

Section 3 – Natural Resources

3. Natural Resources	3-1
3.1 Applicable Laws, Regulations, and Policies	3-1
3.1.1 NYSDEC Freshwater Wetlands Program	3-1
3.1.2 Clean Water Act Section 404 Permit Program	3-2
3.1.3 Endangered Species Act	3-2
3.1.4 New York State Natural Heritage Program	3-2
3.1.5 Environmental Conservation Law Article 11, Part 182 Incidental Take Permits	3-3
3.2 Existing Conditions	3-3
3.2.1 Ecological Context	3-3
3.2.2 Wetland Resources	3-9
3.2.2.1 Wetland 1	3-10
3.2.2.2 Wetland 2	3-11
3.2.2.3 Wetland 3	3-12
3.2.2.4 Wetlands 4 and 5	3-13
3.2.3 Upland Vegetative Communities	3-14
3.2.3.1 Successional Red Cedar Woodland	3-14
3.2.3.2 Previously Developed Area	3-15
3.2.3.3 Successional Southern Hardwoods 1 and 2:	3-16
3.2.4 Wildlife Habitat	3-16
3.2.5 Protected Species	3-24
3.2.5.1 Reptiles and Amphibians	3-25
3.2.5.2 Birds	3-31
3.2.5.3 Mammals	3-33
3.2.6 Construction Laydown/Worker Parking Site	3-35
3.2.6.1 Vegetative Communities	3-36
3.2.6.2 Wildlife Habitat	3-37
3.3 Project Related Impacts and Mitigation Measures	3-39

**Draft Environmental
Impact Statement**

Cricket Valley Energy Project – Dover, NY

3.3.1	Wetland and Adjacent Area Impacts	3-39
3.3.1.1	Wetland 1	3-42
3.3.1.2	Wetland 2	3-43
3.3.1.3	Wetland Restoration and Creation Plan	3-44
3.3.1.4	Wetland 3	3-45
3.3.1.5	Wetlands 4 and 5	3-45
3.3.1.6	Intermittent Stream	3-45
3.3.2	Vegetative Clearing	3-45
3.3.3	Potential Wildlife and Habitat Impact	3-47
3.3.4	Laydown Site	3-49
3.4	Conclusions	3-51
3.5	References	3-52

Figures (provided following the text)

3-1	Land Cover Type Map
3-2	Photographs of Wetland 1
3-3	Photographs of Wetland 2
3-4	Photographs of Wetland 3
3-5	Photographs of Wetland 4
3-6	Photographs of Wetland 5
3-7	Jurisdictional Wetland Resources
3-8	Laydown Site Cover Type Map
3-9	Project Development Area Disturbance
3-10	Wetland Restoration Area W2-A

Tables

3-1	Ecological Communities of the Cricket Valley Energy Project Development Area	3-6
3-2	Potentially Occurring Reptiles and Amphibians of the Cricket Valley Energy Property	3-18
3-3	Potentially Occurring Birds of the Cricket Valley Energy Property	3-19
3-4	Potentially Occurring Mammals of the Cricket Valley Energy Property	3-23
3-5	Successional Southern Hardwood Community at the Laydown Site	3-36
3-6	Animal Species Observed at the Laydown Site	3-37
3-7	Summary of Impacts to Ecological Communities in the Project Development Area	3-41

Appendices

3-A	Wetland Delineation Report
3-B	Jurisdictional Determination
3-C	Habitat Surveys
3-D	Site Plan Alternatives
3-E	Wetland Restoration Creation Plan

List of Acronyms and Abbreviations – Section 3

CEA	Critical Environmental Area
CFR	Code of Federal Regulations
ConEd	Consolidated Edison Company of New York
CVE	Cricket Valley Energy Center, LLC
DBH	diameter at breast height
ESA	Endangered Species Act
°F	degrees Fahrenheit
GIS	gas insulated switchgear
Herp Atlas Project	New York State Amphibian and Reptile Atlas Project
Iroquois	Iroquois Natural Gas Transmission System LP
Laydown Site	30-acre construction worker parking and laydown area
MNHESP	Massachusetts Natural Heritage Endangered Species Program
msl	above mean sea level
NWP	Nationwide Permit
NYCRR	New York State Register and Official Compilation of Codes, Rules and Regulations of the State of New York
NYSDEC	New York State Department of Environmental Conservation
NYSNHP	New York State Natural Heritage Program
Phase I Species Survey	Phase I Bog Turtle and Timber Rattlesnake Habitat Assessment and Survey
Project Development Area	The 57-acre portion of the 131-acre Property proposed for development
Property	The 131-acre property optioned by CVE
RM-HS	red maple-hardwood swamp
SEM	shallow emergent marsh
SS	shrub swamp
SSH	Successional Southern Hardwoods
SWPPP	Stormwater Pollution Prevention Plan

**Draft Environmental
Impact Statement**

Cricket Valley Energy Project – Dover, NY

TC	Terrestrial Cultural
TES	Terrestrial Environmental Specialists, Inc.
U.S.	United States
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

3. NATURAL RESOURCES

This section provides a description of the natural resources within the Cricket Valley Energy Center, LLC (CVE) Project Development Area (the 57-acre portion of the Property proposed for development) and surrounding Property (the 131-acre parcel optioned by CVE), including wetland resources, vegetative communities, wildlife habitat, and protected species. A summary of the federal and state regulatory framework for assessing ecological impacts is provided in Section 3.1. Characterization of the ecological communities on the Property is presented in Section 3.2. Potential direct and indirect impacts to these resources from demolition, construction, and operation of the project, as well as potential mitigation measures, are described in Section 3.3.

3.1 Applicable Laws, Regulations, and Policies

The Property contains New York State-regulated wetlands subject to the New York State Department of Environmental Conservation (NYSDEC) Freshwater Wetlands Program, regulated under Article 24 of the Environmental Conservation Law and Regulations (6 New York State Register and Official Compilation of Codes, Rules and Regulations of the State of New York [NYCRR] Parts 663, 664 and 665). The Property also contains federal jurisdictional waters of the U.S. and wetland areas subject to Sections 401 and 404 of the Clean Water Act, Water Quality Certification Program, as well as the Army Corps of Engineers (USACE) Section 404 General, or Nationwide Permit (NWP) Program. Each of these programs is described in more detail below.

3.1.1 NYSDEC Freshwater Wetlands Program

The Property contains NYSDEC-jurisdictional Freshwater Wetlands. As discussed in Section 3.2 below, delineation and mapping of these wetlands were conducted in April 2009, in accordance with the NYSDEC *Freshwater Wetlands Delineation Manual* (NYSDEC, 1995) and approved by the NYSDEC in August 2009 (see Appendix 3-A). Regulated activities within freshwater wetlands include: filling, draining, excavating, grading and dredging; construction of buildings, roadways, or other structures; and clear-cutting of timber or other vegetation. An Adjacent Area, as defined as the area that is outside a wetland and within 100 feet, measured horizontally, of the boundary of the freshwater wetland, is also regulated area under the Freshwater Wetlands Program with similar restrictions. Appropriate mitigation strategies for impacts to the above-referenced jurisdictional areas have been developed in accordance with the NYSDEC *Freshwater Wetlands Regulation Guidelines on Compensatory Mitigation* (1993).

Proposed impacts to either jurisdictional Freshwater Wetlands or their associated Adjacent Areas require a Freshwater Wetlands Permit, however, since additional permitting requirements are anticipated (as discussed below), a Joint Application for Permit is required under the Uniform Procedures Act, per Article 70 of the Environmental Conservation Law. A Joint Application for Permit to the NYSDEC and USACE was filed on January 22, 2010.

3.1.2 Clean Water Act Section 404 Permit Program

As discussed in Section 3.2, the Property contains federal waters of the U.S. and associated federal jurisdictional wetlands. Delineation and mapping of these wetlands were conducted in April 2009, in accordance with the USACE *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and approved by the USACE in January 2010 (see Appendix 3-A). For proposed discharges of dredged or fill material to federal wetlands and waters of the U.S., the USACE New York District administers the NWP Program. The project will likely qualify for coverage under one or more NWPs due to the limited nature of the impacts to jurisdictional wetlands, as discussed in Section 3.3.1. Appropriate mitigation strategies for impacts to the above-referenced jurisdictional areas were developed in accordance with 33 Code of Federal Regulations (CFR), Part 332, Compensatory Mitigation for Losses of Aquatic Resources. As noted above, CVE filed a Joint Application for Permit to the NYSDEC and USACE on January 22, 2010.

3.1.3 Endangered Species Act

The Federal Endangered Species Act of 1973 (ESA) (16 United States Code [U.S.C.] §1531 et seq.) protects the species identified as Endangered or Threatened, and conserves the ecosystems on which they depend. Species protected under the ESA as Endangered are in danger of extinction throughout all or a significant portion of its range. Species protected as Threatened are likely to become endangered within the foreseeable future. The National Oceanic and Atmospheric Administration's National Marine Fisheries Service (not applicable to this inland site) and the United States Fish and Wildlife Service (USFWS) jointly administer the law. CVE consulted with the USFWS in June 2009 regarding federally listed species, as discussed in greater detail in Section 3.2.5.

3.1.4 New York State Natural Heritage Program

The New York State Natural Heritage Program (NYSNHP) is a partnership between the NYSDEC and The Nature Conservancy. The NYSNHP enables and enhances conservation of New York's rare animals, rare plants, and significant ecosystems. Categories of endangered and threatened species are defined in New York State

Environmental Conservation Law section 11-0535. Endangered, threatened, and special concern species are listed in regulation 6 NYCRR 182.5. CVE consulted with the NYSNHP in June 2009 regarding state-listed species, as discussed in greater detail in Section 3.2.5.

3.1.5 Environmental Conservation Law Article 11, Part 182 Incidental Take Permits

If the project results in impacts to state-listed threatened or endangered species or their habitat, the project may require an incidental take permit from the NYSDEC in accordance with Article 11, Part 182 of the Environmental Conservation Law. Pursuant to Article 11, measures must be implemented to avoid adverse impacts, including avoidance of construction in critical habitat areas, scheduling construction to avoid interruption of breeding, feeding, and migratory activities, and re-location or elimination of specific project components if any of these are determined to result in actual or potential adverse impacts. The law requires that if, after all reasonable avoidance and minimization measures have been applied, it is determined that the project still may result in a "take" or "taking" of a listed endangered or threatened species, mitigation measures will be required to provide a net conservation benefit to the threatened and endangered species.

3.2 Existing Conditions

3.2.1 Ecological Context

As discussed in Section 1.2, Site Description, the 131-acre Property sits in relative isolation, with vegetation and topography that provide a natural buffer for visual and aesthetic impacts. The approximately 57-acre Project Development Area is located near the bottom of a western facing slope, along a small north-south trending ridge that separates the Swamp River and the Ten Mile River. Although the Project Development Area is relatively flat, there is a westerly trending slope toward the active Metro-North Railroad commuter line, which transects the Property in a north-south direction, and the Swamp River. Several wetland areas are located outside of the currently developed portion of the Property. The eastern side of the Project Development Area rises steeply (approximately 30-40 feet) to the elevation of New York State Route 22, and consists of rock outcropping, vegetation, and sparsely to thickly populated trees. The vegetation and trees provide a natural buffer, and currently limit views of existing on-site structures.

The Project Development Area has a long history of industrial use; numerous dilapidated, vacant industrial structures and associated debris are located in that area. This portion of the Property has been identified by Dutchess County as the Mica Products Critical Environmental Area (CEA) due to the need for cleanup associated with its former uses.

Proposed project activities will be restricted to the approximately 57-acre Project Development Area located to the east of the railroad track, and of this area, approximately 30 acres will be developed for continuing use. Three wetland areas were identified within the Project Development Area, all of which are heavily colonized by invasive species and littered with industrial debris.

The portion of the Property located west of the railroad track is relatively undeveloped and no project-related activities are proposed for this area. A small pump house associated with former Property uses is located on the eastern bank of the Swamp River. An access road runs from the rail line to the pump house. The remainder of the Property west of the railroad track is wooded and predominantly wetland, with some upland associated with rock outcrops and largely abandoned accessways. This portion of the Property has been designated as within the Great Swamp CEA for its natural resource value, and a NYSDEC-mapped wetland associated with the Swamp River extends through this area as well. The Swamp River, which has historically provided a portion of the Property's water needs via an existing pump house, flows northward through the site to its confluence with the Ten-Mile River just south of Dover Plains. In the vicinity of the site the Swamp River meanders through a wide plain with braided channels evident.

The Great Swamp, located in the eastern New York counties of Dutchess and Putnam, is the second-largest freshwater wetland system in the state, and covers approximately 6,700 acres along a 20-mile corridor. Spanning two watersheds of a combined 63,000 acres, the Swamp serves as the headwaters for both the Swamp River to the north, which flows into the Ten Mile River and eventually into Long Island Sound, and the East Branch Croton River to the south, which feeds New York City's Croton Reservoir System (Friends of the Great Swamp, 2010). It has been designated as a CEA by the NYSDEC, identified as an Important Bird Area by Audubon New York, listed as a Priority Project in the 2001 New York State Open Space Plan, and continues to be a precious natural resource as well as an important destination for bird-watching, hiking, canoeing, hunting and other recreational activities. While it remains divided into many parcels owned by different entities, some 585 acres have been preserved under North American Wetlands Conservation Act Grants and associated entities supporting the preservation of the Great Swamp's natural resources (Friends of the Great Swamp, 2010).

The complex network of rivers and ponds in the Great Swamp lies in a valley between two ridges, and includes seven rare natural communities including several types of fens, bogs, floodplain forests, and cedar swamps, in addition to more common communities such as wet meadows, scrub/shrub and emergent wetlands, and shallow marsh (Gifford et al., 1997). As such, the Swamp serves as an important breeding ground and migratory route

for dozens of amphibians, reptiles, invertebrates, and turtles, as well as birds, fish, and mammals. Documented observations have shown that 32 animals and plants listed as rare in the state make the Great Swamp their home (Friends of the Great Swamp, 2010). Located within the corridor of the North Atlantic Flyway, it also is an important stopover and wintering location for migrating birds; over a four-year study period, 180 species of birds have been identified in the Great Swamp, including approximately 100 breeding species (National Audubon Society, 2010; Utter, 2001).

The Property falls on the northern side of the Great Swamp, along the north-flowing Swamp River. Most of the Property lies to the east of the river, and includes both high-quality and degraded wetlands, some upland forests, an approximately 20-acre abandoned industrially developed area, and a Metro-North Railroad line which transects the Property in a north-south direction. The Project Development Area, located east of the railroad, encompasses about 57 acres and includes a former industrial facility, nearly 11 combined acres of reedgrass (*Phragmites australis*)/purple loosestrife (*Lythrum salicaria*) marsh, and upland forests. The remaining approximately 74 acres of the Property, which lie to the west of the railroad tracks, are designated as within the Great Swamp CEA, and include forested wetlands with a fringe of emergent wetlands along the Swamp River. Those 74 acres are currently undeveloped, with the exception of a small pump house and associated access road. By restricting project development activity to the Project Development Area east of the railroad track, the project will ensure that this contiguous portion of the Great Swamp CEA will remain undisturbed.

