEND:

DA - Disturbed Area
FFP - Forested Flood Plain
FW-OC - Freshwater Wetlands/Open Canopy
FW-CC - Forested Wetland/Closed Canopy
HF - Hardwood Forest/Oak-Hickory Forests
HHF - Hardwood Highland Forest
PS - Perennial Stream
WM-SM - Wet Meadow/Sedge Meadow

Figure 2, entitled "Survey Target Sites/Areas by Habitat", presents the location of planned target sites/areas within each on-site habitat. Survey target site/area locations are as follows: ***v1*** through ***v6*** approximates vegetation transect and circle plot areas, ***b1*** through ***b4*** approximates avian observation point locations, ***h1*** through ***h10*** denotes Herpetological (reptile and amphibian) walk-through areas, ***eve*** denotes the location of the single evening audio observation event, and ***f1*** and ***f2*** approximate fish walk-through survey locations. No specific locations are designated for surveying mammals and insects as these species categories will be observed during each of the other types of field visits planned to take place across the site.

3.0 DATA ANALYSIS

Once each on-site and nearby off-site habitat has been "typed", tabulations of species likely to inhabit each area will be generated. As each field survey is completed, species observed in the field will be added to these tabulations. Indication of the "listed status" for Federal, State and County, threatened, endangered, or species of special concern will be noted for each applicable species. Field findings will also be compared to the Biodiversity Conservation Study, Town of Yorktown, Westchester County, New York, prepared by Stearns & Wheler, LLC, (updated March 2010) to include additional species for those habitat areas which are similar to those of the habitats identified for the Croton Overlook Development property.

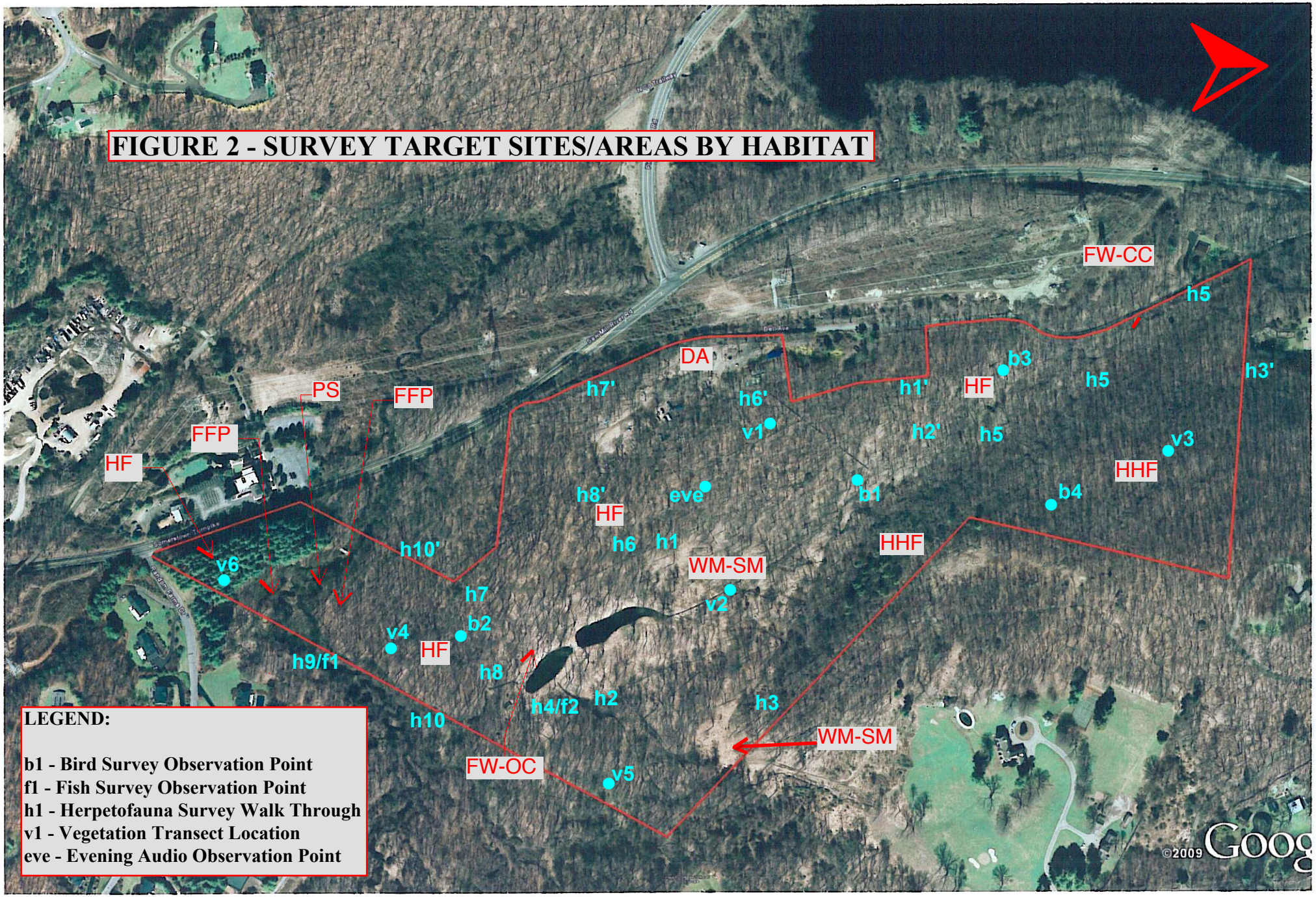
In addition, Federal and State rarity indications will be added to the tabulations, as well as indications as to whether a listed species is a "Development-Associated Focal Species" or a "Development-Sensitive Listed Focal Species". These indications will be developed by utilizing, at the very least, the Croton-to-Highlands Biodiversity Plan, the Biodiversity Conservation Study, Town of Yorktown, Westchester County, New York, the NYS Herpitological Atlas, New York Natural Heritage Program listings (including indications through prior correspondence with the Heritage Program), the Breeding Bird Survey and Breeding Bird Atlas, the Biodiversity Assessment Manual for the Hudson River Estuary Corridor and the National Audubon Watch List.

Analysis of habitat and species profiles contained within the Biodiversity Assessment Manual for the Hudson River Estuary Corridor, the Biodiversity Conservation Study, Town of Yorktown, Westchester County, New York, The Wildlife Resources of Westchester County, and the Ecological Communities of New York State (1990 and January 2002 revision) will be used to analyze and confirm each on-site habitat and the species noted within each. This information will also be used to prepare a discussion of habitat values and conditions for the life-cycles of on-site wildlife.

3.1 Nearby Reference Sites

Available species and habitat information for the Kitchawan Preserve (a Westchester County Park), and a Critical Environmental Area which adjoins the Croton Point Park (west of the Croton Overlook Development property), will be reviewed and compared to the Biodiversity Assessment survey findings for the Croton Overlook Development site. An analysis of existing

FIGURE 2 - SURVEY TARGET SITES/AREAS BY HABITAT



habitat fragmentation, as a function of the geographic positioning of these resource areas, will be performed to determine habitat management options for the proposed development property, including proposed "open space" areas. In addition, information obtained for these resource areas with similar habitat settings will be used to further confirm habitat values for the project site.

4.0 REPORTING

A final report will be prepared to include a habitat map and several species listings, as well as descriptions of the types of data collected and survey methods utilized to complete the Biodiversity Assessment. On-site habitat conditions will be described and the general location of encountered species will be noted; specific locations of encountered species will not be presented in order to avoid illegal trapping, or collection, by others.

A discussion of the types of any critical habitat areas within the limits of the proposed development site will be presented, as well as a discussion of the types of potential wildlife life-cycle impacts expected to occur with the proposed development. Potentials for habitat fragmentation will also be discussed along with preservation management options and recommendations for minimizing project impacts. Implications for the geographic juxtaposition of the project site (proposed development and on-site open space areas), in relation to nearby adjoining habitats areas within the Town of Yorktown, will also be described.

APPENDIX A

TENTATIVE REFERENCE LISTING

TENTATIVE REFERENCES

The following references will be utilized to conduct a Biodiversity Assessment of the Croton Overlook project site, and immediately surrounding areas:

Benyus, J. M. The Field Guide to Wildlife Habitats of the Eastern United States. 1989.

Brown, Lauren. Grasses - an Identification Guide. 1979.

Code of the Town of Yorktown, New York. Chapter 140 - Conservation Areas. Adopted October 4, 1994.

Code of the Town of Yorktown, New York. Chapter 178 - Freshwater Wetlands. Adopted March 19, 1991.

Cornell Lab of Ornithology. Handbook of Bird Biology. November 1, 2004.

Cornell Lab of Ornithology. Voices of North American Owls.

Cowardin, Lewis M. et al. Classification of Wetlands and Deepwater Habitats of the United States. 1979.

Crossley, R. The Crossley ID Guide: Eastern Birds. February 20, 2011.

Elliot, Lang et al. The Frogs and Toads of North America - A Comprehensive Guide to Their Identification, Behavior, and Calls. 2009.

Forest Health Technology Enterprise Team. Stein, J. and Denise Binion. Field Guide to Native Oak Species of Eastern North America. January 2003.

Gibbs, James P. et al. The Amphibians and Reptiles of New York State - Identification, Natural History, and Conservation. 2007.

Gill, Frank. Ornithology. 2007.

Grim, William Cary. The Illustrated ook of Wildflowers and Shrubs. 1993.

