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FISH AND WILDLIFE IMPACT ANALYSIS

ELTINGS CORNERS FACILITY
CENTRAL HUDSON OAS & ELECTRIC CORPORATION
TOWN OF LLOYD, NEW YORK

JULY 24, 2014

A Report Prepared for:

Central Hudson Gas & Electric Corporation
284 South Avenue
Poughkeepsie, New York 12601

FISH AND WILDLIFE IMPACT ANALYSIS
CHGE ELTINGS CORNERS FACILITY
INTERSECTION OF STATE ROUTE 299 AND SOUTH STREET
TOWN OF LLOYD, ULSTER COUNTY, NEW YORK

Kleinfelder Project Number: 20143521.001A

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LIST OF ACRONYMS

CHGE –	Central Hudson Gas & Electric Corporation
FWIA –	Fish and Wildlife Impact Analysis
ECL –	Environmental Conservation Law
ELAP –	Environmental Laboratory Approval Program
ER-L –	Effects Range – Low
ER-M –	Effects Range – Medium
km -	kilometer
NYCRR –	New York Codes, Rules, and Regulations
NYNHP –	New York Natural Heritage Program
NYSDEC –	New York State Department of Environmental Conservation
PAHs –	Polycyclic Aromatic Hydrocarbons
PCBs –	Polycyclic Aromatic Hydrocarbons
RCRA –	Resource Conservation and Recovery Act
SSSSC –	Site-Specific Sediment Screening Criteria
TOC –	Total Organic Carbon
USACE –	United States Army Corps of Engineers
USEPA –	United States Environmental Protection Agency
µg/kg –	micrograms per kilogram

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FISH AND WILDLIFE IMPACT ANALYSIS
Eltings Corners Facility
Town of Lloyd, New York

1 INTRODUCTION

Central Hudson Gas & Electric Corporation (CHGE) retained Kleinfelder, Inc. (Kleinfelder) to prepare a Fish and Wildlife Impact Analysis (FWIA) for the undeveloped portion of CHGE's Eltings Corners Resource Conservation and Recovery Act (RCRA) permitted Facility and two adjacent parcels (the Site). The Site is located at the intersection of State Route 299 and South Street in the Town of Lloyd, Ulster County, New York. The Site location is depicted on **Figure 1**.

This FWIA was performed in accordance with the NYSDEC Division of Fish and Wildlife guidance document, *Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites*, dated October 1994. This FWIA follows Steps I through IIB as identified in the 1994 guidance document.

1.1 SITE OVERVIEW

The Site encompasses approximately 12 acres and is comprised primarily of a New York State Department of Environmental Conservation (NYSDEC) regulated freshwater wetland identified as CD-6, a Class 1 wetland within Lots 87.1-3-18, 87.1-3-23, and 87.1-3-24. Lot 87.1-3-18 is bisected by South Street (County Road 22). The majority of the western portion of this bisected lot falls within wetland CD-6. The eastern portion of the lot is comprised of the CHGE Eltings Corners Facility.

According to historical information provided by CHGE, the Eltings Corners Facility has operated as a vehicle and equipment storage/repair facility since the 1950s. Both current and historic activities included: storage and repair of electrical equipment, including transformers and CHGE fleet vehicles, as well as materials warehouses and administrative offices.

Black Creek, a NYSDEC Class A trout stream (in the lower reaches), is located adjacent to the eastern boundary of the CHGE Eltings Corners Facility. The facility contains a stormwater

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drainage system that conveys stormwater runoff from throughout the facility property, as well as some flow from Black Creek, to a single discharge point on the Site which is permitted by the NYSDEC under permit no. NY0148849. This outfall discharges stormwater and a portion of stream flow from Black Creek which flows through the Site into wetland CD-6.

Previous sediment sampling of the wetland and main streambed has indicated that polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) are present at various locations and depths within the Site. At each sampling location, sediment samples were collected from discrete depth intervals to determine a vertical and horizontal profile of sediment quality. Analytical results of these sediment samples indicated the presence of PCBs above the NYSDEC Site Specific Sediment Screening Criteria (SSSC) for Wildlife Bioaccumulation Protection Level and PAH concentrations above the remediation levels published in the NYSDEC *Technical Guidance for Screening Contaminated Sediments*, dated 1999.

Kleinfelder conducted three Interim Supplemental RCRA Facility Investigations in December 2009, November 2010, and July 2012 where additional sediment samples were collected to delineate the horizontal and vertical extent of PCB- and PAH-impacted sediments. Based on the analytical results of these sampling efforts, remedial action was determined to be necessary on the Site.

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2 STEP I: SITE DESCRIPTION

The objectives of Step I of the NYSDEC FWIA guidance document are to identify the wildlife resources that currently exist within the Site and those which existed before impacts from the Facility may have occurred, as well as to provide the information necessary for the design of a remedial investigation.

2.1 SITE DESCRIPTION

As previously described, the Site is comprised of approximately 12 acres on Lot 87.1-3-23, Lot 87.1-3-24, and the western portion of Lot 87.1-3-18. The eastern portion of Lot 87.1-3-18 is comprised of the CHGE Eltings Corners Facility. The western and eastern portions of this lot (Lot 87.1-3-18) are bisected by South Street (County Road 22).

The majority of the Site is within NYSDEC wetland CD-6. Wetland CD-6 is a large freshwater emergent/scrub-shrub wetland extending north, west, and south of the Site and is approximately 1,526 acres in size. This wetland complex extends from the northeast corner of South Ohioville Road and Hurds Road to the north approximately 6.5 miles to Plutarch Road. State Route 299 bisects the wetland east to west through the approximate center of the wetland. One named perennial stream, Swartekill Creek, originates from the wetland complex and flows north through the central portion of the wetland. The stream continues flowing north from wetland CD-6 through several other NYSDEC wetlands before discharging into the Wallkill River (a Class B and C surface water body).

Historic aerials and topographic maps indicate that agricultural fields and orchards were present on the Site both in 1958 and 1963 (NETR Online, 2014). It is unclear when the Site was developed for agricultural purposes and when the Site reverted back to its current wetland state. Remnant drainage ditches constructed to drain the CHGE parcel are still present within the Site.

The Site topography is generally level with an average elevation of 357 feet above mean sea level, as determined by the USGS 7.5 minute Clintondale Quadrangle (North American Vertical Datum of 1988).

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Black Creek, a NYSDEC Class A trout stream in its lower branches, partially flows through the CHGE Eltings Corners Facility stormwater drainage system. This flow enters a culvert under the former rail bed (on the eastern perimeter of the active CHGE facility), flows into a fire pond, and subsequently into the onsite facility stormwater drainage system. The drainage system discharges stormwater runoff and some flow from Black Creek into wetland CD-6. Surface water flow during hydrological events is depicted on **Figure** 2.

The one-half mile radius around the Site consists primarily of commercial properties along State Route 299 corridor, north and west of the Site, and undeveloped wetlands to the west. Low density residential lots are present south/southeast of the Site. Medium density residential properties are located north of State Route 299. Several agricultural and undeveloped successional forested areas are present south and east of the Site.

Several significant natural resource features are located within two miles of the Site perimeter. These ecological features are depicted on **Figure 3.** Several NYSDEC-regulated freshwater wetlands and Class A and B streams exist in this area. One NYSDEC Significant Habitat, a dwarf shrub bog, is located approximately 1.1 miles south of the Site.

Additionally, three rare plants have been historically documented in a large area located approximately one-quarter mile south of the Site:

Plant Species	**Date Last Documented**	**Location and Habitat Where Last Documented**	**NYS Protected Status**
Dragon's Mouth Orchid (*Arethusa bulbosa*)	06/06/1958	Clintondale; located in sphagnum swamp	Threatened
Puttyroot (*Aplectrum hyemale*)	06/05/1958	New Paltz; located in moist woodlands	Endangered
Large Twayblade (*Liparis liliifolia*)	06/06/1958	Clintondale; located in woods along a swamp edge	Endangered

No other significant communities or other endangered, threatened, or rare species were identified by NYSDEC Environmental Resource Mapper within two miles of the Site (NYSDEC, 2014a).

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No endangered, threatened, or rare species have been documented at the Site using NYSDEC Environmental Assessment Form (EAF) Mapper online software program (NYSDEC, 2014b).

2.2 DESCRIPTION OF FISH AND WILDLIFE RESOURCES

Section 2.2 describes the fish and wildlife resources found within the Site and surrounding habitats within one-half mile of the Site in accordance with the NYSDEC FWIA guidance document. The covertype assessment was conducted via a desktop analysis and was verified in the field by Kleinfelder biologist, David B. Tompkins. Covertypes were classified and described using *Ecological Communities of New York State: Second Edition* (Edinger et al., 2002). The locations of these covertypes are depicted on **Figure 4** and are described below.

Site Covertypes and Fish & Wildlife Resources

Freshwater Forested/Scrub-Shrub Wetland and Freshwater Emergent Wetland

NYSDEC Wetland CD-6 is a very large wetland complex featuring several different wetland habitats ranging from palustrine, emergent, semi-permanently flooded areas to deciduous forested, seasonally flooded areas. The Site consists of several wetland types transitioning (from east to west) from scrub-shrub wetlands located along South Street to emergent herbaceous vegetation to red maple forested wetland approximately 500 feet west of South Street. A list of dominant vegetative species found within the Site is located on Table 1.