The vegetative communities of wetland and upland habitats within the Project Development Area, and the potential wildlife species associated with these communities, were identified to evaluate the potential impacts of development activities on these resources. Desktop reviews were performed in combination with on-site surveys on June 22-25, 2009, June 30, 2009 and April 6, 2010 to characterize wetland and upland site habitats. Land cover types were preliminarily identified prior to performing field work by marking areas that were visually distinguishable on aerial imagery. The preliminary cover type map was then field verified and refined based on field observations of observed vegetative community characteristics, and anthropogenic disturbance. Field-verified cover types were then classified using Ecological Communities of New York State (Edinger et al., 2002).

A cover type map delineating the major ecological communities identified within the Project Development Area and Project Site is presented as Figure 3-1. A summary of the ecological communities and cover types represented on the Project Development Area are provided in Table 3-1.

Table 3-1: Ecological Communities of the Cricket Valley Energy Project Development Area

Cover Type Number	Cover Type Classification ¹	Species Observed ²		Vegetative Stratum	Number of Trees Observed • 12 inch DBH
		Common Name	Scientific Name		
Wetland 1	Reedgrass/purple loosestrife marsh	Gray Birch	<i>*Betula populifolia</i>	Tree, Shrub	0
		Silky Dogwood	<i>Cornus amomum</i>	Shrub	--
		Horsetail	<i>Equisetum sp.</i>	Herbaceous	--
		Green Ash	<i>Fraxinus pennsylvanica</i>	Tree, Shrub	--
		Tatarian Honeysuckle	<i>Lonicera tatarica</i>	Shrub	--
		Eastern Red Cedar	<i>Juniperus virginiana</i>	Tree, Shrub	--
		Sensitive Fern	<i>Onoclea sensibilis</i>	Herbaceous	--
		Virginia Creeper	<i>Parthenocissus quinquefolia</i>	Herbaceous	--
		Common Reed	<i>*Phragmites australis</i>	Herbaceous	--
		Poison Ivy	<i>Rhus radicans</i>	Herbaceous	--
		Skunk Cabbage	<i>Symplocarpus foetidus</i>	Herbaceous	--
		Marsh Fern	<i>Thelypteris palustris</i>	Herbaceous	--
Total					0
Wetland 2	Reedgrass/purple loosestrife marsh	Silver Maple	<i>Acer saccharinum</i>	Tree	0
		Yellow Sedge	<i>Carex flava</i>	Herbaceous	--
		Silky Dogwood	<i>Cornus amomum</i>	Shrub	--
		Eastern Red Cedar	<i>Juniperus virginiana</i>	Shrub	--
		Tatarian Honeysuckle	<i>Lonicera tatarica</i>	Shrub	--
		Sensitive Fern	<i>Onoclea sensibilis</i>	Herbaceous	--
		Common Reed	<i>*Phragmites australis</i>	Herbaceous	--
		Shrubby Cinquefoil	<i>Potentilla fruticosa</i>	Shrub	--
		Skunk Cabbage	<i>Symplocarpus foetidus</i>	Herbaceous	--
		Marsh Fern	<i>Thelypteris palustris</i>	Herbaceous	--
		Broadleaf Cattail	<i>*Typha latifolia</i>	Herbaceous	--
Total					0
Wetland 3	Reedgrass/purple loosestrife marsh	Silky Dogwood	<i>Cornus amomum</i>	Shrub	--
		Hawthorn	<i>Crataegus sp.</i>	Tree	0
		Horsetail	<i>Equisetum sp.</i>	Herbaceous	--
		Green Ash	<i>*Fraxinus pennsylvanica</i>	Tree	0
		Eastern Red Cedar	<i>Juniperus virginiana</i>	Shrub	--

**Draft Environmental
Impact Statement**

Cricket Valley Energy Project – Dover, NY

Cover Type Number	Cover Type Classification ¹	Species Observed ²		Vegetative Stratum	Number of Trees Observed • 12 inch DBH
		Common Name	Scientific Name		
		Common Reed	<i>*Phragmites australis</i>	Herbaceous	--
		Skunk Cabbage	<i>Symplocarpus foetidus</i>	Herbaceous	--
		Unknown Grass		Herbaceous	--
		Total			
Upland 1	Successional red cedar woodland	Silver Maple	<i>Acer saccharum</i>	Tree	2
		Alder	<i>Alnus sp.</i>	Shrub	--
		Shagbark Hickory	<i>Carya ovata</i>	Tree	1
		Green Ash	<i>Fraxinus pennsylvanica</i>	Tree	18
		Black Walnut	<i>Juglans nigra</i>	Tree	1
		Eastern Red Cedar	<i>*Juniperus virginiana</i>	Tree	19
		Tatarian Honeysuckle	<i>*Lonicera tatarica</i>	Shrub	--
		American Sycamore	<i>Platanus occidentalis</i>	Tree	3
		Eastern Cottonwood	<i>Populus deltoides</i>	Tree	5
		Quaking Aspen	<i>*Populus tremuloides</i>	Tree	1
		Black Cherry	<i>Prunus serotina</i>	Tree	10
		White Oak	<i>Quercus alba</i>	Tree	12
		Northern Red Oak	<i>Quercus rubra</i>	Tree	0
		Common Buckthorn	<i>Rhamnus cathartica</i>	Tree, Shrub	0
		Multiflora Rose	<i>Rosa multiflora</i>	Herbaceous	--
		Allegheny Blackberry	<i>Rubus allegheniensis</i>	Herbaceous	--
		Coltsfoot	<i>Tussilago farfara</i>	Herbaceous	--
		American Elm	<i>Ulmus americana</i>	Tree	12
		Grapevines	<i>Vitis sp.</i>	Vine	--
		Common Pricklyash	<i>Xanthoxylum americanum</i>	Shrub	--
Total				84	

**Draft Environmental
Impact Statement**

Cricket Valley Energy Project – Dover, NY

Cover Type Number	Cover Type Classification ¹	Species Observed ²		Vegetative Stratum	Number of Trees Observed • 12 inch DBH
		Common Name	Scientific Name		
Upland 2	Rural structure exterior/mowed lawn with trees, with paved road/path, and unpaved road/path	Queen Anne's Lace	<i>Daucus carota</i>	Herbaceous	--
		Autumn Olive	<i>Elaeagnus umbellata</i>	Shrub	--
		Field Horsetail	<i>Equisetum arvense</i>	Herbaceous	--
		Bedstraw	<i>Galium</i> sp.	Herbaceous	--
		Eastern Red Cedar	<i>Juniperus virginiana</i>	Tree, Shrub	0
		Red Canarygrass	<i>Phalaris arundinacea</i>	Herbaceous	--
		Common Reed	<i>Phragmites australis</i>	Herbaceous	--
		Eastern White Pine	<i>Pinus strobus</i>	Tree	0
		Eastern Cottonwood	<i>Populus deltoides</i>	Tree, Shrub	0
		Poison Ivy	<i>Rhus radicans</i>	Vine	--
		Staghorn Sumac	<i>Rhus typhina</i>	Shrub	--
		Multiflora Rose	<i>Rosa multiflora</i>	Herbaceous	--
		Goldenrod	<i>Solidago</i> sp.	Herbaceous	--
		Red Clover	<i>Trifolium pratense</i>	Herbaceous	--
		White Clover	<i>Trifolium repens</i>	Herbaceous	--
		Coltsfoot	<i>Tussilago farfara</i>	Herbaceous	--
Total					0
Upland 3	Successional southern hardwoods 1	Japanese Barberry	<i>Berberis thunbergii</i>	Shrub	--
		American Hornbeam	<i>Carpinus caroliniana</i>	Tree	0
		Autumn Olive	<i>Elaeagnus umbellata</i>	Shrub	--
		Field Horsetail	<i>Equisetum arvense</i>	Herbaceous	--
		Green Ash	<i>Fraxinus pennsylvanica</i>	Tree	0
		Eastern Red Cedar	* <i>Juniperus virginiana</i>	Tree, Shrub	0
		Tatarian Honeysuckle	<i>Lonicera tatarica</i>	Shrub	--
		Red Canarygrass	<i>Phalaris arundinacea</i>	Herbaceous	--
		American Sycamore	<i>Platanus occidentalis</i>	Tree	2
		Eastern Cottonwood	* <i>Populus deltoides</i>	Tree, Shrub	35
		Quaking Aspen	<i>Populus tremuloides</i>	Tree	0
		Common Buckthorn	<i>Rhamnus cathartica</i>	Tree, Shrub	0
		Poison Ivy	<i>Rhus radicans</i>	Vine	--
		Goldenrod	<i>Solidago</i> sp.	Herbaceous	--
Coltsfoot	<i>Tussilago farfara</i>	Herbaceous	--		

**Draft Environmental
Impact Statement**

Cricket Valley Energy Project – Dover, NY

Cover Type Number	Cover Type Classification ¹	Species Observed ²		Vegetative Stratum	Number of Trees Observed • 12 inch DBH
		Common Name	Scientific Name		
		American Elm	<i>*Ulmus americana</i>	Tree	0
		Grapevines	<i>Vitis</i> sp.	Vine	--
		Common Pricklyash	<i>Xanthoxylum americanum</i>	Shrub	--
		Total			
Upland 4	Successional southern hardwoods 2	Japanese Barberry	<i>Berberis thunbergii</i>	Shrub	--
		Black Walnut	<i>*Juglans nigra</i>	Tree	0
		Tatarian Honeysuckle	<i>Lonicera tatarica</i>	Shrub	--
		Staghorn Sumac	<i>*Rhus typhina</i>	Tree, Shrub	0
		Multiflora Rose	<i>Rosa multiflora</i>	Herbaceous	--
		Willow	<i>Salix</i> sp.	Tree	1
		Goldenrod	<i>Solidago</i> sp.	Herbaceous	--
		American Elm	<i>*Ulmus americana</i>	Tree	0
Total				1	

Notes:

1. Land cover type designations assigned per *Ecological Communities of New York State*, Edinger et. al., 2002.
2. * Indicates dominant species in cover type.

3.2.2 Wetland Resources

Five areas were identified as wetlands on the Property. These were subsequently verified by NYSDEC and USACE. Three of those wetlands are located within the Project Development Area, while two large wetlands were identified between the railroad line and the Swamp River. The eastern bank of the Swamp River defined the western limit of the wetland assessment area. Although identified wetlands adjacent to the river continued west of the river, their boundaries were not delineated since no project activity is proposed to occur west of the railroad track. As the wetlands west of the railroad track are NYSDEC jurisdictional, and their 100-foot Adjacent Area extends onto the Project Development Area, they are also addressed in this section.

The following sections provide brief descriptions of the five identified wetland areas. Details of the observed field characteristics that defined the wetland boundary are presented in Appendix 3-A. Photographs of the identified wetlands are provided in Figures 3-2 through 3-6. Wetland identification and boundary delineations were performed in accordance with

the Routine Determination Method presented in the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987), the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (USACE, 2009), and the *NYSDEC Freshwater Wetlands Delineation Manual* (NYSDEC, 1995). Wetland boundaries were field verified by the NYSDEC on July 9, 2009 and the USACE on October 28, 2009. Jurisdictional determinations were issued by the NYSDEC and the USACE on August 3, 2009 and January 13, 2010, respectively (see Appendix 3-B). The jurisdictional wetland boundaries are shown on Figure 3-7. Each wetland is discussed below.

3.2.2.1 Wetland 1

Wetland 1 is a 1.7-acre emergent wetland, located in the portion of the Project Development Area east of the former industrial area (Figure 3-1). The majority of the interior of Wetland 1 was observed to be emergent wetland dominated by reedgrass, but the fringes transitioned into forested wetlands dominated by gray birch (*Betula populifolia*). Small areas of scrub-shrub and open water types also occur in this wetland. Man-made berms and industrial debris overgrown with trees formed the northern and northwestern boundary of this wetland. Other herbaceous plants noted in this wetland included skunk cabbage (*Symplocarpus foetidus*), marsh fern (*Thelypteris palustris*), poison ivy (*Rhus radicans*), Virginia creeper (*Parthenocissus quinquefolia*), sensitive fern (*Onoclea sensibilis*), and horsetail (*Equisetum* sp.). Other tree and shrub species noted in this wetland included green ash (*Fraxinus pennsylvanica*), eastern red cedar (*Juniperus virginiana*), silky dogwood (*Cornus amomum*), and honeysuckle (*Lonicera* sp.) (see Appendix 3-C).

Hydrology of this wetland ranged from standing water to saturated soils within 12 inches of the ground surface. Although observed soil characteristics did not match the series description in the soil survey, Wetland 1 soils exhibited hydric soil properties of low matrix value and chroma, meeting the hydric soil requirements of black histic (A3) (see Appendix 3-A). Photographs of Wetland 1 are presented in Figure 3-2.

Wetland 1 is classified as a reedgrass/purple loosestrife marsh. A reedgrass/purple loosestrife marsh is a classification assigned to wetlands that have been disturbed by draining, filling, road salts, etc. in which reedgrass or purple loosestrife has become dominant (Edinger et al., 2002). The reedgrass/purple loosestrife marsh classification falls under the palustrine cultural subsystem which includes communities that are either created and maintained by human activities, or are modified by human influence to such a degree that the physical conformation of the substrate, hydrology, or the biological composition of

the resident community is substantially different from the character of the substrate, hydrology, or community as it existed prior to human influence (Edinger et al., 2002). Palustrine systems consist of non-tidal, perennial wetlands characterized by emergent vegetation (Edinger et al., 2002).

The primary ecological function of Wetland 1 is the storage of stormwater and subsequent recharging of the groundwater table in the surficial aquifer. Wetland 1 is a topographical depression in the eastern portion of the site that collects runoff from undeveloped hillsides east of the site and provides temporary storage for stormwater draining to the forested wetlands and floodplain of the Swamp River west of the site. During periods of low precipitation, Wetland 1 may also provide an opportunity for groundwater discharge when the water table elevation exceeds water levels in the wetland. The majority of the vegetation in Wetland 1 is a monoculture stand of reedgrass, which provides minimum value for wildlife habitat, but does function to retain sediments, toxicant, and excess nutrients. Much of the bordering uplands of Wetland 1 are characterized by industrial waste materials that provide little wildlife habitat.

From a regulatory standpoint, Wetland 1 is an isolated wetland, not hydrologically connected to the Swamp River or a larger wetlands complex. As such, it is neither a NYSDEC nor USACE jurisdictional wetland. This jurisdictional determination was made by the NYSDEC on August 3, 2009 and the USACE on January 10, 2010 (see Appendix 3-B).

3.2.2.2 *Wetland 2*

Wetland 2 is an 8.7 acre emergent wetland, classified as a reedgrass/purple loosestrife marsh, located in the northern portion of the site, bounded to the west by the Metro-North Railroad line (Figure 3-1). Hydrology in this wetland has been impacted by the railroad bed and man-made berms. The majority of the interior of Wetland 2 was observed to be emergent wetland dominated by reedgrass in the central and southern portions of the wetland, and cattail (*Typha latifolia*) in the northern portion of the wetland, with open water transitioning into forested wetlands dominated by silver maple (*Acer saccharinum*) along the wetland/upland boundary. On the east side of the wetland between the reedgrass stand and the forested portion of the wetland is a small patch of vegetation containing shrubby cinquefoil (*Potentilla fruticosa*). An area of scrub-shrub vegetation was noted in the northeastern portion of this wetland. Plant species here included silky dogwood, honeysuckle, multiflora rose (*Rosa multiflora*), sensitive fern, marsh fern and a variety of sedges and rushes (see Appendix 3-C).