Halfpenny, James. Scats and Tracks of North America: A Field Guide to the Signs of Nearly 150 Wildlife Species. October 3, 2008.

Halfpenny, James. Scats and Tracks of the Northeast: A Field Guide to the Signs of Seventy Wildlife Species. May 1, 2001.

Harrington, H. D. How to Identify Grasses and Grasslike Plants. 1977.

Harrison, Colin. A Field Guide to the Nests, Eggs and Nestlings of North American Birds. 1978.

Hitchcock, A. S.; second edition revised by Agnes Chase. Manual of the Grassess of the United States. Volumes I and II. 1950; 1971.

Hudsonia Ltd. E. Kiviat and G. Stevens. Biodiversity Assessment Manual for the Hudson River Estuary Corridor. 2001.

Hudson River Environmental Society. Dey, William. Birds of the Hudson River Estuary. April 29, 2004.

Knobel, Edward; Revised by Mildred E. Faust. Field Guide to the Grasses, Sedges and Rushes of the United States - Second Revised Edition. 1977; 1980.

McDougall, Len. The Encyclopedia of Tracks and Scats: A Comprehensive Guide to the Trackable Animals of the United States and Canada. November 1, 2004.

Miller, N. A. and M. W. Klemens. Croton-to-Highlands Biodiversity Plan: Balancing Development and the Environment in the Hudson River Estuary Catchment. 2004.

Munsell Soil Color Charts. Year 2000 Revised Washable Edition.

National Audubon Society. Watchlist 2007 Species.
(http://birds.audubon.org/species-by-program/watchlist)

National Parks Association of NSW, Inc. Carlton, Claire. NSW National Parks and Wildlife Service. Chalson, Jane. Plant and Bird Survey Methods Baseline. May 2001.

New York Natural Heritage Program. Schlesinger, Matthew D. Rare Animal Status List. May 2007.

New York Natural Heritage Program. Young, Stephen M. and Troy W. Weldy. New York Rare Plant Status List. June 2005.

New York Natural Heritage Program. Edinger, et al. Ecological Communities of New York State. Draft - January 2002.

Newcomb, Lawrence. Newcomb's Wildflower Guide. 1977.

NYSDEC. Environmental Resource Mapper. New York State Freshwater Wetlands Map. (http://www.dec.ny.gov/imsmaps/ERM/viewer.htm). October 2009.

NYSDEC. List of Endangered, Threatened and Special Concern Fish & Wildlife Species of New York State. 6NYCRR Part 182 (Section 182.2(g)). (http://www.dec.ny.gov/animals/7494.html)

NYSDEC. NYS Breeding Bird Atlas (Region 9). 2000.

NYSDEC. NYS Herpetological Atlas. 1990-1999.

Partners in Amphibian and Reptile Conservation. Mitchell, J.C. et al. Habitat Management Guidelines for Amphibians and Reptiles of the Northeastern United States. 2006

Patterson Field Guides. Cobb, Boughton et al. A Field Guide to Ferns and Their Related Families. 2005.

Peterson Field Guide Series. Burt, William H. and Richard P. Grossenheider. A Field Guide to the Mammals. 1976.

Peterson Field Guide Series. Conant, Roger. A Field Guide to Reptiles and Amphibians of Eastern and Central North America - Second Edition. 1958; 1975.

Peterson Field Guides. Murie, Olas J. A Field Guide to Animal Tracks - Second Edition. 1974; renewed 1982.

Peterson Field Guides. Walton, Richard K and Robert W. Lawson. Birding by Ear: Eastern and Central North America. April 4, 2002.

Peterson Field Guides. Walton, Richard K and Robert W. Lawson. More Birding by Ear Eastern and Central North America: A Guide to Bird Song Identification. April 4, 2000.

Reschke, C. Ecological Communities of New York State. 1990.

Stearns and Wheler, LLC. Biodiversity Conservation Study - Town of Yorktown, Westchester County, New York. March 2010.

Stokes, D. and Lillian Stokes. Stokes Field Guide to Birds: Eastern Region. January 29, 1996.

Stokes, L. Stokes Field Guide to Warblers. February 24, 2004

Symonds, George W. The Shrub Identification Book. 1963.

Symonds, George W. The Tree Identification Book. 1958.

Thompson, Peter. Thompson's Guide to Freshwater Fishes. 1985.

Tiner, Ralph W. Winter Guide to Woody Plants of Wetlands and Their Borders: Northeastern United States. November 1997.

Tiner, Ralph W. Jr. Field Guide to Nontidal Wetland Identification. April 1998; expanded May 2005.

U.S. Army Corps of Engineers. Lichvar, Robert. Common Wetland Delineation Sedges of the Northeast. June 2005.

U.S. Department of Agriculture - Soil Conservation Service. Soil Survey of Putnam and Westchester Counties, New York (Sheet Numbers 99 and 107). September 1994.

U.S. Fish and Wildlife Service. List of Endangered, Threatened and Special Concern Fish & Wildlife Species. (http://www.fws.gov/endangered).

U.S. Fish and Wildlife Service. National Wetlands Inventory; Wetlands Mapper. (http://wetlandsfws.er.usgs.gov/imf/imf.jsp?site=NWI_CONUS). 2009.

U.S. Geological Survey. North American Breeding Bird Survey. 2009. (http://www.pwrc.usgs.gov/BBS/)

Westchester County Department of Planning - Division of Housing and Community Development. S. Wear and R. A. Schreiner. The Wildlife Resources of Westchester County. May 1987.

CORRESPONDENCE FROM BRUCE BARBER

Heather

From: Bruce Barber [barberbruce@yahoo.com]
Sent: Friday, April 22, 2011 8:18 AM
To: John Tegeder; Sharon Robinson; Susan Siegel
Cc: TJ Muldoon; Tony Russo; Connor McBride
Subject: Croton Overlook wetland verification
Attachments: pb-croton overlook 4-22-11.docx

All,

Please see attached wetland verification confirmation.

Best,

Bruce

Cornerstone
ASSOCIATES

April 22, 2011

To: Town Board
Planning Board

From: Bruce Barber
Town of Yorktown Environmental Consultant

RE: **Croton Overlook Application**
Saw Mill River Road and Dell Avenue
Section 70.15 Block 1 Lots 1 and 2
Town of Yorktown, New York

Please be advised a site inspection of the above referenced property was conducted on April 21, 2011 with the applicant's environmental consultant. The purpose of the site inspection was to complete the verification of the jurisdictional Town of Yorktown wetland boundary determination.

Comments:

Verification of the Town of Yorktown wetland boundary determination is complete. There were some minor field changes made to the wetland boundary on the site and a small, off-site wetland area adjacent to Dell Avenue was located at the time of inspection.

Please do not hesitate to contact me should you have any questions.

Sincerely,

Bruce Barber, PWS, Certified Ecologist
Town of Yorktown Environmental Consultant

1770 CENTRAL STREET YORKTOWN HEIGHTS, NY 10598
Telephone: 914.962.7733 Fax: 914.962.0330

CORRESPONDENCE FROM NYSDEC

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
25 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

September 30, 2010

Connor J. McBride
Croton Overlook Corporation
PO Box 1132
Yorktown Heights, NY 10598

Dear Mr. McBride:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment of the proposed Age Oriented Community, 43.98 –Acre Parcel, site as indicated on the map you provided, located in the Town of Yorktown, Westchester County.

We have no records of rare or state-listed animals or plants, significant natural communities or other significant habitats, on or in the immediate vicinity of your site.

The absence of data does not necessarily mean that rare or state-listed species, natural communities or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on 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 assessment.

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.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities and other significant habitats maintained in the Natural Heritage Data bases. Your project may require additional review or permits; 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.

Sincerely,

Tara Salerno

Tara Salerno, Information Services
New York Natural Heritage Program

Enc.
cc: Reg. 3

1029

APPENDIX B

REFERENCE LISTING

REFERENCES

The following references will be utilized to conduct a Biodiversity Assessment of the Croton Overlook project site, and immediately surrounding areas:

Benyus, J. M. The Field Guide to Wildlife Habitats of the Eastern United States. 1989.

Brown, Lauren. Grasses - an Identification Guide. 1979.

Code of the Town of Yorktown, New York. Chapter 140 - Conservation Areas. Adopted October 4, 1994.

Code of the Town of Yorktown, New York. Chapter 178 - Freshwater Wetlands. Adopted March 19, 1991.

Cornell Lab of Ornithology. Handbook of Bird Biology. November 1, 2004.

Cornell Lab of Ornithology. Voices of North American Owls.

Cowardin, Lewis M. et al. Classification of Wetlands and Deepwater Habitats of the United States. 1979.

Crossley, R. The Crossley ID Guide: Eastern Birds. February 20, 2011.

Elliot, Lang et al. The Frogs and Toads of North America - A Comprehensive Guide to Their Identification, Behavior, and Calls. 2009.

Forest Health Technology Enterprise Team. Stein, J. and Denise Binion. Field Guide to Native Oak Species of Eastern North America. January 2003.

Gibbs, James P. et al. The Amphibians and Reptiles of New York State - Identification, Natural History, and Conservation. 2007.

Gill, Frank. Ornithology. 2007.

Grim, William Cary. The Illustrated ook of Wildflowers and Shrubs. 1993.

Halfpenny, James. Scats and Tracks of North America: A Field Guide to the Signs of Nearly 150 Wildlife Species. October 3, 2008.