Wildlife identified at the Site includes red-winged blackbird (*Agelaius phoeniceus*), wood duck (*Aix sponsa*), mallard (*Anas platyrhynchos*), common grackle (*Quiscalus major*), great blue heron (*Ardea herodias*), Canada goose (*Branta canadensis*), song sparrow (*Melospiza melodia*), raccoon (*Procyon lotor*), and beaver (*Castor canadensis*). Other wildlife typically associated with freshwater emergent, forested, and scrub-shrub wetlands include eastern American toad (*Bufo a. americanus*), northern spring peeper (*Pseudacris c. crucifer),* green frog (*Lithobates clamitans*), and wood frog (*L. sylvaticus*) and salamanders such as northern redback salamanders (*Plethodon c. cinereus*). Avian species typically found in these habitats include marsh wren (*Cistothorus palustris*), common yellowthroat (*Geothlypis trichas*), American bittern (*Botaurus lentiginosus*), alder flycatcher (*Empidonax alnorum*), willow flycatcher (*E. tralli*), and Lincoln's sparrow (*Passerella lincolnii*).

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During the 2009 environmental investigation conducted at the Site, surface water quality parameter data, including water depth, temperature, turbidity, dissolved oxygen, flow rate, pH, and specific conductivity, were collected using a calibrated Horiba U-22 water quality parameter unit. This data is provided in Table 2.

Site Vicinity Covertypes & Fish and Wildlife Resources

Several covertypes were identified within a one-half mile radius of the Site and are described below.

Urban Structure Exterior, Paved Road/Path, and Unpaved Road/Path

The eastern portion of Lot 87.1-3-18 is comprised of the CHGE Eltings Corners Facility which houses several storage, maintenance, and office buildings. Additionally, the facility has a network of both paved and unpaved areas. Habitat for flora and fauna on this area of the Site is limited by continuous disturbance due to daily site activity.

Few areas of urban structures exist within one-half mile of the Site and are primarily confined to the area north of the Site, across Route 299. Urban structure exteriors include one large business, Lowe's Home Improvement Store, and several other smaller businesses along the northern side of Route 299.

Urban structure exteriors are defined as the exterior surfaces of metal, wood, or concrete structures (such as commercial buildings) or any structural surface composed of inorganic materials in an urban or densely populated suburban area. These sites may be sparsely vegetated with lichens, mosses, and terrestrial algae; however, vascular plants may grow in cracks. Nooks and crannies may provide nesting habitat for birds and insects and as roosting sites for bats.

Characteristic birds include common nighthawk (*Chordeiles minor*) on rooftops, American robin (*Turdus migratorius*) on porches or under shelters, and exotic birds such as rock dove (*Columbia livia*) and house sparrow (*Passer domesticus*).

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Rural Structure Exteriors

Some rural structures, low density residential dwellings, exist in the Site vicinity, mainly south of the Site along South Street (County Road 22). These ecological communities are defined as exterior surfaces of metal, wood, or concrete structures or any structural surface composed of inorganic materials in a rural or sparsely populated suburban area. Sites of this nature may be sparsely vegetated with lichens, mosses, and terrestrial algae with vascular plants occasionally growing in cracks. Small areas within the structures may provide nesting habitat for birds and insects and as roosting sites for bats.

The wildlife communities typically inhabiting these structures are similar to the wildlife found on urban structure exteriors with the addition of gray squirrels (*Sciurus carolinensis*) and raccoons.

Mowed Lawns with Trees

Several areas of mowed lawns with trees are present within one-half mile of the Site, typically in conjunction with urban and rural structure exteriors. The "mowed lawn with trees" covertype is defined as residential, recreational, or commercial land in which groundcover is dominated by clipped grasses and forbs, and is shaded by at least 30 percent cover of trees. Ornamental and/or native shrubs may be present, usually with less than 50 percent cover. The groundcover is maintained by mowing. Characteristic animals include gray squirrel, American robin, mourning dove (*Zenaida macroura*), and mockingbird (*Mimus polyglottos*).

Paved Road and Mowed Roadside

The Site is bounded by Route 299 to the north and bisected by South Street (County Road 22). Paved roads provide little habitat for wildlife; however, sparse vegetation may be rooted within cracks in the paved surface.

Narrow strips of mowed vegetation are present along the sides of Route 299, South Street, and other nearby paved streets. The vegetation in these mowed strips are typically dominated by grasses, sedges, and rushes but can be dominated by forbs, vines, and low shrubs tolerant of infrequent mowing.

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Confined River and Associated Riparian Habitat

Black Creek, a Class A trout stream in its lower sections, is classified as a confined river, an aquatic community of relatively large, fast flowing sections of streams with a moderate to gentle gradient. Confined rivers typically have high water clarity and are well oxygenated. In the one-half mile vicinity of the Site, Black Creek flows northeast through areas of mowed lawn with trees on residential properties and into a more undisturbed riparian/upland forest habitat.

Fish diversity ranges from moderate to high with characteristic fish such as creek chub (*Semotilis atromaculatus*), bluntnose minnow (*Pimephales notatus*), and tessellated darter (*Etheostoma olmstedi*). The macroinvertebrate communities within confined rivers tend to be highly diverse. Vegetation within confined rivers is limited and algae is the predominant plant occurring in these habitats.

Former Railroad Bed

A former railroad bed is located on the eastern perimeter of the CHGE Eltings Corners Facility. The rail line is no longer in service; however, it is assumed that during its service, vegetative encroachment was maintained via mowing and/or herbicide application. A vegetative community typically associated with disturbed sites has been established along the railroad.

Shallow and Deep Emergent Marshes

Several shallow and deep emergent marshes are located within the Site vicinity. Shallow emergent marshes are defined as marsh meadow communities that occur either on mineral soil or deep muck soils that are permanently saturated and seasonally flooded. Deep emergent marshes are defined as marsh communities occurring on mineral soils or fine-grained organic soils. Shallow emergent marshes are typically better drained that deep emergent marshes. Typical wildlife communities utilizing these habitats have been described above in the Site Cover type Section above.

Forested/Scrub-Shrub Wetland

Several scrub-shrub and forested wetlands are located within one-half mile of the Site. Forested wetlands include seasonally flooded forested, and permanently flooded or saturated swamps. Forests typically have at least 50% canopy cover. The hardwood swamp occurs in poorly

drained depressions, usually on inorganic soils. This is a broadly defined community with many regional and edaphic variants. Typical species found within this community include red maple (*Acer rubrum*), green ash (*Fraxinus pennyslvanica*), eastern cottonwood (*Populus deltoides*), American elm (*Ulmus americana)*, and swamp white oak (*Quercus bicolor*). The shrub layer may be very well-developed and dense. Species in this layer may include spicebush (*Lindera benzoin*), highbush blueberry (*Vaccinium corymbosum*), dogwoods (*Cornus sericea*, *C. racemosa*, and *C. amomum*), and viburnums (*Viburnum recognitum* and *V. dentatum*).

A scrub-shrub wetland (shrub swamp) is an inland wetland dominated by tall shrubs that occurs along the shore of a lake or river, in a wet depression or valley not associated with lakes, or as a transition zone between a marsh, fen, or bog and a swamp or upland community. Shrub swamps are very common and variable and may be co-dominated by a mixture of species or a single dominant shrub species. Typical species found within these wetlands include speckled alder (*Alnus incana*), dogwoods (*Cornus* spp.), and willows (*Salix* spp.)

Southern Successional Hardwood Forest

Undeveloped parcels of southern successional hardwood forest are located south of the Site. Successional forests include forests that develop on sites that have been cleared (for farming, logging, etc.) or otherwise disturbed (by fire, ice, wind throw, flooding, etc.). Trees and shrubs found within this forest type include American elm, white ash (*Fraxinus americana*), red maple, gray birch (*Betula populifolia*), sassafras (*Sassafras albidum*), and tree-of-heaven (*Ailanthus altissima*).

Stormwater Detention Basin

Two stormwater detention basins are located northeast of the Lowe's Home Improvement Store. Although the basins are vegetated, they are routinely flooded due to an influx on stormwater runoff from rainfall events. The basins may provide temporary habitat for some amphibians, birds, and insects although more suitable habitat is present in the nearby vicinity making this detention basin unlikely to provide significant habitat for wildlife.

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Freshwater Pond

Two small freshwater ponds are located northeast of the Site, east-adjacent to the Lowe's Home Improvement Store. Both ponds are considered eutrophic ponds which are small, shallow, nutrient-rich ponds that are usually green with algae, and have mucky bottoms. Water is usually murky with low transparency, rich in plant nutrients with usually a high diversity and abundance of aquatic vegetation. Vegetative species found within this community may include duckweed (*Lemna minor*), coontail (*Ceratophyllum demersum*), pondweeds (*Potamogeton* spp.), yellow pond-lily (*Nuphar luteum*), and algae (*Cladophora* spp.). These areas are likely to contain some degree of invasive species such as common reed and purple loosestrife.

Cropland/Field Crops and Orchards

As part of the rural nature of the surrounding land use, several parcels of cropland and orchard are present within one-half mile of the Site. Cropland, specifically field crops, is agricultural fields planted with field crops such as alfalfa or hayfields. Characteristic species include grasshopper sparrow (*Ammodramus savannarum*), vesper sparrow (*Pooecetes gramineus*), bobolink (*Dolichonys oryzivorous*), and mourning dove.

Orchards are defined as stands of cultivated fruit trees with grasses as a groundcover. The orchards found within one-half mile of the Site are active. Characteristic bird species include the American robin, eastern kingbird (*Tyrannus tyrannus*), mourning dove, and in mature orchards, yellow-bellied sapsucker (*Sphyrapicus varius*).

NYSDEC Breeding Bird Atlas Results

The Breeding Bird Atlas is a comprehensive, statewide survey effort which aims to document the distribution of breeding birds in New York. The state is divided into survey blocks which measure five by five kilometers (km) in area and volunteers document evidence of breeding bird activity over the course of five years.

The 2000-2005 breeding bird survey effort resulted in the documentation of 57 avian species within atlas block 5761A in which the Site is located. No threatened, endangered, or rare species were identified in the survey area during the 2000 – 2005 survey. The list of documented species during this most recent survey is provided in **Appendix A**.