Industrial debris, such as lamination materials and crumb rubber, overgrown with trees, forms the southern boundary of this wetland. Hydrology of this wetland ranged from standing water to saturated soils within 12 inches of the ground surface. Although observed soil characteristics did not match the series description in the soil survey, Wetland 2 soils exhibited hydric soil properties of low matrix value and chroma in sandy and silty clay soil textures, meeting the hydric soil requirements of dark surface (S7) (see Appendix 3-A). Photographs of Wetland 2 are presented in Figure 3-3.

Similar to Wetland 1, the primary ecological function of Wetland 2 is the storage of stormwater and subsequent recharging of the groundwater table in the surficial aquifer. Wetland 2 is a topographical depression in the northern portion of the site that collects runoff from undeveloped hillsides north and east of the site and provides temporary storage for stormwater draining to the forested wetlands and floodplain of the Swamp River west of the site. During periods of low precipitation, Wetland 2 may also provide an opportunity for groundwater discharge when the water table elevation exceeds water levels in the wetland. The majority of the vegetation in Wetland 2 is a monoculture stand of reedgrass, which provides limited value for wildlife habitat, but does function to retain sediments, toxicants, and excess nutrients before they can enter the Swamp River wetland system.

From a regulatory standpoint, because Wetland 2 is hydrologically connected to the larger NYSDEC-mapped wetlands west of the railroad track (Wetlands 4 and 5). It is both a NYSDEC and USACE jurisdictional wetland.

3.2.2.3 *Wetland 3*

Wetland 3 is a 0.6 acre mixed emergent/forested wetland, classified as a reedgrass/purple loosestrife marsh, and located in the southwest section of the Project Development Area between the railroad tracks and a former drainage canal southwest of the industrial portion of the site (Figure 3-1). The remnants of the drainage canal ranged from containing stagnant standing water to being completely dry. Portions of this canal supporting wetland vegetation were identified as wetlands, including a seep that ponded water in lower elevations along the east side of the railroad tracks and supported wetland vegetation. Much of the vegetation of Wetland 3 was observed to be dominated by reedgrass. However, a small portion of Wetland 3 projecting to the east was a forested wetland dominated by green ash. Eastern red cedar, skunk cabbage and horsetail were also observed in this wetland (see Appendix 3-C).

Wetland hydrology indicators ranged from saturated soils within 12 inches of the soil surface to drainage patterns observed. Although observed soil characteristics did not

match the series description in the soil survey, Wetland 3 soils exhibited hydric soil properties of low matrix chroma values forming a depleted matrix (F3) (see Appendix 3-A) Photographs of Wetland 3 are presented on Figure 3-4.

Wetland 3 is limited in its ability to provide ecological functions due to its small size, its isolated status, and its position low in the watershed. The primary function of Wetland 3 is stormwater retention, but this service is provided to a small watershed in the southwest portion of the Project Development Area. Stormwater pools in a small ditch adjacent to the east side of the railroad line along the western border of the Project Development Area. This ditch is not hydrologically connected to the floodplain wetlands of the Swamp River on the west side of the tracks, so it does not serve any functions to the wetland system of the Swamp River. Much of this wetland is dominated by reedgrass, which limits its wildlife habitat value.

As an isolated wetland, the NYSDEC has determined it to be non-jurisdictional. The USACE has taken jurisdiction of a portion of Wetland 3 (Wetland 3B, see Figure 3-7) as well as the adjacent drainage swale. The swale, while man-made, has been classified as an intermittent stream. It is narrow with very steep sides and under certain conditions conveys stormwater from a portion of the Project Development Area as well as from a portion of the parcel south of the Project Development Area to the wetland systems to the west.

3.2.2.4 *Wetlands 4 and 5*

Wetlands 4 and 5 are an approximately 45-acre wetland located outside of the Project Development Area, between the railroad track and the bordering Swamp River (Figure 3-1). While numbered separately, these wetlands are hydrologically connected to each other and the Swamp River, and thus are being described as one body. Note that the Property includes approximately 18.5 acres of land west of the Swamp River. This portion of the Property was not field delineated, but is also mapped as a NYSDEC-jurisdictional wetland. These wetlands are undeveloped, with the exception of a small pump house and access road in the northern half of the parcel. While small areas of scrub/shrub and emergent wetlands were evident along the banks of the Swamp River, the majority of these wetlands are forested. Dominant trees of these wetlands were green ash, gray birch, silver maple, and eastern red cedar. Also present were red maple (*Acer rubrum*), American elm (*Ulmus Americana*), and hickory (*Carya* sp.). Shrub species included alder (*Alnus* sp.), multiflora rose, honeysuckle, and silky dogwood. Herbaceous species noted in these wetlands included sensitive fern, goldenrods (*Solidago* sp.), asters (*Aster* sp.), royal fern (*Osmunda regalis*), jack-in-the-pulpit (*Arisaema triphyllum*), poison ivy, and Virginia creeper. A few small canopy gaps occurred in this wetland where emergent vegetation occurred, including

reedgrass, hairy sedge (*Carex lacustris*), soft rush (*Junca effuses*), bur-reed (*Sparganium* sp.), skunk cabbage, cattail, sensitive fern, and royal fern (see Appendix 3-C).

Wetland hydrology indicators included pockets of standing water and saturated soils within 12 inches of the ground surface. Although observed soil characteristics in Wetland 4 did not match the series description in the soil survey, Wetland 4 soils exhibited hydric soil properties of low matrix chroma colors with redox concentrations meeting the requirements of Redox Dark Surface (F6) (see Appendix 3-A). Soils within Wetland 5 exhibited hydric soil properties of low matrix chroma colors with redox concentrations meeting the requirements of Redox Dark Surface (F6) and low chroma values forming a depleted matrix (F3) (see Appendix 3-A). The results of the onsite soil evaluations within Wetland 5 were consistent with the properties of the mapped soil unit Wayland silt loam (Wy) which is mapped in the majority of the wetland.

These wetlands have been designated as within the Great Swamp CEA, rendering them an important natural resource. Photographs of Wetlands 4 and 5 are presented on Figures 3-5 and 3-6. From a regulatory standpoint, these wetlands are NYSDEC-jurisdictional. As noted earlier, although they are not located within the Project Development Area, their respective 100-foot Adjacent Areas extend onto it. The USACE did not review this portion of the site for jurisdiction as no project work is proposed in this area.

3.2.3 Upland Vegetative Communities

Much of the upland portion of the Project Development Area slated for project development has been previously developed for industrial uses. Four distinct land cover types characterize the upland portions of the Project Development Area, as described below.

3.2.3.1 Successional Red Cedar Woodland

The successional red cedar woodland cover type classification comprised approximately 23 acres of the site and is located along the majority of the eastern portion of the Project Development Area, and in the southwestern corner (Figure 3-1). The successional red cedar woodland is a community that commonly occurs on abandoned agricultural fields and pastures, usually at elevations less than 1,000 feet above mean sea level (msl) (Edinger et al., 2002). The dominant tree is eastern red cedar, which may occur widely spaced in young stands and may be rather dense in more mature stands (Edinger et al., 2002). Smaller numbers of gray birch, hawthorn (*Crataegus sp.*), buckthorn (*Rhamnus cathartica*), and other early successional hardwoods may be present (Edinger et al., 2002). Shrubs and ground layer vegetation are similar to a successional old field; in some stands the

groundcover consists of a nearly pure stand of non-native bluegrasses such as *Poa compressa* and *Poa pratensis* (Edinger et al. 2002).

The successional red cedar woodland was observed to be dominated by red cedar trees in the canopy and tartarian honeysuckle (*Lonicera tatarica*) in the shrub stratum. Although red cedar was the dominant tree in this cover type, several areas included co-dominant, mature, deciduous tree species with diameters at breast height (DBH) greater than 12 inches, such as: green ash, cottonwood (*Populus deltoids*), black cherry (*Prunus serotina*), white oak (*Quercus alba*), and American elm. The majority of the red cedar trees observed had 6 inches or less DBH, and were a maximum of 30 feet tall. This cover type deviated from the typical successional red cedar woodland described by Edinger et al. (2002) in that the majority of the tree canopy cover was greater than 80 percent in most areas, which exceeds the 25-60 percent described for this classification. However, this classification was assigned because it most closely resembled the vegetative structure and assemblage observed.

3.2.3.2 Previously Developed Area

The previously developed portion of the site is classified as a “mixed rural structure exterior/mowed lawn with trees, with paved road/path, and unpaved road/path” cover type, which comprises approximately 20 acres of the Project Development Area and represents the majority of the proposed project footprint (Figure 3-1). These four ecological classifications were grouped into one cover type due to their intermixing and related degree of anthropogenic disturbance.

The Rural Structural Exterior classification describes the exterior surfaces of metal, wood, or concrete structures or any structural surface composed of inorganic materials in a rural or sparsely populated suburban area (Edinger et al., 2002). These sites may be sparsely vegetated with lichens, mosses, and terrestrial algae; occasionally vascular plants may grow in cracks (Edinger et al., 2002). Nooks and crannies may provide nesting habitat for birds and insects, and roosting sites for bats (Edinger et al., 2002). The Mowed Lawn with Trees classification describes residential, recreational, or commercial land in which the ground cover is dominated by clipped grasses and forbs, and it is shaded by at least 30 percent cover of trees (Edinger et al., 2002). The Paved Road/Path classification is described as a road or pathway that is paved with asphalt, concrete, brick, stone, etc. in which there may be sparse vegetation rooted in cracks in the paved surface (Edinger et al., 2002). The Unpaved Road/Path is described as a sparsely vegetated road or pathway of gravel, bare soil, or bedrock outcrop that is maintained by regular trampling or scraping of the land surface (Edinger et al., 2002).

This portion of the Project Development Area was observed to contain a mixture of abandoned industrial buildings and equipment with maintained lawn and various paved and unpaved roads and paths. Industrial structures consisted of a mixture of wood, concrete, and steel structures that were components of former industrial activity. Site structures ranged from large industrial, to small wooden structures and included a water tower. Many of the structures were dilapidated and were open to the elements from broken or missing doors and windows. Cottonwood trees and invasive species such as autumn olive (*Elaeagnus umbellata*), staghorn sumac (*Rhus typhina*), and reedgrass were observed growing alongside building structures and throughout the identified cover type.

3.2.3.3 Successional Southern Hardwoods 1 and 2:

The successional southern hardwoods 1 cover type comprises approximately 3 acres of the site and is located to the northwest of the former industrial area along the railroad track (Figure 3-1). The successional southern hardwoods are described as hardwood or mixed forest that occurs on sites that have been cleared or otherwise disturbed (Edinger et al., 2002). This is a broadly defined community and several regional variants are known (Edinger et al., 2002). Although they both possess the characteristics of the ecological community described by Edinger et al. (2002), Successional Southern Hardwoods 1 and 2 were not grouped together because they contained different vegetative structures and assemblages.

Successional Southern Hardwoods 1 was observed to be a predominantly deciduous forest intermixed with red cedar. Dominant species included cottonwood, American elm and red cedar. Several mature cottonwood and sycamore (*Platanus occidentalis*) trees were observed with DBH greater than 12 inches.

Successional Southern Hardwoods 2 cover type comprises 0.9 acre of the site and is located north of the site entrance, along New York State Route 22 (Figure 3-1). Successional Southern Hardwoods 2 was a deciduous forest dominated by black walnut (*Juglans nigra*), American elm, and staghorn sumac. Only one tree, a willow (*Salix sp.*), within this cover type area had a DBH greater than 12 inches.

3.2.4 Wildlife Habitat

Wildlife species with potential to occur on the Property were identified to evaluate the potential impacts of development activities on these resources. Listings of the amphibian, reptile, avian, and mammal species with potential to occur on site, including federal and New York State conservation status, are shown on Tables 3-2, 3-3 and 3-4, respectively.

Listings of reptiles and amphibians with potential to occur on the Property were taken from the New York State Amphibian and Reptile Atlas Project (Herp Atlas Project) (NYSDEC, 1999). The Herp Atlas Project is a culmination of a decade (1990-1999) of surveys designed to document the geographic distribution of New York State's herpetofauna for the purposes of monitoring populations and making management decisions. The Herp Atlas Project provides listings of reptile and amphibian species with their distribution based on United States Geological Survey (USGS) 7.5 minute quadrangle maps. Table 3-2 contains a listing of reptile and amphibian species located within the 7.5 minute Dover Plains quadrangle. The current federal and New York State conservation status are also listed for each species. The conservation status identifies whether a species is listed as threatened, endangered, or is a candidate or species of special concern. As shown in Table 3-2, nine species of reptiles and amphibians were listed as endangered, threatened, or species of special concern. These species are discussed in greater detail in Section 3.2.5.1.

A listing of bird species with potential to occur on the Property was taken from the New York State Breeding Bird Atlas (McGowan and Corwin, 2008). The Breeding Bird Atlas is a comprehensive, statewide survey designed to reveal the distribution of breeding birds in New York. The Breeding Bird Atlas provides listings of bird species located within 5,332 designated blocks throughout New York State. Table 3-3 provides the listing of bird species listed within Breeding Bird Atlas blocks that overlap the Property. The current federal and New York State conservation status are also listed for each species. As shown in Table 3-3, four species of birds were listed as threatened, de-listed, or species of special concern. These species are discussed in greater detail in Section 3.2.5.2.

A listing of mammal species with potential to occur on the Property was taken from *Checklist of Amphibians, Reptiles, Birds and Mammals of New York State* (NYSDEC, 2007). This publication provides a listing of amphibians, reptiles, birds, and mammals believed to be a part of the fauna of New York State. Table 3-4 provides the listing of the mammalian species listed that could be present on the Property. The current federal and New York State conservation status are also listed for each species. As shown in Table 3-4, two species of mammals were listed as endangered, candidate species, or species of special concern. These species are discussed in greater detail in Section 3.2.5.3.