Halfpenny, James. Scats and Tracks of the Northeast: A Field Guide to the Signs of Seventy Wildlife Species. May 1, 2001.

Harrington, H. D. How to Identify Grasses and Grasslike Plants. 1977.

Harrison, Colin. A Field Guide to the Nests, Eggs and Nestlings of North American Birds. 1978.

Hitchcock, A. S.; second edition revised by Agnes Chase. Manual of the Grassess of the United States. Volumes I and II. 1950; 1971.

Hudsonia Ltd. E. Kiviat and G. Stevens. Biodiversity Assessment Manual for the Hudson River Estuary Corridor. 2001.

Hudson River Environmental Society. Dey, William. Birds of the Hudson River Estuary. April 29, 2004.

Knobel, Edward; Revised by Mildred E. Faust. Field Guide to the Grasses, Sedges and Rushes of the United States - Second Revised Edition. 1977; 1980.

McDougall, Len. The Encyclopedia of Tracks and Scats: A Comprehensive Guide to the Trackable Animals of the United States and Canada. November 1, 2004.

Miller, N. A. and M. W. Klemens. Croton-to-Highlands Biodiversity Plan: Balancing Development and the Environment in the Hudson River Estuary Catchment. 2004.

Munsell Soil Color Charts. Year 2000 Revised Washable Edition.

National Audubon Society. Watchlist 2007 Species.
(http://birds.audubon.org/species-by-program/watchlist)

National Parks Association of NSW, Inc. Carlton, Claire. NSW National Parks and Wildlife Service. Chalson, Jane. Plant and Bird Survey Methods Baseline. May 2001.

New York Natural Heritage Program. Schlesinger, Matthew D. Rare Animal Status List. May 2007.

New York Natural Heritage Program. Young, Stephen M. and Troy W. Weldy. New York Rare Plant Status List. June 2005.

New York Natural Heritage Program. Edinger, et al. Ecological Communities of New York State. Draft - January 2002.

Newcomb, Lawrence. Newcomb's Wildflower Guide. 1977.

NYSDEC. Environmental Resource Mapper. New York State Freshwater Wetlands Map. (http://www.dec.ny.gov/imsmaps/ERM/viewer.htm). October 2009.

NYSDEC. List of Endangered, Threatened and Special Concern Fish & Wildlife Species of New York State. 6NYCRR Part 182 (Section 182.2(g)). (http://www.dec.ny.gov/animals/7494.html)

NYSDEC. NYS Breeding Bird Atlas (Region 9). 2000.

NYSDEC. NYS Herpetological Atlas. 1990-1999.

Partners in Amphibian and Reptile Conservation. Mitchell, J.C. et al. Habitat Management Guidelines for Amphibians and Reptiles of the Northeastern United States. 2006

Patterson Field Guides. Cobb, Boughton et al. A Field Guide to Ferns and Their Related Families. 2005.

Peterson Field Guide Series. Burt, William H. and Richard P. Grossenheider. A Field Guide to the Mammals. 1976.

Peterson Field Guide Series. Conant, Roger. A Field Guide to Reptiles and Amphibians of Eastern and Central North America - Second Edition. 1958; 1975.

Peterson Field Guides. Murie, Olas J. A Field Guide to Animal Tracks - Second Edition. 1974; renewed 1982.

Peterson Field Guides. Walton, Richard K and Robert W. Lawson. Birding by Ear: Eastern and Central North America. April 4, 2002.

Peterson Field Guides. Walton, Richard K and Robert W. Lawson. More Birding by Ear Eastern and Central North America: A Guide to Bird Song Identification. April 4, 2000.

Reschke, C. Ecological Communities of New York State. 1990.

Stearns and Wheler, LLC. Biodiversity Conservation Study - Town of Yorktown, Westchester County, New York. March 2010.

Stokes, D. and Lillian Stokes. Stokes Field Guide to Birds: Eastern Region. January 29, 1996.

Stokes, L. Stokes Field Guide to Warblers. February 24, 2004

Symonds, George W. The Shrub Identification Book. 1963.

Symonds, George W. The Tree Identification Book. 1958.

Thompson, Peter. Thompson's Guide to Freshwater Fishes. 1985.

Tiner, Ralph W. Winter Guide to Woody Plants of Wetlands and Their Borders: Northeastern United States. November 1997.

Tiner, Ralph W. Jr. Field Guide to Nontidal Wetland Identification. April 1998; expanded May 2005.

U.S. Army Corps of Engineers. Lichvar, Robert. Common Wetland Delineation Sedges of the Northeast. June 2005.

U.S. Department of Agriculture - Soil Conservation Service. Soil Survey of Putnam and Westchester Counties, New York (Sheet Numbers 99 and 107). September 1994.

U.S. Fish and Wildlife Service. List of Endangered, Threatened and Special Concern Fish & Wildlife Species. (http://www.fws.gov/endangered).

U.S. Fish and Wildlife Service. National Wetlands Inventory; Wetlands Mapper. (http://wetlandsfws.er.usgs.gov/imf/imf.jsp?site=NWI_CONUS). 2009.

U.S. Geological Survey. North American Breeding Bird Survey. 2009. (http://www.pwrc.usgs.gov/BBS/)

Westchester County Department of Planning - Division of Housing and Community Development. S. Wear and R. A. Schreiner. The Wildlife Resources of Westchester County. May 1987.

APPENDIX C

POTENTIAL AND OBSERVED INHABITANTS TABULATIONS

POTENTIAL AND OBSERVED MAMMALIAN INHABITANTS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Habitat Type							
		WSM	HF	HHF	FFP	PS	DA	FW-OC	FW-CC
Virginia Opossum	*Didelphis virginiana*		✓		✓				
Short-Tailed Shrew	*Blarina brevicauda*	✓	✓						
Least Shrew	*Cryptotis parva*	✓	✓						
Masked Shrew	*Sorex cinereus*	✓	✓						
Hairy-Tailed Mole	*Parascalops breweri*	✓	✓						
Eastern Mole	*Scalopus aquaticus*	✓	✓						
Star-Nosed Mole	*Condylura cristata*	✓	✓	O	✓				
Little Brown Bat	*Myotis lucifugus*		✓	✓	✓				✓
Red Fox	*Vulpes vulpes*	✓	✓						
Raccoon	*Procyon lotor*		✓	✓	✓		✓		
Striped Skunk	*Mephitis mephitis*	✓	✓		✓		✓		
White-Tailed Deer	*Odocoileus virginianus*	✓	O	O	✓		O	✓	O
Eastern Chipmunk	*Tamias striatus*		O	O	✓		O		✓
Woodchuck	*Marmota monax*						✓		
Eastern Gray Squirrel	*Sciurus carolinensis*		O	O			O		
Deer Mouse	*Peromyscus maniculatus*	✓	✓						
White-Footed Mouse	*Peromyscus leucopus*	✓	✓						
Meadow Vole	*Mictotus pennsylvanicus*	✓	✓						
House Mouse	*Mus musculus*	✓							
Meadow Jumping Mouse	*Zapu hudsonius*		✓	✓					
Woodland Jumping Mouse	*Napaeozapus insignis*	✓	✓	✓			✓		✓
Coyote	*Canis latrans*	✓		✓					
Eastern Cottontail	*Sylvilagus floridanus*	✓	✓						✓
Northern Myotis	*Myotis septentrionalis*		✓	✓	✓				

Notes:

WSM - Wet Meadow - Sedge Meadow

HF - Hardwood Forest

HHF - Hardwood Highland Forest

FFP - Forested Flood Plain

PS - Perennial Stream

DA - Disturbed Area

FW-OC - Freshwater Wetlands - Open Canopy

FW-CC - Forested Wetland - Closed Canopy

O - Observed ; ✓ - Potential

POTENTIAL AND OBSERVED AVIAN INHABITANTS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Habitat Type							
		WSM	HF	HHF	FFP	PS	DA	FW-OC	FW-CC
Turkey Vulture	*Cathartes aura*	O		O			✓	O	
Red Tailed Hawk	*Buteo jamaicensis*		O	O			✓	✓	
Hairy Woodpecker	*Picoides villosus*		O	O				O	O
Downy Woodpecker	*Picoides pubescens*		O	O				O	O
Blue Jay	*Cyanocitta cristata*		O	O			✓		O
American Crow	*Corvus brachyrynchos*		O	O	✓		✓		
Black-Capped Chickadee	*Poecile atricapillus*		✓	✓				O	O
Tufted Titmouse	*Baeolophus bicolor*		O	O				O	O
Brown Creeper	*Certhia americana*		O	O					O
Eastern Bluebird	*Sialia sialis*	O						✓	✓
American Robin	*Turdus migratorius*		O		✓				O
American Redstart	*Setophaga ruticilla*							✓	✓
Purple Finch	*Carpodacus purpureus*		✓						
Baltimore Oriole	*Ictarus galbula*		O						
Ovenbird	*Seiurus aurocapillus*		✓		✓				✓
Carolina Wren	*Thryothorus ludocicianus*				✓			✓	✓
Rufous-Sided Towhee	*Pipilo erythrophthalmus*			✓					
Northern Oriole	*Icterus galbula*		✓					✓	✓
Brown-Headed Cowbird	*Molothrus ater*							✓	✓
Northern Harrier	*Circus cyaneus*			✓				✓	✓
Wild Turkey	*Meleagris gallopavo*		O	O					
Cooper's Hawk	*Accipiter cooperii*		✓	✓					
Tree Swallow	*Iridoprocne bicolor*							O	O
Gray Catbird	*Dumetella carolinensis*				O			✓	✓
Empidonax Flycatchers	*Empidonax spp.*	✓						✓	
Great Crested Fly Catcher	*Myiarchus crinitus*			✓					
Red-eyed Vireo	*Vireo olivaceus*				✓				
Red-bellied Woodpecker	*Melanerpes carolinus*				✓				
Blue-winged Warbler	*Vermivora pinus*		✓						