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NYSDEC Herp Atlas Results

The NYSDEC's Amphibian and Reptile Altas Project (Herp Atlas) was a ten year survey conducted from 1990 through 1999 which was designed to document the reptile and amphibian distribution in New York State. The survey blocks correspond to USGS 7.5 minute topographic quadrangles. A total of 42 amphibian and reptile species were recorded in the Clintondale quadrangle survey area. Because of the scale of the quadrangle, a smaller subset (31 species) may occur on the Site and nearby vicinity. A list of species documented within the Clintondale quadrangle is provided in **Appendix B**.

Observations of Stress

No visible signs of stressed vegetation associated with contaminant exposure were observed on the Site. Visible sheens were detected in some areas of standing water within the Site during the previous environmental investigations. Additionally, sheen and petroleum-like odors were detected at some sediment sample locations. It should be noted that sheens observed on surface waters and within sediments may be naturally occurring due to decaying organic matter.

Invasive species including purple loosestrife, multiflora rose, and reed canary grass are present throughout the Site; however, these species, along with common reed, are prevalent in areas closest to anthropogenic impacts, including along State Route 299.

The gravel parking area located on the southern portion of the Site indicates that this area had been filled/graded to construct this feature at an unknown date.

2.3 DESCRIPTION OF FISH AND WILDLIFE RESCURCE VALUE

Value of Habitat to Associated Fauna

The Site and the surrounding covertypes within one-half mile of the Site provide a variety of habitats available to both resident and migratory wildlife. However, invasive species such as purple loosestrife, multiflora rose, and common reed have degraded the wetland complex to some degree. The Site also appears to have been impacted by previous orcharding activities and ditching designed to drain the wetland. The most unique/beneficial value of the Site is the connection with a large, relatively unbroken tract of wetland habitat. The size of the wetland and the continuity of habitat provide value for many species.

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The adjacent CHGE Eltings Corners Facility does not provide significant wildlife resource value in part due to lack of natural habitat and routine disturbance from site activities conducted by CHGE personnel, although some insects and birds such as house sparrows (*Passer domesticus*) and European starlings (*Sturnus vulgaris*) may find nesting sites on the Facility structures' exteriors.

Black Creek, various wetland complexes (including onsite wetland CD-6), crop fields, orchards, and upland habitat provide wildlife in the area with a matrix of habitat types to accommodate the life activities of various mammals, birds, reptiles, amphibians, insects, and fish.

The dwarf shrub bog, located south of the Site, is a Significant Natural Community as classified by NYSDEC. Dwarf shrub bogs are naturally acidic and have low nutrient loads which create a unique habitat for specialized plants such as leatherleaf (*Chamaedaphne calyculata*), black spruce (*Picea mariana*), and carnivorous plants. Although this community was not field-verified by Kleinfelder biologists, the dwarf shrub bog was confirmed in 1998 (NYNHP, 2014).

Value of Resources to Humans

Wetland complex CD-6 may provide areas for wildlife viewing; however, there are no publically accessible viewing areas. Opportunities for recreational hunting are limited by private landownership.

Black Creek may provide recreational opportunities for fishing although no publicly accessible fishing facilities are present within the vicinity of the Site. Black Creek is stocked routinely with brown trout although the location of the fish introduction in early 2014 was in Esopus, New York which is approximately seven miles downstream (NYSDEC, 2014c).

2.4 IDENTIFICATION OF APPLICABLE FISH AND WILDLIFE REGULATORY CRITERIA

Applicable regulatory criteria for the Site include the following federal and state regulations and guidance documents:

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New York Environmental Conservation Laws (ECLs) and New York Codes, Rules, and Regulations (6 NYCRR):

- NYSDEC ECL Article 15, 6 New York Codes, Rules, and Regulations (NYCRR) Part 608: Use and Protection of Waters; and
- NYCDEC ECL Article 24, 6 NYCRR Part 663: Freshwater Wetlands Permit Requirements.

Criteria and Guidelines:

- NYSDEC *Technical Guidance for Screening Contaminated Sediments*, revisions dated January 1999; and
- NYSDEC Draft *Screening and Assessment of Contaminated Sediments*, dated January 23, 2013.

Federal Regulations, Criteria, and Guidelines:

- US Army Corps of Engineers (USACE) *US Clean Water Act*, Section 404; and
- US Environmental Protection Agency (USEPA) *National Guidance Water Quality Standards for Wetlands*, dated August 1994.

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3 STEP II: CONTAMINANT-SPECIFIC IMPACT ASSESSMENT

The objective of Step II, the contaminant-specific impact assessment, is to determine the impacts of Site-related contaminants on fish and wildlife resources. The following sections describe the results of the contaminant pathway analysis and the criteria-specific analysis.

3.1 PATHWAY ANALYSIS

Three remedial investigations have been conducted at the Site. Based on comprehensive subsurface and remedial investigations conducted at the Site and the adjacent CHGE Eltings Corners Facility, the contaminants of concern are typical for electrical utility storage and maintenance facilities and are limited to PAHs and PCBs. Prior to July 1, 1979, PCBs were commonly found in the dielectric fluid of electrical transformers and similar to those which were historically stored at the CHGE Eltings Corners Facility. PAHs are typically found within various fuels such as gasoline and diesel. Both gasoline and diesel fuels are stored at the Eltings Corners Facility for CHGE's fleet vehicles and other electrical equipment.

The storage and use of electrical equipment with PCB-containing dielectric fluid and fuels containing PAHs at the Eltings Corners Facility likely led to the incidental release of these fluids from the facility. PCBs and PAHs conceivably migrated from the Eltings Corners Facility via sheet flow of stormwater runoff into catch basins and into the Site via the stormwater discharge culvert under South Street. Impacted sediments were deposited into the wetland and continued to migrate further from the discharge point during subsequent rainfall events. Both PAHs and PCBs were detected in sediment samples collected from the Site in wetland CD-6. Samples collected immediately west of the stormwater discharge point had the highest concentrations detected. Contaminant concentrations gradually decreased as distance increased from the discharge location.

PAHs are organic pollutants and although some PAHs are naturally occurring, the largest fraction of PAHs found within natural environments can be attributed to anthropogenic activities (Rand et al., 2003). Some PAHs are mutagens, carcinogens, and teratogens with toxicity varying among compounds. PAHs in freshwater wetland systems tend to concentrate in sediment as a result of their low solubility and strong sorption to particulate matter; however,

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PAHs can also evaporate or disperse in the water column (Rand et al., 2003). PAHs in aquatic sediments can also undergo chemical oxidation and/or biodegradation or persist indefinitely in anoxic conditions (Neff, 1979).

If not degraded within aquatic sediments, PAHs may also concentrate in aquatic biota through incidental consumption and via dermal contact (Rand et al., 2003). Some wildlife, including microorganisms, can metabolize select PAHs and may be able to fully degrade them (Eisler, 2007).

PCBs are classified as persistent organic pollutants. Once introduced into the environment, most PCBs do not readily degrade and can migrate long distances by adsorbing to particulate matter or sediments in water. PCBs can also bioaccumulate in wildlife with most PCBs stored in the lipid content of the organism. Predation of aquatic wildlife, including microorganisms, can further this bioaccumulation in organisms higher in the food chain.

Most plants do not readily bioaccumulate PCBs from contaminated soils. Because of this, the herbivory of Site vegetation is unlikely to transfer PCBs to other herbaceous organisms or their respective predators/scavengers.

3.2 CRITERIA-SPECIFIC ANALYSIS

The aforementioned pathway analysis indicates that there is a localized potential risk to wildlife resources utilizing the Site as habitat or for foraging opportunities. Contaminant concentrations within sediment samples collected at the Site were compared to the NYSDEC *Technical Guidance of Screening Contaminated Sediments*, revised January 1999. Analytical results of sediment sampling conducted from the previous environmental investigations are provided in **Table** 3 and are depicted on **Figures 5** and **6**.

Sediment samples were collected to obtain both horizontal and vertical delineation of PCB- and PAH-impacted sediments at the Site. Samples were analyzed for PCBs, PAHs, and total organic carbon (TOC) at a New York State Department of Health Environmental Laboratory Approval Program (ELAP) -certified laboratory.

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PAHs

Total PAH concentrations were compared to the NYSDEC *Technical Guidance for Screening Contaminated Sediments* which identifies the Effects Range - Low (ER-L) of 4,000 micrograms per kilogram (µg/kg) and an Effects Range – Median (ER-M) of 35,000 µg/kg. Sediments with total PAH concentrations less than 4,000 µg/kg are considered to be non-toxic. Total PAH concentrations exceeding the ER-M of 35,000 µg/kg are considered to be moderately toxic.

A total of 147 sediment samples were collected and analyzed for PAHs. Of those 147 samples, PAHs were detected in 92 samples at concentrations ranging from 12 to 202,190 µg/kg. A total of 25 samples exceeded the ER-L of 4,000 µg/kg and eight (8) samples exceeded the ER-M of 35,000 µg/kg.

PAH-impacted sediments are generally confined to the main wetland stream channel and outward to approximately 25 feet north and 25 feet south of the wetland stream channel. The PAH-impacted sediments are confined within the distribution of PCB-impacted sediments within the wetland.

PCBs

Individual PCB concentrations were totaled for each sample. Using the NYSDEC *Technical Guidance for Screening Contaminated Sediments*, TOC concentrations from each sample were used to calculate the sample-specific PCB Site-specific Sediment Screening Criteria (SSSSC) for Wildlife Bioaccumulation using the formula below:

$SC = SC_{oc} * f_{oc}$ where:

SC = Site specific sediment screening criteria

SC_{oc} = Normalized sediment screening criteria

f_{oc} = total organic carbon concentration

Where TOC concentrations were not detected, f_{oc} was estimated to be one half of the laboratory detection limit. The total PCB concentration from the sample was then compared to the sample-specific SSSSC for PCBs to determine potential impacts. If the total PCB concentration was above the SSSSC for Wildlife Bioaccumulation, an exceedance was identified.