Table 3-2: Potentially Occurring Reptiles and Amphibians of the Cricket Valley Energy Property

Common Name ¹	Scientific Name ¹	New York Conservation Status ²	Federal Conservation Status ³
Salamanders			
Blue-spotted Salamander	<i>Ambystoma laterale</i>	Special Concern	N/A
Four-toed Salamander	<i>Hemidactylium scutatum</i>	N/A	N/A
Jefferson Salamander	<i>Ambystoma jeffersonianum</i>	Special Concern	N/A
Marbled Salamander	<i>Ambystoma opacum</i>	Special Concern	N/A
Northern Redback Salamander	<i>Plethodon c. cinereus</i>	N/A	N/A
Northern Two-lined Salamander	<i>Eurycea bislineata</i>	N/A	N/A
Red-spotted Newt	<i>Notophthalmus v. viridescens</i>	N/A	N/A
Spotted Salamander	<i>Ambystoma maculatum</i>	N/A	N/A
Toads and Frogs			
Bullfrog	<i>Rana catesbeiana</i>	N/A	N/A
Eastern American Toad	<i>Bufo a. americanus</i>	N/A	N/A
Eastern Spadefoot	<i>Scaphiopus holbrookii</i>	Special Concern	N/A
Gray Treefrog	<i>Hyla versicolor</i>	N/A	N/A
Green Frog	<i>Rana clamitans melanota</i>	N/A	N/A
Northern Leopard Frog	<i>Rana pipiens</i>	N/A	N/A
Northern Spring Peeper	<i>Pseudacris c. crucifer</i>	N/A	N/A
Pickereel Frog	<i>Rana palustris</i>	N/A	N/A
Wood Frog	<i>Rana sylvatica</i>	N/A	N/A
Lizards			
Five-lined Skink	<i>Eumeces fasciatus</i>	N/A	N/A
Snakes			
Black Rat Snake	<i>Elaphe o. obsoleta</i>	N/A	N/A
Common Garter Snake	<i>Thamnophis sirtalis</i>	N/A	N/A
Eastern Hognose Snake	<i>Heterodon platirhinos</i>	Special Concern	N/A
Eastern Milk Snake	<i>Lampropeltis t. triangulum</i>	N/A	N/A
Eastern Ribbon Snake	<i>Thamnophis sauritus</i>	N/A	N/A
Northern Black Racer	<i>Coluber c. constrictor</i>	N/A	N/A
Northern Copperhead	<i>Agkistrodon contortrix mokasen</i>	N/A	N/A
Northern Redbelly Snake	<i>Storeria o. occipitomaculata</i>	N/A	N/A
Northern Ringneck Snake	<i>Diadophis punctatus edwardsii</i>	N/A	N/A
Northern Water Snake	<i>Nerodia s. sipedon</i>	N/A	N/A

**Draft Environmental
Impact Statement**

Cricket Valley Energy Project – Dover, NY

Common Name ¹	Scientific Name ¹	New York Conservation Status ²	Federal Conservation Status ³
Timber Rattlesnake ⁴	<i>Crotalus horridus</i>	Threatened	N/A
Turtles			
Bog Turtle ⁴	<i>Clemmys muhlenbergii</i>	Endangered	Threatened
Common Snapping Turtle	<i>Chelydra s. serpentina</i>		
Painted Turtle	<i>Chrysemys picta</i>	N/A	N/A
Spotted Turtle	<i>Clemmys guttata</i>	Special Concern	N/A
Wood Turtle	<i>Clemmys insculpta</i>	Special Concern	N/A

Notes:

1. Species information taken from the New York State Amphibian and Reptile Atlas Project, Dutchess County, NY (NYSDEC, 1999).
2. Conservation status taken from NYSDEC online listing of species conservation status (NYSDEC, 2010).
3. Federal conservation status taken from online listing for Dutchess County, New York (USFWS, 2010).
4. On-site evaluations concluded that suitable habitat is not present within the survey area (all Property east of the Swamp River) (Appendix 3-C).

Table 3-3: Potentially Occurring Birds of the Cricket Valley Energy Property

Common Name ¹	Scientific Name ¹	New York Legal Status ¹	Federal Conservation Status ²
Alder Flycatcher	<i>Empidonax alnorum</i>	Protected	N/A
American Crow	<i>Corvus brachyrhynchos</i>	Game Species	N/A
American Goldfinch	<i>Spinus tristis</i>	Protected	N/A
American Kestrel	<i>Falco sparverius</i>	Protected	N/A
American Redstart	<i>Setophaga ruticilla</i>	Protected	N/A
American Robin	<i>Turdus migratorius</i>	Protected	N/A
American Woodcock	<i>Scolopax minor</i>	Game Species	N/A
Bald Eagle ³	<i>Haliaeetus leucocephalus</i> ³	Threatened	Delisted
Baltimore Oriole	<i>Icterus galbula</i>	Protected	N/A
Bank Swallow	<i>Riparia riparia</i>	Protected	N/A
Barn Swallow	<i>Hirundo rustica</i>	Protected	N/A
Barred Owl	<i>Strix varia</i>	Protected	N/A
Belted Kingfisher	<i>Megaceryle alcyon</i>	Protected	N/A
Black-and-white Warbler	<i>Mniotilta varia</i>	Protected	N/A
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	Protected	N/A
Blackburnian Warbler	<i>Dendroica fusca</i>	Protected	N/A

**Draft Environmental
Impact Statement**

Cricket Valley Energy Project – Dover, NY

Common Name¹	Scientific Name¹	New York Legal Status¹	Federal Conservation Status²
Black-capped Chickadee	<i>Poecile atricapillus</i>	Protected	N/A
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	Protected	N/A
Blue Jay	<i>Cyanocitta cristata</i>	Protected	N/A
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>	Protected	N/A
Blue-headed Vireo	<i>Vireo solitarius</i>	Protected	N/A
Blue-winged Warbler	<i>Vermivora pinus</i>	Protected	N/A
Bobolink	<i>Dolichonyx oryzivorus</i>	Protected	N/A
Broad-winged Hawk	<i>Buteo platypterus</i>	Protected	N/A
Brown Creeper	<i>Certhia americana</i>	Protected	N/A
Brown Thrasher	<i>Toxostoma rufum</i>	Protected	N/A
Brown-headed Cowbird	<i>Molothrus ater</i>	Protected	N/A
Canada Goose	<i>Branta canadensis</i>	Game Species	N/A
Canada Warbler	<i>Wilsonia canadensis</i>	Protected	N/A
Carolina Wren	<i>Thryothorus ludovicianus</i>	Protected	N/A
Cedar Waxwing	<i>Bombycilla cedrorum</i>	Protected	N/A
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	Protected	N/A
Chimney Swift	<i>Chaetura pelagica</i>	Protected	N/A
Chipping Sparrow	<i>Spizella passerina</i>	Protected	N/A
Common Grackle	<i>Quiscalus quiscula</i>	Protected	N/A
Common Merganser	<i>Mergus merganser</i>	Game Species	N/A
Common Raven	<i>Corvus corax</i>	Protected	N/A
Common Yellowthroat	<i>Geothlypis trichas</i>	Protected	N/A
Cooper's Hawk	<i>Accipiter cooperii</i>	Protected-Special Concern	N/A
Downy Woodpecker	<i>Picoides pubescens</i>	Protected	N/A
Eastern Bluebird	<i>Sialia sialis</i>	Protected	N/A
Eastern Kingbird	<i>Tyrannus tyrannus</i>	Protected	N/A
Eastern Meadowlark	<i>Sturnella magna</i>	Protected	N/A
Eastern Phoebe	<i>Sayornis phoebe</i>	Protected	N/A
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	Protected	N/A
Eastern Wood-Pewee	<i>Contopus virens</i>	Protected	N/A
European Starling	<i>Sturnus vulgaris</i>	Unprotected	N/A
Field Sparrow	<i>Spizella pusilla</i>	Protected	N/A
Gray Catbird	<i>Dumetella carolinensis</i>	Protected	N/A

**Draft Environmental
Impact Statement**

Cricket Valley Energy Project – Dover, NY

Common Name ¹	Scientific Name ¹	New York Legal Status ¹	Federal Conservation Status ²
Great Blue Heron	<i>Ardea herodias</i>	Protected	N/A
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	Protected	N/A
Great Horned Owl	<i>Bubo virginianus</i>	Protected	N/A
Green Heron	<i>Butorides virescens</i>	Protected	N/A
Hairy Woodpecker	<i>Picoides villosus</i>	Protected	N/A
Hermit Thrush	<i>Catharus guttatus</i>	Protected	N/A
Hooded Merganser	<i>Lophodytes cucullatus</i>	Game Species	N/A
Hooded Warbler	<i>Wilsonia citrina</i>	Protected	N/A
House Finch	<i>Carpodacus mexicanus</i>	Protected	N/A
House Sparrow	<i>Passer domesticus</i>	Unprotected	N/A
House Wren	<i>Troglodytes aedon</i>	Protected	N/A
Indigo Bunting	<i>Passerina cyanea</i>	Protected	N/A
Killdeer	<i>Charadrius vociferus</i>	Protected	N/A
Least Flycatcher	<i>Empidonax minimus</i>	Protected	N/A
Louisiana Waterthrush	<i>Seiurus motacilla</i>	Protected	N/A
Mallard	<i>Anas platyrhynchos</i>	Game Species	N/A
Mourning Dove	<i>Zenaida macroura</i>	Protected	N/A
Mute Swan	<i>Cygnus olor</i>	Protected	N/A
Northern Cardinal	<i>Cardinalis cardinalis</i>	Protected	N/A
Northern Flicker	<i>Colaptes auratus</i>	Protected	N/A
Northern Mockingbird	<i>Mimus polyglottos</i>	Protected	N/A
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	Protected	N/A
Northern Waterthrush	<i>Seiurus noveboracensis</i>	Protected	N/A
Orchard Oriole	<i>Icterus spurius</i>	Protected	N/A
Osprey	<i>Pandion haliaetus</i>	Protected-Special Concern	N/A
Ovenbird	<i>Seiurus aurocapilla</i>	Protected	N/A
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Protected	N/A
Prairie Warbler	<i>Dendroica discolor</i>	Protected	N/A
Purple Finch	<i>Carpodacus purpureus</i>	Protected	N/A
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	Protected	N/A
Red-breasted Nuthatch	<i>Sitta canadensis</i>	Protected	N/A
Red-eyed Vireo	<i>Vireo olivaceus</i>	Protected	N/A
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Protected	N/A

**Draft Environmental
Impact Statement**

Cricket Valley Energy Project – Dover, NY

Common Name ¹	Scientific Name ¹	New York Legal Status ¹	Federal Conservation Status ²
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Protected	N/A
Ring-necked Pheasant	<i>Phasianus colchicus</i>	Game Species	N/A
Rock Pigeon	<i>Columba livia</i>	Unprotected	N/A
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	Protected	N/A
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	Protected	N/A
Savannah Sparrow	<i>Passerculus sandwichensis</i>	Protected	N/A
Scarlet Tanager	<i>Piranga olivacea</i>	Protected	N/A
Song Sparrow	<i>Melospiza melodia</i>	Protected	N/A
Spotted Sandpiper	<i>Actitis macularius</i>	Protected	N/A
Swamp Sparrow	<i>Melospiza georgiana</i>	Protected	N/A
Tree Swallow	<i>Tachycineta bicolor</i>	Protected	N/A
Tufted Titmouse	<i>Baeolophus bicolor</i>	Protected	N/A
Turkey Vulture	<i>Cathartes aura</i>	Protected	N/A
Veery	<i>Catharus fuscescens</i>	Protected	N/A
Warbling Vireo	<i>Vireo gilvus</i>	Protected	N/A
Whip-poor-will	<i>Caprimulgus vociferus</i>	Protected-Special Concern	N/A
White-breasted Nuthatch	<i>Sitta carolinensis</i>	Protected	N/A
White-eyed Vireo	<i>Vireo griseus</i>	Protected	N/A
Wild Turkey	<i>Meleagris gallopavo</i>	Game Species	N/A
Willow Flycatcher	<i>Empidonax traillii</i>	Protected	N/A
Winter Wren	<i>Troglodytes troglodytes</i>	Protected	N/A
Wood Duck	<i>Aix sponsa</i>	Game Species	N/A
Wood Thrush	<i>Hylocichla mustelina</i>	Protected	N/A
Worm-eating Warbler	<i>Helmitheros vermivorum</i>	Protected	N/A
Yellow Warbler	<i>Dendroica petechia</i>	Protected	N/A
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	Protected	N/A
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Protected	N/A
Yellow-throated Vireo	<i>Vireo flavifrons</i>	Protected	N/A

Notes:

1. Species listing and NY legal status taken from the New York State Breeding Bird Atlas (2000-2005; NYSDEC, 2008); Blocks 6161A, and 6161C.

2. Federal conservation status taken from online listing for Dutchess County, New York (USFWS, 2010).

3. Bald eagle not listed in site blocks for New York State Breeding Bird Atlas.

Table 3-4: Potentially Occurring Mammals of the Cricket Valley Energy Property

Common Name¹	Scientific Name¹	New York Conservation Status²	Federal Conservation Status³
Beaver	<i>Castor canadensis</i>	Game Species	N/A
Big Brown Bat	<i>Eptesicus fuscus</i>	N/A	N/A
Black Bear	<i>Ursus americanus</i>	Game Species	N/A
Bobcat	<i>Lynx rufus</i>	Game Species	N/A
Eastern Chipmunk	<i>Tamias striatus</i>	N/A	N/A
Eastern Cottontail	<i>Sylvilagus floridanus</i>	Game Species	N/A
Eastern Coyote	<i>Canis latrans</i>	Game Species	N/A
Eastern Pipistrelle	<i>Pipistrellus subflavus</i>	N/A	N/A
Ermine	<i>Mustela erminea</i>	Game Species	N/A
Fisher	<i>Martes pennanti</i>	Game Species	N/A
Gray Fox	<i>Urocyon cinereoargenteus</i>	Game Species	N/A
Gray Squirrel	<i>Sciurus carolinensis</i>	Game Species	N/A
Hoary Bat	<i>Lasiurus cinereus</i>	N/A	N/A
Indiana Bat	<i>Myotis sodalis</i>	Endangered	Endangered
Keen's Bat	<i>Myotis septentrionalis</i>	N/A	N/A
Little Brown Bat	<i>Myotis lucifugus</i>	N/A	N/A
Long-tailed Weasel	<i>Mustela frenata</i>	Game Species	N/A
Marten	<i>Martes americana</i>	Game Species	N/A
Mice	<i>Peromyscus</i> sp.	N/A	N/A
Mink	<i>Mustela vison</i>	Game Species	N/A
Mole	<i>Parascalops breweri</i>	N/A	N/A
Muskrat	<i>Ondatra zibethicus</i>	Game Species	N/A
New England Cottontail	<i>Sylvilagus transitionalis</i>	Special Concern	Candidate
Porcupine	<i>Erethizon dorsata</i>	N/A	N/A
Raccoon	<i>Procyon lotor</i>	Game Species	N/A
Rats	<i>Rattus</i> sp.	N/A	N/A
Red Bat	<i>Lasiurus borealis</i>	N/A	N/A
Red Fox	<i>Vulpes vulpes</i>	Game Species	N/A
Red Squirrel	<i>Tamiasciurus hudsonicus</i>	N/A	N/A
Shrew	<i>Sorex</i> sp.	N/A	N/A
Striped Skunk	<i>Mephitis mephitis</i>	Game Species	N/A
Varying Hare	<i>Lepus americanus</i>	Game Species	N/A
Virginia Opossum	<i>Didelphis virginiana</i>	Game Species	N/A

Common Name ¹	Scientific Name ¹	New York Conservation Status ²	Federal Conservation Status ³
Voles	<i>Microtus</i> sp.	N/A	N/A
White-Tailed Deer	<i>Odocoileus virginianus</i>	Game Species	N/A
Woodchuck	<i>Marmota monax</i>	N/A	N/A

Notes:

1. Species information taken from the Checklist of Amphibians, Reptiles, Birds and Mammals of New York State (NYSDEC, 2007).
2. Conservation status taken from NYSDEC online listing of species conservation status (NYSDEC, 2010).
3. Federal conservation status taken from online listing for Dutchess County, New York (USFWS, 2010).