POTENTIAL AND OBSERVED AVIAN INHABITANTS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Habitat Type							
		WSM	HF	HHF	FFP	PS	DA	FW-OC	FW-CC
Northern Mockingbird	*Mimus polyglottos*		✓				✓		
European Starling	*Sturnus vulgaris*		✓		✓				
Black and White Warbler	*Mniotilta varia*							✓	✓
Yellow Warbler	*Dendroica petechia*	O						✓	✓
Common Yellowthroat	*Geothlypis trichas*							✓	✓
Field Sparrow	*Spizella pusilla*		✓					✓	✓
Chipping Sparrow	*Spizella passerina*		✓					✓	
Song Sparrow	*Melospiza melodia*		✓					✓	
Common Grackle	*Quiscalus quiscula*		✓					✓	
American Goldfinch	*Carduelis tristis*				✓			O	O
Northern Cardinal	*Cardinalis cardinalis*						✓	O	O
White Throated Sparrow	*Zonotrichia albiocollis*							✓	✓
Dark-Eyed Junco	*Junco hyemalis*		✓				✓	✓	✓
White Breasted Nuthatch	*Sitta carolinensis*		O		✓			O	O
Eastern Screech Owl	*Otus asio*		✓					✓	✓
Pileated Woodpecker	*Dryocopus pileatus*		✓		✓			✓	✓
House Wren	*Troglodytes aedon*						✓	✓	✓
Veery	*Catharus fuscescens*				✓				
Eastern Wood-Peewee	*Contopus virens*				✓				
Wilson's Warbler	*Wilsonia pusilla*								✓
Mallard Duck	*Anas platyrhynchos*				✓				
Canada Geese	*Branta canadensis*		✓	✓					✓
Blue-gray Gnatcatcher	*Polioptila caerulea*				✓				
Red-winged Blackbird	*Agelaius phoeniceus*							✓	✓
Scarlet Tanager	*Piranga olivacea*		✓	✓					
Mourning Dove	*Zenaida macroura*		✓						
Least Flycatcher	*Empidonax minimus*								✓
Worm-eating Warbler	*Helmitheros vermivorus*			✓				✓	

POTENTIAL AND OBSERVED AVIAN INHABITANTS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Habitat Type							
		WSM	HF	HHF	FFP	PS	DA	FW-OC	FW-CC
Yellow-shafted Flicker	*Colaptes auratus*			✓				✓	✓
Rose-breasted Grosbeak	*Pheucticus ludovicianus*								✓
Indigo Bunting	*Passerina cyanea*			✓					
Prairie Warbler	*Dendroica discolor*		✓						
Cedar Waxwing	*Bombycilla cedrorum*			✓					
Fish Crow	*Corvus ossifragus*								
Blue Winged Warbler	*Vermivora pinus*								
Brown Creeper	*Certhia americana*								
Yellow-billed Cuckoo	*Coccyzus americanus*								

Notes:

WSM - Wet Meadow - Sedge Meadow
HF - Hardwood Forest
HHF - Hardwood Highland Forest
FFP - Forested Flood Plain
PS - Perennial Stream
DA - Disturbed Area
FW-OC - Freshwater Wetlands - Open Canopy
FW-CC - Forested Wetland - Closed Canopy

O - Observed
✓ - Potential

POTENTIAL AND OBSERVED REPTILE AND AMPHIBIAN INHABITANTS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Habitat Type							
		WSM	HF	HHF	FFP	PS	DA	FW-OC	FW-CC
Salamanders									
Jefferson Salamander	*Ambystoma jeffersonianum*							✓	✓
Spotted Salamander	*Ambystoma maculatum*							✓	✓
Northern Red-Backed Salamander	*Plethodon cinereus*	✓			✓			✓	✓
Marbled Salamander	*Ambystoma opacum*							✓	✓
Slimy Salamander	*Plethodon cinereus*							✓	✓
Red Newt	*Notophthalmus viridescens*	✓	✓	✓					
Four-Toed Salamander	*Henidactylium sctatum*							✓	✓
Two-lined Salamander	*Eurycea bislineata*				✓				
Toads and Frogs									
Eastern American Toad	*Bufo americanus*		✓	✓	✓				
Wood Frog	*Rana sylvatica*		✓		✓				
Fowler's Toad	*Bufo woodhousei fowleri*		✓	✓					
Northern Spring Peeper	*Hyla crucifer*	O			✓			O	✓
Gray Tree Frog	*Hyla versicolor*	✓						O	O
Green Frog	*Rana clamitans*							O	
Green Tree Frog	*Hyla cinerea*	✓						✓	✓
Pickerel Frog	*Rana palustris*	✓			✓				
Snakes									
Eastern Milk Snake	*Lampropeltis triangulum*		✓						
Eastern Garter Snake	*Thamnophis sirtalis*		O	✓	✓				
Northern Brown Snake	*Storeria dekayi*		✓	✓					
Northern Redbelly Snake	*Storeria occipitomaculata*		✓	✓					
Eastern Hognose Snake	*Heterodon platyrhinos*		✓	✓					
Northern Ringneck Snake	*Diadophis punctatus*		✓	✓					
Northern Black Racer	*Coluber constrictor*			✓					
Northern Copperhead	*Agkistrodon contortrix*							✓	✓

POTENTIAL AND OBSERVED REPTILE AND AMPHIBIAN INHABITANTS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Habitat Type							
		WSM	HF	HHF	FFP	PS	DA	FW-OC	FW-CC
Turtles									
Eastern Box Turtle	*Terrapene carolina*	O	O					O	
Spotted Turtle	*Clemmys guttata*							✓	

Notes:

WSM - Wet Meadow/Sedge Meadow
HF - Hardwood Forest
HHF - Hardwood Highland Forest
FFP - Forested Flood Plain
PS - Perennial Stream
DA - Disturbed Area
FW-OC - Freshwater Wetlands - Open Canopy
FW-CC - Forested Wetland - Closed Canopy

O - Observed
✓ - Potential

POTENTIAL AND OBSERVED HERBACEOUS PLANTS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Habitat Type							
		WSM	HF	HHF	FFP	PS	DA	FW-OC	FW-CC
Wrinkled Rose	*Rosa rugosa*						✓	✓	
Foxtail	*Setaria spp.*	✓						✓	
Poa	*Poa spp.*	✓						✓	✓
Common Reed	*Phragmites australis*	O						O	O
Purple Loosestrife	*Lythrum salicaria*							✓	
Bushy aster	*Aster dumosus*		✓				✓		
Common Milkweed	*Asclepais syriaca*	✓					✓		
Queen Ann's Lace	*Daucus carota*	O					O		
Goldenrod	*Solidago spp.*	O	✓				✓	✓	
Tussock Sedge	*Cares stricta*	O						O	O
Pokeweed	*Phytolacca americana*	✓						✓	✓
Soft Rush	*Juncus effusus*	O						O	O
Ragweed	*Ambrosia psilostachya*	✓						✓	
Dandelion	*Taraxacum officinale*						✓		
Red Clover	*Trifolium pratense*						✓		
Rye Grass	*Secale cereale*						✓		
Chickory	*Cichorium intybus*						✓		
Japanese Barberry	*Berberis thunbergii*	O	O					O	O
Common Blue Violet	*Viola sororia*		O	O					O
Wild Onion	*Allium ascalonicum*		O	O					O
Devil's Beggertricks	*Bideus frondosa*	✓						✓	
Oxeye Daisy	*Leucanthemum vulgare*		✓				✓		
Common Burdock	*Arctium minus*	✓							
Lilly-of-the-Valley	*Maianthemum dilatatum*		O	O					
Pennsylvania Sedge	*Carex pennsylvania*		O	O					
Garlic Mustard	*Alliaria petiolata*		O	O					
Crab Grass	*Digitaria sanguinalis*		O				✓		
Solomon Seal	*Polygonatum communtatum*		O						

POTENTIAL AND OBSERVED HERBACEOUS PLANTS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Habitat Type							
		WSM	HF	HHF	FFP	PS	DA	FW-OC	FW-CC
Japanese Honeysuckle	*Lonicera japonica*		O				✓		
Common Mullein	*Verbascum thapsus*						✓		
Common Teasel	*Dipsacus fullonum*	✓							
Christmas Fern	*Polystichum acrostichoides*		O	O					
Poison Ivy	*Toxicondendron radicans*		O				✓		
Greenbrier	*Similax spp.*						✓	✓	✓
Cinnamon Fern	*Osumunda cinnamomea*	O	O						O
Blackberry	*Rubus spp.*		O				✓		
Wild Grape	*Vitis spp.*								✓
Multiflora Rose	*Rosa multiflora*	O						O	O
Virginia Creeper	*Parthenocissus quinquefolia*	O	O				✓		
New York Fern	*Thelypteris noveboracensis*		O	O					
Spicebush	*Lindera benzoin*				O	O			
Pussy Willow	*Salix cabrea*				O	O			
Skunk Cabbage	*Symplocarpus foetidus*	O			O	O		O	O
Spotted Jewelweed	*Impatiens capensis*				O	O			
False Hellebore	*Veratrum californicum*	O			O	O		O	O
Cattail	*Typha latifolia*	O						O	O
Star Sedge	*Carex echinata*	O							
Bladder Sedge	*Carex intermescens*	O							
Lurid Sedge	*Carex lurida*	O							
Fox Sedge	*Carex vulpinoidea*	O							
Umbrella Sedge	*Cyperus strigosus*	O							