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A total of 213 sediment samples were collected and analyzed for PCBs; of those 213 samples, total PCBs were detected in 135 samples at concentrations ranging from an estimated 2.7 to 12,600 µg/kg. A total of 101 exceedances of SSSSCs were detected in the sediment samples.

Overall, PCB exceedances are more widespread both horizontally and vertically than total PAH-impacted sediments. PCB exceedances were detected in sediments sampled 70 feet south and 50 feet north of the wetland stream channel. Additionally, all locations with total PAH impacts also have PCB exceedances of the SSSCs. The PCB- and PAH-impacted sediments have been delineated on the Site and do not extend offsite.

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4.1 CONCLUSIONS

The results of the FWIA Step I and Step IIA and B indicate that there is a localized potential for ecological resources utilizing the Site to be impacted by the contaminants of concern present at the Site. Organisms could be affected through incidental ingestion, direct contact, or bioaccumulation of both PCBs and PAHs. These contaminants of concern have migrated westward away from the outfall discharge location but are limited to impacted sediments on the Site.

Based on the findings of this assessment, remedial actions are warranted to be protective of the ecological resources utilizing the Site and to prevent any further migration of impacted sediments to offsite locations.

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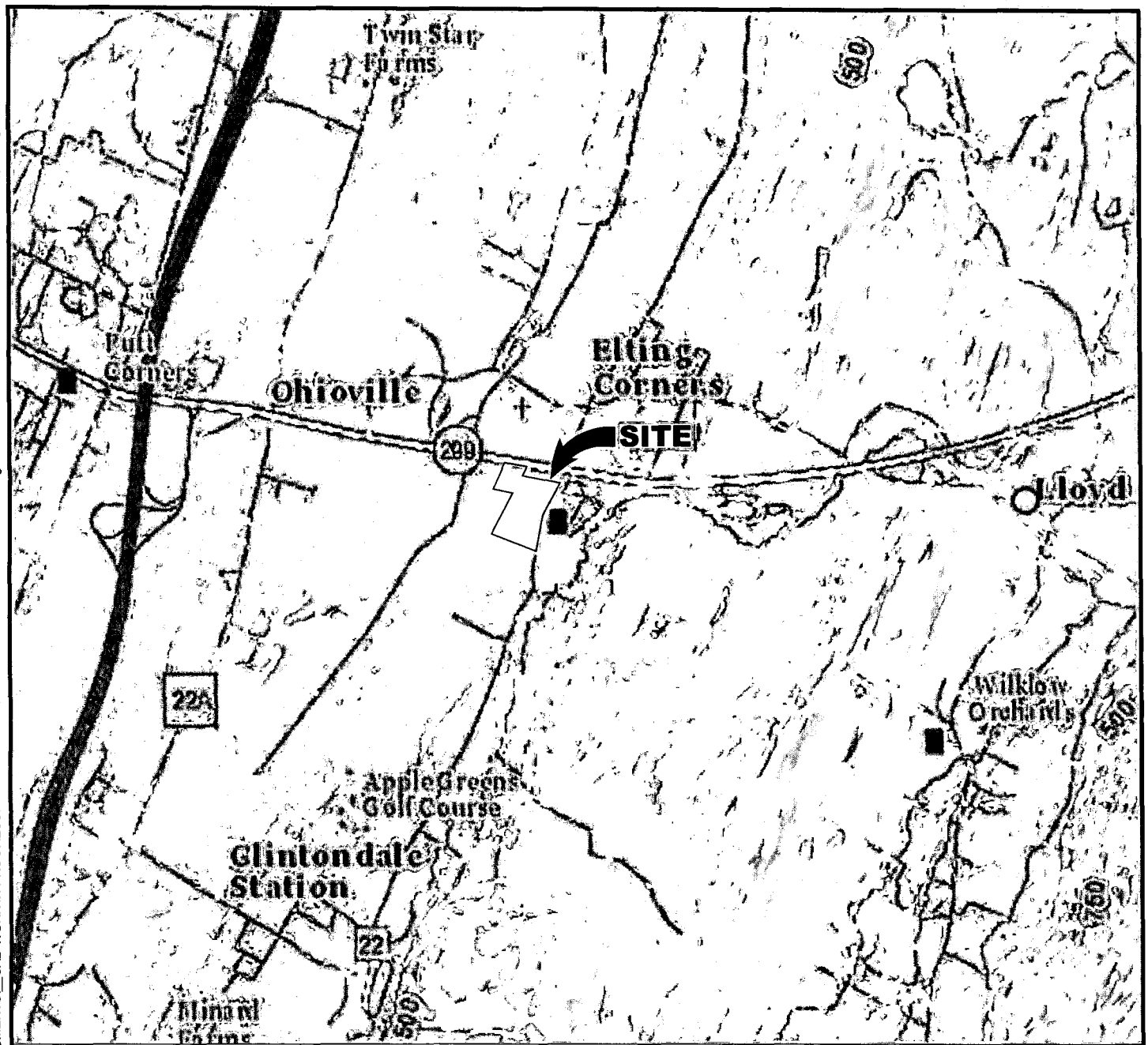
FIGURES



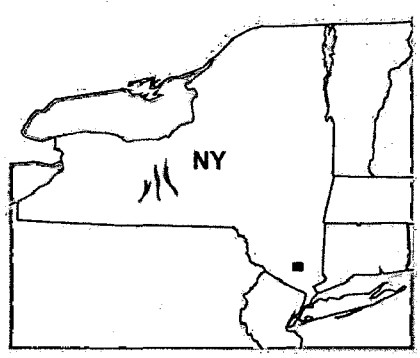
N

2000 1000 0 2000

APPROXIMATE SCALE (feet)

BASEMAP: USGS National Map 2014.

AREA ENLARGEMENT



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NEWBURGH, NY

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PROJECT NO.	20143521
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DRAWN BY:	AG
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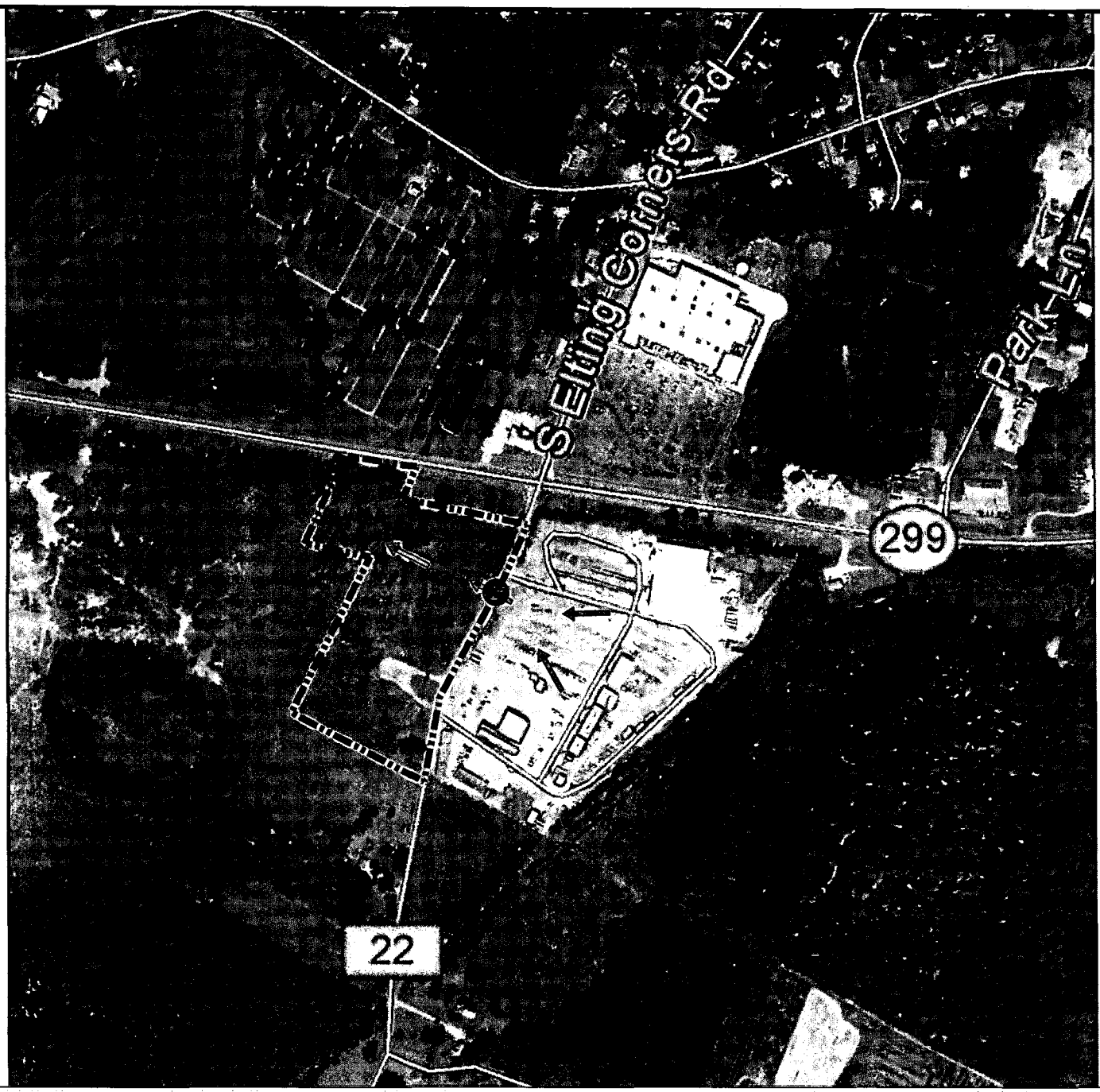
FILE NAME:	SiteLoc-FIG 1.dwg

SITE LOCATION MAP

CENTRAL HUDSON GAS & ELECTRIC CORPORATION
ELTING CORNERS FACILITY - SITE WETLAND
LLOYD, NEW YORK

FIGURE
1



LEGEND

- SITE BOUNDARY
- DRAINAGE FLOW
- OUTFALL

600 300 0 600

APPROXIMATE SCALE (feet)

BASEMAP: GOOGLE EARTH PRO 2014.