The Project Development Area consists of a heavily disturbed former industrial area surrounded by successional woodlands and disturbed or anthropomorphic wetlands. As such, most wildlife species found in such areas are tolerant of human activity and disturbance. Due to the dominant invasive species which populate the wetlands, these areas are minimally valuable as wildlife habitat; however, they serve as a riparian buffer to the forested wetlands (Wetlands 4 and 5) and the Swamp River to the west of the railroad track. The species present within the Project Development Area are likely to be relatively common forest edge species, with little potential for forest-interior species.

3.2.5 Protected Species

CVE consulted with the USFWS and NYSNHP in June 2009 regarding protected species. CVE was requested by the NYSDEC to perform a survey for suitable bog turtle and timber rattlesnake habitat, as records indicate occurrences of both species nearby. Terrestrial Environmental Specialists, Inc. (TES) was contracted to perform this Phase I Bog Turtle and Timber Rattlesnake Habitat Assessment and Survey (Phase I Species Survey). The survey covering the portion of the Property east of the Swamp River was conducted on June 23, 24, and 25, 2009. The Phase I Species Survey consisted of an assessment of the presence and suitability of habitat criteria for the bog turtle, including hydrology, soils, and vegetation. One habitat form, developed by USFWS in conjunction with the Pennsylvania Fish and Boat Commission, was completed for each wetland, and representative photographs were taken. The Phase I Species Survey also assessed the characteristics of upland areas, with attention paid to rock outcrops and forested areas, for suitable timber rattlesnake habitat, and representative photographs were taken. The results of this survey are discussed in the appropriate sections, below. The Phase I Species Survey is provided in Appendix 3-C.

3.2.5.1 *Reptiles and Amphibians*

Listings of reptiles and amphibians with potential to occur on the Property were taken from the Herp Atlas Project (NYSDEC, 1999). As shown in Table 3-2, nine species of reptiles and amphibians were listed as endangered, threatened, or species of special concern.

3.2.5.1.1 Blue-Spotted Salamander

The blue-spotted salamander (*Ambystoma laterale*), a state-listed species of special concern, is a small, slender black-colored salamander with a narrow head and blue flecks on its belly, sides, and tail. The tail is long and flattened laterally. Adult specimens range from 4.4 to 5.5 inches. Blue-spotted salamanders require moist, moderately shaded environments, and are found under leaf litter, or underground. They feed on small invertebrates, including larval and adult worms, spiders, and insects. The brief breeding season lasts from mid-March through late April and eggs are laid singly or in a small clutch. Fertilized eggs are deposited in vernal pools, and larvae hatch about a month later (Massachusetts Natural Heritage Endangered Species Program [MNHESP], 1997a).

The presence of blue-spotted salamanders was not noted during either the wetland reconnaissance or Phase I Species Survey of the Project Development Area. The degraded nature of the wetlands and lack of vernal pools make the Project Development Area not particularly suitable habitat for this species. Abundant more suitable habitat is available north and west of the site.

3.2.5.1.2 Jefferson Salamander

The Jefferson salamander (*Ambystoma jeffersonianum*), a state-listed species of special concern, is similar to the blue-spotted salamander, although less common, and grayish brown to dark brown in color, with a lighter blue underside. Adults range from 4.4 to 7.8 inches. Like the blue-spotted salamander, these creatures can be found in moist, upland forested areas under leaf litter, rotting stumps, and stones. Adult salamanders are rarely observed outside of the breeding period, but are assumed to eat earthworms and small underground invertebrates. Like the blue-spotted salamander, vernal pools are essential for breeding, and most adults live within 1,600 meters of the breeding area (MNHESP, 1994).

The presence of Jefferson salamanders was not noted during either the wetland reconnaissance or Phase I Species Survey of the Project Development Area. The degraded nature of the wetlands and lack of vernal pools make the Project Development Area not particularly suitable habitat for this species. Abundant more suitable habitat is available north and west of the site.

3.2.5.1.3 Marbled Salamander

The marbled salamander (*Ambystoma opacum*), a state-listed species of special concern, is a short, stout salamander easily recognized by its dark body with silver-white or grey bands which converge across its back to create a pattern of dark spots. Unlike most salamanders, females are recognized by their more subtle gray markings, while males are marked by the brighter silvery-white bands. Adults feed on small invertebrates such as larval and adult insects, crustaceans, snails, earthworms, slugs, beetles, and ants. Their habitat consists of deciduous to mixed woods of the southern hardwood type, and can live in both moist areas and dry, sandy hillsides. They can be found under surface materials such as boards, logs, bark, and stones within 900 feet of vernal pools. As with the above salamander species, they require vernal pools for breeding, but deposit their eggs in the fall, when the pools are dry (MNHESP, 2007b).

The presence of marbled salamanders was not noted during either the wetland reconnaissance or Phase I Species Survey of the Project Development Area. The degraded nature of the wetlands and lack of vernal pools make the Project Development Area not particularly suitable habitat for this species. Abundant more suitable habitat is available north and west of the site.

3.2.5.1.4 Eastern Spadefoot

The eastern spadefoot (*Scaphiopus holbrookii*), a state-listed species of special concern, belongs to a primitive amphibian family, and is neither a true frog nor a true toad. Approximately 1.75 to 2.25 inches long, it is a short, squat, smooth-skinned toad with grayish or blackish-brown skin, covered in small warts, and distinctive, vertically elliptical pupils. Two yellowish lines begin at the toad's eyes and run down its back, forming a lyre shape. This burrowing species prefers dry sandy to sandy loam soils, with areas of leaf litter in scrub shrub, coastal oak woodlands, or Pitch Pine barrens. The toad will burrow itself up to eight feet below ground surface for hibernation during the cold months, as well as to avoid desiccation during the rest of the year. Adults eat flies, bugs, spiders, cricket, earthworms, caterpillars, snails, moths, and small vertebrates, such as salamanders. Breeding within colonies occurs over one or two nights, initiated by heavy rains between April and September, and takes place in vernal pools (MNHESP, 2010).

The presence of eastern spadefoot was not noted during either the wetland reconnaissance or Phase I Species Survey of the Project Development Area. The degraded nature of the wetlands makes the Project Development Area not particularly suitable habitat for this species. Abundant more suitable habitat is available north and west of the site.

3.2.5.1.5 Eastern Hognose Snake

Also called the “puff adder,” the eastern hognose snake (*Heterodon platirhinos*), a state-listed species of special concern, is named for its distinctive upturned nose. Reaching approximately 46 inches in length, this thick-bodied snake has variable coloring, known to be mostly brown, black, gray, yellow, or green, and is often patterned with large, rectangular spots down the middle of its back. The snake hibernates and prefers open woodland habitats with sandy soil, fields, agricultural land, or coastal areas. Its diet consists mainly of toads, but the snakes will also eat frogs, salamanders, small mammals, birds, and invertebrates. Breeding occurs in the spring, and females will deposit 15-25 eggs in a sandy depression beneath rocks or logs (Tartar, 2010).

An incidental observation of a hognose snake occurred during the Phase I Species Survey. The snake was noted within the northern portion of Wetland 2. Therefore, presence of this species in undisturbed forest within the Project Development Area cannot be ruled out. Typical suitable habitat areas, characterized by open woodlands with sandy soil, fields, and agricultural land, will not be disturbed by project construction. Abundant more suitable habitat exists north and west of the portion of the Project Development Area proposed for project construction.

Potential impacts to the eastern hognose snake will be minimized by developing the project in areas that have largely been previously disturbed by industrial activity. Additional mitigation measures will include educating construction crews and permanent workers on eastern hognose snake identification and providing contact information for the NYSDEC Region Wildlife office, and installing temporary barriers made of cloth mesh around the construction area. Finally, perimeter fencing will be installed around the project footprint that will be designed to discourage snakes from entering the project area.

3.2.5.1.6 Timber Rattlesnake

The timber rattlesnake (*Crotalus horridus*), a state threatened species measuring from 3-4.5 feet or more in length, is the largest venomous snake in New York. Timber rattlesnakes appear very stocky. Two color patterns are commonly found: a yellow phase, which has black or dark brown crossbands on a lighter background color of yellow, brown or gray, and a black phase, which has dark crossbands on a dark background. The timber rattler has a broadly triangular head with many small scales on the crown of the head bordered by a few large scales. Timber rattlesnakes are active from late April until mid-October, although in northern New York they may not emerge until mid-May. Upon emerging from the den, they are very lethargic. Little feeding occurs early in the spring. This rattler feeds primarily on small mammals, but occasionally takes small birds, amphibians and other snakes. Mating occurs in the spring and fall. The young are approximately 1 foot in length at birth and

emerge singly from the female. Timber rattlesnakes are generally found in deciduous forests in rugged terrain. In the summer, gravid (pregnant) females seem to prefer open, rocky ledges where temperatures are higher, while the males and non-gravid females seem to prefer cooler, thicker woods where the forest canopy is more closed (NYSDEC, 2010b).

CVE was requested by the NYSDEC to perform a survey for suitable timber rattlesnake habitat, as records indicate two den sites approximately 1.5 miles to the northwest, and one approximately 1 mile to the west of the study area. TES was contracted to perform the Phase I Species Survey (see Appendix 3-C). The survey was conducted on June 23, 24, and 25, 2009, and determined that no potential dens and overwintering sites were observed, and suitable foraging habitat is limited to the small areas of upland forest on the eastern side of the railroad track. Therefore, TES opined that, while timber rattlesnakes associated with the dens to the west and northwest may be present on the Property, this unlikely occurrence would be limited to their active season of mid-May through mid-October (TES, 2009). Abundant, more suitable foraging habitat occurs closer to the known den sites.

Potential impacts to the timber rattlesnake will be minimized by developing the project in areas that have largely been previously disturbed by industrial activity. Additional mitigation measures will include educating construction crews and permanent workers on timber rattlesnake identification and providing contact information for the NYSDEC Region Wildlife office and an area nuisance timber rattlesnake responder, and installing temporary barriers made of cloth mesh around the construction area. Finally, perimeter fencing will be installed around the project footprint that will be designed to discourage snakes from entering the project area.

3.2.5.1.7 Bog Turtle

The bog turtle (*Glyptemys mühlenbergii*), a state endangered species, is New York's smallest turtle, reaching a maximum length of 4.5 inches. A bright yellow or orange blotch on each side of its head and neck are a distinctive feature of this species. The body color is dark with an orange-red wash on the inside of the legs of some individuals. The carapace is domed and somewhat rectangular, often with prominent rings on the scutes. In New York, the bog turtle emerges from hibernation, often spent in an abandoned muskrat lodge or other burrow, by mid-April. Mating occurs primarily in the spring but may also occur in the fall and may be focused in or near the hibernaculum. In early to mid-June, a clutch of two to four eggs is laid in a nest which is generally located inside the upper part of an unshaded tussock. The eggs hatch around mid-September. The adults enter hibernation in late October. Although generally very secretive, the bog turtle can be seen basking in the open, especially in the early spring just after emerging from hibernation. It is an opportunistic

feeder, eating what it can get, although it prefers invertebrates such as slugs, worms, and insects. Seeds, plant leaves, and carrion are also included in its diet. This is a semi-aquatic species, preferring habitat with cool, shallow, slow-moving water, deep soft muck soils, and tussock-forming herbaceous vegetation. The bog turtle is generally found in open, early successional types of habitats such as wet meadows or open calcareous boggy areas generally dominated by sedges or sphagnum moss. Plants such as purple loosestrife and reedgrass can quickly invade such areas resulting in the loss of basking and nesting habitat (NYSDEC, 2010c).

CVE was requested by the NYSDEC to perform a survey for suitable bog turtle habitat, as records indicate that a documented occurrence of the turtle occurred “on or in very close proximity” to the study area (Appendix 3-C). TES performed the Phase I Species Survey of the Property on June 23, 24, and 25, 2009, and determined that potentially suitable habitat for bog turtles did not exist on the portion of the Property surveyed (see Appendix 3-C). Further information from NYSDEC indicates that the record of occurrence for the bog turtle consists of one individual found on the railroad track that transects the Property. As TES reports, this occurrence has been linked with migration between several fens in the area, as the Property is within the dispersal capability of the species.

Potential indirect impacts to bog turtle habitat will be insignificant. As discussed in detail in Section 5, proposed groundwater withdrawals will not have an appreciable effect on the hydrology of onsite or offsite wetlands, or the Swamp River. Further, a detailed stormwater management plan has been developed using state-of-the-art techniques to protect water quality. Finally, construction crews and permanent workers will be educated on bog turtle identification and provided contact information for the NYSDEC Region Wildlife office in the event of an unanticipated encounter.

3.2.5.1.8 Spotted Turtle

The spotted turtle (*Clemmys guttata*), a state-listed species of special concern, has yellow spots on the head, neck, legs, and upper shell or carapace. Background coloration is black. Occasionally, individuals without any spots on the shells may be found, but they still have yellow and orange markings on the face. The plastron is yellow and black in color. Male spotted turtles have dark pigment on the hard portions of both jaws; females have yellowish coloration there. Spotted turtles measure 3.5 – 5.0 inches (9 – 12.7 centimeters) in length. Spotted turtles are active from March to October and may be seen singly or in groups basking in the sun. The breeding season extends from March to May. During this time, males are in an active pursuit of females; several males may be seen simultaneously chasing one female. In May, at the end of breeding season, females leave the breeding pools in search of nesting areas. An open site, such as a meadow, field, or the edge of a

road, is most often chosen for nesting. The female digs the nest, measuring 2 inches deep and 2 inches in diameter, with her hind legs and feet. Only 3-4 eggs are laid. The female then covers the eggs and smoothes the dirt by dragging her body over the ground. In about 11 weeks, the 1-inch hatchlings emerge and head for wet, grassy areas in search of food and shelter. Diet consists of snails, worms, slugs, and spiders. Daylight hours are spent eating and basking in the sun. In the evening, spotted turtles submerge and spend the night on the pond bottom. Spotted turtles spend their lives in marshy meadows, bogs, swamps, ponds, ditches, or other small bodies of still water (NYSDEC, 2010d).

Spotted turtles were not noted during either the wetland or Phase I surveys of the Project Development Area. The degraded nature of the wetlands makes the Project Development Area not particularly suitable habitat for this species. Abundant more suitable habitat is available north and west of the site.

3.2.5.1.9 Wood Turtle

The wood turtle (*Glyptemys insculpta*) is a medium-sized turtle (5.5 – 8 inches) that can be recognized by its sculpted shell and orange coloration on the legs and neck. The carapace (outer case) is tan, grayish-brown, or brown, and rough; often there is a pattern of black or yellow lines on larger scutes (plates). Each scute rises upwards in an irregularly shaped pyramid of grooves and ridges. The plastron is yellow with oblong dark patches on the outer, posterior corner of each scute. The head is black, but may be speckled with faint yellow spots. Wood turtles prefer riparian habitats consisting of slow-moving, mid-sized streams, with sandy bottoms and heavily vegetated banks, and open sandy areas nearby for nesting. They spend most of the spring and summer in mixed or deciduous forests, fields, hay-fields, and riparian wetlands including wet meadows, bogs, and beaver ponds. The turtles return to the streams in late summer or early fall, submerging full-time once regular overnight freezing occurs. In spring, wood turtles are active during the day and are usually encountered within a few hundred meters from the stream banks, using emergent logs or grassy, sandy, and muddy banks to soak up the spring sun. As omnivores, the wood turtle's diet consists of both plant and animal matter that is consumed on land and in the water. Although the peaks in mating activity occur in the spring and fall, wood turtles are known to mate opportunistically throughout their activity period (Center for Amphibian and Reptile, 2004).