POTENTIAL AND OBSERVED HERBACEOUS PLANTS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Habitat Type							
		WSM	HF	HHF	FFP	PS	DA	FW-OC	FW-CC
Sphagnum Moss	*Sphagnum spp.*	O							O
Hair Cap Moss	*Polytrichum commune*		O						
Sensitive Fern	*Onclea sensibilis*	O							
Sedge	*Carex spp.*								O
Stilt Grass	*Microstegium vimineum*	O							
Touch-me-not	*Impatiens spp.*	O							
Pennsylvanca			O	O					O

Notes:

WSM - Wet Meadow - Sedge Meadow
HF - Hardwood Forest
HHF - Hardwood Highland Forest
FFP - Forested Flood Plain
PS - Perennial Stream
DA - Disturbed Area
FW-OC - Freshwater Wetlands - Open Canopy
FW-CC - Forested Wetland - Closed Canopy

O - Observed; ✓ - Potential

OBSERVED WOODY PLANTS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Habitat Type							
		WSM	HF	HHF	FFP	PS	DA	FW-OC	FW-CC
American Elm	*Ulmus Americana*		O		O	O			O
Slippery Elm	*Ulmus rubra*		O						
Red Maple	*Acer Rubrum*	O	O	O					O
Shagbark Hickory	*Carya ovata*		O	O	O	O			O
Bitternut Hickory	*Carya cordiformis*		O						
White Oak	*Querucs alba*		O	O					
Burr Oak	*Quercus macrocarpra*		O	O					
Scarlet Oak	*Quercus coccinea*		O	O					
Black Cherry	*Prunus serotina*			O					
Black Birch	*Betula lenta*		O	O					O
Rhododendron	*Rhododendron spp*			O					
American Beech	*Fragus grandifolia*		O	O					
American Hophornbeam	*Ostyra virginiana*								O
Green Ash	*Fraxinus pennsylvanica*		O		O	O			O
Spicebush	*Calycanthus occidentalis*				O	O			O
Gray Dogwood	*Cornus racemosa*								O
Alternate-Leaf Dogwood	*Cornus alternifolia*								O
Sweet Gum	*Liquidambar styraciflua*								O
White Ash	*Fraxinus americana*		O				O		
Sugar Maple	*Acer saccharum*		O	O					O
Northern Red Oak	*Quercus rubra*		O	O					
Northern Pin Oak	*Quercus Palustris*	O			O	O			O
Sycamore	*Ficus sycomorus*				O	O			
Black Willow	*Salix nigra*				O	O			
Eastern Cottonwood	*Populus deltoides*				O	O			
Eastern Hemlock	*Tsuga canadensis*				O	O			

OBSERVED WOODY PLANTS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Habitat Type							
		WSM	HF	HHF	FFP	PS	DA	FW-OC	FW-CC
Chesnut Oak	*Quercus prinus*			O					
Flowering Dogwood	*Cornus florida*								O
White Pine	*Pinus strobus*		O						

Notes:

WSM - Wet Meadow - Sedge Meadow

HF - Hardwood Forest

HHF - Hardwood Highland Forest

FFP - Forested Flood Plain

PS - Perennial Stream

DA - Disturbed Area

FW-OC - Freshwater Wetlands - Open Canopy

FW-CC - Forested Wetland - Closed Canopy

O - Observed

POTENTIAL AND OBSERVED INSECTS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

COMMON NAME	SCIENTIFIC NAME	SIGHTINGS
Bald- faced Hornet	*Dolichovespula maculata*	O
Black Carpenter Ant	*Camponotus pennsylvanicus*	O
Brown Dog Tick	*Rhipicephalus sanguines*	O
Cabbage White Moth	*Pieris rapae*	O
Cattail Mosquito	*Coquilletidia perturbans*	O
Clouded Sulphur Moth	*Colias philodice*	O
Common Pillbug	*Armadillidium vulgare*	O
Deef Fly	*Chrysops spp.*	O
Deer Tick	*Ixodes spp.*	O
Eastern Subterranean Termite	*Reticulitermes flavipes*	O
Eastern Tiger Swallowtail	*Papilio glaucus*	✓
Elm Leaf Beetle	*Xanthogaleruca*	✓
European Mantid	*Mantis religiosa*	✓
Field Cricket	*Gryllus pennsylvanicus*	O
Firefly	*Photinus spp.*	O
Honey Bee	*Apis mellifera*	O
House Fly	*Fannia spp.*	O
Feaf-footed Bug	*Acanthocephala terminalis*	✓
Midge	*Chironomus plumosus*	O
Monarch Butterfly	*Danaus plexippus*	O
Spine-tailed Earwig	*Doru aculeatum*	O
Stealthy Ground Spider	*Cesonia bilineata*	✓
Yellow Bumble Bee	*Bombus fervidus*	O

NOTES: "O" is Observed, "✓" is Potential

APPENDIX D

SPECIES STATUS TABULATIONS

POTENTIAL AND OBSERVED MAMMALIAN SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/ State Listed Status	State Rarity Indicators	Habitat
Virginia Opossum	*Didelphis virginiana*	N/A	N/A	HF*, FFP*
Short-Tailed Shrew	*Blarina brevicauda*	N/A	N/A	WSM*, HF*
Least Shrew	*Cryptotis parva*	N/A	G5, SH, U	WSM*, HF*
Masked Shrew	*Sorex cinereus*	N/A	N/A	WSM*, HF*
Hairy-Tailed Mole	*Parascalops breweri*	N/A	N/A	WSM*, HF*
Eastern Mole	*Scalopus aquaticus*	N/A	N/A	WSM*, HF*
Star-Nosed Mole	*Condylura cristata*	N/A	N/A	WSM*, HF*, HHF, FFP*
Little Brown Bat	*Myotis lucifugus*	N/A	N/A	HF*, HHF*, FFP*
Red Fox	*Vulpes vulpes*	N/A	N/A	WSM*, HF*
Raccoon	*Procyon lotor*	N/A	N/A	HF*. HHF*, FFP*,, DA*
Striped Skunk	*Mephitis mephitis*	N/A	N/A	WSM*, HF*, FFP*, DA*
White-Tailed Deer	*Odocoileus virginianus*	N/A	N/A	WSM*, HF, HHF, FFP*, DA, FW-OC*, FW-CC
Eastern Chipmunk	*Tamias striatus*	N/A	N/A	HF, HHF, FFP*, DA, FW-CC*
Woodchuck	*Marmota monax*	N/A	N/A	DA*
Eastern Gray Squirrel	*Sciurus carolinensis*	N/A	N/A	HF, HHF, DA
Deer Mouse	*Peromyscus maniculatus*	N/A	N/A	WSM*, HF*
White-Footed Mouse	*Peromyscus leucopus*	N/A	N/A	WSM*, HF*
Meadow Vole	*Mictotus pennsylvanicus*	N/A	N/A	WSM*, HF*

POTENTIAL AND OBSERVED MAMMALIAN SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/ State Listed Status	State Rarity Indicators	Habitat
House Mouse	*Mus musculus*	N/A	N/A	WSM*
Meadow Jumping Mouse	*Zapu hudsonius*	N/A	N/A	HF*, HHF*
Woodland Jumping Mouse	*Napaeozapus insignis*	N/A	N/A	WSM*, HF*, HHF*, DA*, FW-CC*
Coyote	*Canis latrans*	N/A	N/A	WSM*, HHF*
Eastern Cottontail	*Sylvilagus floridanus*	N/A	N/A	WSM*, HF*, FW-CC*
Northern Myotis	*Myotis septentrionalis*	N/A	N/A	HF*, HHF*, FFP*

Notes:

WSM - Wet Meadow - Sedge Meadow
HF - Hardwood Forest
HHF - Hardwood Highland Forest
FFP - Forested Flood Plain
PS - Perennial Stream
DA - Disturbed Area
FW-OC - Freshwater Wetlands - Open Canopy
FW-CC - Forested Wetland - Closed Canopy

G5 - Species demonstratively is secured globally, but can be quite rare in some locations
SH - Only known historically range wide (global) or not reported in NY the last 20 years
U - Unprotected
N/A - Not Applicable