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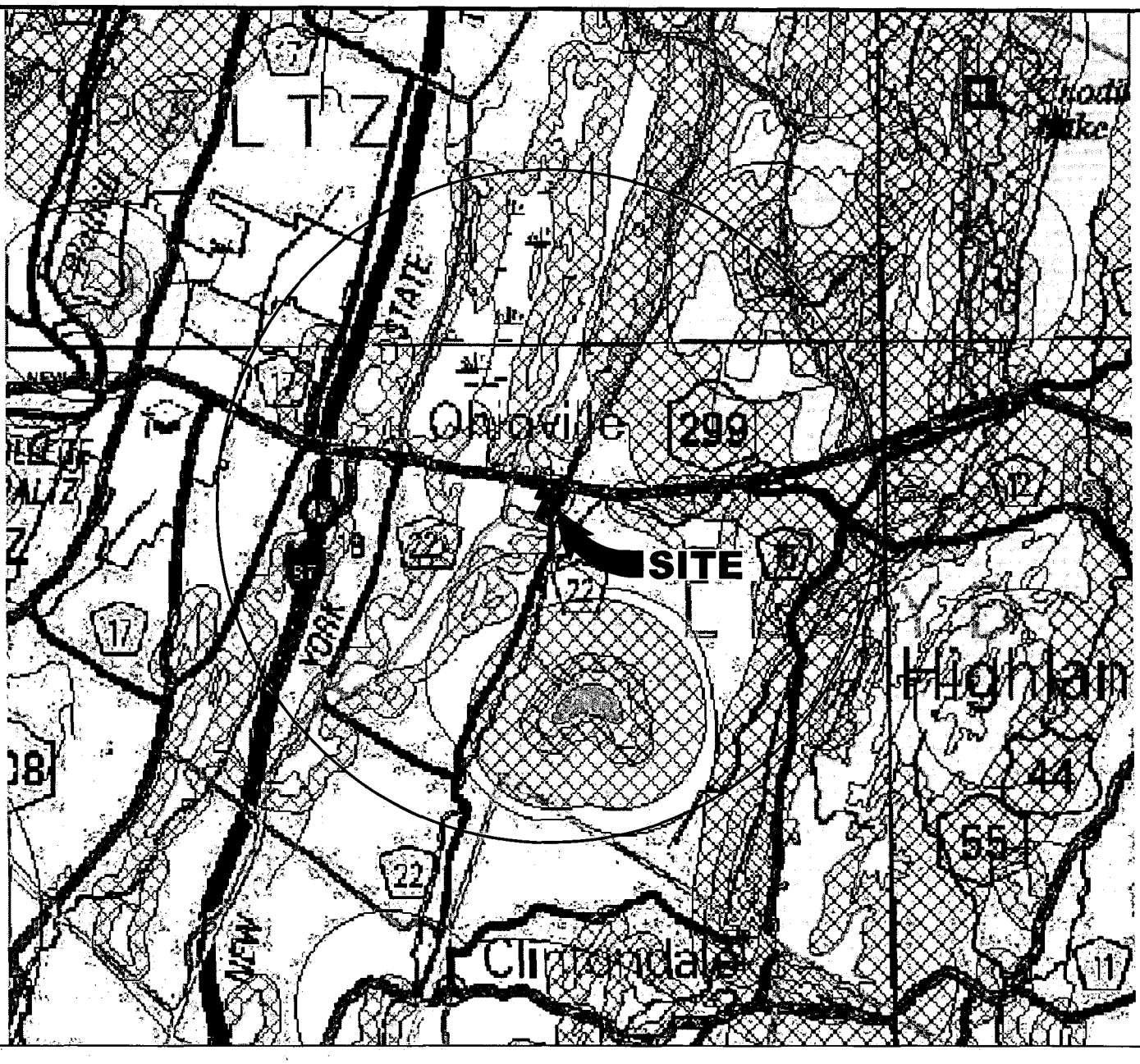
SITE PLAN

CENTRAL HUDSON GAS & ELECTRIC CORPORATION
ELTING CORNERS FACILITY - SITE WETLAND
LLOYD, NEW YORK

FIGURE
2



N

5000 2500 0 5000

APPROXIMATE SCALE (feet)

BASEMAP: NEW YORK STATE - DEPARTMENT OF ENVIRONMENTAL CONSERVATION.

LEGEND

- Classified Water Bodies
- Unique Geological Features
- Classified Water Bodies
- State-Regulated Freshwater Wetlands
- Wetland Checkzone
- Rare Plants and Rare Animals
- Significant Natural Communities
- Natural Communities Vicinity
- Background Map

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FILE NAME:	2-MileRadius.dwg

SIGNIFICANT ECOLOGICAL COMMUNITIES

CENTRAL HUDSON GAS & ELECTRIC CORPORATION
ELTING CORNERS FACILITY - SITE WETLAND
LLOYD, NEW YORK

FIGURE
3

NEWBURGH, NY CAD FILE: C:\Users\agekas\Documents_ALL CADD-DOCUMENTS_CAD-WORK IN PROGRESS\EAST COAST PROJECTS\20143521.001A-04-CHGE Elting Corners\ LAYOUT: 2MILE PLOTTED: 09 Jul 2014, 11:28am, agekas

LEGEND

- FORESTED UPLAND
- FORESTED/ SCRUB-SHRUB WETLANDS
- EMERGENT WETLANDS
- FRESHWATER LAKE/ POND
- STORMWATER BASIN
- URBAN STRUCTURE/ PAVED ROAD/ UNPAVED ROAD
- CROPLAND
- MOWED LAWN WITH TREES/ RURAL STRUCTURES
- ORCHARD
- UNPAVED PATH
- PAVED ROAD/ MOWED ROADSIDE
- RIPARIAN
- FORMER RAILROAD
- PROPERTY BOUNDARY

1000 500 0 1000

APPROXIMATE SCALE (feet)

BASEMAP: GOOGLE EARTH PRO 2014.

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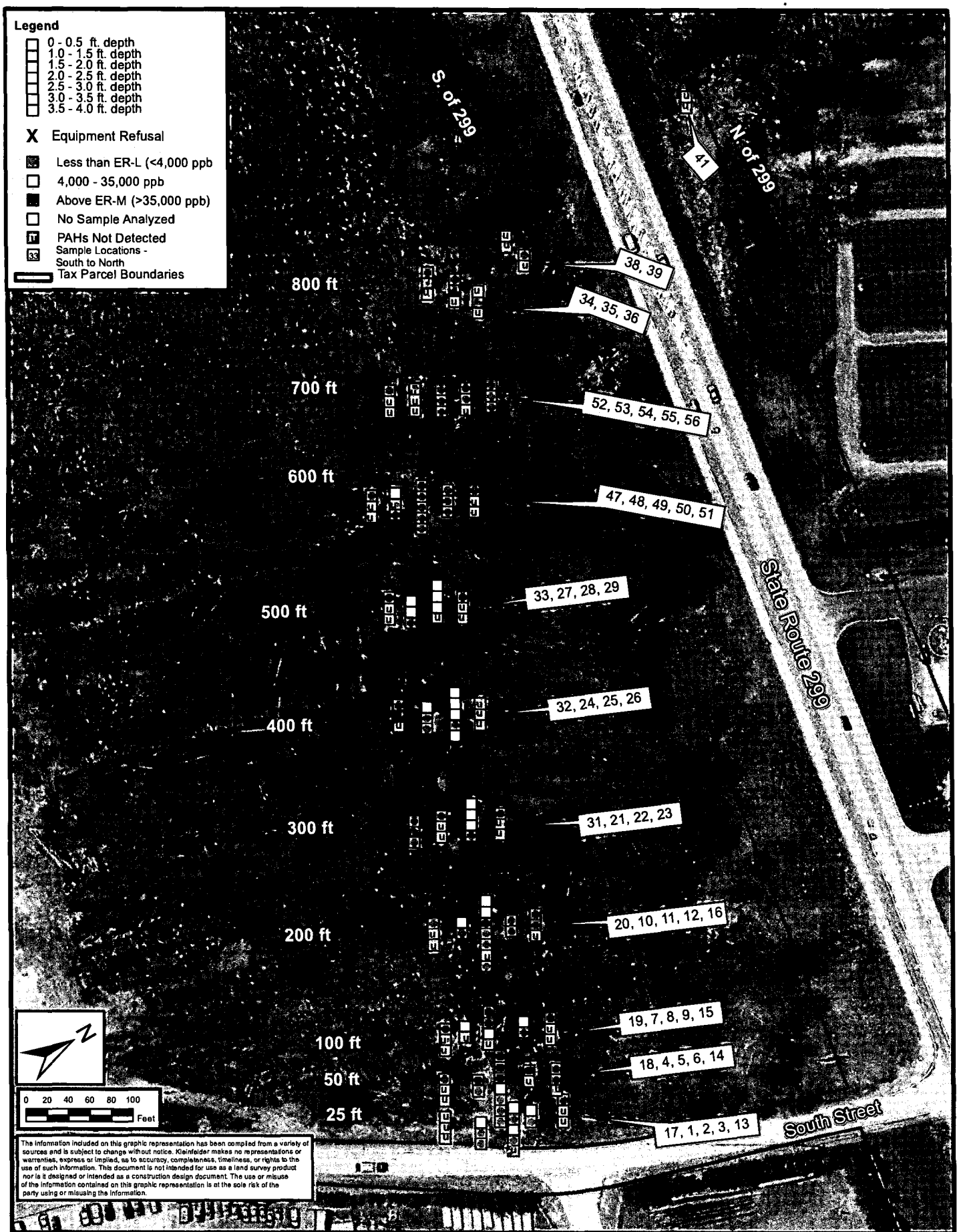
DRAWN BY:	AG
CHECKED BY:	EB
FILE NAME:	Covertypes.dwg