Wood turtles were not noted during either the wetland reconnaissance or Phase I Species Survey of the Project Development Area. The degraded nature of the wetlands makes the Project Development Area not particularly suitable habitat for this species. Abundant more suitable habitat is available north and west of the site. The presence of wood turtles is

probable on the western side of the Property, in Wetlands 4 and 5, which will remain undisturbed by the project.

Michael Musnick, a citizen scientist who has conducted nesting studies on the wood turtle in Dutchess County, was also contacted. Mr. Musnick indicated he conducted radio tracking in the project area from 2004 – 2009, but has not done any more recent work due to lack of volunteers. The studies encompassed an area from North Chippawalla Road at the southern extent to County Road 26 at the northern extent, and from the Metro-North track west approximately 1.5 miles. Studies provided by Mr. Musnick indicate an active nesting population of wood turtles in this area. Observations of the study included two females who died from exposure when caught within the railroad track. Turtle “bridges,” constructed since then, are now in place to prevent this occurrence.

3.2.5.2 *Birds*

A listing of bird species with potential to occur on the Property was taken from the New York State Breeding Bird Atlas (NYSDEC, 2008). As shown in Table 3-3, four species of birds were listed as threatened, delisted, or species of special concern. No specific bird surveys were undertaken; however the species identified below were not noted during the Phase 1 Species Survey described above.

3.2.5.2.1 Bald Eagle

One of the largest of the raptors found in North America, bald eagles (*Haliaeetus leucocephalus*), a state threatened species and delisted federal species, stand about 30 inches high, sport a wingspan of 72-84 inches and weigh between 8 and 14 pounds. This majestic bird is easily identified in adult plumage by its unmistakable brown body set off by a white head and tail and bright yellow bill (male and female eagles look identical, except that the female is usually about one third larger and heavier than the male, as is typical in birds of prey). Sexual maturity and the characteristic white head and tail are achieved at five years of age. Immature bald eagles are mostly chocolate brown with varying amounts of white over the body, tail, and underwings. The bald eagle is a long-lived bird, with a life span in the wild of more than 30 years. Bald eagles mate for life, returning to nest in the general area (within 250 miles) from which they fledged. Once a pair selects a nesting territory, they use it for the rest of their lives. Bald eagles produce only one or two offspring per year, rarely three. The bald eagle nest is a large structure, usually located high in a tall, live white pine tree near water. The nest is reused and added to (decorated) each year, often becoming eight or more feet deep, six feet across, and weighing hundreds of pounds. Eagles prefer undisturbed areas near large lakes and

reservoirs, marshes and swamps, or stretches along rivers where they can find open water and their primary food, fish (NYSDEC, 2010e).

Bald eagles were not noted during either the wetland reconnaissance or Phase I Species Survey of the Project Development Area, although the passage of transient individuals through the area is likely.

3.2.5.2.2 Cooper's Hawk

Cooper's hawk (*Accipiter cooperii*), a state species of special concern, is a medium-sized, lean hawk, measuring 14-21 inches in length, with a wingspan of 2-3 feet. Adults have blue-gray backs and rusty barring on their underparts, and a blackish crown which contrasts with the back. Immature Cooper's hawks have whitish underparts with fine dark streaking restricted to the chest. The tail is rounded and appears disproportionately long, crossed with four or more obscure black bars and has a broad, distinctly white tip. The sexes are similar in appearance, with the female larger in size. Cooper's hawks feed primarily on birds and small mammals, but will occasionally eat fish, red squirrels, and chipmunks. Usually inhabiting deciduous (sometimes coniferous) woodlands, the hawks will build a nest in a pine or hardwood tree, constructed of sticks and twigs, and lined with bark. Raising one brood a year, typical clutches consist of 4 to 5 eggs (Cornell Lab of Ornithology, 2009).

Although not noted during either the wetland reconnaissance or Phase I Species Survey of the Project Development Area, the passage of transient Cooper's hawks through the area is possible.

3.2.5.2.3 Osprey

The osprey (*Pandion haliaetus*), a state species of special concern, is a large bird of prey measuring 22-25 inches with a wingspan of 4-6 feet. The sexes are nearly alike in plumage, but the female is slightly larger than the male. Adult plumage is dark brown above and white below. The white head has a dark crown with a characteristic dark brown streak on each side. Juvenile plumage resembles that of the adult, with buff to white tips on the feathers of the back and upper wing. Ospreys feed primarily on live fish, which they catch by using their long, hooked talons. The female lays one to four, but usually three, eggs in the spring in a large nest of sticks constructed at the top of a dead tree. Nesting platforms and other man-made structures are also commonly used. They also occasionally nest on the ground. The nest is often used year after year and can become quite large (up to 10 feet high) as more material is added prior to each nesting season. The young fledge (feather) at about eight weeks of age, then remain in the area of the nest for about two months. In New York, there are two main breeding populations, one on Long Island and the other in the Adirondack

Mountains. Within its range, the osprey prefers to make its home along the coastline, and on lakes and rivers (NYSDEC, 2010f).

Although not noted during either the wetland reconnaissance or Phase I Species Survey of the Project Development Area, the passage of transient osprey through the area is possible.

3.2.5.2.4 Whip-poor-will

The whip-poor-will (*Caprimulgus vociferous*), a state species of special concern named for its distinctive call, is more commonly heard than seen. It is a crepuscular bird, meaning it is most active at dawn and dusk. During the day it roosts on the low limbs of trees where it is well-camouflaged. The whip-poor-will measures 8 to 10 inches in length with a very short bill and long, rounded tail and wings. Upper parts are mottled gray, black, and brown; while the under parts are pale with gray and black spotting. The black throat is bordered by a white necklace in males and a buff colored necklace in females. Males also have white tips on the outer tail feathers. Large eyes are used for locating prey at night. Whip-poor-wills feed exclusively on night-flying insects such as moths, beetles, and mosquitoes. Breeding is synchronized with the lunar cycle so that young hatch before a full moon. This maximizes foraging time for parents when the feeding demands imposed by the newly hatched young are highest. Males establish and maintain territories at the beginning of the breeding season. A clutch of two eggs is laid directly on leaf litter on the ground. Parents do not actively defend the nest or their territory but will remain on the nest until a disturbance comes within 1 meter. The whip-poor-will breeds in dry, deciduous or mixed forests with sparse underbrush near open areas needed for foraging. It reportedly seems to prefer pitch pine/scrub oak barrens on Long Island and oak-hickory forests in upstate New York (NYSDEC, 2010g).

The whip-poor-will's preferred habitat of dry deciduous or mixed forests is limited on the Property, thus it is unlikely that a population is present.

3.2.5.3 Mammals

A listing of mammal species with potential to occur on the Property was taken from *Checklist of Amphibians, Reptiles, Birds and Mammals of New York State* (NYSDEC, 2007). As shown in Table 3-4, two species of mammals were listed as endangered, candidate species, or species of special concern.

3.2.5.3.1 New England Cottontail

The New England cottontail rabbit (*Sylvilagus transitionalis*), a state species of special concern and a federal candidate species, inhabits open woods, shrubby areas, fence rows, thickets and marshes. Weighing 1.8 to 2.9 pounds, and measuring 14 – 18 inches in length, the animal has large hind feet, long ears, and a short, fluffy tail. Its long, coarse coat varies in color from reddish-brown to a black or grayish-brown. The underparts are white. The nearly identical eastern cottontail (*Sylvilagus floridanus*) is tolerant of a wider range of habitats. A comparison of the skull characteristics is the most reliable way to distinguish the two species. In the spring and summer, New England cottontails feed on grasses and herbs; in the fall and winter, their diet consists of seedlings, bark, and twigs. Breeding season is January to September, peaking from March to July. (NYSNHP, 2009)

Although not noted during either the wetland reconnaissance or Phase I Species Survey of the Project Development Area, the presence of New England cottontail rabbits on the Property is likely, as they are tolerant of a wide range of habitats, including forest edges, wood thickets, and scrub/shrub areas. Potential impacts to this species will be mitigated through use of temporary barriers during construction and permanent perimeter fencing designed to preclude passage of cottontails into the project area.

3.2.5.3.2 Indiana Bat

The Indiana bat (*Myotis sodalis*), a state and federal endangered species, is one of nine bat species found in New York, roughly 2 inches (51 millimeters) in length and weighing approximately 0.2 - 0.3 ounces. Generally, the Indiana bat is uniformly dark gray to grayish-brown in color and often has a pinkish colored nose. With the coming of spring, Indiana bats disperse from their winter homes, known as hibernacula, some going hundreds of miles. They feed solely on flying insects and presumably males spend the summer preparing for the breeding season and winter that follows. Females congregate in nursery colonies. Some reported colonies were located along the banks of streams or lakes in forested habitat, under the loose bark of dead trees, and contained from 50-100 females. A single young is born to each female, probably late in June, and is capable of flight within a month. In August or early September, Indiana bats swarm at the entrance of selected caves or mines. This is when mating takes place. Like other hibernating species, the Indiana bat accumulates layers of fat which sustain it over the winter period of dormancy. Indiana bats spend the winter months in secluded caves or mines which average 37 to 43 degrees Fahrenheit (°F). Criteria for selecting hibernacula are not clearly understood; many apparently suitable sites are not occupied. Where this species is found, however, it can be extremely abundant, congregating in densities of more than 300/square foot. Hibernation can begin as early as September and extend nearly to June. In New York, knowledge of its distribution is limited to known wintering locations, caves and mines in which they hibernate.

There are eight hibernacula currently known in Albany, Essex, Warren, Jefferson, Onondaga and Ulster Counties. It is certain that the summer range of this species extends well beyond these counties since the animals disperse to breeding areas and other habitats to feed and raise their young (NYSDEC, 2010h).

Two male Indiana bats were observed several miles south of the Project Development Area during surveys in support of the Knolls of Dover project. Indiana bats may use the riparian corridor along the Swamp River. No mature trees with loose bark were noted during either wetland reconnaissance or the Phase I Species Survey in the Project Development Area, limiting the availability of roosting sites. To avoid potential disturbance of this species' roosting behavior which occurs from June through September, no clearing of potential roost trees (greater than 4 inches DBH) associated with project development will occur from April 1 through September 30, per NYSDEC recommendations.

3.2.6 Construction Laydown/Worker Parking Site

As described in Section 1.5.3, an offsite location approximately 2.5 miles north of the project site will be used for temporary construction worker parking and equipment laydown (Laydown Site). The Laydown Site consists of active agricultural fields historically associated with a farming operation, and is a portion of a larger parcel including the actively farmed fields, a former farm-related house and outbuildings, and undeveloped land to the south of the field (see Figure 1-10).

The Laydown Site is bounded to the east by Old State Route 22, a small wetland area, and the associated farming buildings, including a farmhouse, barn, silo, metal storage shed/lean-to, and a guesthouse, as well as several concrete pads and foundations indicating previous structures. The Laydown Site is bounded to the south by undeveloped partially wooded property, beyond which is Sherman Hill Road, where a few residences and the Sherman Hills residential development are located. A wetland area abuts the southeast corner of the Laydown Site, a portion of which protrudes into the field, although not part of the area to be leased. The Laydown Site is bounded directly to the west by New York State Route 22.

The vegetative communities of upland habitats occurring on the site and wetland habitats occurring adjacent to the site were characterized based on an on-site survey conducted on May 13, 2010. In order to obtain additional information regarding the Laydown Site's physical setting, available mapping and secondary sources were consulted. Characterization of existing conditions at the Laydown Site is provided below.

3.2.6.1 Vegetative Communities

Based on the cover type classification contained in Ecological Communities of New York State (Edinger et al., 2002) the Laydown Site contains cultural and terrestrial communities, while palustrine wetland communities are located immediately adjacent to the site, as shown on Figure 3-8.

Cultural systems include habitats created or maintained by human activities, including croplands, orchards, lawns and plantations. The ecological habitat identified on Figure 3-8 as Terrestrial Cultural (TC) represents active agricultural lands, the predominant cover type on the Laydown Site. At the time of the May 2010 site reconnaissance survey, a mature, dense monoculture of cereal rye (*Secale cereale*) was present in the majority of this area. Bordering the rye were unvegetated field areas that appeared to have been recently plowed and contained remnants of corn (*Zea* sp.), including leaves, stems and ears with partial kernels.

On the western border of the Laydown Site is a shrub row corridor of Successional Southern Hardwoods (SSH). This habitat type occurs on sites that have been historically cleared or otherwise disturbed. Vegetative species found in this area are listed in Table 3-5.

Table 3-5. Successional Southern Hardwood Community at the Laydown Site

Common Name	Latin Name
Tree Canopy	
Sugar Maple	<i>Acer saccharum</i>
Black Cherry	<i>Prunus serotina</i>
American Elm	<i>Ulmus Americana</i>
White Ash	<i>Fraxinus Americana</i>
Common Buckthorn	<i>Rhamnus cathartica</i>
Shrub Canopy	
Multiflora Rose	<i>Rosa multiflora</i>
Japanese Barberry	<i>Berberis thunbergii</i>
Flowering Dogwood	<i>Cornus florida</i>
Understory	
Virginia Creeper	<i>Parthenocissus quinquefolia</i>
False Solomon Seal	<i>Smilacina racemosa</i>
Jack-in-the-Pulpit	<i>Arisaema triphyllum</i>
Oriental Bittersweet	<i>Celastrus orbiculata</i>
Common Blue violet	<i>Viola papilionacea</i>
Ebony Spleenwort	<i>Asplenium platyneuron</i>
Garlic Mustard	<i>Alliaria petiolata</i>
Sensitive Fern	<i>Onoclea sensibilis</i>
Woodfern Species	<i>Dryopteris</i> sp.

Adjacent to New York State Route 22, at the transition of the vegetative community from SSH to TC, a narrow corridor consisting of a shrub forb mix included multiflora rose, garlic mustard, goldenrod species, mugwort (*Artemisia vulgaris*), staghorn sumac, and fragrant bedstraw (*Galium triflorum*) was found.

Also shown on Figure 3-8 are offsite wetland communities identified immediately adjacent to the Laydown Site, including a red maple-hardwood swamp (RM-HS) pocket, which protrudes into the cultivated field, two shallow emergent marsh (SEM) areas, and a shrub swamp (SS) corridor connecting the RM-HS area to the southeastern SEM marsh. Because of their size and isolated nature, none of these wetlands would be NYSDEC-jurisdictional; therefore, no jurisdictional Adjacent Area extends onto the Laydown Site.

3.2.6.2 *Wildlife Habitat*

Most of the animal species identified as potentially occurring on the project site in Tables 3-2 through 3-4 would also be potentially occurring on the Laydown Site. Specific species observed during the May 13, 2010 reconnaissance survey of the Laydown Site are listed in Table 3-6.