* - Potential

POTENTIAL AND OBSERVED AVIAN SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/ State Listed Status	State Rarity Indicators	D/A D/S	Habitat
Turkey Vulture	*Cathartes aura*	N/A	N/A	N/A	WSM, HHF, DA*, FW-OC
Red Tailed Hawk	*Buteo jamaicensis*	N/A	N/A	N/A	HF, HHF, DA*, FW-OC*
Hairy Woodpecker	*Picoides villosus*	N/A	N/A	N/A	HF, HHF, FW-OC, FW-CC
Downy Woodpecker	*Picoides pubescens*	N/A	N/A	N/A	HF, HHF, FW-OC, FW-CC
Blue Jay	*Cyanocitta cristata*	N/A	N/A	D/A	HF, HHF, DA*, FW-OC
American Crow	*Corvus brachyrynchos*	N/A	N/A	D/A	HF, HHF, FFP*, DA*
Black-Capped Chickadee	*Poecile atricapillus*	N/A	N/A	N/A	HF*, HHF*, FW-OC, FW-CC
Tufted Titmouse	*Baeolophus bicolor*	N/A	N/A	N/A	HF, HHF, FW-OC, FW-CC
Brown Creeper	*Certhia americana*	N/A	N/A	N/A	HF, HHF, FW-CC
Eastern Bluebird	*Sialia sialis*	N/A	N/A	N/A	WSM, FW-OC*, FW-CC*
American Robin	*Turdus migratorius*	N/A	N/A	N/A	HF, FFP*, FW-CC
American Redstart	*Setophaga ruticilla*	N/A	N/A	N/A	FW-OC*, FW-CC*
Purple Finch	*Carpodacus purpureus*	N/A	N/A	N/A	HF*
Baltimore Oriole	*Ictarus galbula*	N/A	N/A	N/A	HF
Ovenbird	*Seiurus aurocapillus*	N/A	N/A	D/S	HF*, FFP*, FW-CC*
Carolina Wren	*Thryothorus ludocicianus*	N/A	N/A	N/A	FFP*, FW-OC*, FW-CC*
Rufous-Sided Towhee	*Pipilo erythrophthalmus*	N/A	N/A	N/A	HHF*

POTENTIAL AND OBSERVED AVIAN SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/ State Listed Status	State Rarity Indicators	D/A D/S	Habitat
Northern Oriole	*Icterus galbula*	N/A	N/A	N/A	HF*, FW-OC*, FW-CC*
Brown-Headed Cowbird	*Molothrus ater*	N/A	N/A	D/A	FW-OC*, FW-CC*
Northern Harrier	*Circus cyaneus*	N/A	N/A	N/A	HHF*, FW-OC*, FW-CC*
Wild Turkey	*Meleagris gallopavo*	N/A	N/A	N/A	HF, HHF
Cooper's Hawk	*Accipiter cooperii*	Special Concern	N/A	N/A	HF*, HHF*
Tree Swallow	*Iridoprocne bicolor*	N/A	N/A	N/A	FW-OC, FW-CC
Gray Catbird	*Dumetella carolinensis*	N/A	N/A	N/A	FFP, FW-OC, FW-CC
Empidonax Flycatchers	*Empidonax spp.*	N/A	N/A	N/A	WSM*, FW-OC*
Great Crested Fly Catcher	*Myiarchus crinitus*	N/A	N/A	N/A	HHF*
Red-eyed Vireo	*Vireo olivaceus*	N/A	N/A	N/A	FFP*
Red-bellied Woodpecker	*Melanerpes carolinus*	N/A	N/A	N/A	FFP*
Blue-winged Warbler	*Vermivora pinus*	N/A	N/A	D/S	HF
Northern Mockingbird	*Mimus polyglottos*	N/A	N/A	N/A	HF*, DA*
European Starling	*Sturnus vulgaris*	N/A	N/A	D/A	HF*, FFP*
Black and White Warbler	*Mniotilta varia*	N/A	N/A	D/S	FW-OC*, FW-CC*
Yellow Warbler	*Dendroica petechia*	N/A	N/A	N/A	WSM, FW-OC*, FW-CC*
Common Yellowthroat	*Geothlypis trichas*	N/A	N/A	N/A	FW-OC*, FW-CC*
Field Sparrow	*Spizella pusilla*	N/A	N/A	N/A	HF*, FW-OC*, FW-CC*

POTENTIAL AND OBSERVED AVIAN SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/ State Listed Status	State Rarity Indicators	D/A D/S	Habitat
Chipping Sparrow	*Spizella passerina*	N/A	N/A	N/A	HF*, FW-OC*
Song Sparrow	*Melospiza melodia*	N/A	N/A	N/A	HF*, FW-OC*
Common Grackle	*Quiscalus quiscula*	N/A	N/A	D/A	HF*, FW-OC*
American Goldfinch	*Carduelis tristis*	N/A	N/A	N/A	FFP*, FW-OC, FW-CC
Northern Cardinal	*Cardinalis cardinalis*	N/A	N/A	N/A	DA*, FW-OC, FW-CC
White Throated Sparrow	*Zonotrichia albiocollis*	N/A	N/A	N/A	FW-OC*, FW-CC*
Dark-Eyed Junco	*Junco hyemalis*	N/A	N/A	N/A	HF*, DA*, FW-OC*, FW-CC*
White Breasted Nuthatch	*Sitta carolinensis*	N/A	N/A	N/A	HF, FFP*, FW-OC, FW-CC
Eastern Screech Owl	*Otus asio*	N/A	N/A	N/A	HF*, FW-OC*, FW-CC*
Pileated Woodpecker	*Dryocopus pileatus*	N/A	N/A	N/A	HF*, FFP*, FW-OC*, FW-CC*
House Wren	*Troglodytes aedon*	N/A	N/A	D/A	DA*, FW-OC*, FW-CC*
Veery	*Catharus fuscescens*	N/A	N/A	D/S	FFP*
Eastern Wood-Peewee	*Contopus virens*	N/A	N/A	N/A	FFP*
Wilson's Warbler	*Wilsonia pusilla*	N/A	N/A	N/A	FW-CC*
Mallard Duck	*Anas platyrhynchos*	N/A	N/A	N/A	FFP

POTENTIAL AND OBSERVED AVIAN SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/ State Listed Status	State Rarity Indicators	D/A D/S	Habitat
Canada Geese	*Branta canadensis*	N/A	N/A	D/A	HF, HHF, FW-CC
Blue-gray Gnatcatcher	*Polioptila caerulea*	N/A	N/A	N/A	FFP
Red-winged Blackbird	*Agelaius phoeniceus*	N/A	N/A	N/A	FW-OC, FW-CC
Scarlet Tanager	*Piranga olivacea*	N/A	N/A	N/A	HF, HHF
Mourning Dove	*Zenaida macroura*	N/A	N/A	N/A	HF
Least Flycatcher	*Empidonax minimus*	N/A	N/A	D/S	FW-CC
Worm-eating Warbler	*Helmitheros vermivorus*	N/A	N/A	D/S	HHF, FW-OC
Yellow-shafted Flicker	*Colaptes auratus*	N/A	N/A	N/A	HHF, FW-OC, FW-CC
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	N/A	N/A	N/A	FW-CC
Indigo Bunting	*Passerina cyanea*	N/A	N/A	N/A	HHF
Prairie Warbler	*Dendroica discolor*	N/A	N/A	D/S	HD
Cedar Waxwing	*Bombycilla cedrorum*	N/A	N/A	N/A	HHF
Fish Crow	*Corvus ossifragus*	N/A	N/A	N/A	HHF
Brown Creeper	*Certhia americana*	N/A	N/A	N/A	FW-OC, FW-CC
Yellow-billed Cuckoo	*Coccyzus americanus*	N/A	N/A	N/A	HHF

Notes:

WSM - Wet Meadow - Sedge Meadow
PS - Perennial Stream
HF - Hardwood Forest
DA - Disturbed Area
HHF - Hardwood Highland Forest
FW-OC - Freshwater Wetlands - Open Canopy
FFP - Forested Flood Plain
FW-CC - Forested Wetland - Closed Canopy

D/A - Development Associated
D/S - Development Sensitive
N/A - Not Applicable
* - Potential

POTENTIAL AND OBSERVED REPTILE AND AMPHIBIAN SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/ State Listed Status	State Rarity Indicators	D/A D/S	Habitat
Salamanders					
Jefferson Salamander	*Ambystoma jeffersonianum*	N/A	N/A	D/S	FW-OC*, FW-CC*
Spotted Salamander	*Ambystoma maculatum*	N/A	N/A	D/S	FW-OC*, FW-CC*
Northern Red-Backed Salamander	*Plethodon cinereus*	N/A	N/A		WSM*, FFP*, FW-OC*, FW-CC*
Marbled Salamander	*Ambystoma opacum*	Special concern	N/A	D/S	FW-OC*, FW-CC*
Slimy Salamander	*Plethodon cinereus*	N/A	N/A		FW-OC*, FW-CC*
Red Newt	*Notophthalmus viridescens*	N/A	N/A		WSM*, HF*, HHF*
Four-Toed Salamander	*Henidactylium sctatum*	N/A	N/A		FW-OC*, FW-CC*
Two-lined Salamander	*Eurycea bislineata*	N/A	N/A		FFP*
Toads and Frogs					
Eastern American Toad	*Bufo americanus*	N/A	N/A		HF*, HHF*, FFP*
Wood Frog	*Rana sylvatica*	N/A	N/A	D/S	HF*, FFP*
Fowler's Toad	*Bufo woodhousei fowleri*	N/A	N/A	D/S	HF*, HHF*
Northern Spring Peeper	*Hyla crucifer*	N/A	N/A		WSM, FFP*, FW-OC, FW-CC*
Gray Tree Frog	*Hyla versicolor*	N/A	N/A	D/S	WSM*, FW-OC, FW-CC
Green Frog	*Rana clamitans*	N/A	N/A	D/A	FW-OC
Green Tree Frog	*Hyla cinerea*	N/A	N/A		WSM*, FW-OC*, FW-CC*
Pickerel Frog	*Rana palustris*	N/A	N/A		SWM*, FFP*