COVERTYPES

CENTRAL HUDSON GAS & ELECTRIC CORPORATION
ELTING CORNERS FACILITY - SITE WETLAND
LLOYD, NEW YORK

FIGURE
4

NEWBURGH, NY CAD FILE: C:\Users\agekas\Documents_ALL CADD-DOCUMENTS_CAD-WORK IN PROGRESS\EAST COAST PROJECTS\20143521.001A-04-CHGE Elting Corners\ LAYOUT: 5MILE PLOTTED: 15 Jul 2014, 9:16am, agekas



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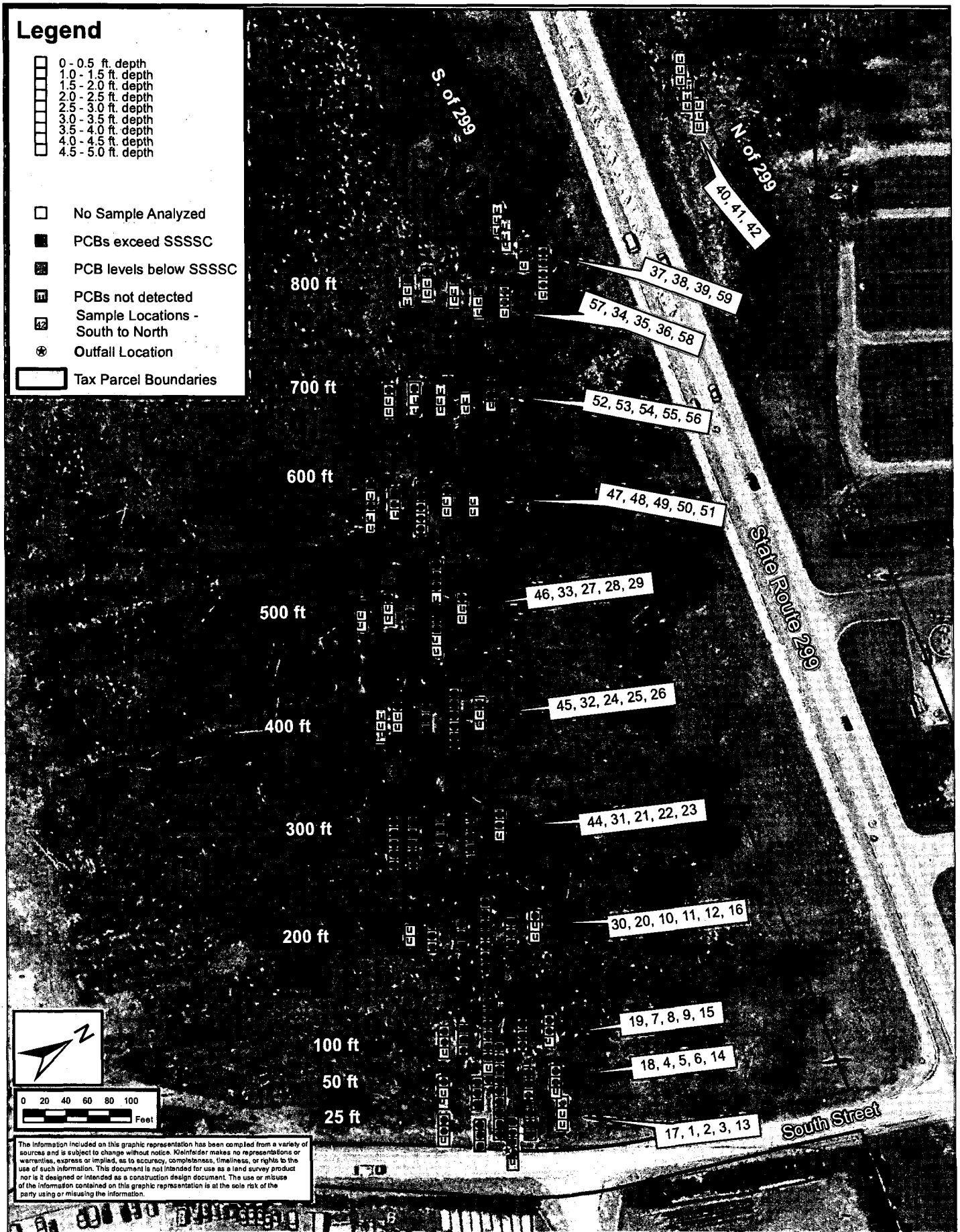
PROJECT NO.	99768
DRAWN:	03/11/2013
DRAWN BY:	JMM/SJC
CHECKED BY:	JC
FILE NAME:	Fig3_PAH

Total PAH Results

Source: NYS GIS Clearinghouse 2004 ORTHOPHOTO

C.H.G.E.
ELTINGS CORNERS PROPERTY
SOUTH STREET
TOWN OF LLOYD, ULSTER COUNTY, NEW YORK

FIGURE
5



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PROJECT NO.	99768
DRAWN:	1/21/2013
DRAWN BY:	JMM/SJC
CHECKED BY:	JC
FILE NAME:	Fig2_PCB

PCB Results Based on SSSSC for Wildlife Bioaccumulation

Source: NYS GIS Clearinghouse 2004 ORTHOPHOTO

C.H.G.E.
ELTINGS CORNERS PROPERTY
SOUTH STREET
TOWN OF LLOYD, ULSTER COUNTY, NEW YORK

FIGURE
6

TABLES

Table 1
Onsite Vegetative Species List
CHGE Elting Corners Facility - Wetland
Lloyd, NY

Common Name	Scientific Name
Trees	
Red Maple	*Acer rubrum*
Green Ash	*Fraxinus pennyslvanica*
Eastern Cottonwood	*Populus deltoides*
Black Willow	*Salix nigra*
Weeping Willow	*Salix babylonica*
Shrubs	
red osier dogwood	*Cornus sericea*
silky dogwood	*Cornus amomum*
multiflora rose	*Rosa multiflora*
Herbaceous	
Swamp Milkweed	*Asclepias incarnata*
Jewelweed	*Impatiens capensis*
Purple Loosestrife	*Lythrum salicaria*
Common Reed	*Phragmites australis*
Ferns	
Sensitive Fern	*Onoclea sensibilis*
Cinnamon Fern	*Osmunda cinnamomea*
Christmas fern	*Polystichum acrostichoides*
Vines	
Poison Ivy	*Toxicodendron radicans*
Fox Grape	*Vitis labrusca*
Sedges	
Lurid sedge	*Carex lurida*
Tussock sedge	*Carex stricta*

Table 2
Surface Water Physical Parameter Data
CHGE Elting Corners Facility - Wetland
Lloyd, New York

Location	Water Depth (Inches)	Flow Rate (Feet/Second)	Temperature (°C)	Specific Conductivity (µS/cm)	pH	Dissolved Oxygen (mg/L)	Turbidity (NTU)
Outfall	1	<0.5	15	0.526	7.84	4.45	105
SP-2	1	<0.5	15.1	0.532	7.97	4.98	23
SP-5	3	<0.5	15.2	0.533	8.11	4.94	19
SP-8	3	<0.5	15.4	0.539	8.28	5.22	14
SP-11	2	0.5	15.8	0.54	8.51	6.08	21
SP-22	3	3*	9.1	0.421	6.7	11.4	0
SP-25	4	16*	8.8	0.41	7.1	11.11	1
SP-28	3	4*	8.5	0.41	7.33	10.74	1

Notes:
* Instrument calabrated for kilometers per hour
mg/L: milligrams per Liter
NTU: Nephelometric Turbidity Units

Table 3
Summary of Total PCB and Total PAH Concentrations
by Sampling Location Depth
CHGE Elting Corners Facility - Wetland
Town of Lloyd, NY