Table 3-6. Animal Species Observed at the Laydown Site

Common Name	Latin Name
<i>Birds</i>	
Red-tailed Hawk	<i>Buteo jamaicensis</i>
American Goldfinch	<i>Carduelis tristis</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Common Grackle	<i>Quiscalus quiscula</i>
Barn Swallow	<i>Hirundo rustica</i>
<i>Amphibians</i>	
Green Frog (Vocalization)	<i>Lithobates clamitans</i>
<i>Mammal</i>	
Raccoon (Footprints)	<i>Procyon lotor</i>
Whitetail Deer (Hoof-prints)	<i>Odocoileus virginianus</i>

The project consulted with the USFWS and the NYSNHP in July and August 2010, respectively, regarding protected species likely to occur in the Laydown Site. Records documenting occurrences of the timber rattlesnake, bog turtle, and New England cottontail were returned, as well as a Red Cedar Rocky Summit community.

3.2.6.2.1 Timber Rattlesnake

The NYSNHP indicated that there are two documented occurrences of the species “on or in very close proximity” to the Laydown Site, and three additional documented occurrences within 1.5 miles. Further consultation with NYSDEC indicated that four timber rattlesnake den sites are known to occur within one-half mile of the proposed Laydown Site. As described in Section 3.2.5, timber rattlesnakes are generally found in deciduous forests in rugged terrain, and gravid females prefer open, rocky ledges. While the Laydown Site is bordered by mountains providing such habitat to the east and west, there is none within the site itself. Occurrences of the timber rattlesnake would likely be limited to foraging individuals, during their active season of mid-May to mid-October. In December 2010, TES performed a habitat assessment of the Laydown Site (Appendix 3-C). The assessment confirmed that no denning or basking/gestating habitat occurs on the Laydown Site and that the Laydown Site is not considered to represent a critical foraging habitat for timber rattlesnakes. However, the assessment noted that because the known den sites are within the distance traveled by timber rattlesnakes, and because they are known to use a variety of habitat types throughout the active season, there is potential for the occurrence of timber rattlesnakes within the proposed Laydown Site during April through October. Mitigation measures will include educating construction crews on timber rattlesnake identification and providing contact information for the NYSDEC Region Wildlife office and an area nuisance timber rattlesnake responder, and installing temporary barriers made of cloth mesh around the construction area, designed to discourage snakes from entering the site.

3.2.6.2.2 Bog Turtle

The NYSNHP indicated that a single documented occurrence of the species within 1 mile of the Laydown Site. As described in Section 3.2.5, bog turtles prefer habitat with cool, shallow, slow-moving water, deep soft muck soils, and tussock-forming herbaceous vegetation. The turtle is generally found in open, early successional types of habitats such as wet meadows or open calcareous boggy areas generally dominated by sedges or sphagnum moss. While portions of the Laydown Site are bordered by perennial emergent wetlands, these habitats were dominated by vegetated overstories or invasive species, and are not considered to be suitable habitat for the bog turtle.

3.2.6.2.3 New England Cottontail

The New England cottontail rabbit, a state species of special concern and a federal candidate species, inhabits open woods, shrubby areas, fence rows, thickets and marshes. The NYSNHP indicated that an historical occurrence of the species was documented in July, 1968 on West Mountain, which is located approximately 500 feet west of the Laydown Site. Potential impacts to this species will be mitigated by use of temporary barriers around the site designed to discourage cottontails from entering the site.

3.2.6.2.4 Red Cedar Rocky Summit

The NYSNHP indicated that an occurrence of the Red Cedar Rocky Summit community is documented approximately 0.2 mile south of the Laydown Site. The NYSNHP notes that, while the community is not listed as endangered or threatened by the state or federal government, it is considered to have high ecological and conservation value.

3.3 Project Related Impacts and Mitigation Measures

This section addresses the impacts of the construction and operation of the project on natural resources. During the design process for the project, the following primary goals were identified:

- Avoid wetland impact wherever possible;
- Avoid NYSDEC jurisdictional wetland Adjacent Area impact wherever possible;
- Utilize the existing developed footprint and other previously disturbed areas to the greatest extent possible;
- Minimize clearing of forested areas to the greatest extent possible;
- Avoid substantial earth movement where possible; and
- Maintain practical technical equipment orientation to facilitate construction and operations in an efficient, safe and least-impact manner.

As such, the project has been designed to be compatible with the site's environmental resources and surrounding land uses, and the Project Development Area has been limited to the portion of the Property that has largely been altered due to past industrial uses. As previously discussed, the Project Development Area has a long history of industrial use; numerous dilapidated, vacant industrial structures and associated debris are currently located in that area.

3.3.1 Wetland and Adjacent Area Impacts

In order to minimize disturbance of natural resources, all project activities will occur east of the active railroad track. The current orientation of facility components was selected in order to utilize the existing driveway, minimize wetland intrusion, and keep equipment aligned to ensure safe, efficient operation and to facilitate maintenance. Alternate project configurations were considered to achieve these goals, as described below.

The orientation of facility components as shown in Figure 1 in Appendix 3-D (Drawing M200, Rev. B) was selected in order to use the existing driveway, minimize wetland intrusion, keep equipment aligned to ensure safe and efficient operation and to facilitate

maintenance, and to position louder equipment (for example, the air cooled condensers that include numerous fans) to the south and west of the site, away from residences. The initial configuration was based on a field estimate of wetland boundaries.

A significant ancillary project element is the project substation, described in Section 1.5.10. Although the cost of a gas insulated switchgear (GIS)-style substation/switchyard is \$10-20 million more than the cost of a conventional design, wetland impact considerations resulted in selection of the more expensive GIS switchyard due to the substantial reduction (over 5 acres) in size, much of which would have occurred within Wetland 1 (approximately 1.24 acres of the 1.7 acre wetland).

During the design process the surveyed wetland boundaries were overlain on the proposed site plan, and other ancillary elements (e.g., the detention basin, gas pipeline interconnection, and Consolidated Edison Company of New York [ConEd] substation, integrated into the project substation/switchyard and also incorporating GIS design at significant cost in order to reduce footprint) were added (see Figure 2 in Appendix 3-D, Drawing M200, Rev. F). This shift resulted in a slight reduction to impact in the Wetland 2 Adjacent Area (later determined to be part of Wetland 2). Additional work continued towards minimizing the footprint needed for features such as the GIS substation and the detention basin.

Under direction from the NYSDEC, the delineated boundary of Wetland 2 includes a flooded former swale where historical uses of the site had adversely impacted the natural habitat. With this narrow finger-like area included in the wetland designation, impact to this area by the project footprint could not be avoided. Consideration for shifting the footprint or moving project elements to avoid impact to the narrow southern tip of Wetland 2 (see Figure 3-7) continued, as follows:

- The footprint was shifted south to the extent possible given southern property line constraints;
- The administration/warehouse buildings were relocated to the eastern edge of the Project Development Area from the northwest edge of the Project Development Area where it was proximate to Wetland 2;
- Further reductions were made in the size of the combined project/ConEd switchyard and substation;
- Slopes were reduced in areas near wetlands to minimize grading effects; and
- Various configurations with the potential to reduce the size of the stormwater detention basin were considered but rejected due to project layout constraints and design needs

Figure 3 in Appendix 3-D (C130 Rev A) depicts the next iteration of project design which further minimized wetland impacts by reconfiguring facilities away from Wetland 1 and Adjacent Areas and reducing the size and shape of the stormwater detention basin at the southeastern corner of the site. The currently proposed design (Figure 4 in Appendix 3-D (M200 Rev S)) depicts further reconfiguration of the stormwater detention basin (wet extension pond) and the incorporation of three bioretention facilities designed to provide quantity controls by attenuating stormwater runoff and releasing runoff to off-site locations at a rate equal to or less than that which existed prior to development of the site.

While the extent of change to the site and its surroundings has been minimized by design, some impacts to the surrounding natural resources will occur as a result of project construction and operation. Table 3-7 and Figure 3-9 summarize the type and amount of impacts to each ecological community.

Table 3-7. Summary of Impacts to Ecological Communities in the Project Development Area

Cover Type Classification	Location on Site	Approximate Total Area (acres)	Areas Impacted by Project (acres)		
			Temporary	Permanent Alteration	Permanent Loss
Reedgrass/purple loosestrife marsh (jurisdictional)	Wetlands 2, 3B, intermittent stream	8.8	0.6 ¹	0.0	0.0 ¹
Reedgrass/purple loosestrife marsh (non-jurisdictional)	Wetland 1, 3A	2.2	0.0	1.5	0.2
Successional red cedar woodland	Eastern upland portion of Site, and in southwest corner	23.5	0.7	5.9 ²	4.7
Successional southern hardwoods	Northwestern corner of Site and north of Site access road	3.9	0.1	0.4 ³	0.1
Rural structure exterior/Mowed lawn with trees, with Paved road/path, and Unpaved road/path	Previously disturbed industrial footprint	18.6	0.0	0.7 ⁴	16.9

¹Includes wetland restoration area; 0.05 acres lost will be replicated.

²Includes conversion of current forest to shrub/scrub in Con-Edison right of way and Project Development Area, as well as installation of bioretention ponds.

³Includes conversion of current forest to shrub/scrub and installation of bioretention ponds.

⁴Includes installation of bioretention ponds and restoration of native forest communities

In order to limit soil erosion and potential sedimentation of on-site wetlands during construction, all project activities will operate in accordance with the design and practices set forth in the Stormwater Pollution Prevention Plan (SWPPP) described in Section 5.6. With the proper installation and maintenance of erosion control barriers and other control measures, the extent of any indirect impacts from erosion and sedimentation should be minor to non-existent.

Following construction completion and final grading, permanent erosion and sediment control measures will be installed in accordance with the SWPPP. As part of the SWPPP, stormwater structures will be designed and installed to control and/or contain a 100-year storm event using a system of catch basins, bioretention ponds, and a detention basin. Due to the age of the construction of the current buildings, it is unlikely that such a system was implemented in the past. Although the proposed project will result in a 15 percent increase to the square footage of developed area, the stormwater management design will ensure that stormwater runoff from the project will not have an adverse impact on the surrounding wetlands (discussed further in Section 5.6).

Groundwater pumping from on-site bedrock wells for process water will occur once construction is complete. As discussed in Section 5.4, pump tests conducted in 2010 showed that the anticipated rate of groundwater extraction for the proposed facility will not have an adverse impact on area groundwater levels.

3.3.1.1 Wetland 1

Project construction will result in the permanent alteration of 1.5 acres and loss of 0.2 acre of Wetland 1, which is not USACE- or NYSDEC-jurisdictional and, therefore, has no associated Adjacent Area. As discussed in Section 3.2.2.1, Wetland 1 is an approximately 1.7 acre emergent wetland dominated by reedgrass, with patches of dominant scrub/shrub vegetation, transitioning into a fringe of forested wetlands dominated by gray birch. Approximately 1.5 acres of this wetland will be converted into maintained shrub/scrub wetland, due to the presence of overhead utility lines.

Wetland 1 is classified as a reedgrass/purple loosestrife marsh, which is assigned to wetlands that have been disturbed by draining, filling, road salts, etc. in which reedgrass or purple loosestrife has become dominant (Edinger et al., 2002). As such, the wetland holds minimal value as wildlife habitat, and its primary function is the storage of stormwater and subsequent recharging of the groundwater table, as well as sediment retention. Although portions of on-site wetlands will be lost or permanently altered, the installation of three bioretention ponds (totaling 1 acre) and a stormwater detention basin (totaling 1.25 acres)

as part of the implementation of the stormwater management plan (see Section 5.6) will function in replacement of these lost areas.

CVE will replant areas between the project footprint and non-jurisdictional Wetland 1 with the native species and at a planting density proposed for the Wetland 2 Adjacent Area replanting described below, to further protect this non-jurisdictional wetland.

3.3.1.2 Wetland 2

Construction activities will result in permanent loss of 0.05 acre of Wetland 2, although, this amount of wetland will be replicated as described in Section 3.3.1.3 below. Approximately 0.8 acre of the associated Adjacent Area of Wetland 2 will be lost, and an additional 0.4 acre will be permanently altered due to waste excavation and restoration; this area is included in Table 3-7 under the covertypes “rural structure exterior/mowed lawn with trees, with paved road/path, and unpaved road/path” and “southern successional hardwoods.” As discussed in Section 3.2.2.2, Wetland 2 is an approximately 8.7 acre emergent wetland dominated by reedgrass in the central and southern portions and cattail in the northern portion, with two patches of scrub/shrub vegetation on the eastern and northern sides, respectively. Wetland 2 transitions into a forested wetland, dominated by silver maples, along the upland/wetland boundary.

Wetland 2 is classified as “reedgrass/purple loosestrife marshes,” which is assigned to wetlands that have been disturbed by draining, filling, road salts, etc. in which reedgrass or purple loosestrife has become dominant (Edinger et al., 2002). As such, the wetland holds limited value as wildlife habitat, and its primary function is the storage of stormwater and subsequent recharging of the groundwater table, as well as sediment retention. Although portions of on-site wetlands will be lost or permanently altered, the installation of three bioretention ponds (totaling 1 acre) and a stormwater detention basin (totaling 1.25 acres) as part of the implementation of the stormwater management plan (see Section 5.6) will function in replacement of these lost areas, although this is not considered to be mitigation for wetland loss or alteration.

As part of the project’s demolition and clean-up phase (see Section 2.3.1), industrial waste will be excavated from a 0.6-acre portion of Wetland 2 which lies directly to the north of the Project Development Area (see Figure 3-10). As discussed in Section 3.2.1, the existing wetland has been partially filled by a tan or yellow mucky sawdust material, and is bordered by piles of white, chalky slag material as well as general debris. The area has been heavily colonized by reedgrass, an invasive nonnative species. Standard excavation techniques and equipment, consistent with those used for project construction, will be employed to

remove the waste piles and wetland deposits. This disturbance will be temporary in nature, and will contribute to enhanced wetland functioning.

CVE has prepared a Wetland Mitigation and Restoration Plan for these two areas of Wetland 2 as described below and as further described in Appendix 3-E. While the plan is subject to NYSDEC approval, it will conform to the minimum “no net loss” policy.

3.3.1.3 Wetland Restoration and Creation Plan

To compensate for the permanent loss of 0.05 acre of NYSDEC- and USACE-regulated wetland (Wetland 2) and the loss of 0.8 acres of Adjacent Area, as well as temporary disturbance to approximately 1 acre of Adjacent Area, CVE is proposing a Wetland Restoration and Creation Plan. The area is defined as Wetland Restoration Work Area 2A (W-2A) (see Appendix 3-E).

Wetland Restoration Work Area 2A is a funnel-shaped section of the Wetland 2 comprised of both regulated freshwater wetland and Adjacent Area. Area W2-A is located in the southern portion of Wetland 2.

The proposed Wetland Restoration and Creation Plan includes restoring 0.6 acre of wetland and approximately 1 acre of Adjacent Area in W2-A, and creating 0.05 acre of new wetland. The Wetland Restoration and Creation Plan involves the following activities:

- The creation of an Open Water area within the southernmost portion of Wetland 2 by excavation of non-native sediment, approximately 0.6 acres in size. The Open Water area will be allowed to revegetate.
- The creation of 0.05 acres of new wetland by extending the existing wetland limits to the east and west of the Open Water area. This area will be seeded and allowed to revegetate.