POTENTIAL AND OBSERVED REPTILE AND AMPHIBIAN SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/ State Listed Status	State Rarity Indications	D/A D/S	Habitat
Snakes					
Eastern Milk Snake	*Lampropeltis triangulum*	N/A	N/A		HF*
Eastern Garter Snake	*Thamnophis sirtalis*	N/A	N/A	D/A	HF, HHF*, FFP*
Northern Brown Snake	*Storeria dekayi*	N/A	N/A		HF*, HHF*
Northern Redbelly Snake	*Storeria occipitomaculata*	N/A	N/A		HF*, HHF*
Eastern Hognose Snake	*Heterodon platyrhinos*	N/A	N/A	D/S	HF*, HHF*
Northern Ringneck Snake	*Diadophis punctatus*	N/A	N/A		HF*, HHF*
Northern Black Racer	*Coluber constrictor*	N/A	N/A		HHF*
Northern Copperhead	*Agkistrodon contortrix*	N/A	N/A	D/S	FW-OC*, FW-CC*
Turtles					
Eastern Box Turtle	*Terrapene carolina*	Special Concern	N/A	D/S	WSM, HF, FW-OC
Spotted Turtle	*Clemmys guttata*	Special Concern	N/A	D/S	FW-OC*

Notes:

WSM - Wet Meadow/Sedge Meadow
HF - Hardwood Forest
HHF - Hardwood Highland Forest
FFP - Forested Flood Plain
PS - Perennial Stream
DA - Disturbed Area
FW-OC - Freshwater Wetlands - Open Canopy
FW-CC - Forested Wetland - Closed Canopy

D/A - Development Associated
D/S - Development Sensitive
N/A - Not Applicable
* - Potential

POTENTIAL AND OBSERVED HERBACEOUS PLANT SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/State Listed Status	State Rarity Indicators	Habitat
Wrinkled Rose	*Rosa rugosa*	N/A	N/A	DA*, FW-CC*
Foxtail	*Setaria spp.*	N/A	N/A	WSM*, FW-OC*
Poa	*Poa spp.*	N/A	N/A	WSM*, FW-OC*, FW-CC*
Common Reed	*Phragmites australis*	N/A	N/A	WSM, FW-OC, FW-CC
Purple Loosestrife	*Lythrum salicaria*	N/A	N/A	FW-OC*
Bushy aster	*Aster dumosus*	N/A	N/A	HF*, DA*
Common Milkweed	*Asclepais syriaca*	N/A	N/A	WSM*, DA*
Queen Ann's Lace	*Daucus carota*	N/A	N/A	WSM, DA
Goldenrod	*Solidago altissima*	N/A	N/A	WSM, HF*, DA*, FW-OC*
Tussock Sedge	*Carex stricta*	N/A	N/A	WSM, FW-OC, FW-CC
Pokeweed	*Phytolacca americana*	N/A	N/A	WSM*, FW-OC*, FW-CC*
Soft Rush	*Juncus effusus*	N/A	N/A	WSM, FW-OC, FW-CC
Ragweed	*Ambrosia psilostachya*	N/A	N/A	WSM*, FW-OC*
Dandelion	*Taraxacum officinale*	N/A	N/A	DA*
Red Clover	*Trifolium pratense*	N/A	N/A	DA*
Rye Grass	*Secale cereale*	N/A	N/A	DA*
Chickory	*Cichorium intybus*	N/A	N/A	DA*

POTENTIAL AND OBSERVED HERBACEOUS PLANT SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/State Listed Status	State Rarity Indicators	Habitat
Japanese Barberry	*Berberis thunbergii*	N/A	N/A	WSM, HF, FW-OC, FW-CC
Common Blue Violet	*Viola sororia*	N/A	N/A	HF, HHF, FW-CC
Wild Onion	*Allium ascalonicum*	N/A	N/A	HF, HHF, FW-CC
Devil's Beggertricks	*Bideus frondosa*	N/A	N/A	WSM*, FW-OC*
Oxeye Daisy	*Leucanthemum vulgare*	N/A	N/A	HF*, DA*
Common Burdock	*Arctium minus*	N/A	N/A	WSM*
Lilly-of-the-Valley	*Maianthemum dilatatum*	N/A	N/A	HF, HHF
Pennsylvania Sedge	*Carex pennsylvania*	N/A	N/A	HF, HHF, FW-CC
Garlic Mustard	*Alliaria petiolata*	N/A	N/A	HF, HHF
Crab Grass	*Digitaria sanguinalis*	N/A	N/A	HF, DA*
Solomon Seal	*Polygonatum communtatum*	N/A	N/A	HF
Japanese Honeysuckle	*Lonicera japonica*	N/A	N/A	HF, HHF, DA*
Common Mullein	*Verbascum thapsus*	N/A	N/A	DA*
Common Teasel	*Dipsacus fullonum*	N/A	N/A	WSM*
Christmas Fern	*Polystichum acrostichoides*	N/A	N/A	HF, HHF
Poison Ivy	*Toxicondendron radicans*	N/A	N/A	HF, DA*
Greenbrier	*Similax spp.*	N/A	N/A	DA*, FW-OC*, FW-CC*

POTENTIAL AND OBSERVED HERBACEOUS PLANT SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/State Listed Status	State Rarity Indicators	Habitat
Cinnamon Fern	*Osumunda cinnamomea*	N/A	N/A	WSM, HF, FW-CC
Blackberry	*Rubus allegheniensis*	N/A	N/A	HF, DA*
Wild Grape	*Vitis rotundifolia*	N/A	N/A	FW-CC*
Multiflora Rose	*Rosa multiflora*	N/A	N/A	WSM, FW-OC, FW-CC
Virginia Creeper	*Parthenocissus quinquefolia*	N/A	N/A	WSM, HF, DA*
New York Fern	*Thelypteris noveboracensis*	N/A	N/A	HF, HHF
Spicebush	*Lindera benzoin*	N/A	N/A	FFP, PS
Pussy Willow	*Salix cabrea*	N/A	N/A	FFP, PS
Skunk Cabbage	*Symplocarpus foetidus*	N/A	N/A	WSM, FFP, PS, FW-OC, FW-CC
Spotted Jewelweed	*Impatiens capensis*	N/A	N/A	FFP, PS
False Hellebore	*Veratrum californicum*	N/A	N/A	WSM, FFP, PS, FW-OC, FW-CC
Cattail	*Typha latifolia*	N/A	N/A	WSM, FW-OC, FW-CC
Star Sedge	*Carex echinata*	N/A	N/A	WSM
Bladder Sedge	*Carex intermescens*	N/A	N/A	WSM
Lurid Sedge	*Carex lurida*	N/A	N/A	WSM
Fox Sedge	*Carex vulpinoidea*	N/A	N/A	WSM
Umbrella Sedge	*Cyperus strigosus*	N/A	N/A	WSM
Sphagnum Moss	*Sphagnum spp.*	N/A	N/A	WSM, FW-CC
Hair Cap Moss	*Polytrichum commune*	N/A	N/A	HF

POTENTIAL AND OBSERVED HERBACEOUS PLANT SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/State Listed Status	State Rarity Indicators	Habitat
Sensitive Fern	*Onclea sensibilis*	N/A	N/A	WSM
Sedge	*Carex spp.*	N/A	S1, E, S3, U	FW-CC
Stilt Grass	*Microstegium vimineum*	N/A	N/A	WSM
Touch-me-not	*Impatiens spp.*	N/A	N/A	WSM

Notes:

WSM - Wet Meadow - Sedge Meadow

HF - Hardwood Forest

HHF - Hardwood Highland Forest

FFP - Forested Flood Plain

PS - Perennial Stream

DA - Disturbed Area

FW-OC - Freshwater Wetlands - Open Canopy

FW-CC - Forested Wetland - Closed Canopy

S1 - Critically imperiled in New York State because of extreme rarity (5 or fewer sites or very few remaining individuals) or extremely vulnerable to extirpation from New York State due to biological or human factors.

S3 - Rare in New York State

E - Endangered Species

U - Unprotected

N/A - Not Applicable

* - Potential

OBSERVED WOODY PLANT SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/ State Listed Status	State Rarity Indicators	Habitat
American Elm	*Ulmus Americana*	N/A	N/A	HF, FFP, PS, FW-CC
Slippery Elm	*Ulmus rubra*	N/A	N/A	HF
Red Maple	*Acer Rubrum*	N/A	N/A	WSM, HF, HHF, FW-CC
Shagbark Hickory	*Carya ovata*	N/A	N/A	HF, HHF, FFP, PS, FW-CC
Bitternut Hickory	*Carya cordiformis*	N/A	N/A	HF
White Oak	*Querucs alba*	N/A	N/A	HF, HHF
Burr Oak	*Quercus macrocarpra*	N/A	N/A	HF, HHF
Scarlet Oak	*Quercus coccinea*	N/A	N/A	HF, HHF
Black Cherry	*Prunus serotina*	N/A	N/A	HHF
Black Birch	*Betula lenta*	N/A	N/A	HF, HHF, FW-CC
Rhododendron	*Rhododendron spp*	N/A	N/A	HHF
American Beech	*Fragus grandifolia*	N/A	N/A	HF, HHF
American Hophornbeam	*Ostyra virginiana*	N/A	N/A	FW-CC
Green Ash	*Fraxinus pennsylvanica*	N/A	N/A	WSM, FFP, PS, FW-CC
Spicebush	*Calycanthus occidentalis*	N/A	N/A	FFP, PS
Gray Dogwood	*Cornus racemosa*	N/A	N/A	FW-CC
Alternate-Leaf Dogwood	*Cornus alternifolia*	N/A	N/A	FW-CC
Sweet Gum	*Liquidambar styraciflua*	N/A	N/A	FW-CC
White Ash	*Fraxinus americana*	N/A	N/A	HF, DA
Sugar Maple	*Acer saccharum*	N/A	N/A	HF, HHF, FW-CC
Northern Red Oak	*Quercus rubra*	N/A	N/A	HF, HHF