Transect	70' South of stream channel			50' South of stream channel			25' South of stream channel			Centerline of stream channel			25' North of stream channel			50' North of stream channel		
	Sample Location	Total PCBs (µg/kg)	Total PAH's (µg/kg)	Sample Location	Total PCBs (µg/kg)	Total PAH's (µg/kg)	Sample Location	Total PCBs (µg/kg)	Total PAH's (µg/kg)	Sample Location	Total PCBs (µg/kg)	Total PAH's (µg/kg)	Sample Location	Total PCBs (µg/kg)	Total PAH's (µg/kg)	Sample Location	Total PCBs (µg/kg)	Total PAH's (µg/kg)
N. of 299							SP40 0-0.5	ND	na	SP41 0-0.5	ND	ND	SP42 0-0.5	ND	na			
							SP40 1-1.5	ND	na	SP41 1-1.5	ND	ND	SP42 1-1.5	ND	na			
							SP40 1.5-2	ND	na	SP41 1.5-2	ND	na	SP42 1.5-2	ND	na			
							SP40 2-2.5	na	na	SP41 2-2.5	na	na	SP42 2-2.5	na	na			
							SP40 2.5-3	na	na	SP41 2.5-3	na	na	SP42 2.5-3	na	na			
S. of 299							SP37 0-0.5	ND	na	SP38 0-0.5	ND	ND	SP39 0-0.5	2,900	2,164	SB59 0-0.5'	21 J	na
							SP37 1-1.5	ND	na	SP38 1-1.5	ND	ND	SP39 1-1.5	27J	ND	SB59 1-1.5'	8.6 J	na
							SP37 1.5-2	ND	na	SP38 1.5-2	ND	na	SP39 1.5-2	ND	na	SB59 1.5-2'	16 J	na
							SP37 2-2.5	na	na	SP38 2-2.5	na	na	SP39 2-2.5	na	na	SB59 2-2.5'	15 J	na
							SP37 2.5-3	na	na	SP38 2.5-3	na	na	SP39 2.5-3	na	na	SB59 2.5-3'	ND	na
800'				SB57 0-0.5'	610	na	SP34 0-0.5	480	941	SP35 0-0.5	110	93	SP38 0-0.5	88J	ND	SB58 0-0.5'	18 J	na
				SB57 1-1.5'	ND	na	SP34 1-1.5	ND	na	SP35 1-1.5	ND	na	SP38 1-1.5	ND	na	SB58 1-1.5'	7.9 J	na
				SB57 1.5-2'	ND	na	SP34 1.5-2	ND	ND	SP35 1.5-2	ND	ND	SP38 1.5-2	ND	ND	SB58 1.5-2'	ND	na
				SB57 2-2.5'	E&A	na	SP34 2-2.5	na	na	SP35 2-2.5	na	na	SP38 2-2.5	na	na	SB58 2-2.5'	E&A	na
				SB57 2.5-3'	E&A	na	SP34 2.5-3	na	na	SP35 2.5-3	na	na	SP38 2.5-3	na	na	SB58 2.5-3'	E&A	na
700'				SB52 0-0.5'	35	432	SB53 0-0.5'	24 J	ND	SB54 0-0.5'	ND	46	SB55 0-0.5'	38	834	SB56 0-0.5'	71	290
				SB52 1-1.5'	ND	ND	SB53 1-1.5'	ND	ND	SB54 1-1.5'	ND	55	SB55 1-1.5'	ND	30	SB56 1-1.5'	17 J	33
				SB52 1.5-2'	ND	ND	SB53 1.5-2'	ND	ND	SB54 1.5-2'	ND	34	SB55 1.5-2'	ND	ND	SB56 1.5-2'	ND	27
				SB52 2-2.5'	E&A	E&A	SB53 2-2.5'	E&A	E&A	SB54 2-2.5'	E&A	E&A	SB55 2-2.5'	E&A	E&A	SB56 2-2.5'	E&A	E&A
				SB52 2.5-3'	E&A	E&A	SB53 2.5-3'	E&A	E&A	SB54 2.5-3'	E&A	E&A	SB55 2.5-3'	E&A	E&A	SB56 2.5-3'	E&A	E&A
600'				SB47 0-0.5'	590	3182	SB48 0-0.5'	55	7,465	SB49 0-0.5'	27	300	SB50 0-0.5'	60	2,320	SB51 0-0.5'	118	1,253
				SB47 1-1.5'	ND	ND	SB48 1-1.5'	4.6 J	ND	SB49 1-1.5'	26	190	SB50 1-1.5'	ND	69	SB51 1-1.5'	ND	ND
				SB47 1.5-2'	5.5 J	ND	SB48 1.5-2'	ND	27	SB49 1.5-2'	34	575	SB50 1.5-2'	ND	56	SB51 1.5-2'	ND	ND
				SB47 2-2.5'	ND	E&A	SB48 2-2.5'	E&A	E&A	SB49 2-2.5'	4.7 J	61	SB50 2-2.5'	E&A	E&A	SB51 2-2.5'	E&A	E&A
				SB47 2.5-3'	ND	E&A	SB48 2.5-3'	E&A	E&A	SB49 2.5-3'	5.4 J	64	SB50 2.5-3'	E&A	E&A	SB51 2.5-3'	E&A	E&A
500'	SB46 0-0.5'	25	na	SP33 0-0.5	130	92	27A 0-6"	1,600	9,574	28A 0-6"	570	17,298	29A 0-6"	15J	145			
	SB46 1-1.5'	ND	na	SP33 1-1.5	ND	ND	27B 12-18"	110	12,135	28B 12-18"	3,000	25,816	29B 12-18"	ND	ND			
	SB46 1.5-2'	ND	na	SP33 1.5-2	ND	ND	27C 18-24"	19J	780	28C 18-24"	5,300	21,865	29C 18-24"	ND	ND			
	SB46 2-2.5'	E&A	na	SP33 2-2.5	na	na				SP28 2-2.5	ND	ND						
	SB46 2.5-3'	E&A	na	SP33 2.5-3	na	na				SP28 2.5-3	na	na						
										SB28 3-3.5'	1,600	na						
										SB28 3.5-4'	25	na						
										SB28 4-4.5'	ND	E&A						
										SB28 4.5-5'	ND	E&A						
400'	SB45 0-0.5'	ND	na	SP32 0-0.5	290	980	24A 0-6"	1,100	9,939	25A 0-6"	3,900	22,700	26A 0-6"	15J	ND			
	SB45 1-1.5'	ND	na	SP32 1-1.5	ND	na	24B 12-18"	66	266	25B 12-18"	2,600	27,317	26B 12-18"	ND	ND			
	SB45 1.5-2'	ND	na	SP32 1.5-2	ND	ND	24C 18-24"	42	401	25C 18-24"	380	8,584	26C 18-24"	ND	ND			
	SB45 2-2.5'	E&A	na	SP32 2-2.5	na	na				SB25 2-2.5'	1,700	599						
	SB45 2.5-3'	E&A	na	SP32 2.5-3	na	na				SB25 2.5-3'	810	4,089						
										SB25 3-3.5	Refusal							
										SB25 3.5-4'	Refusal							
										SB25 4-4.5'	Refusal							
										SB25 4.5-5'	Refusal							
300'	SB44 0-0.5'	1,600	na	SP31 0-0.5	550	511	21A 0-6"	590	1,438	22A 0-6"	1,500	10,351	23A 0-6"	17J	1,062			
	SB44 1-1.5'	190	na	SP31 1-1.5	430	na	21B 12-18"	33	ND	22B 12-18"	1,800	22,450	23B 12-18"	4.4J	ND			
	SB44 1.5-2'	82	na	SP31 1.5-2	21J	ND	21C 18-24"	25	ND	22C 18-24"	4,800	19,991	23C 18-24"	ND	ND			
	SB44 2-2.5'	470	na	SP31 2-2.5	28J	na				SP22 2-2.5	610	110						
	SB44 2.5-3'	4 J	na	SP31 2.5-3	29J	na				SP22 2.5-3	16J	na						
										SB22 3-3.5'	Refusal							
										SB22 3.5-4'	Refusal							
										SB22 4-4.5	Refusal							
										SB22 4.5-5'	Refusal							
200'	SP30 0-0.5	ND	na	20A 0-6"	58	235	10A 0-6"	185	30,884	11A 0-6"	290	21,568	12A 0-6"	500	3,831	16A 0-6"	5.1J	90
	SP30 1-1.5	ND	na	20B 12-18"	8.6J	ND	10B 12-18"	890	3,901	11B 12-18"	197	25,099	12B 12-18"	21J	105	16B 12-18"	ND	12
				20C 18-24"	4J	ND	10C 18-24"	210	na	11C 18-24"	1,490	84,959	12C 18-24"	29	na	16C 18-24"	ND	ND
										SB11 2-2.5'	330	1,346						
										SB11 2.5-3'	33	44						
										SB11 3-3.5'	8.8 J	ND						
										SB11 3.5-4'	1,000	437						
										SB11 4-4.5'	Refusal							
										SB11 4.5-5'	Refusal							
100'				19A 0-6"	9J	153	7A 0-6"	900	7,780	8A 0-6"	3,200	49,940	9A 0-6"	310	10,136	15A 0-6"	27J	844
				19B 12-18"	4.8J	ND	7B 12-18"	74	ND	8B 12-18"	1,800	47,783	9B 12-18"	28	72	15B 12-18"	3.1J	ND
				19C 18-24"	ND	ND	7C 18-24"	4.7J	na	8C 18-24"	1,000	24,149	9C 18-24"	9J	na	15C 18-24"	ND	ND
										SP8 2-2.5	67	ND						
										SP8 2.5-3	96	na						
										SB8 3-3.5'	68	na						
										SB8 3.5-4'	26	na						
										SB8 4-4.5'	ND	na						
										SB8 4.5-5'	280	na						
50'				18A 0-6"	17J	114	4A 0-6"	8,600	54,302	5A 0-6"	530	292,190	5A 0-6"	590	50,099	14A 0-6"	33	485
				18B 12-18"	ND	ND	4B 12-18"	300	76	5B 12-18"	4,700	58,238	5B 12-18"	23	ND	14B 12-18"	4.5J	80
				18C 18-24"	ND	ND	4C 18-24"	240	na	5C 18-24"	3,900	88,418	5C 18-24"	4.3J	na	14C 18-24"	ND	ND
										SB5 2-2.5'	320	19,940						
										SB5 2.5-3'	45	285						
										SB5 3-3.5'	12,600	192						
										SB5 3.5-4'	86	16						
										SB5 4-4.5'	140	E&A						
										SB5 4.5-5'	8.4 J	E&A						
25'				17A 0-6"	7.3J	ND	1A 0-6"	2,100	24,756	2A 0-6"	840	26,470	3A 0-6"	8,200	20,474	13A 0-6"	26J	236
				17B 12-18"	2.7J	ND	1B 12-18"	2,800	1,770	2B 12-18"	2,000	3,334	3B 12-18"	270	854	13B 12-18"	ND	ND
				17C 18-24"	ND	ND	1C 18-24"	1,100	280	2C 18-24"	2,810	13,434	3C 18-24"	87	na	13C 18-24"	ND	ND
										SP2 2-2.5	430	24						
										SP2 2.5-3	ND	ND						
Upgradient Fire pond										SP43 0-0.5	ND	ND						
										SP43 1-1.5	ND	ND						
										SP43 1.5-2	ND	ND						
										SP43 2-2.5	na	na						
										SP43 2.5-3	na	na						

NOTES:
E&A - Extracted and Archived
na - not analyzed
ND - not detected
µg/kg - microgram per kilogram

: For **PCBs**, the concentration exceeded the Sediment Screening Criteria which is a function of the location specific Total Organic Carbon concentration.
: For **PAHs**, the concentration exceeded 35,000 µg/kg.
: Total **PAH** concentration is between 4,000 and 35,000 µg/kg. Location may require remediation.
: TOC was not detected in this sample interval

APPENDIX A

NYSDEC Breeding Bird Atlas: Block 5761A Summary

NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

NYS Breeding Bird Atlas

Block 5761A

2000-2005

ATLAS 2000

Navigation Tools

Perform Another Search
Show All Records
Sort by Field Card Order
Sort by Taxonomic Order
View 1985 Data

Block 5761A Summary

Total Species:	57
Possible:	24
Probable:	19
Confirmed:	14

Click on column heading to sort by that category.