As a result of the newly created 0.05 wetland area, there will be no net loss of jurisdictional wetland.

In addition to the wetland restoration and creation, restoration activities within the Adjacent Area include the following:

- Restoration and replacement of 0.4 acres of Adjacent Area due to the excavation of waste material.

- Restoration and replanting of approximately 0.6 acres of Adjacent Area that may be temporarily disturbed due to facility construction as well as around the bioretention basins. These areas will be planted with native tree/shrub species.
- Selective replanting of Adjacent Area between the proposed limits of construction ground disturbance and Wetland 2 (approximately 1.8 acres). Areas that are not currently densely vegetated will be selectively planted with appropriate tree/shrub species.

Further details regarding the various planting and hydrologic zones and proposed plant species are provided in Appendix 3-E.

3.3.1.4 Wetland 3

No construction activities will occur within Wetland 3.

3.3.1.5 Wetlands 4 and 5

No construction activities will occur within Wetlands 4 or 5, or their associated Adjacent Areas.

3.3.1.6 Intermittent Stream

Minimal disturbance to the jurisdictional intermittent stream in the southwest corner of the site will occur as a result of installation of the stormwater detention basin. In order to prevent erosion at the basin's outlet into the intermittent stream, rip-rap (rock material) will be installed in an area totaling approximately 135 square feet. This small area of rip-rap is not anticipated to alter the flow of water or the function of the intermittent stream, and additional temporary disturbance to the area during construction will be limited to approximately 40 square feet.

3.3.2 Vegetative Clearing

The amount of vegetative clearing has been minimized by project design which takes advantage of the previously disturbed industrial footprint to the extent possible, minimizing permanent conversion of existing vegetated communities to developed areas. The project will convert 8.5 acres of forested or disturbed communities to actively maintained, diverse habitats of native shrub/scrub and/or wetlands species, and restore 0.6 acre of currently degraded wetlands, as shown on Figure 3-9.

All components of the project, including access roads, stormwater management features, and the facility itself have been designed to utilize the existing disturbed footprint to the greatest extent possible. Construction corridors not located within previously disturbed areas will be minimized to the extent possible through use of construction mats, and ground disturbance and subsequent vegetative impacts are anticipated to be limited and temporary. All non-structural portions of the project will be vegetated, landscaped or otherwise stabilized upon completion. A permanent buffer of undisturbed forested land will be maintained between the project structures and New York State Route 22. Temporarily disturbed areas will be allowed to revegetate with local plant species, where project design allows.

Impact to the vegetation in the Project Development Area will be a direct result of land vegetative clearing. The impacts to ecological communities due to the clearing of a utility easement to the adjacent ConEd right-of-way will directly result in insignificant forested habitat loss and potential habitat fragmentation. Except for the permanent installation of structures (i.e., poles, see below), these right-of-way areas will be allowed to revegetate with low-growing species following construction.

As shown in Table 3-7, and on Figure 3-9, approximately 4.7 acres of successional red cedar woodland and 0.1 acre of successional southern hardwoods will be permanently cleared as part of the project construction. Approximately 0.7 acre of successional red cedar woodland and 0.1 acre of successional southern hardwoods will be temporarily cleared for project construction, but allowed to completely revegetate upon construction completion. Approximately 5.9 acres of successional red cedar woodland and 0.4 acre of successional southern hardwoods will be permanently altered from forest communities to maintained habitats in bioretention ponds or scrub/shrub habitat, including approximately 1.3 acres located within the ConEd right-of-way. An additional 0.7 acre of the former industrial footprint will be restored to functioning wildlife habitat, as native woodlands, maintained scrub/shrub, or bioretention ponds.

The clearing of the proposed easement for the electric interconnect will fragment areas of contiguous forested vegetation. However, the interconnect route was selected to minimize clearing of forested communities by locating the right-of-way at the closest point to the ConEd right-of-way. Once the easement is constructed and operating, regular maintenance will be required within the easement to ensure that vegetation does not interfere with the electrical transmission interconnect. The easement will be subject to regular cutting of tree saplings to limit the height and type of vegetation.

Three bioretention ponds, also known as rain gardens, are proposed within the Project Development Area as part of the final stormwater system design. Approximately half of the 1 acre area needed for these ponds would be developed from successional red cedar woodland, and the other half is currently successional southern hardwoods and former industrial disturbance. While the conversion of these forested areas would result in some alteration of forest habitat, the creation and maintenance of additional wetland communities would result in additional diversity of habitats within the Project Development Area. This conversion is not considered a loss of habitat, but a permanent alteration of existing habitats, and is therefore included under “Permanent Alteration” column in Table 3-7.

Erosion and sedimentation will be minimized by practical construction techniques and control measures, as discussed in the SWPPP (see Section 5.6). With the proper installation and maintenance of erosion control barriers and other control measures, the extent of any indirect impacts from erosion and sedimentation should be minor to non-existent. During project operation, the stormwater management system, coupled with the landscaping program, will ensure that erosion and sedimentation is minimized.

Upon construction completion and establishment of permanent vegetative cover, no additional impacts to or loss of ecological communities will occur, aside from ongoing vegetation management as required by final project design standards.

3.3.3 Potential Wildlife and Habitat Impact

During construction of the project, wildlife currently utilizing the Project Development Area would temporarily be displaced. Once the project is operational, wildlife would be expected to return to undeveloped portions of the Project Development Area. Since most of the Project Development Area occurs in a previously disturbed industrial area, most of the wildlife habitat to be disturbed is not significant residence or shelter/nesting/cover habitat. Therefore, no significant habitat areas will be lost as a result of the project. Impact to wildlife and wildlife habitat will primarily occur through vegetative clearing associated with the project. As shown in Table 3-7 and on Figure 3-9, the permanent loss of 4.8 acres of forested habitat, less than 0.3 acre of wetlands, and the permanent conversion of 6.3 acres of forested habitat to scrub/shrub or bioretention pond habitat, is minor given the size of the project, the adjacent undeveloped land available, and the nearly 100 acres of the Property which will remain undisturbed.

Since large areas adjacent to the project are comprised of similar habitat to that which will be impacted, it is expected that overall impacts to these species will be minimal and limited to the immediate construction area. Further, no rare, threatened, or endangered species

would be displaced from the Project Development Area, and seasonal restrictions on clearing will be imposed to avoid potential impact to Indiana bat habitat.

Potential impacts to eastern hognose snakes and timber rattlesnakes will be minimized by developing the project in areas that have largely been previously disturbed by industrial activity. Additional mitigation measures will include educating construction crews on eastern hognose snake and timber rattlesnake identification and providing contact information for the NYSDEC Region Wildlife office, and installing temporary barriers made of cloth mesh around the construction area. Finally, perimeter fencing will be installed around the project footprint that will be designed to prohibit snakes from entering the project area.

Potential direct impacts to bog turtles will be minimized as impact to bog turtle habitat will be avoided. Indirect impacts will also be insignificant. As discussed in detail in Section 5, proposed groundwater withdrawals will not have an appreciable effect on the hydrology of onsite or offsite wetlands, or the Swamp River. Further, a detailed stormwater management plan has been developed using state-of-the-art techniques to protect water quality. Finally, construction crews and permanent workers will be educated on bog turtle identification and provided contact information for the NYSDEC Region Wildlife office in the event of an unanticipated encounter.

For these reasons, none of the species listed in Section 3.2 as potentially occurring on or near the Project Development Area would be significantly and adversely affected by the proposed land clearing.

Since no work is planned within the designated Great Swamp CEA, wildlife which utilizes this resource will be minimally affected during construction and continuing operation. Previously identified bird, mammal, reptile and amphibian species of conservation concern that could potentially occur on the Property or in the vicinity of the project are generally mobile and likely only to use portions of the Project Development Area for limited habitat requirements.

Noise impacts from construction would be temporary and generally limited to daytime. Area wildlife that may be temporarily displaced by construction noise will utilize the adequate adjacent undisturbed habitat until they grow accustomed to the noise levels. The more consistent noise of construction during daylight hours should not prove detrimental to the value of the adjacent Great Swamp as wildlife habitat, and would be limited to the three-year construction period. Operation of the project will result in a minor long-term increase of ambient noise levels in the vicinity, which is not expected to significantly alter wildlife

behavior. Section 6.4 provides a more detailed discussion on noise impacts during construction and operation.

Air quality impacts during construction will be limited to dust during excavation and small quantities of air emissions from construction machinery and vehicles. Emissions of dust would depend on such factors as soil properties (e.g., moisture content, volume of spoils, and soil silt content), meteorological variables, and construction practices employed. Dust levels during construction will be controlled by use of water or other wetting agents on exposed and dry soil piles or storage areas, use of covered trucks for transporting dry soils or other materials, controlled storage of spoils on the construction site, and stabilization of exposed soils as soon as possible.

As discussed in Section 4, operation of the project will not cause or contribute to exceedances of the National Ambient Air Quality Standards. In addition, through displacement of older, less efficient and higher emitting generating facilities, the project will result in a net air quality benefit to the region. Further, as discussed in Section 4, air quality impacts will be below screening levels established by the United States Environmental Protection Agency to ensure protection of vegetation and soils. As a result, no significant air quality impact to plant or animal species would be expected to occur.

For security and safety purposes, the project will require minimum illumination during normal operation throughout the night. Low-impact, downward-facing lights have been selected to minimize light pollution in the surrounding areas (see Section 6.2). As a result, no significant disturbance to wildlife species would be expected to occur.

Perimeter fencing will be installed around the project to prevent wildlife from entering the developed portions of the site. The perimeter fence will be 8 to 10 feet high. The bottom of the fence will be designed to discourage snakes and other small species from entering the site. Larger and/or less mobile animals will be discouraged from crossing over the fence and will likely remain outside the developed portion of the site, as intended, and continue to utilize the existing undeveloped habitats. Special training will be provided to construction crews and operations personnel regarding identification of protected species, and contact information will be provided in the event of a sighting.

3.3.4 Laydown Site

Impacts to the Laydown Site, a 35-acre agricultural field located to the north of the Project Development Area, are anticipated to be temporary in nature and limited to the 36-month construction period. As discussed in Section 2.3.4, the main activities proposed for this

parcel are the temporary removal of agricultural plantings and topsoil in order to accommodate daily parking of construction workers' personal vehicles and possible storage of heavy equipment and building materials, and the subsequent restoration of the Laydown Site.

In order to prepare the Laydown Site, a driveway through the narrow strip of forested land will be cleared on the western edge of the agricultural field to provide direct access to New York State Route 22, and the existing topsoil will be removed. It is unclear at this time whether fill will be necessary to facilitate this use. The soils at the Laydown Site have been classified by the United State Department of Agriculture as "prime farmland." To preserve this important agricultural resource, all soils will be removed, temporarily stockpiled, and ultimately restored according to guidelines established for such activities by the New York State Department of Agriculture and Markets and the NYSDEC. A SWPPP will be developed for the Laydown Site and will take into account these guidelines when designing erosion controls. A Conceptual Stormwater Report for the Laydown Site is described in Section 5.6 and in Appendix 5-B.

The Laydown Site will be prepared according to a timeline similar to the Project Development Area. During the clearing and use of the area, stormwater management controls will be installed and maintained according to designs and methods set forth in the SWPPP. No permanent impacts to the adjacent wetlands or agricultural fields are anticipated.

During its use, the Laydown Site will likely be surrounded by an 8 to 10 foot chain-link fence for security and public safety reasons. The bottom of the fence will be designed to discourage snakes and other smaller species from entering the site. Larger and/or less mobile animals will be discouraged from crossing over the fence and will likely remain outside the developed portion of the site, as intended, and continue to utilize the existing undeveloped habitats. The use of a cloth barrier along the western boundary of the site will also be used to form a temporary barrier to the timber rattlesnake which could enter the site during their active season (April through October). As noted in Section 3.2.6.2.1, special training will be provided to construction crews, and contact information will be provided in the event of a rattlesnake sighting.

Upon completion of the construction of the project, the Laydown Site will be restored to a condition similar to its original state. Any imported fill will be removed, and the stockpiled topsoil will be replaced at the approximate original depth (to be determined during a proposed pre-leasing subsurface investigation). The access driveway to New York State Route 22 will be replanted if necessary, and allowed to naturally re-vegetate. It is

anticipated that the owner of the parcel will continue to utilize the land for agricultural purposes. A two-year monitoring plan will be implemented to evaluate the Laydown Site's return to its existing condition.

3.4 Conclusions

The preservation of the ecological communities in the vicinity of the proposed project has been an integral goal during the design process. The project has been designed to be compatible with the Property's environmental resources and surrounding land uses to the greatest extent possible. Project design has taken advantage of the previously disturbed and currently unused industrial footprint, such that direct impacts to natural resources, have been minimized, and nearly 100 acres of the 131-acre parcel, including the entire portion west of the railroad tracks, will remain undisturbed during the construction and operation of the project.

The extent of change to the Project Development Area and its surroundings has been minimized by design; for example, a GIS substation/switchyard was selected for installation instead of an air switchyard and substation, at the additional cost of \$10-20 million. This selection will reduce built area by over 5 acres, much of which would have occurred in wetland or Adjacent Area. Nevertheless, some impacts to the surrounding natural resources will occur as a result of project construction. Total loss of wetland areas, comprised of Wetlands 1, 2, and the intermittent stream, is less than 0.3 acre, of which 0.05 acre would occur in NYSDEC- or USACE-jurisdictional wetlands. Total permanent loss of non-wetland vegetated areas, currently existing as successional cedar woodlands and successional southern hardwood forests, is 4.8 acres. In addition to these losses, approximately 6.3 acres of forested habitat will be permanently altered, converted to scrub/shrub or bioretention pond habitat, resulting in a greater diversity of habitat.

On-site wetlands losses will be mitigated by creating 0.05 acre of new wetland and restoration of approximately 0.6 acre of degraded wetland and 1 acre of Adjacent Area at the southern tip of Wetland 2. As shown in Figure 3-10, the southern tip of Wetland 2 is a highly degraded emergent marsh where significant dumping of industrial waste and general debris has occurred. The portion of the Wetland 2 closest to the planned project footprint has been heavily colonized by reedgrass, an invasive species, and holds very little value as wildlife habitat. Proposed restoration actions include the removal of all industrial waste from the area, excavation of non-native sediment from the previously impacted portion of Wetland 2, and creation of new open water area. Additionally, CVE proposes to restore 0.4 acre of Adjacent Area by excavating previously deposited waste materials, regrading and replanting. CVE will replant an additional 0.6 acre of wetland Adjacent Area following

temporary disturbance due to construction of the facility and the bioretention areas. Finally, a 1.8 acre portion of Adjacent Area will be selectively replanted with woody vegetation in areas not currently densely vegetated.

The goal of the wetland restoration and creation plan is to establish a diverse wetlands area with an enhanced, highly functioning wildlife habitat, which can be maintained with minimal control of invasive species. By taking advantage of a previously developed industrial site, minimizing encroachment on non-developed areas, incorporating state-of-the-art stormwater design features such as bioretention ponds, removing historically dumped solid waste and debris and restoring a significantly degraded wetland resource, the project will not have a significant adverse effect on natural resources.

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**Draft Environmental
Impact Statement**

Cricket Valley Energy Project – Dover, NY

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