OBSERVED WOODY PLANT SPECIES STATUS

CROTON OVERLOOK DEVELOPMENT
TOWN OF YORKTOWN, WESTCHESTER COUNTY, NEW YORK

Common Name	Scientific Name	Federal/ State Listed Status	State Rarity Indicators	Habitat
Northern Pin Oak	*Quercus Palustris*	N/A	N/A	WSM, FFP, PS, FW-CC
Sycamore	*Ficus sycomorus*	N/A	N/A	FFP, PS
Black Willow	*Salix nigra*	N/A	N/A	FFP, PS
Eastern Cottonwood	*Populus deltoides*	N/A	N/A	FFP, PS
Eastern Hemlock	*Tsuga canadensis*	N/A	N/A	FFP, PS
Chesnut Oak	*Quercus prinus*	N/A	N/A	HHF
Flowering Dogwood	*Cornus florida*	N/A	N/A	FW-CC
White Pine	*Pinus strobus*	N/A	N/A	HF

Notes:

WSM - Wet Meadow - Sedge Meadow

HF - Hardwood Forest

HHF - Hardwood Highland Forest

FFP - Forested Flood Plain

PS - Perennial Stream

DA - Disturbed Area

FW-OC - Freshwater Wetlands - Open Canopy

FW-CC - Forested Wetland - Closed Canopy

N/A - Not Applicable

APPENDIX E

TRANSECT TABULATIONS
(QUADRANT TRANSECT VEGETATION DATA
AND
POINT INTERCEPT TRANSECT VEGETATION DATA)

QUADRANT TRANSECT VEGETATION DATA
CROTON OVERLOOK DEVELOPMENT

V1 - TRANSECT AT 50 FEET		
QUADRANT POINT LOCATION (IN FEET)	**SPECIES**	**% COVER**
10.5	Green Ash	5
	Hickory Seedlings	2
	Leaf Litter & Mast	93
21	Leaf Litter & Rock	100
31.5	Red Maple Seedling	2
	Hickory Seedling	1.5
	Green Ash	10
	Crab Grass	2
42	Green Ash	15
	Solomon Seal	4
	Red Maple Seedling	2
		1
V2 - TRANSECT AT 50 FEET		
10.5	Multiflora Rose	25
	Sensitive Fern	55
	Rough-Leaved Goldenrod	10
	Stilt Grass	5
21	Skunk Cabbage	70
	Stilit Grass	5
	Touch-Me-Not	10
	Virginia Creeper	2
31.5	Tussock Sedge	35
	Skunk Cabbage	10
	Touch-Me-Not	10
	Stilt Grass	15
42	Stilt Grass	15
	Skunk Cabbage	20
	Sphagnum Moss	15
	Cinnamon Fern	15
	Tussocks Sedge	15
	Touch-Me-Not	7
	Virginia Creeper	5

QUADRANT TRANSECT VEGETATION DATA
CROTON OVERLOOK DEVELOPMENT

V3 - TRANSECT AT 50 FEET		
QUADRANT POINT (IN FEET)	**SPECIES**	**% COVER**
10.5	Sugar Maple Seedling	1
	Chessnut Oak Seedling	2
	Hickory Seedling	1
	Leaf Litter	94
21	Chestnut Oak Seedling	5
	Red Maple	1
31.5	Black Birch Seedling	5
	Moss	3
	Red Maple Seedling	1
42	Chestnut Oak Seedling	1
	Moss	4
	Japanese Honeysuckle	2
	Leaf Litter	93
V4 - TRANSECT AT 50 FEET		
10.5	Barberry	2
	Green Ash	5
	Leaf Litter	93
21	Green Ash	15
	Leaf Litter	85
31.5	Cinnamon Fern	20
	Hickory Seedling	6
	Japanese Honeysuckle	4
42	Virginia Creeper	3
	Hickory	4
	Barberry	3
	Red Maple	1
	Sugar Maple	2
	Common Blue Violet	2
	Green Ash	2
	Japanese Honeysuckle	2
	Leaf Litter	81
V5 - TRANSECT AT 50 FEET		
10.5	Sphagnum Moss	12
	American Elm Seedlings	10
	Carex Spp.	5
	Wild Onion	10
	Red Maple Seedling	4
	Leaf Litter	59

QUADRANT TRANSECT VEGETATION DATA
CROTON OVERLOOK DEVELOPMENT

V5 - TRANSECT AT 50 FEET (CONTINUED)		
QUADRANT POINT (IN FEET)	**SPECIES**	**% COVER**
21.5	Green Ash	5
	Black Birch Seedling	5
	Red Maple Seedling	2
	Carex Spp.	4
	Leaf Litter	84
31.5	Carex Spp.	2
	Leaf Litter	98
42	Carex Spp.	2
	Leaf Litter	98
V6 - TRANSECT AT 50 FEET		
10.5	Cinamon Fern	5
	Blackberry	10
	Pine Needles	85
21	Cinnamon Fern	45
	Pine Needles/Branches	55
31.5	Virginia Creeper	5
	Cinnamon Fern	45
	Japanese Honeysuckle	20
	Poison Ivy	2
	Pine Needles/Branches	63
42	Sugar Maple Seedlings	5
	Japanese Honeysuckle	5
	Pine Neeldes	90

POINT INTERCEPT TRANSECT VEGETATION DATA
CROTON OVERLOOK DEVELOPMENT

V1 - TRANSECT AT 50 FEET				
POINT (IN FEET)	**SPECIES**	**DBH**	**% COVER**	
0'	Northern Red Oak	9.65"	75	Dominant
0'	Sugar Maple	2.75"	10	Understory
8'	Sugar Maple	3.4"	10	Understory
34'	Sugar Maple	20.1"	85	Dominant
37'	Sugar Maple	11.5"	30	Intermediate
39'	Sugar Maple	11.95"	15	Intermediate
50'	Bitternut Hickory	6.2"	5	Intermediate
V2 - TRANSECT AT 50 FEET				
0'	Red Maple	11.55"	20	Co-Dominant
50'	Red Maple	10.3"	15-20	Co-Dominant
V3 - TRANSECT AT 50 FEET				
0'	Northern Red Oak	5.85"	75	Intermediate
5'	White Oak	16.35"	35	Dominant
13'	Scarlet Oak	5.8"	5	Understory
32.8'	Sugar Maple	3.5"	3	Understory
34.3'	Chestnut Oak	13.0"	20	Co-Dominant
42.2'	Black Birch	3.75"	20	Understory
50'	Black Birch	5.45"	30	Intermediate
V4 - TRANSECT AT 50 FEET				
0'	White Ash	16.8"	25	Dominant
30'	Sugar Maple	9.05"	35	Co-Dominant
42'	Sugar Maple	11.55"	20	Co-Dominant
50'	American Elm	9.0"	0	Supressed
V5 - TRANSECT AT 50 FEET				
0	American Elm	1.1"	5	Understory
17	Black Birch	10.5"	30	Co-Dominant
20.5	Black Birch	8.4"	20	Understory
26	Sugar Maple	21.5"	35	Dominant
28	Black Birch	8.3"	20	Understory
44.3	Flowering Dogwood	1.9"	10	Understory
V6 - TRANSECT AT 50 FEET				
0	White Pine	25"	30	Dominant
12	White Pine	16.5"	25	Dominant
12.5	Sugar Maple	4"	35	Understory
38	White Pine	23.3"	20	Dominant
41	Sugar Maple	2.4"	15	Understory
45	Sugar Maple	2"	25	Understory
48.5	Sugar Maple	2.2"	25	Understory

APPENDIX F

SITE PHOTOGRAPHS

Photo No. 1 - View of Sugar Maple and Red Oak canopy conditions within the Hardwood Forest vegetation community.

Photo No. 2 - View of mature Sugar Maple and Red Oak canopy conditions within the Highland Hardwood Forest vegetation community.

Photo No. 3 - Southeast view of herbaceous vegetation within the Wet Sedge Meadow and a portion of the Forested Wetland - Closed Canopy vegetation communities.

Photo No. 4 - South view of the north and south ponds; portions of the Wet Sedge Meadow (left) and Forested Wetland - Closed Canopy (right) vegetation communities are depicted.

Photo No. 5 - Northeast view of Wet Sedge Meadow (foreground) and Forested Wetland - Closed Canopy vegetation communities; tributary in center-ground flows from north to south into the north pond.

Photo No. 6 - West view of Forested Floodplain vegetation community, located south and west of the proposed development area. Portions of the Hardwood Forest community which transition to the Forested Floodplain vegetation community are depicted right.

Photo No. 7 - Southeast view of stream section within the Perennial Stream vegetation community; ECSI staff person depicted in photograph is conducting "walk-through survey" for fish and amphibian species.

Photo No. 8 - Southeast view of vegetation conditions encountered within the Disturbed Area vegetation community.