List of Species Breeding in Atlas Block 5761A

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status
Canada Goose	*Branta canadensis*	FL	5/19/2004	Game Species
Wood Duck	*Aix sponsa*	FL	5/19/2004	Game Species
Wild Turkey	*Meleagris gallopavo*	X1	6/12/2005	Game Species
Great Blue Heron	*Ardea herodias*	X1	5/19/2004	Protected
Green Heron	*Butorides virescens*	X1	6/4/2004	Protected
Turkey Vulture	*Cathartes aura*	X1	6/4/2004	Protected
Red-tailed Hawk	*Buteo jamaicensis*	X1	5/19/2004	Protected
American Woodcock	*Scoiopax minor*	D2	3/22/2005	Game Species
Mourning Dove	*Zenaida macroura*	FL	6/4/2004	Protected
Chimney Swift	*Chaetura peiagica*	X1	6/12/2005	Protected
Belted Kingfisher	*Megaceryle alcyon*	X1	6/4/2004	Protected
Red-bellied Woodpecker	*Melanerpes carolinus*	X1	6/12/2005	Protected
Downy Woodpecker	*Picoides pubescens*	X1	6/4/2004	Protected
Hairy Woodpecker	*Picoides villosus*	X1	6/12/2005	Protected
Northern Flicker	*Coiaptes auratus*	X1	5/19/2004	Protected
Eastern Wood-Pewee	*Contopus virens*	T2	6/12/2005	Protected
Willow Flycatcher	*Empidonax traillii*	X1	6/4/2004	Protected

Eastern Phoebe	*Sayomis phoebe*	P2	6/12/2005	Protected
Great Crested Flycatcher	*Myiarchus crinitus*	X1	6/12/2005	Protected
Eastern Kingbird	*Tyrannus tyrannus*	D2	6/12/2005	Protected
Warbling Vireo	*Vireo gilvus*	S2	6/4/2004	Protected
Red-eyed Vireo	*Vireo olivaceus*	X1	6/4/2004	Protected
Blue Jay	*Cyanocitta cristata*	X1	5/19/2004	Protected
American Crow	*Corvus brachyrhynchos*	FY	6/4/2004	Game Species
Barn Swallow	*Hirundo rustica*	X1	6/4/2004	Protected
Black-capped Chickadee	*Poecile atricapillus*	FL	6/12/2005	Protected
White-breasted Nuthatch	*Sitta carolinensis*	P2	6/12/2005	Protected
Carolina Wren	*Thryothorus ludovicianus*	X1	6/12/2005	Protected
House Wren	*Troglodytes aedon*	D2	6/4/2004	Protected
Eastern Bluebird	*Sialia sialis*	X1	6/12/2005	Protected
Veery	*Catharus fuscescens*	S2	6/12/2005	Protected
Wood Thrush	*Hylocichla mustelina*	D2	6/4/2004	Protected
American Robin	*Turdus migratorius*	FY	5/19/2004	Protected
Gray Catbird	*Dumetella carolinensis*	FY	6/12/2005	Protected
Northern Mockingbird	*Mimus polyglottos*	X1	6/4/2004	Protected
Brown Thrasher	*Toxostoma rufum*	X1	6/12/2005	Protected
European Starling	*Sturnus vulgaris*	FY	6/4/2004	Unprotected
Cedar Waxwing	*Bombycilla cedrorum*	X1	6/12/2005	Protected
Blue-winged Warbler	*Vermivora pinus*	S2	6/12/2005	Protected
Yellow Warbler	*Dendroica petechia*	FY	6/12/2005	Protected
Chestnut-sided Warbler	*Dendroica pensylvanica*	X1	6/12/2005	Protected
American Redstart	*Setophaga ruticilla*	T2	6/4/2004	Protected
Ovenbird	*Seiurus aurocapilla*	S2	6/12/2005	Protected
Common Yellowthroat	*Geothlypis trichas*	T2	6/4/2004	Protected
Eastern Towhee	*Pipilo erythrophthalmus*	T2	6/4/2004	Protected
Chipping Sparrow	*Spizella passerina*	T2	6/4/2004	Protected
Song Sparrow	*Melospiza melodia*	FY	6/12/2005	Protected
Northern Cardinal	*Cardinalis cardinalis*	S2	6/12/2005	Protected

Rose-breasted Grosbeak	*Pheucticus ludovicianus*	NY	6/12/2005	Protected
Indigo Bunting	*Passerina cyanea*	S2	6/4/2004	Protected
Red-winged Blackbird	*Agelaius phoeniceus*	FY	6/4/2004	Protected
Common Grackle	*Quiscalus quiscula*	FS	6/14/2004	Protected
Brown-headed Cowbird	*Molothrus ater*	S2	6/12/2005	Protected
Baltimore Oriole	*Icterus galbula*	NY	6/12/2005	Protected
House Finch	*Carpodacus mexicanus*	T2	6/4/2004	Protected
American Goldfinch	*Spinus tristis*	X1	6/12/2005	Protected
House Sparrow	*Passer domesticus*	X1	5/19/2004	Unprotected

Current Date: 7/10/2014

APPENDIX B

NYSDEC Herp Atlas, Survey Block Clintondale Quadrangle

Appendix B
NYSDEC Herp Atlas Data 1990-1999
Clintondale Quadrangle Data

Common Name	Scientific Name	Status	Likely to Occur on the Site or nearby Vicinity?
Salamanders & Related Taxa			
Marbled Salamander	*Ambystoma opacum*	Not Listed	Yes
Jefferson Salamander	*Ambystoma jeffersonianum*	Not Listed	Yes
Blue-Spotted Salamander	*Ambystoma laterale*	Not Listed	Yes
Spotted Salamander	*Ambystoma maculatum*	Not Listed	Yes
Red-Spotted Newt	*Notophthalmus v. viridescens*	Not Listed	No
Northern Dusky Salamander	*Desmognathus fuscus*	Not Listed	Yes
Allegheny Dusky Salamander	*Desmognathus ochrophaeus*	Not Listed	No
Northern Redback Salamander	*Plethodon c. cinereus*	Not Listed	Yes
Northern Slimy Salamander	*Plethodon glutinosus*	Not Listed	Yes
Four-toed Salamander	*Hemidactylium scutatum*	Not Listed	No
Northern Spring Salamander	*Gyrinophilus p. porphyriticus*	Not Listed	Yes
Northern Red Salamander	*Pseudotriton r. ruber*	Not Listed	Yes
Northern Two-lined Salamander	*Eurycea bislineata*	Not Listed	Yes
Toads			
American Toad	*Bufo a. americanus*	Not Listed	Yes
Fowler's Toad	*Bufo fowleri*	Not Listed	No
Frogs			
Northern Cricket Frog	*Acris c. crepitans*	NYS: Endangered; Federal: Not Listed	Yes
Gray Treefrog	*Hyla versicolor*	Not Listed	Yes
Northern Spring Peeper	*Pseudacris c. crucifer*	Not Listed	Yes
Bullfrog	*Rana catesbeiana*	Not Listed	Yes
Green Frog	*Rana clamitans melanota*	Not Listed	Yes
Wood Frog	*Rana sylvatica*	Not Listed	Yes
Northern Leopard Frog	*Rana pipiens*	Not Listed	Yes
Pickerel Frog	*Rana palustris*	Not Listed	Yes
Turtles			
Common Snapping Turtle	*Chelydra s. serpentina*	Not Listed	Yes
Common Musk Turtle	*Sternotherus odoratus*	Not Listed	Yes
Spotted Turtle	*Clemmys guttata*	NYS: Special Concern; Federal: Not Listed	Yes
Wood Turtle	*Clemmys insculpta*	Not Listed	Yes
Eastern Box Turtle	*Terrapene c. carolina*	Not Listed	No
Common Map Turtle	*Graptemys geographica*	Not Listed	No
Painted Turtle	*Chrysemys picta*	Not Listed	Yes
Blandings Turtle	*Emydoidea blandingii*	NYS: Threatened; Federal: Not Listed	No
Lizards			
Five-lined Skink	*Eumeces fasclatus*	Not Listed	No
Snakes			
Northern Water Snake	*Nerodia s. sipedon*	Not Listed	Yes
Northern Brown Snake	*Storeria d. dekayi*	Not Listed	Yes
Common Garter Snake	*Thamnophis sirtalis*	Not Listed	Yes
Eastern Ribbon Snake	*Thamnophis sauritus*	Not Listed	Yes
Eastern Hognose Snake	*Heterodon platirhinos*	Not Listed	No
Northern Ringneck Snake	*Diadophis punctatus edwardsii*	Not Listed	Yes
Northern Black Racer	*Coluber c. constrictor*	Not Listed	Yes
Black Rat Snake	*Elaphe o. obsoleta*	Not Listed	Yes
Eastern Milk Snake	*Lampropeltis t. triangulum*	Not Listed	Yes
Northern Copperhead	*Agkistrodon contortrix mokasen*	Not Listed	No
Timber Rattlesnake	*Crotalus horridus*	NYS: Threatened; Federal: Not Listed	No